

LEARNER PATHWAYS

by Workforce Development Council



**NEW ZEALAND POLICY
RESEARCH INSTITUTE**
TE KĀHUI RANGAHAU MANA TAURITE

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RINGA HORA
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Disclaimer:

Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Data and Statistics Act 2022. The results presented in this study are the work of the author, not Stats NZ or individual data suppliers.

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) and Longitudinal Business Database (LBD) which are carefully managed by Stats NZ. For more information about the IDI or LBD please visit

<https://www.stats.govt.nz/integrated-data/> .

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Executive Summary

The role of the Workforce Development Councils (WDCs) is to ensure that New Zealand's vocational education and training (VET) system aligns well with the needs of industries while also amplifying the voices of Māori business and iwi development. This study's aim is to quantify the labour market impact of a VET post-school qualifications (below a Bachelor's). We follow a cohort of learners who graduated in 2012 with a post-school qualification ranging between Level 1 and 7 (excluding Bachelor's degrees) and examine their employment and earnings trajectories in the subsequent ten years. We make use of Stats NZ's Integrated Data Infrastructure (IDI) that holds a rich body of administrative and non-government related information, including qualification-related information provided by the Ministry of Education and labour-market-related information provided by Inland Revenue.

To identify the population of interest for our analysis, the WDCs provided a concordance table linking an extensive list of relevant New Zealand Standard Classification of Education (NZSCED) codes to their particular WDC and further, to selected sub-groups within their sector. This determines the relevant pool of learners we examine in our longitudinal analysis. Furthermore, we use Australian and New Zealand Standard Industrial Classification (ANZSIC) codes provided by the WDCs to identify industries that are related to the learner's qualification. Our final sample consists of 110,262 learners graduating in 2012, spread across six WDCs.

The key findings are described below (all earnings figures are in 2022 \$):

1. Demographic characteristics (e.g., gender, age, ethnicity) vary substantially between the WDCs. Example: The share of male learners is much lower for Ringa Hora (36%), Toi Mai (43%) or Toitū te Waiora (35%) compared to Hanga-Aro-Rau (73%) and Waihanga Ara Rau (also 73%) .
2. The distribution of the learners' qualification levels varies substantially by sub-groups, with some sub-groups dominated by one qualification level and others more evenly spread across Levels 1-7. Example: 88% of the learners of the Hanga-Aro-Rau sub-group Logistics have a Level 3 qualification; but in the neighbouring sub-group Manufacturing, 33% have a Level 1, 32% a Level 2, 18% a Level 3 and 10% a Level 4 qualification.
3. Most learners of the 2012 cohort had received a qualification in the five years prior and many went on to receive a further qualification. Example: 63% of learners in the sub-group Agriculture (Muka Tangata) have a previous qualification and by 2014, 43% have a further qualification.
4. The uptake of further qualifications varies substantially by sub-groups. Example: 59% of Travel & Aviation learners (Ringa Hora) have another qualification by 2021, but only 21% of Real Estate & Rental (Ringa Hora) do the same.

5. Higher qualification levels are positively associated with labour market returns – in terms of higher earnings from wages and salaries and lower benefit reciprocity. *Example:* Two years after completing their post-school qualification, the learners of Waihanga Ara Rau’s sub-group Infrastructure had mean annual earnings of \$54k for those who obtained a Level 2 qualification, \$62k for a Level 3 qualification, \$70k for a Level 4 qualification, and \$84k for a Level 5 qualification.
6. The relevance of self-employment as an income source varies strongly by WDC and between the sub-groups. *Example:* In 2014, 6% of Toi Mai’s learners received income from self-employment, while the comparable number was 11%, almost double, for Waihanga Ara Rau’s learners.
7. Labour market outcomes with respect to employment, earnings and benefit reciprocity differ by gender. On average, male learners have higher employment rates, receive higher earnings, and have lower benefit reciprocity compared to female learners. *Example:* Two years after completing their post-school qualification, the Level 2-4 male learners of Toitū te Waiora’s sub-group Community had mean annual earnings of \$73k, while the comparable number for female learners was \$36k. Note that the gender disparities differ by WDC.
8. Employment in a related industry is often associated with higher earnings compared to employment in a non-related industry. However, for most WDC sub-groups, a challenge is the low share of learners identified as employed in a related industry. *Example:* For Level 2-4 learners of Hanga-Aro-Rau’s sub-group Engineering, two years after completing of their post-school qualification, the mean earnings were \$66k when employed in a related industry and \$58k when employed in a non-related industry. Of further interest is that only about 20% of the learners in this sub-group are employed in a related industry.
9. Labour market outcomes differ by ethnicity within the same WDC sub-groups. On average, learners of European ethnicity have higher employment rates, receive higher earnings, and have lower benefit reciprocity compared to Māori and Pacific. *Example:* The employment rate two years after completion of a Level 2-4 qualification in Ringa Hora’s sub-group Business, Finance & Industry Support was 84% for Europeans, 66% for Māori and 72% for Pacific.

Contents

| | | |
|-----|---|----|
| 1 | Introduction | 1 |
| 2 | Data..... | 4 |
| 2.1 | Defining our population of interest | 4 |
| 2.2 | Qualification profile | 8 |
| 2.3 | Defining labour market outcomes | 9 |
| | Benchmarking against those with no PSQs | 10 |
| | Subpopulation analysis | 10 |
| 3 | Descriptive Profile Across WDC Sectors | 11 |
| 4 | Hanga-Aro-Rau..... | 15 |
| 4.1 | Descriptive profile by industry sub-group | 15 |
| 4.2 | Qualification profile by industry sub-group | 17 |
| 4.3 | Labour market trajectories by sub-group | 22 |
| | Engineering | 24 |
| | Logistics..... | 30 |
| | Manufacturing | 36 |
| 5 | Muka Tangata | 42 |
| 5.1 | Descriptive profile by industry sub-group | 42 |
| 5.2 | Qualification profile by industry sub-group | 45 |
| 5.3 | Labour market trajectories by sub-group | 52 |
| | Agriculture | 54 |
| | Horticulture..... | 59 |
| | Forestry..... | 64 |
| | Seafood | 70 |
| | Veterinary | 73 |
| 6 | Ringa Hora..... | 77 |
| 6.1 | Descriptive profile by industry sub-group | 77 |
| 6.2 | Qualification profile by industry sub-group | 80 |

| | | |
|-----|---|-----|
| 6.3 | Labour market trajectories by sub-group | 87 |
| | Travel & Aviation..... | 89 |
| | Business, Finance & Industry Support..... | 94 |
| | Security & Government | 100 |
| | Hospitality & Cleaning..... | 106 |
| | Real Estate & Rental..... | 111 |
| | Retail & Distribution..... | 112 |
| 7 | Toi Mai | 117 |
| 7.1 | Descriptive profile by industry sub-group..... | 117 |
| 7.2 | Qualification profile by industry sub-group | 119 |
| 7.3 | Labour market trajectories by sub-group | 126 |
| | Toi Ora | 128 |
| | Toi Puaki..... | 133 |
| | Toi Pāho | 136 |
| | Toi Whānui..... | 139 |
| | Toi-A-Ringa..... | 142 |
| 8 | Toitū te Waiora | 146 |
| 8.1 | Descriptive profile by industry sub-group..... | 146 |
| 8.2 | Qualification profile by industry sub-group | 148 |
| 8.3 | Labour market trajectories by sub-group | 153 |
| | Community | 155 |
| | Education | 159 |
| | Health | 163 |
| | Social Services..... | 167 |
| 9 | Waihanga Ara Rau..... | 171 |
| 9.1 | Descriptive profile by industry sub-group..... | 171 |
| 9.2 | Qualification profile by industry sub-group | 173 |
| 9.3 | Labour market trajectories by sub-group | 177 |

| | |
|-----------------------------------|-----|
| Construction | 179 |
| Infrastructure..... | 184 |
| Services | 188 |
| 10 Conclusion and Next Steps..... | 193 |
| References | 195 |
| Appendix A..... | 196 |
| Appendix B..... | 197 |
| Appendix C..... | 208 |
| Appendix D..... | 223 |
| Appendix E | 241 |
| Appendix F | 258 |
| Appendix G..... | 271 |

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1 Introduction

In today's rapidly evolving job market, the significance of post-school qualifications for the workforce cannot be overstated. While tertiary education, such as university degrees, undoubtedly provide valuable skills and knowledge, post-school vocational education and training (below a bachelor's qualification) also plays a crucial role in preparing individuals for a diverse range of careers and equipping them with practical skills that are directly applicable in the workplace.

The New Zealand (NZ) Workforce Development Councils (WDCs) ensure that the vocational education and training (VET) system aligns with the needs of industries while also amplifying the voices of Māori business and iwi development. VET builds the skills, knowledge and attributes required to perform a specific role or work in a specific industry. VET can be delivered either in the workplace or through providers, wānanga and private training establishments. Qualifications in the vocational education system are often specific for each industry or occupation. The six WDCs have diverse responsibilities, including setting industry standards, designing qualifications, and contributing to development of the education and training curriculum.

Workforce Development Councils will give industry a greater voice in the vocational education system to ensure their future workforce needs are met. - OHU AHUMAHU



Acting as the representative voice of their respective industries, WDCs predominantly collaborate with industries and employers, including Māori business owners and iwi businesses. WDCs were created during The Reform of Vocational Education (RoVE), an overhaul of the vocational education and training sector in 2019. The RoVE changes also created the NZ Institute of Skills and Technology (Te Pūkenga). This national organisation is responsible for supporting both workplace-based (on-job) training, and classroom-based (off-job) training. As such, WDCs sit alongside Te Pūkenga, and cover the vocational pathway sectors of:

1. Hanga-Aro-Rau: Manufacturing, Engineering and Logistics;
2. Waihanga Ara Rau: Construction and Infrastructure;
3. Toi Mai: Creative, Cultural, Recreation and Technology;
4. Toitū te Waiora: Health, Community and Social Services;
5. Ringa Hora: Service Industries (including the state sector and local government);
6. Muka Tangata: Primary Industries.

Each WDC covers a wide range of sectors, which have been divided into WDC sub-groups. These sub-groups allow us to link learners and their qualifications to industries in the job market.

This report focuses on post-school qualifications (PSQ) – specifically New Zealand Qualifications Framework (NZQF) Levels 1 to 7 qualifications (excluding Bachelor’s degrees) related to the above WDCs. These are formal qualifications awarded by educational and training organisations across NZ. Our research aims are:

1. Understand the pre and post qualification profile of those who undertake a PSQ. This analysis highlights the educational pathways to and from a PSQ for each WDC and their sub-groups.
2. Estimate the labour market trajectories of those with a PSQ over time (two, five and ten years after graduation).
3. Quantify the labour market returns of a PSQ over time, relative to not having such a qualification.¹
4. Compare labour market trajectories of those that completed a PSQ in terms of whether the individual works in a related or non-related industry (defined in Section 2); and by gender (male / female); ethnicity (European, Māori, Pacific) and location (Auckland / else).

The starting point of our empirical study is the Integrated Data Infrastructure (IDI), the administrative research database hosted by Stats NZ. We identify a pool of learners who graduated in 2012 with a PSQ at an NZQF level ranging between 1 and 7, excluding Bachelor’s degrees. We link each learner with one or more WDCs and WDC sub-groups.

For the first research objective we use data from the Ministry of Education (MoE) to create a detailed portrait of learners’ qualification history (five years prior), as well as any further study they engaged in for the nine years post completion (i.e. up until 2021). For the second research objective we measure individuals’ labour market outcomes two, five and ten years after graduation, focusing on employment, income and benefit reciprocity.

For our third research aim, we identify a pool of non-learners, linking them to the WDCs and their sub-groups through the industry they work in. There may be fundamental differences between learners and non-learners such as non-learners being younger. In order to make a fair comparison between them, we adjust the non-learner group, by applying weights, based on characteristics like gender, age, location, and

¹ Note that when comparing those who have completed a PSQ relative to those without, we do not condition on having first completed a secondary school qualification. This means that members of the population of interest (i.e. group that completed a PSQ) or comparison group (no PSQ) do not need to have completed a secondary school qualification.

employment history to match our learner group. We then compare labour market returns in terms of employment, income and benefit reciprocity outcomes.

In the final research aim we use a list of related industries, provided by the WDCs, to compare the labour market outcomes of learners working in industries related to their PSQ, to those working in non-related industries. We also compare labour market outcomes by gender, ethnicity and location.

The remainder of this report is organised as follows: Section 2 describes the data and population of interest, Sections 3 compares the descriptive profile of learner cohorts across WDCs while Sections 4 to 9 provide results for each of our research aims for each of the WDCs in turn, while Section 10 concludes.

2 Data

This study uses Stats NZ's Integrated Data Infrastructure (IDI). The IDI is a research database providing population-level unit record information on individuals and households in NZ. Each individual is assigned a unique identifier, which can be used to link them to various administrative data sources and Stats NZ-produced tables. To track the pathways of learners, we draw on a large range of microdata related to education, employment (including self-employment), earnings, and benefit reciprocity, which are provided by the Ministry of Education (MoE) and Inland Revenue (IR). Table A 1 in Appendix A holds a full list of all datasets used in this project.

2.1 Defining our population of interest

This research studies the relationship between completing a post-school qualification (PSQ) below a Bachelor's degree and subsequent labour market outcomes. We examine the cohort of learners who completed a PSQ in 2012.

As we are interested in understanding the labour market return to a PSQ within each WDC sector, this analysis requires information on subject and qualification level studied. We use the New Zealand Standard Classification of Education (NZSCED) to understand the subject studied. NZSCED is a subject-based classification system for courses and qualifications at universities, polytechnics, wānanga and private training establishments that receive government funding. On the most granular level, there are 305 NZSCED codes.

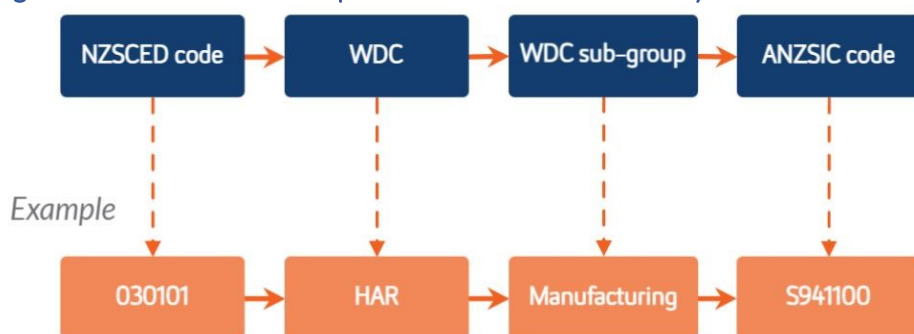
We are interested in the relationship between qualifications and the labour market for each WDC separately. We therefore identify the NZSCED codes related to each WDC sub-group in turn (as described below). Furthermore, we use the NZ Qualification Framework (NZQF) levels to understand the impacts of different levels of qualification.² Ten qualification levels exist, ranging from certificates at Level 1 to Doctorates at Level 10. We are interested in PSQs at Levels 1-6 and Level 7 graduate certificates (i.e. excluding Level 7 graduate

² All qualifications on the NZQF have a credit value, which relates to the amount of learning in the qualification (1 credit is equivalent to ten notional learning hours). There can be substantial differences in the time involvement: while a certificate listed at level 6 requires a minimum of 40 level 6 credits, a level 6 diploma requires a minimum of 120 level 5 or above credits, including at least 72 level 6 credits or above. In an ideal setting, the credit value or the amount of notional learning hours in a qualification would provide a proxy for the amount of learning achieved during the learning process. However, this information is not available across all datasets.

diplomas and Bachelor’s degrees).³ As our focus is on PSQs below a Bachelor’s degree, we use the Qualification Award Category Code (QACC) to differentiate between types of Level 7 qualifications.⁴

The starting point of the empirical analysis are the concordance tables provided by the WDCs (see Figure 1). Each table provides the NZSCED codes related to the WDC and the WDC sub-group they are linked to. For example, the Hanga-Aro-Rau (HAR) WDC has 35 unique NZSCED codes listed;⁵ the NZSCED code *030101* (Manufacturing Engineering) is a field of study belonging to the HAR WDC and the WDC sub-group *Manufacturing*. Furthermore, for each WDC sub-group, Australian and New Zealand Standard Industrial Classification codes (ANZSIC) are provided. ANZSIC codes identify specific industries our learners could work in post-study. In this example, one ANZSIC code linked to the HAR WDC sub-group Manufacturing is *S941100* (Automotive Electrical Services). In the example given in Figure 1, this means that a learner who was awarded a qualification in the field of study belonging to NZSCED code *030101* (Manufacturing Engineering), will be considered a HAR learner in the Manufacturing sub-group. If the individual went on to work in a job with the associated ANZSIC code *S941100* (Automotive Electrical Services), they are considered to be in a related industry.

Figure 1. Concordance from qualification to WDC to industry



To identify learners in the IDI, we use several education and training datasets from MoE (see Figure 2). We restrict the sample to individuals who completed their qualification in 2012 and are domestic students. Using the structure outlined in Figure 1 we then have a pool of learners whose qualification are assigned to a one or more WDC, and whose associated ANZSIC codes are known.

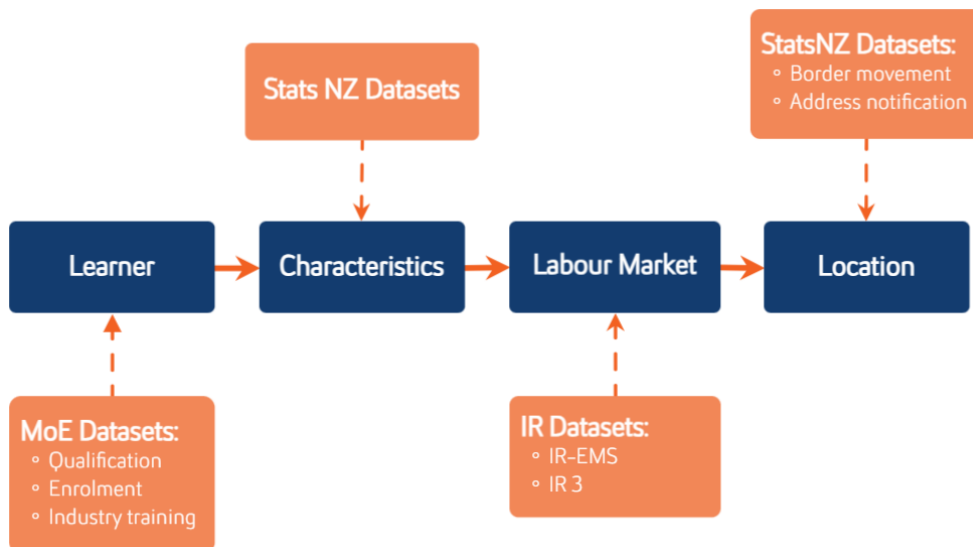
³ Note that Level 7 graduate certificates, graduate diplomas and Bachelor’s degrees are grouped together by definition.

⁴ While QACC provides a much more granular information on the qualification level, only the NZQF information is available across all education-related datasets in the IDI.

⁵ Note that an NZSCED code can be assigned to multiple WDCs.

If an individual completed more than one qualification in 2012 in a WDC sub-group, we assign them to the highest NZQF level qualification completed in 2012.

Figure 2. Flowchart on deriving the population of interest



Next, we add information on individual characteristics. Stats NZ provides an administrative population census dataset with information (derived from a number of sources) on gender,⁶ ethnicity,⁷ birth and (if applicable) deceased date, whether born overseas, and year arrived in NZ (if a migrant). In our study, we apply the following restrictions:

- We drop individuals below 18- and above 55-years old in 2012. The age threshold increases the likelihood that all individuals are under the same legal framework when graduating and have full access to the labour market. We drop individuals above 55 because we track our sample for ten years after graduation. Individuals above 55 would be eligible for NZ Super within our study’s time window, potentially impacting their labour market participation.⁸
- We remove individuals who die within our study period.⁹

⁶ The gender indicator from Stats NZ consists of two categories – males / females.

⁷ In this report, we use the concept of prioritized ethnicity with the following ordering: Māori, Pacific, Asian, MELAA, Other, European. As individuals have the option to declare more than one ethnicity, we assign the ethnicity that appears first in the above ordering.

⁸ We note that despite this restriction, those who are 54 in our sample in 2012 will be 64 in 2022 and their labour market outcomes will still be affected by ageing. Ageing is one of the major drivers of a decline in the labour market participation rate over time.

⁹ These individuals are included for the years they are alive, and dropped for the entirety of the year they die in, regardless of which month this occurs.

- Individuals born overseas must have arrived in NZ at least five years before graduation. A core part of our study is to understand patterns of prior and future education for our population of interest, therefore we need sufficient observations prior to 2012.

Having identified our population of learners, we next track this cohort's educational history (five years prior) and post qualification (for nine years post). We then focus on learners' labour market outcomes in the ten years post-graduation (2014 – 2022). Note that although the educational history is only available in the data up to 2021, the labour market data is more up to date, allowing us to look at outcomes up until 2022. We use two Inland Revenue (IR) datasets to understand learners' labour market outcomes:

1. *IR Employee Monthly Schedule (IR EMS) tables.* These tables provide monthly data on gross earnings from seven different income sources, including wages & salaries (W&S) and benefit reciprocity. Furthermore, a unique Employer ID¹⁰ with the associated ANZSIC code is provided. W&S-related information is aggregated at the employer level for each month. In cases where an employee received W&S from two or more employers, we sum the earnings across all employers to give a total monthly income from W&S. Where ANZIC codes differ across employers in the same month, we use the ANZIC code associated with the highest earnings in that month.
2. *IR3 tables.* We use IR3 information to measure income from self-employment. We include income from partnerships, shareholders, and net profits. Note that the income from self-employment can also be negative (a loss). Income from self-employment is reported annually and refers to the financial year, which spans from April of the previous year until March of the current year.

Earnings are deflated using the Consumer Price Index, with a base period of March 2022. As the income from self-employment is reported by financial year, we harmonise the time dimension accordingly. This means that, for example, income from W&S or benefit reciprocity for the year 2017 refers to the period from April 2016 until March 2017.

Next, we ensure that the individual was physically present in NZ and could participate in the labour market during our investigation. For this reason, we use the border movement dataset, which provides individual-level information on the day a person enters or exits NZ. Based on this data we remove individuals for the

¹⁰ Observing unique employer ID enables us to identify multiple job holdings. However, these numbers are very small and therefore we did not study this aspect further.

years where they were overseas for 90 or more days, as we assume their absence limited their ability to fully participate in the labour market in that year.¹¹

Finally, we use the address notification dataset to identify whether the individual lived in Auckland or elsewhere. We chose NZ's largest city as it offers a unique set of job opportunities and higher wages compared to the rest of the country. The location information refers to March of the respective financial year.

2.2 Qualification profile

As explained earlier, we use MoE datasets to identify learners completing a PSQ in 2012. To understand prior PSQs, as well as further qualification uptake, we use the same MoE datasets to create the following indicators:

1. Prior qualifications.

- a. The proportion of individuals who received any PSQ in the five years prior to 2012, i.e. 2007-2011 inclusive.
- b. The proportion of individuals whose prior PSQ was of a higher NZQF level than the PSQ achieved in 2012.
- c. The proportion of individuals who received any PSQ in the five years prior to 2012, within the same WDC as their 2012 PSQ.
- d. The proportion of individuals who received any prior PSQ which was within the same WDC **and** within the same sub-group as the 2012 PSQ.

Note that the indicator described in b) is only created for individuals who are identified by indicator a) to have a prior qualification, while indicator d) is only created for individuals identified by indicator c) to have a prior qualification in the same WDC as their 2012 qualification.

2. Post-2012 qualifications

The same indicators created to describe the nature of prior qualifications are also created for qualifications obtained post-2012. These indicators are reported at three time points: 2014, 2017 and 2021.

¹¹ If we do not remove these sample members, it would be difficult to distinguish whether a drop in income from W&S was due to reduced months in employment or because the individual was overseas for part of the year.

2.3 Defining labour market outcomes

With the help of the above-described IR records, we measure labour market outcomes across the following three domains and create these indicators:

1. *Employment*

- *Employment*: This indicator shows the proportion of learners who received earnings from W&S in at least one month of the respective financial year.
- *Employment intensity*: We calculate the average number of months per financial year in employment (receiving W&S) for individuals with a one or more months receiving W&S.
- *Mean annual earnings from W&S*: For individuals with one or more months receiving W&S, we calculate the average annual earnings from W&S in the financial year.
- *Mean number of employers per year*: For individuals with one or more months receiving W&S, we use the unique employer ID to identify the average number of primary employers per year.¹²

2. *Self-employment*

- *Self-employment*: This indicator shows the proportion of learners who received income from self-employment in the respective financial year.
- *Sum of employment and self-employment*: This indicator shows the proportion of learners who received earnings from W&S and/or income from self-employment, in the respective financial year.
- *Mean annual income from W&S and self-employment*: For individuals who received income from W&S and/or self-employment, we calculate the average annual income from these sources in the respective financial year.

3. *Benefit reciprocity*

- *Benefit reciprocity*: This indicator shows the proportion of learners who received benefits in at least one month of the respective financial year.¹³
- *Benefit intensity*: For individuals receiving benefits in at least one month, we calculate the average number of months receiving benefits in the respective financial year.

¹² The number of employers is calculated based on the highest source of income in a month in order to capture job changes rather than multiple job holdings.

¹³ Note that the sum of the employment indicator and benefit reciprocity can exceed 100% for several reasons, including the following two: an individual might have been receiving income from W&S in a few months and receiving benefits in the remaining; an individual might have received financial support while in employment.

Benchmarking against those with no PSQs

To understand the labour market premium associated with completing a PSQ in 2012, we create a reference group so that labour market outcomes post-completion can be compared to a group that hadn't undertaken PSQs at that time. To create this reference group, we do the following:

1. We use the 2013 Census to identify individuals who stated they did not have any PSQs.
2. From this group, we identify those who received income from W&S in at least one month in 2012 and worked in an industry related to a WDC sub-group.
3. To improve the comparability between those with no PSQs and the learners in our population of interest, we use entropy balancing on a range of observable characteristics - gender, age, location, ethnicity, and employment intensity.¹⁴

This process ensures we are comparing those who completed a PSQ in 2012 with a group that is similar in demographic characteristics with the key difference being they had not completed a PSQ by 2012.

Subpopulation analysis

When analysing the labour market outcomes by WDC sub-group, we also present the outcomes stratified by related industry, gender, ethnicity (Māori, Pacific and European), and location (Auckland vs. else). The related industry is identified using the concordance tables provided by the WDCs. We classify an individual as working in a related industry when the individual received income from W&S for at least one month of the financial year in an industry linked to the sub-group they graduated from in 2012, according to concordance tables provided by the WDCs. Note that some sub-populations are small, so we aggregate the NZQF levels into the following two groups: NZQF Levels 2-4 and NZQF Levels 5-7.

¹⁴ To understand the marginal labour-market-related premium of a post-school qualification, we use the the observable characteristics of those learners with a NZQF level 2 qualification.

3 Descriptive Profile Across WDC Sectors

There are six WDCs, each of these is composed of unique WDC sub-groups. The boundary of each WDC sub-group is based on NZSCED codes provided by the WDCs. Thus, the relevant NZSCED codes for each WDC sub-group determines who enters the respective pool of learners. Therefore, a change in the sub-group specific relevant NZSCED codes will alter the composition of the pool of learners. Moreover, an individual can be assigned to more than one WDC sub-group. First, because the same NZSCED code can be used to define two different WDC sub-groups. Second, an individual might have received two or more qualifications in 2012.

The WDCs determined the numbers of sub-groups themselves and the number ranges substantially. For example, Hanga-Aro-Rau has three sub-groups (Engineering, Logistics, Manufacturing) and Muka Tangata has 14 sub-groups (Apiculture, Arable, Dairy farming, Equine, dogs and racing, Forestry, Fruit, Grapes and wine, Nursery, turf and gardening, Poultry, pigs and other, Seafood, Sheep, beef, deer and wool, Support services, Vegetables, and Veterinary). Substantial variation also exists in the number of NZSCED codes to define a sub-group: for example, the sub-group Construction (Hanga-Aro-Rau) is defined using 21 different NZSCED codes while the sub-groups Cleaning services (Ringa Hora), Education (Toitū Te Waiora), and Real estate and rental services (Ringa Hora), only use one specific NZSCED code each. In total, across the six WDCs 167 unique NZSCED codes were used, slightly more than half of all 305 available NZSCED codes.

Table 1 shows information about the learners' characteristics, grouped by WDC. The total sample consists of 110,262 learners who graduated in 2012. This count includes double-counting of individuals when NZSCED codes are assigned to multiple sub-groups or when an individual received more than one qualification. The largest WDC is Ringa Hora with almost one quarter of all learners, and the smallest Muka Tangata with about 1 in 10 learners.

Differences in the 2012 learners' characteristics are noticeable in Table 1. For example, Ringa Hora (36%), focusing on services, Toi Mai (43%) on creative, cultural, recreation and technology industries and Toitū te Waiora (35%) on community, health, education and social services have a much smaller share of male learners. In contrast, Hanga-Aro-Rau (73%) focusing on Manufacturing, Engineering and Logistics and Waihanga Ara Rau (also 73%) focusing on construction and infrastructure; are male-dominated. There are also notable age differences. Over half of Toi Mai learners are young learners (53%), defined as aged 25 and below, but only a quarter of learners are young learners in Toitū Te Waiora (26%). Additionally, Ringa Hora learners are more often born overseas (21%) and live in Auckland (40%), whereas Muka Tangata learners, focusing on people, food, and fibre, have the smallest share born overseas (10%) or living in Auckland (11%).

Differences are also observed regarding ethnicity. Almost two thirds learners under Muka Tangatata identify as European, while this is less than 50% for Ringa Hora. However, Ringa Hora has a higher proportion of Pacific, Asian, and MELAA/other ethnicities (almost quarter of learners), compared to Muka Tangatata (below 7%).

Looking at the qualifications achieved, most fall between Level 2 and Level 4. For example, over 80% of Waihanga Ara Rau learners hold a qualification in this range. There is further variation within those qualification bands: while Level 2 and Level 3 are the dominant qualification levels for Hanga-Aro-Rau and Muka Tangata, Level 4 qualification play a much larger role for Waihanga Ara Rau. Notably, Toi Mai has the largest share, with about one third falling between Levels 5-7.

Table 1. Descriptive statistics by WDC in 2012

| | Hanga-Aro-Rau | Muka Tangata | Ringa Hora | Toi Mai | Toitū Te Waiora | Waihanga Ara Rau |
|---|---------------|--------------|------------|---------|-----------------|------------------|
| Male | 73.2% | 65.4% | 35.9% | 42.9% | 35.2% | 72.8% |
| Age 25 and below | 41.5% | 38.1% | 40.9% | 53.2% | 25.6% | 34.8% |
| Age above 45 | 15.6% | 15.1% | 14.1% | 10.9% | 25.9% | 14.6% |
| Born overseas | 16.8% | 10.4% | 21.4% | 19.1% | 19.6% | 16.5% |
| Auckland | 25.3% | 11.3% | 39.8% | 36.0% | 25.5% | 24.8% |
| Ethnicity | | | | | | |
| European | 55.0% | 61.6% | 46.7% | 49.9% | 59.6% | 59.6% |
| Māori | 27.1% | 31.6% | 27.9% | 29.9% | 23.4% | 25.8% |
| Pacific | 10.1% | 2.8% | 13.7% | 9.3% | 9.3% | 6.9% |
| Asian | 5.8% | 2.8% | 9.5% | 8.5% | 5.1% | 5.5% |
| MELAA/other | 2.0% | 1.3% | 2.2% | 2.5% | 2.6% | 2.2% |
| NZQF level of qualification achieved in 2012 | | | | | | |
| Level 1 | 19.6% | 3.2% | 5.2% | 0.3% | 7.6% | - |
| Level 2 | 27.9% | 34.2% | 10.7% | 12.8% | 15.0% | 15.1% |
| Level 3 | 28.2% | 39.0% | 26.6% | 32.7% | 31.8% | 24.2% |
| Level 4 | 17.7% | 15.9% | 38.8% | 22.4% | 22.5% | 41.9% |
| Level 5 | 3.3% | 5.8% | 10.8% | 18.1% | 16.6% | 7.0% |
| Level 6 | 1.0% | 1.7% | 5.3% | 11.8% | 4.8% | 9.5% |
| Level 7 | 2.3% | 0.2% | 2.6% | 1.9% | 1.7% | 2.3% |
| # of Learners | 17 658 | 11 778 | 25 431 | 21 372 | 12 978 | 21 045 |
| (share of total) | 16.0% | 10.7% | 23.1% | 19.4% | 11.8% | 19.1% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 2 shows how these differences in demographic characteristics and qualification levels relate to labour market outcomes. First, we observe noticeable differences in the share of employed individuals, defined as receiving W&S in at least one month in the respective financial year. In 2014, two years after graduation, the employment rate ranges between 72% (Toi Mai) and 86% (Hanga-Aro-Rau and Toitū Te Waiora). We mainly observe a gradual decline in the employment share over time, and in some cases a small upbuild (e.g., from 72% in 2012 to 73% in 2022 for Toi Mai). We note that although we removed those aged 55 and over, in order to minimise the effect of eligibility for NZ superannuation, those who are 54 in our sample in 2012 will be 64 in 2022 and their labour market outcomes will still be affected by ageing. Ageing is one of the major drivers of a decline in the labour market participation rate over time.

Differences are observed in earnings from W&S. Learners from WDCs with a higher share of males and Europeans, like Hanga-Ora-Rau and Waihanga Ara Rau, earned above \$50k a year, on average by 2014. At the other end of spectrum is Toi Mai, for whom the earnings level is just under \$30k. While all WDCs show wage progression, the earnings gap persists over time, ranging from \$51k (Toi Mai) to \$73k (Waihanga Ara Rau) by 2022. The 2022 median weekly income from W&S, according to Stats NZ,¹⁵ is \$1,189, equivalent to \$61,800 annually.

We also note an increase in the share of learners receiving income from self-employment over time, with proportions varying across WDCs. In 2022, over 15% of Waihanga Ara Rau and Muka Tangata learners received income from self-employment - roughly half the share for Hanga-Aro-Rau (9%).

Examining benefit recipiency as a labour market outcome, we observe a general decrease across all WDCs over time. For example, while more than a third of learners from Toi Mai (37%) received income from benefits in 2014, this dropped to just over a quarter (28%) in 2022. Additionally, there is a correlation between income level and benefit dependency: Toi Mai, with the lowest earnings from wages and salaries, has the highest share of learners with benefit dependency (37% in 2014), while Waihanga Ara Rau, at the higher income spectrum, has the lowest share (18% in 2014).

¹⁵ <https://www.stats.govt.nz/information-releases/labour-market-statistics-income-june-2022-quarter/>

Table 2. Labour market outcomes by WDC over time

| | Hanga-Aro-Rau | Muka Tangata | Ringa Hora | Toi Mai | Toitū Te Waiora | Waihanga Ara Rau |
|--|---------------|--------------|------------|---------|-----------------|------------------|
| 1) Earnings from Wages & Salaries (W&S) | | | | | | |
| Sample size | | | | | | |
| 2014 | 16323 | 11094 | 23277 | 19593 | 12213 | 19404 |
| 2017 | 15885 | 10881 | 22443 | 18720 | 11907 | 18963 |
| 2022 | 15756 | 10869 | 22173 | 18645 | 11772 | 18930 |
| Employment | | | | | | |
| 2014 | 85.8% | 83.1% | 77.3% | 72.4% | 85.5% | 81.0% |
| 2017 | 84.9% | 80.3% | 77.7% | 75.1% | 83.8% | 79.9% |
| 2022 | 80.0% | 74.7% | 76.0% | 73.1% | 80.1% | 76.6% |
| Employment intensity | | | | | | |
| 2014 | 10.5 | 10.2 | 10.0 | 9.2 | 10.6 | 10.5 |
| 2017 | 10.7 | 10.3 | 10.3 | 10.0 | 10.7 | 10.7 |
| 2022 | 10.7 | 10.4 | 10.5 | 10.3 | 10.8 | 10.8 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 51,192 | 43,641 | 41,207 | 29,535 | 45,672 | 54,849 |
| 2017 | 58,455 | 50,136 | 49,420 | 40,176 | 51,884 | 63,823 |
| 2022 | 65,942 | 57,384 | 58,105 | 51,012 | 60,576 | 72,901 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.5 | 1.8 | 1.5 | 1.6 | 1.4 | 1.4 |
| 2017 | 1.4 | 1.6 | 1.4 | 1.5 | 1.4 | 1.4 |
| 2022 | 1.4 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 4.1% | 10.0% | 6.4% | 6.1% | 7.5% | 10.7% |
| 2017 | 6.1% | 13.3% | 8.0% | 9.0% | 8.9% | 13.9% |
| 2022 | 8.8% | 15.9% | 9.7% | 11.6% | 9.9% | 16.4% |
| Sum of employment and self-employment | | | | | | |
| 2014 | 87.5% | 87.9% | 80.5% | 74.9% | 88.2% | 86.8% |
| 2017 | 87.6% | 87.1% | 81.8% | 79.4% | 87.7% | 88.0% |
| 2022 | 84.6% | 83.9% | 80.7% | 78.9% | 85.0% | 86.2% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 51,719 | 46,105 | 41,797 | 30,638 | 46,340 | 56,452 |
| 2017 | 59,321 | 52,339 | 50,701 | 41,596 | 53,126 | 66,351 |
| 2022 | 67,554 | 61,660 | 60,091 | 53,008 | 61,546 | 76,268 |
| 3) Income from benefits | | | | | | |
| Benefit recipiency | | | | | | |
| 2014 | 24.5% | 22.4% | 29.4% | 37.2% | 23.6% | 17.7% |
| 2017 | 19.3% | 19.5% | 23.7% | 27.7% | 18.1% | 14.0% |
| 2022 | 21.5% | 20.8% | 25.2% | 28.0% | 18.5% | 15.6% |
| Benefit intensity | | | | | | |
| 2014 | 7.4 | 7.8 | 8.4 | 7.7 | 8.2 | 7.5 |
| 2017 | 8.2 | 8.3 | 9.0 | 8.6 | 8.6 | 8.2 |
| 2022 | 9.3 | 9.4 | 9.7 | 9.5 | 9.6 | 9.2 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

4 Hanga-Aro-Rau

This section focuses on learners graduating in 2012 with an NZSCED code related to the WDC Hanga-Aro-Rau (HAR).

Hanga-Aro-Rau represents the Manufacturing, Engineering and Logistics industries including wood Manufacturing, bakery, butchery, mechanical, automotive and marine Engineering, dairy processing, extractives and drilling, and transport.

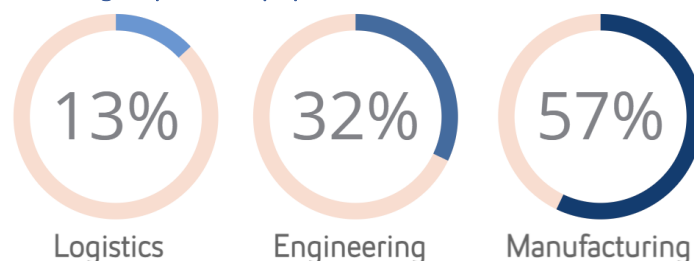


For the purposes of this analysis, HAR has been split into three sub-groups, named: Engineering, Logistics and Manufacturing. Note that the names of the groupings do not refer to entire industries, but the sub-set of NZSCED codes related to HAR. The mapping of qualifications via NZSCED codes to the sub-groups can be found in Appendix Table B 1. Some NZSCED codes we might expect in the Engineering sub-group, for example Construction Engineering (030901) and Electrical Engineering (031301), are related to a different WDC, or none as is the case with Structural Engineering (030901). HAR has also provided an exhaustive list of ANZSIC codes to identify the qualification-specific related industries.

4.1 Descriptive profile by industry sub-group

This section describes the HAR WDC by industry sub-group; the largest of which is Manufacturing, making up over 50% of the 2012 cohort of learners completing a HAR-related PSQ. It is important to note that the group of learners in Logistics is small (2,322 individuals), and therefore, results should be interpreted with caution. This is especially important when we disaggregate the industry sub-groups by age, gender, ethnicity and region in the next section.

Figure 3. Proportion of HAR sub-groups in the population of interest



Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records

Table 3 presents demographic information for learners in the three HAR sub-groups who graduated in 2012. Notably, all groups have a high proportion of males, with Engineering having over 90% males. HAR learners tend to be young, with 42% being 25 and under, and 16% being over 45. Just over half of HAR learners are European, followed by Māori (27%), Pacific (10%), Asian (6%) and MELAA/Other (2%).¹⁶ The ethnicity distribution across the three HAR learner groups is reasonably similar; still, Engineering has a higher share of Europeans (65%) and a lower share of Pacific (6%), while Manufacturing has a higher percentage of Māori (29%) and Pacific learners (13%).

The PSQ level completed in 2012 varies among the three sub-groups. In Logistics, most completed a Level 3 qualification. Engineering students are spread across Levels 2 to 4 more evenly, while Manufacturing has more students at Levels 1 to 3.

Table 3. Descriptive statistics by HAR group 2012

| | Hanga-Aro-Rau | Engineering | Logistics | Manufacturing |
|---|---------------|-------------|-----------|---------------|
| Male | 73.2% | 93.7% | 69.4% | 63.3% |
| Age 25 and below | 41.5% | 45.9% | 24.4% | 42.8% |
| Age above 45 | 15.6% | 11.1% | 21.6% | 16.9% |
| Born overseas | 16.8% | 13.7% | 16.9% | 18.6% |
| Auckland | 25.3% | 21.8% | 25.6% | 27.3% |
| Ethnicity | | | | |
| European | 55.0% | 65.3% | 59.7% | 48.5% |
| Māori | 27.1% | 22.9% | 26.4% | 29.4% |
| Pacific | 10.1% | 5.7% | 6.1% | 13.4% |
| Asian | 5.8% | 4.3% | 6.5% | 6.5% |
| MELAA/Other | 2.0% | 1.7% | 1.4% | 2.3% |
| NZQF level of qualification achieved in 2012 | | | | |
| Level 1 | 19.6% | 3.3% | - | 33.0% |
| Level 2 | 27.9% | 34.8% | - | 31.0% |
| Level 3 | 28.2% | 21.7% | 88.1% | 17.8% |
| Level 4 | 17.7% | 35.6% | 7.0% | 10.2% |
| Level 5 | 3.3% | 3.1% | 3.0% | 3.5% |
| Level 6 | 1.0% | 1.2% | - | 0.9% |
| Level 7 | 2.3% | - | 1.0% | 3.7% |
| Number of Learners | 17658 | 5,589 | 2,322 | 10,107 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

¹⁶ MELAA refers to Middle Eastern, Latin American and African.

4.2 Qualification profile by industry sub-group

In this subsection we describe the prior qualifications, as well as further qualification uptake in the following nine years, for learners who completed a PSQ in 2012. Figure 4 gives the proportion of each industry sub-group who attain qualifications at four different time points: before 2012, and two; five; and nine years¹⁷ after (i.e. 2014, 2017 and 2021). We also summarise, for those who have attained pre or post qualifications, whether they were at a higher NZQF level than the one received in 2012.

We note in Table 4 that the 2012 Engineering learners had the highest share of individuals with a previous qualification (57%), followed by Manufacturing (52%) and Logistics (50%). Of those in the Engineering sub-group who had a prior qualification, just over a third were at a higher NZQF level than that attained in 2012. In other words, about 19% of all 2012 Engineering learners had a higher prior qualification (19% = 34% of 57%). The comparable numbers for Logistics and Manufacturing learners are 24% and 30% respectively.

In terms of qualifications achieved post-completion of the 2012 PSQ, about 27% of Engineering, 25% of Logistics learners and a third of Manufacturing learners completed a further qualification by 2014. Of these individuals, 42% in Engineering achieved a higher-level qualification, compared to 48% and 58% in Logistics and Manufacturing. In other words, about 11% of the 2012 Engineering learner cohort, 12% of the Logistics learner cohort, and 19% of the Manufacturing cohort achieved a higher qualification by 2014.

As shown in Table 4, as time passes (five and nine years later), more learners obtain additional qualifications, and the proportion of these groups that do so at a higher level also increases. By 2021, approximately half of each industry sub-group have attained a further qualification, and more than half of these individuals did so at a higher level.

¹⁷ We take a 9-year view as 2021 qualification information is the latest available data in the IDI at the time of producing this report.

Table 4. Pre and post qualifications for the 2012 learner cohort by HAR sub-group

| | | Engineering | Logistics | Manufacturing |
|-------------|---|-------------|-----------|---------------|
| Before 2012 | Qualification before 2012 | 56.8% | 49.5% | 52.3% |
| | Higher qualification | 34.1% | 48.2% | 56.5% |
| Before 2012 | Qualification before 2012 in HAR | 38.5% | 16.8% | 27.4% |
| | In the same HAR sub-group | 60.9% | 60.0% | 80.2% |
| By 2014 | Further qualification | 27.1% | 24.5% | 32.8% |
| | Higher qualification | 41.8% | 47.9% | 58.3% |
| By 2014 | Further qualification in HAR | 15.7% | 7.2% | 14.7% |
| | In the same HAR sub-group | 74.0% | 70.0% | 82.4% |
| By 2017 | Further qualification | 44.5% | 37.2% | 49.7% |
| | Higher qualification | 53.6% | 53.3% | 64.7% |
| By 2017 | Further qualification in HAR | 27.0% | 10.5% | 21.9% |
| | In the same HAR sub-group | 74.0% | 58.3% | 80.9% |
| By 2021 | Further qualification | 51.8% | 45.5% | 58.1% |
| | Higher qualification | 57.3% | 57.8% | 69.0% |
| By 2021 | Further qualification in HAR | 31.5% | 13.0% | 25.8% |
| | In the same HAR sub-group | 73.7% | 55.6% | 80.8% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

We next disaggregate the pre and post qualification profile of the HAR sub-groups by NZQF level. Results for the Logistics cohort are not discussed due to small sample sizes,¹⁸ and similarly, the results for Levels 5-7 qualifications for Engineering and Manufacturing sub-groups should also be interpreted with caution due to small sample sizes.

Table 5 summarises information for the Engineering sub-group. In terms of prior qualifications, more than 60% of those who completed a 2012 Engineering PSQ at Levels 1, 4 or 5 had a previous qualification, while the comparable figure for those that completed a Level 3 or 6 qualification was 50%; and 45% for those that completed a Level 2 PSQ in 2012. The vast majority of Level 1 PSQ learners who had a prior qualification, did so at a higher NZQF level (95%). Unsurprisingly, the share of learners with higher prior qualifications decreases as the level of PSQ achieved in 2012 increases. About two-thirds of those who completed a Level 2 qualification in 2012 who had a prior qualification had previously completed a higher-level qualification. This falls further to less than 10% for those who completed a Level 4 PSQ in 2012.

Table 5 also describes how the subject of the prior qualification is related to the one achieved in 2012 by showing the fraction with a prior qualification in any of the three HAR sub-groups as well as for Engineering. About 54% of those completing a Level 1 Engineering qualification had a prior HAR qualification, and the fraction decreases to 24% at Level 2 and increases again to 34%, 54% and 51% for Levels 3, 4 and 5, respectively. This pattern as the 2012 qualification level increases is further reproduced when examining the share of those with a prior qualification in the Engineering sub-group.

Table 5 also shows that the proportion of those going on to do more study in the Engineering group varies significantly by qualification level. Of those who graduated with a Level 4 Engineering PSQ in 2012, just over 40% went on to complete further study by 2021. By comparison, over 74% of those who graduated with a Level 1 PSQ qualification in 2012 went on to complete further study in the same time period. We observe that most of the further education learners do this in the first five years post-2012, with a range of 35% to 65% of individuals gaining a further qualification by 2017. We then see this growth slow down, with further increases of about 10 percentage points or less in the four years leading up to 2021.

¹⁸ Results provided in Appendix Table B 5.

Table 5. Pre and post qualifications for the 2012 learner cohort: Engineering

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|---------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | 63.9% | 45.1% | 54.7% | 67.8% | 65.5% | 50.0% | - |
| | Higher qualification | 94.9% | 68.6% | 33.0% | 9.5% | - | - | - |
| Before 2012 | Qualification before 2012 HAR | 54.1% | 23.8% | 33.7% | 53.8% | 51.7% | 31.8% | - |
| | In Engineering | 60.6% | 44.5% | 58.8% | 67.0% | 76.7% | - | - |
| By 2014 | Further qualification 2014 | 26.2% | 30.6% | 29.7% | 21.4% | 33.3% | - | - |
| | Higher qualification | - | 61.9% | 48.2% | 8.9% | - | - | - |
| By 2014 | Further qualification 2014 HAR | - | 18.0% | 17.0% | 12.2% | 25.9% | - | - |
| | In Engineering | - | 66.7% | 79.7% | 73.2% | 85.7% | - | - |
| By 2017 | Further qualification 2017 | 65.0% | 49.0% | 47.3% | 35.2% | 51.0% | 44.4% | - |
| | Higher qualification | 92.3% | 74.5% | 62.6% | 12.8% | - | - | - |
| By 2017 | Further qualification 2017 HAR | 55.0% | 30.2% | 29.1% | 18.2% | 39.2% | - | - |
| | In Engineering | 100.0% | 68.0% | 79.4% | 67.6% | 80.0% | - | - |
| By 2021 | Further qualification 2021 | 74.1% | 56.3% | 57.1% | 41.5% | 53.8% | 42.1% | - |
| | Higher qualification | 95.3% | 80.5% | 67.0% | 16.5% | - | - | - |
| By 2021 | Further qualification 2021 HAR | 62.1% | 35.2% | 34.9% | 21.8% | 40.4% | - | - |
| | In Engineering | 100.0% | 67.8% | 80.2% | 68.0% | 85.7% | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

We next look at those who completed a Manufacturing qualification in 2012 (Table 6). For those who attained a PSQ in this subject area at Levels 1-4, between 47% and 53% had a prior qualification. This share increases to between 63% and 70% for those who completed a Level 5-7 qualification (remembering the caveat that these sub population results should be interpreted with caution due to small sample sizes). For those who completed a Level 1 PSQ in 2012 and had a prior qualification, most did so at a higher NZQF level (85%). The proportion falls as NZQF level rises until Level 5; and then substantively increases again for those completing Level 6 and 7 qualifications.

Many learners go on to undertake further qualifications post 2012, with this mostly occurring in the first five years post-completion of their 2012 PSQ. For many who undertake a future qualification, it is at a higher level, except for the case of those who complete a Level 4 PSQ. As expected, the proportion of learners undertaking higher-level qualifications decreases as we move up the qualification levels up to Level 4, we then see an increase in this proportion from Level 5 to 7. We see that 75% of those with a Level 1 qualification who went on to do further study in 2014 did so at a higher level, with the proportion dropping to 51% for the Level 3 graduates and 16% for those at Level 4.

By 2021, between 54% and 63% of graduates in the Manufacturing sub-group had gone on to do a further qualification, with less than half (11% to 35%) doing so in a HAR-related subject.

Table 6: Pre and post qualifications for the 2012 learner cohort: Manufacturing

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|---------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | 52.6% | 52.3% | 48.2% | 47.2% | 62.7% | 70.0% | 69.6% |
| | Higher qualification | 85.2% | 48.7% | 38.1% | 14.2% | 18.9% | 76.2% | 78.2% |
| Before 2012 | Qualification before 2012 HAR | 27.2% | 29.5% | 27.2% | 28.0% | 30.5% | - | 10.4% |
| | In Manufacturing | 70.0% | 85.4% | 84.7% | 88.5% | 83.3% | - | 84.6% |
| By 2014 | Further qualification 2014 | 35.2% | 32.0% | 31.3% | 26.0% | 37.0% | 48.1% | 39.8% |
| | Higher qualification | 74.5% | 53.8% | 51.4% | 15.7% | 52.5% | 76.9% | 60.5% |
| By 2014 | Further qualification 2014 HAR | 19.5% | 13.1% | 14.3% | 10.7% | - | - | 9.3% |
| | In Manufacturing | 88.7% | 76.0% | 85.0% | 55.9% | - | - | 90.0% |
| By 2017 | Further qualification 2017 | 55.3% | 46.2% | 46.3% | 46.9% | 51.9% | 57.7% | 49.5% |
| | Higher qualification | 77.7% | 67.7% | 56.0% | 24.1% | 53.7% | 73.3% | 63.3% |
| By 2017 | Further qualification 2017 HAR | 31.0% | 17.7% | 18.9% | 18.4% | 9.6% | - | 12.1% |
| | In Manufacturing | 88.9% | 76.8% | 78.6% | 49.1% | 80.0% | - | 83.3% |
| By 2021 | Further qualification 2021 | 63.4% | 54.2% | 54.4% | 57.9% | 63.1% | 61.5% | 56.3% |
| | Higher qualification | 81.5% | 75.5% | 60.8% | 26.1% | 50.8% | 68.8% | 65.5% |
| By 2021 | Further qualification 2021 HAR | 35.1% | 22.7% | 22.1% | 22.4% | 10.7% | - | 11.7% |
| | In Manufacturing | 88.3% | 79.0% | 77.1% | 50.0% | 81.8% | - | 91.7% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

4.3 Labour market trajectories by sub-group

This sub-section presents the labour market outcomes of the HAR learner cohort, by sub-group at three different time points: two, five and ten years post-graduation (2014, 2017, 2022). First, we examine the sub-groups in their entirety before analysing outcomes by industry, gender, ethnicity and region. As mentioned earlier, Logistics learners are a small sample, as are those that completed a qualification above Level 4 in 2012, in any of the industry sub-groups, and therefore these results should be interpreted cautiously.

Table 7 describes the labour market outcomes of HAR learners in aggregate and by industry sub-group. The employment rates and intensity (measured as the average number of months employed per year) do not differ much by HAR sub-groups, although those who completed an Engineering qualification in 2012 have a somewhat higher employment rate in 2014, 2017 and 2022 (for example, 90% in 2014 versus 86% for HAR overall) and number of months employed (for example, 10.9 per year in 2014 versus 10.5 for HAR overall in 2014). The Engineering sub-group also has the lowest proportion of benefit receipts while the Manufacturing sub-group had the highest. The Logistics sub-group had a higher self-employment rate than the other HAR sub-groups (between 9% and 14% versus 4% and 9% for HAR overall).

In terms of income trajectories, it is worth remembering that all \$ figures in Table 7 are deflated to 2022 dollars to ensure they are comparable across time points. We find that all three sub-groups see income gains over time, with the Engineering group having the highest average earnings at all three time-points regardless of self-employment income. For example, in 2022, the mean average earnings from W&S and self-employment income for the Engineering sub-group was about \$77,800 versus \$67,500 for the HAR group overall. However, income growth among the Engineering group from 2014 to 2022 was lower than the other two sub-groups (27% versus 32% for Logistics and 33% for Manufacturing).

Table 7. Labour market outcomes by HAR sub-groups

| | Hanga-Aro-Rau | Engineering | Logistics | Manufacturing |
|--|---------------|-------------|-----------|---------------|
| Share by sub-group | | | | |
| 2014 | 100% | 31.4% | 12.7% | 57.9% |
| 2017 | 100% | 31.7% | 12.9% | 57.6% |
| 2022 | 100% | 31.7% | 13.1% | 57.3% |
| 1) Earnings from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 85.8% | 90.2% | 83.8% | 84.2% |
| 2017 | 84.9% | 88.8% | 82.0% | 83.4% |
| 2022 | 80.0% | 83.9% | 76.1% | 79.0% |
| Employment intensity | | | | |
| 2014 | 10.5 | 10.9 | 10.4 | 10.2 |
| 2017 | 10.7 | 11.1 | 10.5 | 10.5 |
| 2022 | 10.7 | 11.1 | 10.6 | 10.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 51,192 | 60,654 | 51,801 | 45,656 |
| 2017 | 58,455 | 68,482 | 59,701 | 52,509 |
| 2022 | 65,942 | 76,101 | 67,234 | 59,864 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.4 | 1.6 | 1.5 |
| 2017 | 1.4 | 1.4 | 1.5 | 1.4 |
| 2022 | 1.4 | 1.3 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 4.1% | 3.9% | 9.0% | 3.3% |
| 2017 | 6.1% | 6.9% | 10.9% | 4.6% |
| 2022 | 8.8% | 9.9% | 13.5% | 7.2% |
| Sum of employment and self-employment | | | | |
| 2014 | 87.5% | 91.6% | 87.8% | 85.4% |
| 2017 | 87.6% | 92.0% | 88.3% | 85.2% |
| 2022 | 84.6% | 89.2% | 83.5% | 82.5% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 51,719 | 61,156 | 52,619 | 46,102 |
| 2017 | 59,321 | 69,576 | 60,809 | 53,113 |
| 2022 | 67,554 | 77,871 | 69,427 | 61,161 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 24.5% | 15.4% | 19.7% | 30.2% |
| 2017 | 19.3% | 11.3% | 15.8% | 24.1% |
| 2022 | 21.5% | 14.4% | 17.7% | 26.1% |
| Benefit intensity | | | | |
| 2014 | 7.4 | 6.7 | 7.7 | 7.5 |
| 2017 | 8.2 | 7.6 | 8.1 | 8.3 |
| 2022 | 9.3 | 8.8 | 9.3 | 9.4 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Engineering

In this subsection, we analyse the labour market trajectories of the Engineering sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Engineering sub-group. Table 8 looks at outcomes by NZQF level, while Table 9 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix B.

Engineering by NZQF level

In interpreting Table 8, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings and/or self-employment income was 99% in 2014 for those with no PSQs. For those who completed a Level 1 Engineering qualification in 2012, the share is higher (100%), but lower for those who completed a Level 2, 3, 4 or 6 qualifications. The employment intensity measured as the number of months employed (only calculated for those who were employed for at least one month of the year) follows a similar pattern, with the average number of months being 11 for the no-PSQ comparison group, 11.7 for those who completed a Level 1 qualification in 2012, but 10.8 months for those who completed a Level 3 qualification in 2012, before increasing again for Level 4 and 5.

Next, we turn to the earnings premium associated with a qualification. Interestingly, in 2014 there is a higher wage premium (the difference compared to what no PSQ earn) for those with a Level 2 qualification than Level 3: while Level 2 learners, on average, received income from W&S of about \$63k and those with no PSQ \$53k, Level 3 graduates earned substantially less with \$49k. Level 1 learners also earned less than the no PSQ group, at roughly \$44k. However, it is also noteworthy that the gap narrows over time and after accounting for self-employed income, with all learners outearning the no PSQ group by 2022. Individuals who graduated with a Level 3 qualification in 2012 also appear more likely to receive benefits in at least one month of the year when compared to those with a Level 2 qualification; this difference also narrows over time. We observe a pronounced earnings premium gained by those with a Level 5 PSQ, but the same cannot be detected for Level 6 until 2022 when self-employment income is accounted for. As mentioned, results for these two NZQF levels should be interpreted with caution, as evident in Table 3, just 3% and 1% of the Engineering learner cohort undertook a Level 5 or Level 6 PSQ respectively. Also worth noting, in analysis not shown here for the sake of brevity, those who completed a Level 6 PSQ are significantly younger than the Level 5 cohort.

Note also that labour market patterns in Table 8 must be interpreted jointly with the pre and post qualification patterns in Section 4.2. The pre-qualification profile is one indicator of the composition of

that learner cohort, in terms of whether they have a prior higher qualification – which in turn could signal a number of things. For example, a higher prior qualification could indicate a career switch in play, potentially with a lot of transferrable skills from the earlier qualification. Furthermore, the post qualification profile is a potential signal of reasons why labour market returns may be lower for some subpopulations.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remain small and the results for these categories should be interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 groups for the Engineering sub-group.

Engineering by related industry

Table 9 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 80% of the Engineering sub-group at NZQF Level 2-4 do not end up working in a related industry. Of the minority that do, we note that they have higher employment intensity and average earnings, and a lower proportion of benefit receipt than those working in a non-related industry. This industry premium does not dissipate over time and is evident one, five and ten years post-graduation.

Table 8. Labour market outcomes for Engineering sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.8% | 100.0% | 90.1% | 84.4% | 92.6% | 96.2% | 84.2% | - |
| 2017 | 90.9% | 98.3% | 88.8% | 85.3% | 90.3% | 92.2% | 88.9% | - |
| 2022 | 81.9% | 84.5% | 84.5% | 80.5% | 84.6% | 88.7% | 89.5% | - |
| Employment intensity | | | | | | | | |
| 2014 | 11.0 | 11.7 | 11.0 | 10.1 | 11.2 | 11.7 | 11.0 | - |
| 2017 | 11.1 | 11.6 | 11.1 | 10.5 | 11.1 | 11.7 | 11.1 | - |
| 2022 | 11.1 | 11.7 | 11.1 | 10.8 | 11.2 | 11.4 | 11.1 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 53,434 | 43,529 | 62,872 | 49,271 | 63,429 | 103,144 | 51,459 | - |
| 2017 | 57,767 | 55,541 | 69,169 | 57,707 | 72,047 | 106,000 | 70,475 | - |
| 2022 | 62,064 | 69,475 | 75,061 | 68,086 | 78,801 | 107,612 | 88,692 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.5 | 1.2 | 1.4 | 1.5 | 1.3 | 1.2 | 1.5 | - |
| 2017 | 1.4 | 1.3 | 1.4 | 1.5 | 1.3 | 1.3 | 1.2 | - |
| 2022 | 1.3 | 1.3 | 1.3 | 1.4 | 1.3 | 1.2 | 1.3 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 6.3% | - | 3.4% | 4.5% | 3.8% | - | - | - |
| 2017 | 8.2% | - | 5.3% | 7.1% | 8.3% | - | - | - |
| 2022 | 9.7% | - | 7.5% | 8.4% | 12.8% | 15.1% | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.0% | 100.0% | 91.2% | 86.0% | 94.5% | 98.1% | 84.2% | - |
| 2017 | 93.4% | 98.3% | 91.0% | 88.3% | 94.3% | 96.1% | 88.9% | - |
| 2022 | 86.7% | 89.7% | 88.1% | 85.0% | 91.8% | 96.2% | 89.5% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 54,546 | 43,928 | 63,347 | 49,575 | 64,034 | 103,901 | 51,768 | - |
| 2017 | 59,009 | 57,361 | 70,002 | 59,197 | 73,343 | 105,911 | 71,993 | - |
| 2022 | 63,928 | 71,827 | 75,297 | 70,292 | 81,085 | 107,144 | 117,226 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 11.7% | - | 15.1% | 26.5% | 11.2% | - | - | - |
| 2017 | 10.7% | - | 11.3% | 19.3% | 8.3% | - | - | - |
| 2022 | 15.4% | - | 15.2% | 22.6% | 10.4% | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 6.6 | - | 6.0 | 7.2 | 6.9 | - | - | - |
| 2017 | 8.0 | - | 7.4 | 8.0 | 7.4 | - | - | - |
| 2022 | 9.3 | - | 8.7 | 9.0 | 9.1 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Engineering learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 9. Labour market outcomes for Engineering sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 20.2% | 79.8% | 24.3% | 75.7% |
| 2017 | 17.8% | 82.2% | 23.1% | 76.9% |
| 2022 | 17.6% | 82.4% | 22.7% | 77.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.2 | 10.8 | 11.4 | 11.4 |
| 2017 | 11.3 | 10.9 | 11.6 | 11.5 |
| 2022 | 11.4 | 11.0 | 11.5 | 11.4 |
| Mean annual earnings from W&S | | | | |
| 2014 | 65,678 | 58,524 | 94,690 | 86,201 |
| 2017 | 71,319 | 66,907 | 98,701 | 94,605 |
| 2022 | 80,354 | 73,775 | 101,237 | 104,353 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.4 | 1.4 | 1.2 |
| 2017 | 1.5 | 1.4 | 1.4 | 1.3 |
| 2022 | 1.4 | 1.3 | 1.4 | 1.2 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 7.0% | 13.3% | - | - |
| 2017 | 3.7% | 9.4% | - | - |
| 2022 | 4.4% | 10.1% | - | - |
| Benefit intensity | | | | |
| 2014 | 4.4 | 6.2 | - | - |
| 2017 | 6.1 | 6.4 | - | - |
| 2022 | 6.8 | 7.3 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Engineering learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Engineering by gender

Results by gender are shown in Appendix Table B 2. Women make up a very small proportion of the Engineering learner cohort, with 94% of this group being male. We can only compare gender differences in labour market trajectories for NZQF Level 2-4 because the female sample size for NZQF Level 5-7 is too small and suppressed per Stats NZ confidentiality rules. We note the gap in average earnings between the genders for those that have completed a Level 2-4 qualification. This gender gap increases over the course of our sample time period. The female group earns an average of over \$11k less per year than the male group in 2014; by 2022 that earnings differential more than doubles to over \$21k. Although women have a slightly higher premium from self-employment, this does not amount to large changes in average income, in fact, women make a net loss in self-employment income in 2017, as indicated by the lower self-employment income compared to income from W&S. These earnings differences could be attributed, at least in part, to the lower employment rate of the female group, who have a lower share of income in at least one month and higher proportion of benefit receipt. Not measured by Stats NZ over our time period, are hours worked, which could also be an influencing factor. In 2014, the proportion of the female group receiving income from W&S in at least one month is over 10 percentage points lower than the share in the male group. This difference in employment persists over time, although the gap does narrow to a 7.2 percentage point difference after 10 years.

Benefit receipt is also higher for the women in this sub-group. Notably, the proportion of learners receiving at least one month of benefits is over twice as large for women than for men at both the 5 and 10-year marks.

Engineering by ethnicity

Results by ethnicity are shown in Appendix Table B 3. We split our analysis across three ethnicity categories: European, Māori and Pacific. As mentioned earlier, MELAA, Asian and Other ethnicities are outside the scope of our analysis. Once again, our interpretation is focussed on comparing labour market trajectories for those completing a Level 2-4 qualification, as the sample is too small at the higher PSQ levels, particularly for Māori and Pacific. Note that even for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 6%, with Māori at 26% and European at 68%.

The European sub-group have the highest level of employment, as measured by the share of the sample receiving at least one month of earnings from W&S, and the highest average annual income in all three time periods. The Pacific group have a higher level of employment compared to the Māori learner population, with 84% to 93% receiving W&S in at least one month of the year at all three time points, compared to between 76% to 80% for the Māori group. This difference in employment may explain

some of the earnings differences between the two groups. The average W&S of the Pacific group was \$2.9k more per year in 2014 compared to Māori workers, decreasing to \$0.6k in 2017 before increasing again to \$3.5k in 2022. However, the European group out-earned the Pacific group by an average of \$12.8k, \$16.4k and \$13.9k per year in 2014, 2017 and 2022, respectively, which appears disproportionate to the differences in employment rate of 8 percentage points in 2014, 1 percentage point in 2017 and 2 percentage points in 2022. These earnings differences align with findings from Cochrane and Pacheco (2022) where ethnic pay gaps were explored, and less than half of the pay gap for Pacific peoples (with Europeans) could be explained by individual or job-related characteristics.¹⁹

Benefit receipt is also lowest for the European sub-group and highest for the Māori sub-group, with the Pacific group in the middle. It is notable that between a quarter and a third of the Māori sub-group receive income from benefits in at least one month.

Engineering by region

Results by region are shown in Appendix Table B 4. Engineering learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. There is a premium in average yearly earnings from W&S for those living outside of Auckland (particularly for those that complete Level 5-7 qualifications). This appears to be inconsistent with previous research highlighting an Auckland wage and productivity premium (e.g. Lewis & Stillman, 2007; Maré, 2008; Fabling, 2021). However, this could be explained by the fact that Auckland dwellers have between a 5 percentage point lower employment rate on average compared to those living outside of Auckland and a higher proportion of benefit receipt. Notably, the gap closes over time, with the Auckland group out-earning the outside Auckland group by 2022, when self-employed income is also accounted for.

¹⁹ Specifically, it was found that even after accounting for differences in job-related characteristics and educational attainment, only 27 percent of the pay gap for Pacific males (relative to European males) could be explained, and 39% for Pacific women (relative to European women).

Logistics

In this subsection we analyse the labour market outcomes of the Logistics sub-group at three time points: two, five and ten years post-graduation. Table 10 looks at outcomes by NZQF level, while Table 11 disaggregates the outcomes by whether working in a related industry or not. Further disaggregations by gender, ethnicity and region are discussed, with the results presented in Appendix B. As aforementioned, the Logistics sub-group is small, and the results in this section should be interpreted with caution due to small sample sizes.

Logistics by NZQF level

Table 10 allows us to see how the labour market outcomes for those who studied in the Logistics sub-group track over time by qualification level. As mentioned earlier, the no PSQ group is calibrated to have similar characteristics (e.g. age, gender, ethnicity, region and employment intensity) as the Logistics Level 2 sub-group in this section. As evident in Table 10, a number of the NZQF levels have too small a sample size to permit results to be outputted due to Stats NZ confidentiality rules. As NZQF Level 2 is affected by low sample sizes, so is the PSQ group which uses Level 2 learners as a reference category.

The share of individuals receiving income from W&S for those who completed a Level 3, 4 or 5 Logistics qualification in 2012, falls between 73% at the lowest for Level 4 learners in 2022, and 90% for Level 5 learners in the same year. These disparities are smaller in 2014 and appear to grow over time. Employment intensity, measured as the number of months employed (for those receiving at least one month of W&S in the financial year) follows a similar pattern in 2014, with the Level 5 group having the highest average number of months employed in all three time periods.

Despite Level 5 learners having higher levels of employment, Level 4 learners have higher average annual earnings in both 2017 and 2022, by over \$6.3k and \$1.4k respectively with Level 3 learners lagging much further behind with an earnings gap of \$21.5k in 2017 and \$19k in 2022.

As with the Engineering sub-section, the rest of this section dives into the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7. Despite this aggregation, the NZQF Level 5-7 group remain small and the results for these categories should be interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 sub-populations.

Logistics by related industry

Table 11 reveals the impact of working in an industry related to the area of study, compared to graduates working in a non-related industry. More than three quarters 75% of the Logistics learners at NZQF Level 2-4 do not end up working in a related industry. Those that work in a related industry have higher average earnings from W&S than those in a non-related industry at all three time points, out-earning the non-related industry group by between \$5.1k and \$10.9k per year. This is despite the fact that those in the non-related industries experienced a 31% increase in average income from W&S between 2012 and 2022, while those working in a related industry saw a 28% increase. We also note that the related industry group have a lower proportion of benefit receipt in 2014 and 2017 than those working in a non-related industry and that those who do receive a benefit do so for fewer months of the year on average. As indicated by the average number of employers per year, job stability differs between the groups in a meaningful way, with the related industry group changing employers more often.

Table 10. Labour market outcomes for Logistics sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | - | n/a | - | 84.0% | 82.9% | 84.2% | - | - |
| 2017 | - | n/a | - | 82.4% | 82.9% | 84.2% | - | - |
| 2022 | - | n/a | - | 75.9% | 73.3% | 89.5% | - | - |
| Employment intensity | | | | | | | | |
| 2014 | - | n/a | - | 10.4 | 10.5 | 11.1 | - | - |
| 2017 | - | n/a | - | 10.5 | 10.3 | 10.6 | - | - |
| 2022 | - | n/a | - | 10.6 | 10.5 | 11.0 | - | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | - | n/a | - | 49,591 | 67,277 | 78,868 | - | - |
| 2017 | - | n/a | - | 57,257 | 78,763 | 72,403 | - | - |
| 2022 | - | n/a | - | 64,426 | 83,569 | 82,121 | - | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | - | n/a | - | 1.6 | 1.5 | 1.4 | - | - |
| 2017 | - | n/a | - | 1.5 | 1.2 | 1.2 | - | - |
| 2022 | - | n/a | - | 1.4 | 1.3 | 1.3 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | - | n/a | - | 8.8% | - | - | - | - |
| 2017 | - | n/a | - | 10.9% | - | - | - | - |
| 2022 | - | n/a | - | 13.1% | 22.2% | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | - | n/a | - | 88.2% | 87.8% | 84.2% | - | - |
| 2017 | - | n/a | - | 88.6% | 87.8% | 84.2% | - | - |
| 2022 | - | n/a | - | 82.8% | 86.7% | 94.7% | - | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | - | n/a | - | 50,176 | 70,301 | 82,964 | - | - |
| 2017 | - | n/a | - | 58,601 | 80,811 | 73,552 | - | - |
| 2022 | - | n/a | - | 66,651 | 88,366 | 79,768 | - | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | - | n/a | - | 20.9% | - | - | - | - |
| 2017 | - | n/a | - | 17.0% | - | - | - | - |
| 2022 | - | n/a | - | 18.8% | - | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | - | n/a | - | 7.7 | - | - | - | - |
| 2017 | - | n/a | - | 8.2 | - | - | - | - |
| 2022 | - | n/a | - | 9.3 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Logistics learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 11. Labour market outcomes for Logistics sub-group: by related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 24.7% | 75.3% | 52.2% | 47.8% |
| 2017 | 23.1% | 76.9% | 50.0% | 50.0% |
| 2022 | 20.7% | 79.3% | 42.3% | 57.7% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.9 | 10.3 | 11.4 | 9.8 |
| 2017 | 11.1 | 10.4 | 11.1 | 10.5 |
| 2022 | 11.0 | 10.6 | 10.7 | 10.0 |
| Mean annual earnings from W&S | | | | |
| 2014 | 54,635 | 49,515 | 96,584 | 63,746 |
| 2017 | 67,100 | 56,137 | 90,479 | 79,314 |
| 2022 | 70,118 | 64,757 | 94,761 | 92,489 |
| Mean number of employers per year | | | | |
| 2014 | 1.8 | 1.6 | 1.6 | 1.2 |
| 2017 | 1.8 | 1.4 | 1.3 | 1.2 |
| 2022 | 1.7 | 1.4 | 1.3 | 1.1 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 15.3% | 16.8% | - | - |
| 2017 | 11.2% | 13.0% | - | - |
| 2022 | 12.6% | 12.2% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.8 | 6.8 | - | - |
| 2017 | 5.2 | 7.2 | - | - |
| 2022 | 6.7 | 8.0 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Logistics learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Logistics by gender

Appendix Table B 6, shows the 2012 Logistics sub-group by gender. Women make up 31% of this sub-group, with 68% of the group being male. We note that the sample sizes for the female group for NZQF Level 5-7 was small and thus suppressed according to Stats NZ confidentiality rules, thus we reserve our comments to the results for NZQF Level 2-4. As with the Engineering sub-group, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$18.5k in 2014 to \$21.2k in 2022. In fact, the female cohort earned \$6k less ten-years post-graduation than the male cohort was earning in their first year of working (2014).

Benefit receipt is also higher for the women in this sub-group. Notably, the proportion of learners receiving at least one month of benefits is over 22% for women at all time points, while this proportion only reached a maximum of 17% for the male cohort in 2014, before it dropped significantly in 2017 and 2022 to 13% and 16%, respectively.

Logistics by ethnicity

We further split the sample into three ethnicity categories: European, Māori and Pacific, the results of this disaggregation are reported in Appendix Table B 7.²⁰ We note that the Pacific group make up a small proportion of the Logistics sample, at around 6%, with Māori at 30% and European at 63%. Once again, due to small sample sizes particularly for Māori and Pacific, our interpretation is focussed on comparing labour market trajectories for those who completed a Level 2-4 qualification in 2012.

The Pacific and European cohorts have similar employment rates over time, with only one percentage point differences in 2014 and 2022, and no differences in 2017. The share receiving income from W&S in at least one month range between 80% and 81% in 2014 and 2017, for the Māori group, before converging with the other ethnicities in 2022 at 76%. Despite the similarity in employment rate, the average W&S of the European group is the highest in all three time periods. European group out-earns the Pacific and Māori groups by approximately \$10k in both 2014 and 2017, and that gap widens for Māori in 2022 to \$14.6k and shrinks slightly for the Pacific group to \$7.7k. As mentioned in discussions of the Engineering sub-group, these earnings align with findings from Cochrane and Pacheco (2022), which found that less than half of the pay gap for Pacific peoples (with Europeans) could be explained by individual or job-related characteristics.

²⁰ MELAA, Asian and Other ethnicities are excluded from this analysis.

Benefit receipt is also lowest for the European sub-group and highest for the Māori sub-group, whose benefit receipt is more than double at every time point. We note that the proportion of those receiving benefits is highest for all groups in 2014, falling in 2017 and 2022, although limited sample size precludes us from commenting on the trends for the Pacific group.

Logistics by region

Appendix Table B 8 shows the results by region of the Logistics sub-group. As with the Engineering sub-group, we find a modest premium for those living outside of Auckland in terms of average earnings from W&S in 2014 and 2017. This premium is noticed most with the Level 5-7 qualifications group. We note that self-employed individuals in the NZQF Level 2-4 group, living in Auckland, were more likely to take a loss in income, as measured by the difference between average earnings from W&S and average income from W&S and self-employment, than self-employed individuals living outside of Auckland.

Manufacturing

In this section we analyse the labour market outcomes of learners who graduated with a PSQ in the Manufacturing sub-group in 2012, at three time points: two, five and ten years post-graduation. Table 12 presents outcomes by NZQF level, relative to those with no PSQ. We once again apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Manufacturing learner cohort.

For the remaining tables we study the labour market outcomes for sub-populations and thus we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Since Manufacturing is the largest sub-group of the HAR WDC, we are not as hindered in this section by low individual counts post-aggregation. We discuss the findings presented in Table 13, which disaggregates the outcomes by whether working in a related-industry or not, before discussing the findings presented in Appendix B, which are presented by gender, ethnicity and region.

Manufacturing by NZQF level

Table 12 shows the labour market outcomes for the Manufacturing learner cohort over time, by NZQF level. For this analysis, the results for each NZQF level can be compared to those in the first column, which is based on the comparison group without PSQs. We note that the NZQF Level 6 group in particular has a small number of individuals, and thus findings for this group should be interpreted with caution.

Returns to PSQ, relative to no PSQ are not prominent for all levels of study. Individuals who received a qualification at Level 2, 3 or 5 in the Manufacturing sub-group in 2012 all have lower average annual earnings from W&S than the no PSQ group across time. This can be explained, in part, by the share of those receiving any W&S earnings and/or self-employment income in the no PSQ group being almost 100% in 2014, compared to the shares of 83%, 78% and 82% for Levels 2, 3 or 5, respectively. The share of individuals receiving benefits in at least one month of the year is also higher for Levels 2, 3 and 5 than the no PSQ group. Level 2 and 3's share of benefit receipt is of particular note, ranging from 38% for those with a Level 2 qualification five-years post-graduation, to 41% of those who received a Level 3 qualification in Manufacturing two years after graduation.

The highest wage premium in the first time period appears to be from gaining a Level 6 qualification. The average annual wages rising by almost \$18k by 2022, by which time those who had earned a Level 7 qualification in 2012 out-earn all other PSQ groups with an average of \$82k in earnings from W&S and/or self-employment, netting them just over \$19.5k more per year than the no PSQ group.

Manufacturing by related industry

As before, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7 to minimise the impact of small sample sizes. Table 13 reveals the impact of working in an industry related to the area of study, compared to graduates working in an un-related industry. We note that there are large differences between NZQF Level 2-4 and NZQF Level 5-7 in terms of the groups' compositions, with between 35% and 39% of the NZQF Level 2-4 working in a related industry but only between 13% and 16% of the NZQF Level 5-7 doing so. Despite this, both related industry groups earn a premium in terms of incomes from W&S relative to those working in an un-related industry.

The difference in incomes is largest for the NZQF Level 2-4 group, the related industry group out-earning the non-related industry group by over 60% in the second year post-graduation, with the gap narrowing to 33% ten years post-graduation. Notably, those working in a non-related industry at Level 2-4 earn \$2k less ten-years post-graduation than those working in a related industry were earning in their first year post-graduation. Although the earnings gaps are more modest, the pattern is the same for the NZQF Level 5-7 group.

We also note that the share of individuals receiving benefits in at least one month of the year is over twice as high for those working in a un-related industry (between 25% and 33%) than those working in a related industry (between 12% and 16%) for the NZQF Level 2-4 group.

Table 12. Labour market outcomes for Manufacturing sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 99.2% | 88.6% | 82.5% | 78.4% | 86.2% | 81.5% | 78.6% | 86.1% |
| 2017 | 92.8% | 86.4% | 81.6% | 77.8% | 87.4% | 84.6% | 80.8% | 88.9% |
| 2022 | 84.9% | 81.5% | 77.6% | 73.9% | 82.2% | 79.0% | 80.0% | 84.6% |
| Employment intensity | | | | | | | | |
| 2014 | 11.1 | 10.6 | 10.0 | 9.6 | 10.5 | 10.3 | 10.5 | 10.5 |
| 2017 | 11.1 | 10.6 | 10.4 | 10.2 | 10.9 | 10.6 | 10.9 | 10.7 |
| 2022 | 11.1 | 10.8 | 10.3 | 10.2 | 11.1 | 10.5 | 10.5 | 10.7 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 54,310 | 55,120 | 41,117 | 34,449 | 44,828 | 42,498 | 56,297 | 46,420 |
| 2017 | 58,340 | 58,841 | 47,807 | 43,454 | 55,847 | 50,652 | 62,700 | 63,587 |
| 2022 | 61,753 | 65,445 | 53,174 | 50,524 | 68,169 | 59,437 | 74,259 | 79,754 |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 | 1.7 | 1.5 | 1.5 |
| 2017 | 1.3 | 1.4 | 1.4 | 1.5 | 1.4 | 1.4 | 1.3 | 1.4 |
| 2022 | 1.3 | 1.3 | 1.4 | 1.4 | 1.3 | 1.4 | 1.2 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 3.4% | 4.9% | 1.3% | 1.6% | 3.4% | - | - | 8.3% |
| 2017 | 4.6% | 5.9% | 2.4% | 3.1% | 5.8% | 7.7% | - | 12.1% |
| 2022 | 5.7% | 8.3% | 4.1% | 5.1% | 11.8% | 10.5% | - | 14.4% |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.3% | 90.2% | 82.9% | 78.9% | 88.1% | 84.3% | 82.1% | 89.8% |
| 2017 | 94.1% | 88.6% | 82.6% | 78.9% | 90.0% | 87.5% | 88.5% | 91.9% |
| 2022 | 87.6% | 85.8% | 79.3% | 76.7% | 89.1% | 82.9% | 92.0% | 89.4% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 54,734 | 55,934 | 41,236 | 34,670 | 45,058 | 41,834 | 56,447 | 47,773 |
| 2017 | 58,829 | 59,314 | 48,346 | 43,966 | 56,263 | 50,532 | 57,830 | 67,336 |
| 2022 | 62,457 | 66,715 | 53,781 | 51,256 | 70,067 | 61,320 | 76,988 | 82,039 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 12.6% | 24.6% | 38.3% | 40.9% | 14.1% | 24.1% | - | 13.9% |
| 2017 | 11.8% | 20.9% | 30.8% | 31.8% | 9.4% | 19.2% | - | - |
| 2022 | 16.1% | 21.6% | 33.7% | 35.8% | 10.9% | 19.0% | - | 6.7% |
| Benefit intensity | | | | | | | | |
| 2014 | 6.2 | 6.9 | 7.9 | 8.1 | 5.9 | 7.6 | - | 5.0 |
| 2017 | 7.4 | 7.9 | 8.4 | 8.8 | 7.7 | 8.6 | - | - |
| 2022 | 9.0 | 8.9 | 9.6 | 9.8 | 7.5 | 8.9 | - | 7.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Manufacturing learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 13. Labour market outcomes for Manufacturing sub-group: by related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 39.3% | 60.7% | 15.8% | 84.2% |
| 2017 | 36.9% | 63.1% | 16.2% | 83.8% |
| 2022 | 34.5% | 65.5% | 12.5% | 87.5% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.8 | 9.4 | 11.2 | 10.3 |
| 2017 | 11.2 | 10.0 | 11.0 | 10.5 |
| 2022 | 11.1 | 10.1 | 10.9 | 10.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 52,367 | 31,760 | 52,244 | 44,582 |
| 2017 | 60,528 | 40,790 | 64,729 | 56,014 |
| 2022 | 65,766 | 49,539 | 73,677 | 69,456 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.5 | 1.9 | 1.5 |
| 2017 | 1.4 | 1.5 | 1.7 | 1.3 |
| 2022 | 1.4 | 1.4 | 1.5 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 16.2% | 32.7% | - | - |
| 2017 | 11.8% | 22.5% | - | - |
| 2022 | 11.8% | 24.7% | - | - |
| Benefit intensity | | | | |
| 2014 | 5.6 | 7.1 | - | - |
| 2017 | 5.4 | 7.3 | - | - |
| 2022 | 6.9 | 8.4 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Manufacturing learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Manufacturing by gender

The results for the Manufacturing sub-group by gender are presented in Appendix Table B 9. Firstly, we note that women make up 36% of this sub-group at NZQF Level 2-4, however they make up over half (56%) of those in the NZQF Level 5-7 group.

As has been the case in all the previous sub-group analyses, we note the gap in average earnings between the genders, with the female cohort earning less than the male cohort regardless of the NZQF level of study. The gap in earnings widens between the groups over time for those who graduated with a NZQF Level 2-4 qualification in 2012, with the male cohort out-earning the female cohort by 33% in the first year post-graduation, and increasing to 37% ten years post-graduation. The pattern repeats for the NZQF Level 5-7 qualification group, although the gap in earnings gets wider in dollar terms (from \$13.2k in 2014 to \$20.5k in 2022), as a percentage of the female cohort's earnings, the gap stays relatively unchanged around 33%. The differences in earnings between the male and female cohorts at both qualification levels could be partially explained by the employment intensity, which shows that a smaller proportion of the female cohorts received income from W&S and/or self-employment in at least one month relative to the male cohorts at every time-point, however this gap is larger for those at NZQF Level 2-4.

Benefit receipt is also higher for the women in the Manufacturing cohort. Notably, the proportion of learners receiving benefits in at least one month is over 45% for women with an NZQF Level 2-4 qualification, one year post-graduation, compared to the 29% share men from this cohort. Differences between genders are very small but still present for the NZQF Level 5-7 qualification, ranging from 1 to 3 percentage points.

Manufacturing by ethnicity

As with the Engineering and Logistics sub-groups, we also split the sample into three ethnicity categories: European, Māori and Pacific, presented in Appendix Table B 10. We note that the Pacific group make up the smallest proportion of the sample, at around 18% (6%), with Māori at 36% (15%) and European 47% (80%) for the NZQF Level 2-4 group (NZQF Level 5-7 group). Our interpretations for the NZQF Level 5-7 group is limited in this section, due to the small number of Pacific individuals in this sub-group and thus results should be treated with caution.

As with the Engineering & Logistics sub-groups, the European group have the highest average annual income in all three time periods, while the Māori group has the lowest average annual earnings for the NZQF Level 2-4 group. We note that the European group has the highest level of employment as measured by number of months receiving income from W&S and/or self-employment for the NZQF

Level 2-4 group. The Māori and Pacific groups have similar employment rates to one another at all three time points. We also notice that benefit receipt is also lowest for the European group and highest for the Māori group, whose benefit receipt is over 18 percentage points higher at every time point relative to the European group.

Manufacturing by region

Results by region are shown in Appendix Table B 11. The results in this section are similar to the findings for the Engineering & Logistics sub-groups, with the Manufacturing sub-group also generating a modest premium for those living outside of Auckland in terms of average yearly income from W&S and/or self-employment for the NZQF Level 2-4 group in 2024 and 2017, this is flipped in 2022. Again, this could be in part explained by the fact that NZQF Level 2-4 group of Auckland dwellers have between a 4.6 and 9.8 percentage point lower employment rate than those living outside of Auckland and a higher proportion of benefit receipt. Auckland dwellers out-earn those outside of Auckland in 2012 and 2022 in the NZQF Level 5-7 group, for whom the employment gap is smaller around 2 percentage points.

5 Muka Tangata

This section focuses on learners graduating in 2012 with an NZSCED code related to the WDC Muka Tangata (MT).

Muka Tangata represents 61 industries that make up the food and fibre sector. This sector is comprised of industries specified in the Australia and New Zealand Standard Industrial Classification 2006 (ANZSIC).



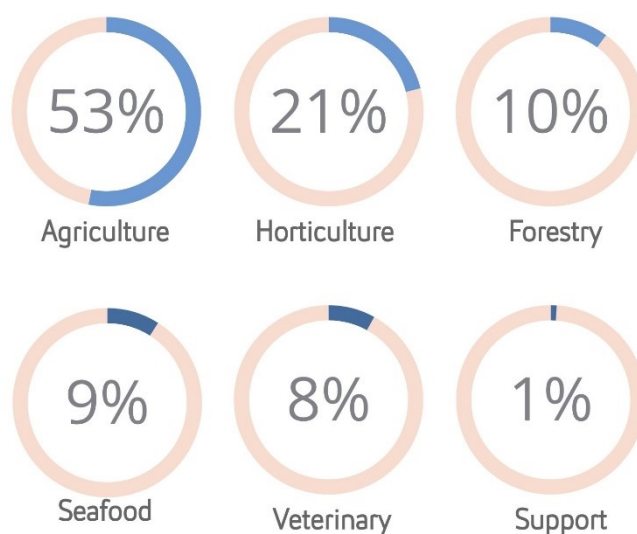
For the purposes of this analysis, MT has been split into 6 sub-groups, named: Agriculture, Horticulture, Forestry, Seafood, Support, and Veterinary. Note that the names of the groupings do not refer to entire industries, but the sub-set of NZSCED codes related to MT. The mapping of qualifications via NZSCED codes to the sub-groups can be found in Appendix Table C 1. MT has also provided an exhaustive list of ANZSIC codes to identify the qualification-specific related industries.

5.1 Descriptive profile by industry sub-group

This section describes the MT WDC by industry sub-group; the largest of which is Agriculture, making up 53% of learners in this WDC. The next two largest sub-groups are Horticulture (21%), Forestry (10%).

It is important to note that findings for those groups of learners with a small count (in particular Seafood and Veterinary) should be interpreted cautiously. This is especially important when we disaggregate the industry sub-groups by age, gender, ethnicity and region in the next section. Due to small counts, we exclude further sub-analysis for the Support sub-group.

Figure 4. Proportion of MT sub-groups in the population of interest



Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT learners between 18 and 54 (inclusive) years old in 2012, according to their education records

Table 14 presents demographic information for learners from the 6 MT sub-groups who graduated in 2012. Notably, Forestry has the highest proportion of males, at over 90%, while Veterinary has the lowest at 4%. In the sub-groups Horticulture, Seafood, and Support, less than a third of the learners are under 25 years old.

Regardless of the sub-group, learners in the MT WDC tend to be predominantly European or Māori, together making up over 85% of the sample of each sub-group. The highest proportion of Māori are in the Forestry (53%) and Seafood (66%) sub-groups.

The distribution of the level of the PSQ completed in 2012 differs considerably between the sub-groups, however, there are very few Level 6 and 7 qualifications in the MT WDC, with Veterinary being one exception, with 11% of this group achieving a Level 6 qualification in 2012. Similarly, only Horticulture has a high proportion of Level 1 qualifications, namely 15%.

Table 14. Descriptive statistics by MT group 2012

| | Muka Tangata | Agriculture | Horticulture | Forestry | Seafood | Support | Veterinary |
|---|--------------|-------------|--------------|-------------|-------------|------------|------------|
| Male | 65.4% | 71.2% | 58.7% | 93.9% | 59.9% | 92.0% | 4.0% |
| Age 25 and below | 38.1% | 44.4% | 19.6% | 33.3% | 29.0% | 30.0% | 61.9% |
| Age above 45 | 15.1% | 12.1% | 28.0% | 11.5% | 18.6% | 24.0% | 3.0% |
| Born overseas | 10.4% | 9.2% | 16.6% | 4.6% | 6.9% | - | 12.4% |
| Auckland | 11.3% | 7.5% | 22.9% | 8.8% | 4.8% | - | 15.7% |
| Ethnicity | | | | | | | |
| European | 61.6% | 68.0% | 60.3% | 40.6% | 27.8% | 64.0% | 84.3% |
| Māori | 31.6% | 26.4% | 28.7% | 52.6% | 66.2% | 32.0% | 11.7% |
| Pacific | 2.8% | 2.2% | 3.4% | 5.6% | 3.0% | - | - |
| Asian | 2.8% | 2.2% | 6.1% | - | 2.4% | - | - |
| MELAA/Other | 1.3% | 1.3% | 1.5% | - | - | - | - |
| NZQF level of qualification achieved in 2012 | | | | | | | |
| Level 1 | 3.2% | - | 15.1% | - | - | - | - |
| Level 2 | 34.2% | 42.1% | 28.5% | 18.1% | 19.8% | 22.0% | 36.8% |
| Level 3 | 39.0% | 41.0% | 31.1% | 47.7% | 62.3% | 64.0% | 4.3% |
| Level 4 | 15.9% | 10.4% | 21.5% | 32.0% | 15.6% | - | 16.4% |
| Level 5 | 5.8% | 5.0% | 2.7% | - | - | - | 31.4% |
| Level 6 | 1.7% | 1.1% | 0.8% | - | - | - | 11.0% |
| Level 7 | 0.2% | - | - | - | - | - | - |
| Number of Learners | 11778 | 6189 | 2478 | 1227 | 1002 | 150 | 897 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

5.2 Qualification profile by industry sub-group

In this subsection we describe the prior educational qualifications, as well as further qualification uptake in the following nine years, for our population of learners who completed their PSQ in 2012. Table 15 gives the proportion of each industry sub-group who attain qualifications at four different time points: before 2012, and two; five; and nine years²¹ after (i.e. 2014, 2017 and 2021). We also summarise, for those who have attained pre or post qualifications, whether they were at a higher NZQF level than the one received in 2012.

We note in Table 15 that the 2012 Agriculture sub-group had the highest share of individuals with a previous qualification (63%), followed by Forestry (60%). The remaining other four MT sub-groups have between 55% and 56% of their cohort with a previous qualification. Also consistent across sub-groups is the proportion of learners whose previous qualification is at a higher level than that achieved in 2012, at around 1/3. The only two groups with higher proportions in this regard are Horticulture and Seafood with around 45%.

In terms of qualifications achieved post-completion of the 2012 PSQ, between 25% (Support) and 43% (Agriculture) of each sub-group of learners completed a further qualification in the year 2014. By 2017 this range increased by 18 percentage points at the lower bound to between 42% (Support) and 57% (Forestry), and then by a further 9 percentage points to between 47% and 69% by 2022. The Forestry sub-group had the highest post 2012 PSQ completion, with over 46% of those PSQs being a higher qualification and over 47% being in the MT WDC. Consistently, around 80% of learners who got a further qualification in the same WDC, did so in the same sub-group, with the exception of the Seafood (59%) sub-group.

In the following, we will discuss for each MT sub-group past and future qualification by 2012 qualification. We exclude Support from the analysis due to small count.

²¹ We take a 9-year view as 2021 qualification information is the latest available data in the IDI at the time of producing this report.

Table 15. Pre and post qualifications for the 2012 learner cohort by MT sub-group

| | | Agriculture | Horticulture | Forestry | Seafood | Support | Veterinary |
|-------------|--|-------------|--------------|----------|---------|---------|------------|
| Before 2012 | Qualification before 2012 | 63.0% | 56.3% | 59.7% | 55.5% | 55.1% | 55.3% |
| | Higher qualification | 36.9% | 45.5% | 37.3% | 45.2% | 40.7% | 28.9% |
| | Qualification before 2012 in MT | 42.9% | 34.2% | 40.6% | 25.7% | 32.7% | 28.7% |
| | In the same MT sub-group | 90.0% | 70.7% | - | 64.0% | 56.3% | 80.2% |
| By 2014 | Further qualification | 43.1% | 38.7% | 32.8% | 29.9% | 25.0% | 37.1% |
| | Higher qualification | 43.8% | 59.2% | 43.0% | 51.6% | - | 66.7% |
| | Further qualification in MT | 29.0% | 25.4% | 22.3% | 11.6% | - | 29.7% |
| | In the same MT sub-group | 90.7% | 88.0% | - | 69.4% | - | 86.9% |
| By 2017 | Further qualification | 55.2% | 53.0% | 57.3% | 48.2% | 41.7% | 50.0% |
| | Higher qualification | 53.0% | 62.3% | 42.3% | 56.1% | 40.0% | 66.9% |
| | Further qualification in MT | 34.4% | 31.9% | 38.3% | 17.6% | 18.8% | 33.5% |
| | In the same MT sub-group | 88.8% | 83.6% | - | 61.1% | - | 84.6% |
| By 2021 | Further qualification | 60.8% | 59.4% | 69.0% | 59.7% | 46.8% | 58.2% |
| | Higher qualification | 57.9% | 65.3% | 46.4% | 59.3% | 45.5% | 68.1% |
| | Further qualification in MT | 36.6% | 33.9% | 46.7% | 22.3% | 21.3% | 35.3% |
| | In the same MT sub-group | 88.4% | 82.3% | - | 58.8% | - | 83.5% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 16 shows the pre and post PSQs of the Agriculture sub-group by the NZQF qualification level the learners achieved in 2012. We note that as the NZQF level increases, so does the proportion of those with a prior qualification, starting at 54% for Level 2 learners, to 85% of Level 5 learners. This is expected as many higher NZQF courses require learners to have completed pre-requisite courses at lower levels, this is apparent also in the proportion of learners with a higher qualification, which decreases as the NZQF level increases.

As for further qualification, NZQF Level 5 learners have the highest proportion of learners going on to do further study by 2014, at 55%, increasing to 66% by 2021; however, only 19% do so at a higher level. Despite the proportions of all learners going on to do further study increasing over time, the Level 3 learners are the only other group to catch up to the Level 5 students, with 66% going on to do further study by 2021, with half doing so at a higher level.

Table 16: Pre and post qualifications for the 2012 learner cohort: Agriculture

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 54.2% | 65.2% | 77.7% | 84.5% | - | - |
| | Higher qualification | - | 66.5% | 25.5% | 9.6% | - | - | - |
| Before 2012 | Qualification before 2012 MT | - | 28.8% | 47.3% | 67.4% | 67.0% | - | - |
| | In Agriculture | - | 77.3% | 94.5% | 95.2% | 95.7% | - | - |
| By 2014 | Further qualification 2014 | - | 36.8% | 49.5% | 36.2% | 54.7% | - | - |
| | Higher qualification | - | 70.8% | 30.1% | 28.2% | 15.4% | - | - |
| By 2014 | Further qualification 2014 MT | - | 23.9% | 35.6% | 18.4% | 31.6% | - | - |
| | In Agriculture | - | 85.6% | 94.0% | 91.7% | 96.7% | - | - |
| By 2017 | Further qualification 2017 | - | 49.8% | 61.2% | 48.7% | 64.9% | - | - |
| | Higher qualification | - | 74.1% | 44.4% | 34.4% | 16.4% | - | - |
| By 2017 | Further qualification 2017 MT | - | 28.5% | 41.9% | 25.1% | 36.2% | - | - |
| | In Agriculture | - | 82.6% | 93.0% | 85.4% | 94.1% | - | - |
| By 2021 | Further qualification 2021 | - | 56.8% | 65.6% | 54.6% | 66.3% | - | - |
| | Higher qualification | - | 78.4% | 50.0% | 39.3% | 18.5% | - | - |
| By 2021 | Further qualification 2021 MT | - | 30.7% | 43.3% | 29.1% | 37.8% | - | - |
| | In Agriculture | - | 82.4% | 92.4% | 86.0% | 94.6% | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Agriculture learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 17 shows the pre and post PSQs of the Horticulture sub-group by the NZQF qualification level the learners achieved in 2012. We note the same pattern for the pre-2012 qualifications as with the Agriculture sub-group, with the proportion of those with a prior qualifications being higher as NZQF levels increases, but the proportion of those with a higher PSQ decreasing.

Here, we see that Level 3 learners had the highest proportion of those getting a further qualification by 2014, at 43%, growing to 65% by 2021. Unsurprisingly, the group most likely to achieve a further PSQ at a higher NZQF level were those who graduated with a Level 1 qualification in 2012 (2021: 97%). The proportion of respondents who went on to do a further PSQ at a higher level decreases as the NZQF level achieved in 2012 increases; e.g., the share of Level 4 with a higher qualification by 2021 is 24%.

Table 17: Pre and post qualifications for the 2012 learner cohort: Horticulture

| | | NZQF Qualification Level in 2012 | | | | | | |
|----------------|-------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | 45.2% | 47.7% | 62.8% | 63.5% | 63.6% | - | - |
| | Higher qualification | 94.7% | 67.9% | 41.4% | 10.6% | - | - | - |
| Before 2012 MT | Qualification before 2012 MT | 19.8% | 23.4% | 39.5% | 47.2% | 50.0% | - | - |
| | In Horticulture | 28.0% | 60.0% | 76.5% | 77.4% | 109.1% | - | - |
| By 2014 | Further qualification 2014 | 35.5% | 37.6% | 42.9% | 36.0% | 40.0% | - | - |
| | Higher qualification | 93.0% | 83.5% | 53.3% | 18.6% | - | - | - |
| By 2014 MT | Further qualification 2014 MT | 26.4% | 23.9% | 31.0% | 17.7% | - | - | - |
| | In Horticulture | 90.6% | 85.2% | 89.5% | 86.2% | - | - | - |
| By 2017 | Further qualification 2017 | 47.9% | 53.9% | 56.4% | 51.2% | 50.0% | - | - |
| | Higher qualification | 94.7% | 83.9% | 58.8% | 20.5% | - | - | - |
| By 2017 MT | Further qualification 2017 MT | 30.3% | 32.4% | 36.5% | 24.1% | - | - | - |
| | In Horticulture | 86.1% | 81.7% | 85.2% | 79.5% | - | - | - |
| By 2021 | Further qualification 2021 | 54.3% | 58.5% | 64.7% | 56.7% | 55.0% | - | - |
| | Higher qualification | 96.8% | 87.4% | 62.2% | 23.7% | - | - | - |
| By 2021 MT | Further qualification 2021 MT | 31.9% | 34.6% | 39.0% | 26.8% | 35.0% | - | - |
| | In Horticulture | 86.5% | 81.3% | 81.9% | 75.0% | 100.0% | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Horticulture learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 18 shows the pre and post PSQs of the Forestry sub-group by the NZQF qualification level the learners achieved in 2012. We note that small counts for this sub-group make analysis difficult, with no Level 1 and 5-7 learners reported due to Stats NZ confidentiality rules and very few Level 2 learners. We therefore restrict our comments to the Level 3 and 4 learners.

We note that 60% (61%) of NZQF Level 3 (Level 4) learners had a prior PQS in 2012; moreover, about every second Level 3 learner had a prior PSQ at a higher qualification (49%). We also note that with regards to further qualifications, by 2014, 36% and 25% of Level 3 and Level 4 learners, respectively, had gone on to do a further PSQ. These proportions increased to 68% and 71%, respectively, by 2021.

Table 18: Pre and post qualifications for the 2012 learner cohort: Forestry

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 54.8% | 59.5% | 61.1% | - | - | - |
| | Higher qualification | - | 67.5% | 49.1% | - | - | - | - |
| Before 2012 | Qualification before 2012 MT | - | 32.9% | 37.9% | 47.3% | - | - | - |
| | In Forestry | - | - | - | - | - | - | - |
| By 2014 | Further qualification 2014 | - | 34.3% | 35.7% | 24.8% | - | - | - |
| | Higher qualification | - | 70.8% | 48.5% | - | - | - | - |
| By 2014 | Further qualification 2014 MT | - | 22.9% | 23.2% | 19.2% | - | - | - |
| | In Forestry | - | - | - | - | - | - | - |
| By 2017 | Further qualification 2017 | - | 51.4% | 58.2% | 58.1% | - | - | - |
| | Higher qualification | - | 72.2% | 55.7% | - | - | - | - |
| By 2017 | Further qualification 2017 MT | - | 28.6% | 37.4% | 42.7% | - | - | - |
| | In Forestry | - | - | - | - | - | - | - |
| By 2021 | Further qualification 2021 | - | 64.8% | 68.0% | 71.1% | - | - | - |
| | Higher qualification | - | 78.3% | 63.4% | - | - | - | - |
| By 2021 | Further qualification 2021 MT | - | 33.8% | 45.3% | 55.4% | - | - | - |
| | In Forestry | - | - | - | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Forestry learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 19 shows the pre and post PSQs of the Seafood sub-group by the NZQF qualification level the learners achieved in 2012. Due to small sample size, our focus is on Level 3 learners. A pattern similar to previous MT sub-groups emerges, with the proportion of learners with a prior PSQ increasing as the level achieved in 2012 increases. Again, as expected, the proportion of those whose prior PSQ was at a higher level decreases as NZQF level increases. Also of note is that as NZQF level increases, so does the proportion of those with a PSQ in the same WDC; however, this pattern does not persist for the same sub-group.

In terms of further qualifications, 35% of the Level 3 group had one by 2014, and this share raises to 61% by 2021. At the same time, almost two thirds of Level 3 learners attain a higher qualification by 2021.

Table 19: Pre and post qualifications for the 2012 learner cohort: Seafood

| | | NZQF Qualification Level in 2012 | | | | | | |
|------------------------------|-------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 40.9% | 55.5% | 73.1% | - | - | - |
| | Higher qualification | - | 59.3% | 50.9% | 23.7% | - | - | - |
| Before 2012 MT In Seafood | Qualification before 2012 MT | - | 22.7% | 20.1% | 50.0% | - | - | - |
| | In Seafood | - | 100.0% | 42.9% | 76.9% | - | - | - |
| By 2014 | Further qualification 2014 | - | 19.7% | 35.2% | 23.4% | - | - | - |
| | Higher qualification | - | 75.0% | 55.1% | - | - | - | - |
| By 2014 MT In Seafood | Further qualification 2014 MT | - | - | 13.8% | - | - | - | - |
| | In Seafood | - | - | 70.4% | - | - | - | - |
| By 2017 | Further qualification 2017 | - | 36.7% | 52.3% | 47.9% | - | - | - |
| | Higher qualification | - | 86.4% | 57.4% | - | - | - | - |
| By 2017 MT In Seafood | Further qualification 2017 MT | - | 15.0% | 18.7% | - | - | - | - |
| | In Seafood | - | 100.0% | 61.1% | - | - | - | - |
| By 2021 | Further qualification 2021 | - | 53.4% | 61.1% | 61.2% | - | - | - |
| | Higher qualification | - | 87.1% | 60.2% | 33.3% | - | - | - |
| By 2021 MT In Seafood | Further qualification 2021 MT | - | 25.9% | 20.7% | 20.4% | - | - | - |
| | In Seafood | - | 86.7% | 60.0% | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Seafood learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 20 shows the pre and post PSQs of the Veterinary sub-group by the NZQF qualification level the learners achieved in 2012. We see a general trend of higher proportions of pre PSQ qualifications as NZQF level increases, with 42% of Level 2 learners with a prior PSQ increasing up to 64% of Level 6 learners and 75% for Level 4 learners.

In terms of further qualifications, we see lower numbers for learners with a higher qualification level in 2012. While about every second Level 2 learner has a further qualification by 2014, the share is at 27% for Level 6 learners. The discrepancy persists over time, with larger shares of further qualifications by 2021 for Level 2 and Level 4 learners compared to Level 5 and Level 6 learners.

At the same time, almost all of the future qualifications of Level 2 learners are a higher qualification compared to the one attained in 2012 (e.g., 97% by 2021)—while this is the case for only 44% of the Level 5 learners.

Lastly, around a third of the learners have a further PSQ in the same WDC by 2021, with higher proportions for Level 2 learners (44%) than Level 5 learners (31%). However, out of those with a further qualification in MT, the very fast majority (between 77% and 89%) attain it in the same sub-group.

Table 20: Pre and post qualifications for the 2012 learner cohort: Veterinary

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 42.3% | - | 75.0% | 60.2% | 63.6% | - |
| | Higher qualification | - | 70.2% | - | - | - | - | - |
| Before 2012 | Qualification before 2012 MT | - | 9.9% | - | 47.9% | 38.7% | 48.5% | - |
| | In Veterinary | - | - | - | 95.7% | 88.9% | 68.8% | - |
| By 2014 | Further qualification 2014 | - | 51.4% | - | 30.4% | 29.2% | 26.7% | - |
| | Higher qualification | - | 92.6% | - | 57.1% | 34.6% | - | - |
| By 2014 | Further qualification 2014 MT | - | 42.9% | - | 19.6% | 23.6% | 23.3% | - |
| | In Veterinary | - | 91.1% | - | 77.8% | 90.5% | - | - |
| By 2017 | Further qualification 2017 | - | 58.8% | 61.5% | 52.3% | 42.9% | 33.3% | - |
| | Higher qualification | - | 95.0% | - | 52.2% | 38.9% | - | - |
| By 2017 | Further qualification 2017 MT | - | 44.1% | - | 22.7% | 28.6% | 26.7% | - |
| | In Veterinary | - | 88.9% | - | 80.0% | 83.3% | - | - |
| By 2021 | Further qualification 2021 | - | 65.0% | 69.2% | 63.6% | 50.0% | 43.3% | - |
| | Higher qualification | - | 97.0% | 77.8% | 53.6% | 44.2% | - | - |
| By 2021 | Further qualification 2021 MT | - | 44.7% | - | 29.5% | 31.4% | 26.7% | - |
| | In Veterinary | - | 89.1% | - | 76.9% | 81.5% | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Veterinary, turf and gardening learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

5.3 Labour market trajectories by sub-group

This sub-section presents the labour market outcomes of the MT learner cohort, by sub-group at three different time points: two, five- and ten-years post-graduation (2014, 2017, 2022). First, we examine the sub-groups in their entirety before analysing outcomes by industry, gender, ethnicity and region.

Table 21 describes the labour market outcomes of MT learners in aggregate and by industry sub-group. The employment rate does not differ substantially by MT sub-group, with three sub-groups having a share of above 85% in 2014 (Agriculture, Forestry, and Veterinary) and the other three sub-groups sitting around 73%-78% (Horticulture, Seafood, and Support). We also note that all sub-groups see a decrease in the employment rate over time, reaching their lowest levels in 2021—though with differences in the size of the employment drop (e.g., by 10 percentage points for Agriculture and 4 percentage points for Seafood). This, however, does not seem to affect earnings growth, which is consistently positive for all sub-groups over time. It is worth remembering that all \$ figures in Table 21 are deflated to 2022 dollars to ensure they are comparable across time points.

There are substantial earning differences across sub-groups, with the Veterinary sub-group earning the least across all three time points (\$27.5k in 2014, \$37k in 2017, and \$44.4k in 2021), while Forestry out earned all other sub-groups in 2017 and 2021 (at \$59.7k and \$68.5k, respectively). Variation across sub-groups is also found, concerning the number of employers per year, which can be considered as a measure of job stability; it was highest for the Agriculture in 2014 (with an average of 1.9 employers), and lowest across all three time points, at 1.3 employers per year, for Support.

The rate of benefit receipt also varied substantially by sub-group, with the MT average sitting between 23% and 27%. The lowest proportion of benefit receipt that we can comment on is for the Agriculture sub-group, which hovers around 17% and 18% over time, while the Seafood sub-group had the highest proportion of benefit receipt between 37% and 43%.

Table 21. Labour market outcomes by MT sub-groups

| | Muka Tangata | Agriculture | Horticulture | Forestry | Seafood | Support | Veterinary |
|--|--------------|-------------|--------------|----------|---------|---------|------------|
| Share by sub-group | | | | | | | |
| 2014 | 100% | 52.2% | 21.3% | 10.5% | 8.4% | 1.3% | 7.7% |
| 2017 | 100% | 52.4% | 21.1% | 10.6% | 8.4% | 1.3% | 7.5% |
| 2022 | 100% | 52.6% | 21.0% | 10.5% | 8.4% | 1.3% | 7.6% |
| 1) Earnings from Wages & Salaries (W&S) | | | | | | | |
| Employment | | | | | | | |
| 2014 | 81.0% | 85.4% | 76.7% | 85.6% | 77.7% | 72.9% | 87.7% |
| 2017 | 79.1% | 81.0% | 75.3% | 85.4% | 77.1% | 70.8% | 84.9% |
| 2022 | 74.7% | 74.2% | 71.1% | 80.5% | 73.6% | 68.1% | 80.7% |
| Employment intensity | | | | | | | |
| 2014 | 10.0 | 10.3 | 10.1 | 10.5 | 9.2 | 9.8 | 10.2 |
| 2017 | 10.3 | 10.3 | 10.4 | 10.6 | 9.7 | 9.9 | 10.6 |
| 2022 | 10.4 | 10.4 | 10.5 | 10.6 | 10.0 | 10.3 | 10.5 |
| Mean annual earnings from W&S | | | | | | | |
| 2014 | 41,155 | 46,246 | 40,768 | 51,109 | 37,318 | 43,994 | 27,498 |
| 2017 | 48,590 | 51,651 | 47,959 | 59,700 | 43,295 | 51,896 | 37,040 |
| 2022 | 56,240 | 58,577 | 54,885 | 68,518 | 51,356 | 59,713 | 44,399 |
| Mean number of employers per year | | | | | | | |
| 2014 | 1.6 | 1.9 | 1.4 | 1.6 | 1.6 | 1.4 | 1.8 |
| 2017 | 1.5 | 1.8 | 1.4 | 1.5 | 1.5 | 1.3 | 1.5 |
| 2022 | 1.4 | 1.6 | 1.4 | 1.4 | 1.5 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | |
| Self-employment | | | | | | | |
| 2014 | 10.3% | 12.4% | 11.1% | 5.1% | - | 18.8% | 3.9% |
| 2017 | 11.3% | 16.7% | 13.2% | 8.3% | 2.9% | 20.8% | 5.9% |
| 2022 | 13.1% | 20.2% | 13.8% | 10.3% | 4.3% | 19.1% | 10.9% |
| Sum of employment and self-employment | | | | | | | |
| 2014 | 85.7% | 91.1% | 82.3% | 88.4% | 78.4% | 85.4% | 88.7% |
| 2017 | 85.0% | 89.6% | 83.0% | 89.6% | 78.1% | 83.3% | 86.4% |
| 2022 | 82.5% | 86.0% | 79.7% | 85.2% | 75.9% | 83.0% | 85.5% |
| Mean annual income from W&S and self-employment | | | | | | | |
| 2014 | 43,053 | 49,690 | 42,675 | 51,875 | 37,614 | 48,630 | 27,837 |
| 2017 | 51,167 | 54,493 | 49,297 | 60,849 | 43,898 | 60,135 | 38,334 |
| 2022 | 59,189 | 64,643 | 56,423 | 72,645 | 51,320 | 63,908 | 46,198 |
| 3) Income from benefits | | | | | | | |
| Benefit reciprocity | | | | | | | |
| 2014 | 27.2% | 17.9% | 26.6% | 20.3% | 42.6% | 29.2% | 26.4% |
| 2017 | 22.5% | 16.6% | 22.8% | 17.4% | 36.9% | 25.0% | 16.2% |
| 2022 | 23.7% | 17.6% | 23.2% | 21.6% | 38.6% | 23.4% | 17.8% |
| Benefit intensity | | | | | | | |
| 2014 | 7.8 | 7.5 | 8.1 | 7.3 | 8.5 | 8.2 | 7.4 |
| 2017 | 8.3 | 8.2 | 8.7 | 7.5 | 8.6 | 8.5 | 8.4 |
| 2022 | 9.4 | 9.2 | 9.8 | 8.4 | 9.6 | 9.9 | 9.5 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Agriculture

In this subsection, we analyse the labour market trajectories of the Agriculture sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Agriculture sub-group. Table 22 looks at outcomes by NZQF level, while, due to small individual counts, we cannot comment on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix C.

Agriculture by NZQF level

In interpreting Table 22, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings and self-employment income was 99% in 2014 for those with no PSQs and those who completed a Level 5 qualification. For those who completed a qualification at Level 2, 3, and 4, the share was lower (between 89% and 94%).

Next, we turn to the earnings premium associated with a qualification. In 2014, we can see that the earnings level is rather similar between the different qualification levels; and that the mean annual earnings from W&S is, on average, about \$4k lower for those without a PSQ. However, and as expected, we can observe a higher wage growth rate for those with a higher qualification level: in 2022, Level 5 learners earned on average \$64k, which is about \$6k higher than the mean annual earnings of Level 2 learners (\$58k). Moreover, those without a PSQ still earn substantially less (\$52k in 2022). This observation is hardly affected when also accounting for income from self-employment. Interestingly, the share of self-employment seems to increase with the qualification level and the gap widens over time.

As we can see in Table 14, results for Agriculture at NZQF Level 5 and up should be interpreted with caution, with just 5% and 1% of this cohort undertaking a Level 5 or Level 6 PSQ respectively. Note also that labour market patterns in Table 22 must be interpreted jointly with the pre and post qualification patterns in Section 5.2.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remains small and the results for these categories should be

interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 group for the Agriculture sub-group.

Agriculture by related industry

Table 23 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately a third of the Agriculture sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion rising to over 57% by 2022.

Of the majority that do end up in a related industry, we note that they have higher employment intensity and average earnings, with the related industry group outearning their counterparts by a modest 5k to 2k at every time point. This group also has a much lower proportion of benefit receipt than those working in a non-related industry. This industry premium does not dissipate over time and is evident two, five and ten years post-graduation.

Table 22. Labour market outcomes for Agriculture sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.4% | - | 84.9% | 85.3% | 85.7% | 87.4% | - | - |
| 2017 | 88.2% | - | 81.6% | 81.0% | 78.1% | 79.8% | - | - |
| 2022 | 78.7% | - | 75.8% | 73.1% | 74.0% | 74.5% | - | - |
| Employment intensity | | | | | | | | |
| 2014 | 10.1 | - | 10.0 | 10.4 | 10.7 | 10.3 | - | - |
| 2017 | 10.3 | - | 10.2 | 10.4 | 10.4 | 10.6 | - | - |
| 2022 | 10.4 | - | 10.4 | 10.5 | 10.4 | 10.4 | - | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 41,260 | - | 45,308 | 46,286 | 48,269 | 48,328 | - | - |
| 2017 | 45,770 | - | 50,709 | 51,806 | 51,186 | 56,370 | - | - |
| 2022 | 51,656 | - | 58,480 | 57,757 | 57,285 | 64,173 | - | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 2.3 | - | 2.0 | 1.9 | 2.3 | 1.8 | - | - |
| 2017 | 1.9 | - | 1.8 | 1.8 | 1.8 | 1.5 | - | - |
| 2022 | 1.7 | - | 1.6 | 1.6 | 1.7 | 1.4 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 8.8% | - | 9.6% | 12.5% | 17.9% | 24.2% | - | - |
| 2017 | 11.7% | - | 12.3% | 16.8% | 27.1% | 30.9% | - | - |
| 2022 | 12.8% | - | 14.8% | 20.8% | 28.6% | 35.7% | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.7% | - | 88.8% | 91.6% | 93.9% | 98.9% | - | - |
| 2017 | 92.1% | - | 87.1% | 90.4% | 93.2% | 94.7% | - | - |
| 2022 | 85.1% | - | 83.8% | 86.4% | 90.3% | 92.9% | - | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 43,345 | - | 46,796 | 50,179 | 54,309 | 56,029 | - | - |
| 2017 | 47,785 | - | 52,023 | 54,501 | 57,725 | 62,206 | - | - |
| 2022 | 54,490 | - | 62,803 | 63,596 | 69,544 | 72,712 | - | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 21.0% | - | 24.4% | 16.7% | 4.6% | - | - | - |
| 2017 | 19.2% | - | 21.8% | 15.5% | 6.3% | - | - | - |
| 2022 | 22.5% | - | 22.9% | 16.7% | 8.2% | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 7.2 | - | 7.7 | 7.3 | 6.9 | - | - | - |
| 2017 | 7.8 | - | 8.6 | 7.9 | 7.6 | - | - | - |
| 2022 | 9.2 | - | 9.5 | 9.0 | 9.0 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Agriculture learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 23. Labour market outcomes for Agriculture sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|--|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| 1) Share in related industry (based on W&S information) | | | | |
| 2014 | 63.4% | 36.6% | 67.6% | 32.4% |
| 2017 | 53.7% | 46.3% | 64.2% | 35.8% |
| 2022 | 42.9% | 57.1% | 50.0% | 50.0% |
| 2) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.6 | 9.7 | 10.4 | 10.1 |
| 2017 | 10.5 | 10.1 | 10.5 | 10.7 |
| 2022 | 10.6 | 10.3 | 10.6 | 10.1 |
| Mean annual earnings from W&S | | | | |
| 2014 | 47,971 | 42,838 | 46,970 | 53,324 |
| 2017 | 53,021 | 49,253 | 54,649 | 63,321 |
| 2022 | 59,289 | 57,096 | 65,214 | 66,473 |
| Mean number of employers per year | | | | |
| 2014 | 2.3 | 1.4 | 2.0 | 1.3 |
| 2017 | 2.1 | 1.4 | 1.9 | 1.3 |
| 2022 | 1.9 | 1.4 | 1.8 | 1.2 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 10.7% | 22.9% | - | - |
| 2017 | 10.1% | 18.3% | - | - |
| 2022 | 10.1% | 16.4% | - | - |
| Benefit intensity | | | | |
| 2014 | 5.7 | 7.5 | - | - |
| 2017 | 6.8 | 7.3 | - | - |
| 2022 | 7.2 | 8.0 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Agriculture learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Agriculture by gender

Appendix Table C 2, shows the 2012 Agriculture sub-group by gender. Women make up 28% of this sub-group at NZQF Level 2-4, with 72% of the group being male. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$16.1k in 2014 to \$19.9k in 2022. In fact, the female cohort earned \$7k less ten-years post-graduation than the male cohort was earning in their first year of working (2014). Looking at income from self-employment does not close this gap. Benefit receipt is also higher for the women in this sub-group. Notably, the proportion of learners receiving at least one month of benefits is over 22% for women at all time points, while this proportion only reached a maximum of 17% for the male cohort.

The NZQF Level 5-7 cohort looks slightly different, with a higher proportion of women (around 32%), however the males in this group also earn substantially more than their female counterparts. The earnings differential between genders increases from \$16.2k in 2014, to \$17.5k by 2021.

Agriculture by ethnicity

In Appendix Table C 3, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Agriculture sub-group. Once again, our interpretation is focussed on comparing labour market trajectories for those completing a Level 2-4 qualification, as the sample is too small at the higher PSQ levels, particularly for Māori and Pacific. Note that even for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 2%, with Māori at 28% and European at 70%.

We note that the share of learners receiving income from W&S is fairly similar across the three ethnicities. Earnings however do not match the same pattern, with the European cohort out-earning the others in all three time points, and except for 2014, followed by the Pacific and then the Māori cohort. This is despite the fact that both Pacific and Māori groups had higher income growth (46% and 33% respectively) than the European group (25%).

Agriculture by region

Results by region are shown in Appendix Table C 4. Agriculture learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. There is a premium in average yearly earnings from W&S for those living outside of Auckland for the NZQF Level 2-4 in 2014. Notably, the gap closes somewhat over time. This observation is not impacted by the inclusion of income from self-employment. Noteworthy is also that the Auckland cohort has higher benefit reciprocity in all three time points.

Horticulture

In this subsection, we analyse the labour market trajectories of the Horticulture sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Horticulture sub-group. Table 24 looks at outcomes by NZQF level, while Table 25 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix C.

Horticulture by NZQF level

In interpreting Table 24, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings and/or self-employment income was 99% in 2014 for those with no PSQs and 95% for those who completed a Level 1 or Level 5 qualification. For those who completed a qualification at Level 2, 3, and 4, the share was lower (between 75% and 84%). The employment intensity measured as the number of months employed (only calculated for those who were employed for at least one month of the year), does not vary considerably across NZQF levels or time.

Next, we turn to the earnings premium associated with a qualification. Interestingly, in 2014 the wage level for those with a Level 2-5 qualification is rather similar and hovers around \$38k-\$42k—and just slightly above what those without a PSQ earned (\$36k). However, wage progression over time is highly heterogeneous and wage growth is higher for those with a higher qualification level: while those with a Level 5 qualification earn \$27k more in 2022, over the same period wages increase by \$14k for Level 2 learners—which is a pace similar to those without a PSQ.

We note that the proportion of self-employed learners increases both over time and as NZQF level achieved in 2012 increases, with those with no PSQ having the smallest proportion of self-employed individuals.

When considering income from benefits, no clear pattern between qualification level and share of benefit receipts can be observed. However, for most groups (with the exception of Level 1 learners), we see a decline in benefit recipiency over time. Note also that labour market patterns in Table 24 must be interpreted jointly with the pre and post qualification patterns in Section 5.2.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remain small and the results for these categories should be

interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 group for the Horticulture sub-group.

Horticulture by related industry

Table 25 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 68% of the Horticulture sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion rising to 75% by 2021. Of those working in a related industry, we note that the differences in terms of employment intensity, average earnings, and benefit receipt are small and this relationship does not shift substantially over time.

Table 24. Labour market outcomes for Horticulture sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.2% | 92.5% | 70.8% | 72.4% | 78.7% | 90.0% | - | - |
| 2017 | 88.2% | 87.3% | 71.2% | 72.2% | 77.2% | 70.0% | - | - |
| 2022 | 79.2% | 81.7% | 67.0% | 68.6% | 71.3% | 75.0% | - | - |
| Employment intensity | | | | | | | | |
| 2014 | 9.9 | 10.8 | 9.7 | 9.8 | 10.2 | 10.1 | - | - |
| 2017 | 10.3 | 10.7 | 10.2 | 10.3 | 10.4 | 11.4 | - | - |
| 2022 | 10.4 | 10.5 | 10.5 | 10.5 | 10.5 | 10.9 | - | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 36,091 | 50,780 | 37,060 | 36,503 | 41,711 | 39,011 | - | - |
| 2017 | 42,688 | 57,527 | 43,476 | 44,069 | 48,760 | 54,836 | - | - |
| 2022 | 49,296 | 59,960 | 51,574 | 52,155 | 56,750 | 65,873 | - | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 2.2 | 1.3 | 1.4 | 1.5 | 1.4 | 1.7 | - | - |
| 2017 | 1.7 | 1.3 | 1.4 | 1.4 | 1.3 | 1.4 | - | - |
| 2022 | 1.6 | 1.3 | 1.5 | 1.4 | 1.4 | 1.3 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 6.6% | 7.5% | 8.8% | 15.0% | 10.4% | - | - | - |
| 2017 | 8.6% | 9.3% | 10.5% | 17.8% | 11.7% | - | - | - |
| 2022 | 9.5% | 9.6% | 11.2% | 18.0% | 12.8% | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.5% | 95.0% | 75.2% | 80.9% | 84.1% | 95.0% | - | - |
| 2017 | 90.9% | 90.7% | 78.1% | 81.7% | 84.6% | 85.0% | - | - |
| 2022 | 83.8% | 87.8% | 75.3% | 79.1% | 79.9% | 90.0% | - | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 37,461 | 51,372 | 38,393 | 40,407 | 43,257 | 40,399 | - | - |
| 2017 | 44,565 | 57,815 | 43,926 | 46,753 | 52,130 | 47,938 | - | - |
| 2022 | 51,733 | 61,486 | 51,440 | 54,699 | 58,947 | 58,983 | - | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 27.9% | 14.2% | 36.7% | 26.4% | 25.0% | - | - | - |
| 2017 | 23.1% | 15.3% | 30.1% | 21.2% | 22.8% | - | - | - |
| 2022 | 25.9% | 18.3% | 30.7% | 22.6% | 20.7% | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 7.5 | 8.4 | 8.5 | 8.2 | 7.3 | - | - | - |
| 2017 | 8.0 | 8.6 | 8.9 | 8.6 | 8.5 | - | - | - |
| 2022 | 9.4 | 9.7 | 9.8 | 9.7 | 10.2 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Horticulture learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 25. Labour market outcomes for Horticulture sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 32.5% | 67.5% | 53.8% | 46.2% |
| 2017 | 27.1% | 72.9% | 50.0% | 50.0% |
| 2022 | 24.8% | 75.2% | 36.4% | 63.6% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.1 | 9.8 | 10.0 | 10.3 |
| 2017 | 10.5 | 10.3 | 11.3 | 11.4 |
| 2022 | 10.6 | 10.4 | 11.0 | 10.2 |
| Mean annual earnings from W&S | | | | |
| 2014 | 37,862 | 38,263 | 38,938 | 49,449 |
| 2017 | 46,516 | 44,785 | 56,837 | 63,361 |
| 2022 | 54,227 | 52,560 | 73,800 | 64,361 |
| Mean number of employers per year | | | | |
| 2014 | 1.70 | 1.35 | 1.90 | 1.25 |
| 2017 | 1.64 | 1.32 | 1.40 | 1.13 |
| 2022 | 1.65 | 1.33 | 1.50 | 1.05 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 22.4% | 21.6% | - | - |
| 2017 | 17.9% | 18.1% | - | - |
| 2022 | 15.1% | 16.5% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.7 | 7.7 | - | - |
| 2017 | 6.8 | 7.3 | - | - |
| 2022 | 7.8 | 8.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Horticulture learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Horticulture by gender

Appendix Table C 5, shows the 2012 Horticulture sub-group by gender. Women make up 44% of this sub-group at NZQF Level 2-4, with 56% of the group being male. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$10k in 2014 to \$14k in 2022. Looking at self-employed income only marginally serves to minimise this gap. Benefit receipt is also higher for the women in this sub-group. In contrast to most of the other sub-groups, the proportion of learners receiving at least one month of benefits is fairly similar between the male and female cohort, with a similar trend over time.

Horticulture by ethnicity

In Appendix Table C 6, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Horticulture sub-group. Once again, our interpretation is focussed on comparing labour market trajectories for those completing a Level 2-4 qualification, as the sample is too small at the higher PSQ levels, particularly for Māori and Pacific. Note that even for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 3%, with Māori at 32% and European at 65%.

We note that the share of European learners receiving income from W&S is highest in 2014, but by 2022 the gap closes notably as in particular the share of employed Europeans decline. Earnings however do not match the same pattern, with the European cohort out-earning the others in all three time points, followed by the Pacific and then the Māori cohort. The gap is in particular large between the European and the Māori cohort, which stayed constant over time: in 2014 and 2022, Europeans earned \$17k more.

Benefit receipt is also lowest for the European sub-group in 2014 and highest for the Māori sub-group. It is notable that over half of the Māori sub-group received income from benefits in at least one month.

Horticulture by region

Results by region are shown in Appendix Table C 7. Horticulture learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. There is a premium in average yearly earnings from W&S for those living in Auckland, who outearn the outside Auckland group in all time periods. This is also true when income from self-employment is also accounted for. This appears to be consistent with previous research highlighting an Auckland wage and productivity premium (e.g. Lewis & Stillman, 2007; Maré, 2008; Fabling, 2021).

Forestry

In this subsection, we analyse the labour market trajectories of the Forestry sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Forestry sub-group. Table 26 looks at outcomes by NZQF level, while Table 27 looks at outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix C.

Forestry by NZQF level

In interpreting Table 26, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings and/or self-employment income was 99% in 2014 for those with no PSQs. The share was lower (between 80% and 97%) for those who completed a qualification at Level 2 through 4. The share of employed stays unchanged for Level 2 through 4 in 2017, while it decreases for the no PSQ group.

Next, we turn to the earnings premium associated with a qualification. In 2014, there is a substantial wage gap between those with a Level 2 qualification (\$41k) compared to those with a Level 4 qualification (\$62k), which persists in the following years. Interestingly, wage growth for Level 3 learners stays behind that of Level 2 learners, resulting in lower average wages in 2022 for the first group. Regarding a wage premium (the difference compared to what no PSQ earn), the gap is especially pronounced compared to Level 4: while Level 4 learners, on average, received income from W&S of about \$62k in 2014, for those with no PSQ it was \$50k (a gap of -\$12k)—and by 2022, the difference increased to -\$15k. Furthermore, while Level 2 learners earn less in 2014 compared to no PSQ, this relationship is flipped by 2022. However, we note that the earnings premium is negative for Level 3 learners at all three time points, regardless of self-employed earnings; by 2022, they earn \$3.5k less than the no PSQ group.

Unfortunately, due to small counts, we can only comment on Level 2 to 4 benefit receipt trends. It appears that benefit receipt decreases as NZQF level increases, however the no PSQ group has lower benefit reciprocity than Level 2 and 3 learners at all three time points.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remains small and the results for these categories should be

interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 group for the Forestry sub-group.

Forestry by related industry

Table 27 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately a third of the Forestry sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion rising to over 50% by 2022. Of the majority that do end up in a related industry, we note that they have sizeably higher employment intensity and average earnings, with the related industry group outearning their counterparts by over \$20k at every time point. This group also has a much lower proportion of benefit receipt than those working in a non-related industry. This industry premium does not dissipate over time and is evident two, five and ten years post-graduation.

Table 26. Labour market outcomes for Forestry sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 99.7% | - | 77.1% | 82.2% | 95.2% | - | - | - |
| 2017 | 92.5% | - | 77.1% | 83.0% | 94.4% | - | - | - |
| 2022 | 84.4% | - | 71.4% | 77.1% | 90.9% | - | - | - |
| Employment intensity | | | | | | | | |
| 2014 | 10.7 | - | 8.8 | 10.5 | 11.4 | - | - | - |
| 2017 | 10.6 | - | 9.6 | 10.3 | 11.3 | - | - | - |
| 2022 | 10.7 | - | 10.3 | 10.2 | 11.2 | - | - | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 49,566 | - | 40,990 | 46,554 | 62,414 | - | - | - |
| 2017 | 56,254 | - | 53,560 | 53,219 | 69,856 | - | - | - |
| 2022 | 64,542 | - | 68,372 | 58,489 | 79,644 | - | - | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 2.0 | - | 1.5 | 1.6 | 1.5 | - | - | - |
| 2017 | 1.8 | - | 1.4 | 1.5 | 1.4 | - | - | - |
| 2022 | 1.6 | - | 1.4 | 1.4 | 1.3 | - | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 3.8% | - | - | 7.0% | - | - | - | - |
| 2017 | 6.8% | - | - | 9.9% | 8.9% | - | - | - |
| 2022 | 7.4% | - | - | 11.7% | 9.1% | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.5% | - | 80.0% | 85.4% | 96.8% | - | - | - |
| 2017 | 95.0% | - | 80.0% | 88.5% | 96.8% | - | - | - |
| 2022 | 88.1% | - | 74.3% | 82.7% | 94.2% | - | - | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 50,636 | - | 40,968 | 48,201 | 63,051 | - | - | - |
| 2017 | 57,496 | - | 53,655 | 55,085 | 71,014 | - | - | - |
| 2022 | 66,478 | - | 71,837 | 62,982 | 85,082 | - | - | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 15.8% | - | 38.6% | 23.2% | 7.2% | - | - | - |
| 2017 | 15.5% | - | 30.0% | 20.9% | 5.6% | - | - | - |
| 2022 | 19.7% | - | 35.7% | 25.1% | 9.1% | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 6.3 | - | 7.8 | 7.0 | 6.3 | - | - | - |
| 2017 | 7.2 | - | 7.3 | 7.9 | 6.3 | - | - | - |
| 2022 | 8.7 | - | 7.8 | 9.0 | 7.2 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Forestry learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 27. Labour market outcomes for Forestry sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 65.6% | 34.4% | - | - |
| 2017 | 54.2% | 45.8% | - | - |
| 2022 | 49.7% | 50.3% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.4 | 9.1 | - | - |
| 2017 | 11.3 | 9.8 | - | - |
| 2022 | 11.1 | 10.2 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 59,007 | 37,904 | - | - |
| 2017 | 69,748 | 47,384 | - | - |
| 2022 | 79,439 | 57,541 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.5 | - | - |
| 2017 | 1.5 | 1.4 | - | - |
| 2022 | 1.5 | 1.4 | - | - |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 5.7% | 32.4% | - | - |
| 2017 | 6.9% | 21.8% | - | - |
| 2022 | 7.5% | 23.5% | - | - |
| Benefit intensity | | | | |
| 2014 | 4.6 | 7.3 | - | - |
| 2017 | 4.8 | 7.0 | - | - |
| 2022 | 5.5 | 7.9 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Forestry learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Forestry by gender

Appendix Table C 8, shows the 2012 Forestry sub-group by gender. Women make up a small minority, 6% of this sub-group at NZQF Level 2-4, with 94% of the group being male. As is evident in previous WDCs and MT sub-groups, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$21.2k in 2014 to \$27.2k in 2022. In fact, the female cohort earned \$10k less ten-years post-graduation than the male cohort was earning in their first year of working (2014). Looking at self-employed income only serves to increase this gap, especially in 2022 when the earnings differential reached \$28.3k. Benefit receipt is also higher for the women in this sub-group. Notably, the proportion of learners receiving at least one month of benefits is over 41% for women at all time points, while this proportion only reached a maximum of 21% for the male cohort.

Forestry by ethnicity

In Appendix Table C 9, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Forestry sub-group. Once again, our interpretation is focussed on comparing labour market trajectories for those completing a Level 2-4 qualification, as the sample is too small at the higher PSQ levels, particularly for Māori and Pacific. Note that even for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 6%, with Māori at 54% and European at 41%.

We note that the share of Pacific learners receiving income from W&S is highest in most time periods, followed by the European group and lastly the Māori group.

Earnings however do not match the employment pattern, with the European cohort out-earning the others in all three time points, followed by the Māori and then the Pacific cohort—though the difference between the Māori and then the Pacific cohort becomes small in 2022. This is despite the fact that the Pacific cohort had highest income growth, at 47% compared to the European group's 36% (Māori: 26%). Including income from self-employment does not change the income disparities by a large proportion, however income growth does appear to be higher for Europeans (43%) than for the other two groups (30% for Māori and 42% for Pacific).

Forestry by region

Results by region are shown in Appendix Table C 10. Forestry learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. Unsurprisingly, the share of learners located in Auckland is small and around 9% at the three different time points. As with previous MT sub-groups, there is a premium in average yearly earnings from W&S for those living outside of Auckland, who outearn the Auckland group in 2014 and 2017. Notably, the gap closes over time, with the Auckland

group outearning the outside Auckland group by 2022 (but not when accounting for income from self-employment). It is also noticeable that the Auckland cohort has higher benefit recipiency in all three time points, reaching over a third by 2022.

Seafood

In this subsection, we analyse the labour market trajectories of the Seafood sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Seafood sub-group. Table 28 looks at outcomes by NZQF level, while, due to small individual counts, we cannot comment on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix C.

Seafood by NZQF level

In interpreting Table 28, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings was 98% in 2014 for those with no PSQs. For those who completed a qualification at Level 2 through 4, the share was lower (between 66% and 92%).

Next, we turn to the earnings premium associated with a qualification. No clear pattern emerges, although earnings increase over time. Level 3 and 4 learners receive lower earnings compared to the no PSQ group. By 2022, only Level 2 learners out-earn non-learners by \$5.3k.

We note that the counts of self-employed learners are too small to comment on, and that the aggregate of earnings from W&S and from self-employment does not impact our prior findings.

Benefit receipt tends to be highest for Level 4 learners in all time periods (between 52% and 57%), however patterns are difficult to interpret due to small counts—and ranging around 15% for Level 2 learners.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remains small and the results for these categories should be interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 group for the Seafood sub-group.

Table 28. Labour market outcomes for Seafood sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.4% | - | 91.8% | 75.9% | 66.0% | - | - | - |
| 2017 | 90.4% | - | 90.0% | 72.5% | 75.0% | - | - | - |
| 2022 | 81.3% | - | 86.0% | 72.4% | 62.5% | - | - | - |
| Employment intensity | | | | | | | | |
| 2014 | 10.5 | - | 11.2 | 8.6 | 8.3 | - | - | - |
| 2017 | 10.6 | - | 11.0 | 9.4 | 8.6 | - | - | - |
| 2022 | 10.7 | - | 10.9 | 9.8 | 9.6 | - | - | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 45,454 | - | 51,317 | 31,373 | 38,169 | - | - | - |
| 2017 | 49,813 | - | 54,340 | 39,456 | 40,831 | - | - | - |
| 2022 | 53,715 | - | 59,042 | 47,757 | 52,299 | - | - | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.7 | - | 1.6 | 1.6 | 1.4 | - | - | - |
| 2017 | 1.5 | - | 1.4 | 1.7 | 1.4 | - | - | - |
| 2022 | 1.4 | - | 1.3 | 1.5 | 1.6 | - | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 3.3% | - | - | - | - | - | - | - |
| 2017 | 4.5% | - | - | - | - | - | - | - |
| 2022 | 6.0% | - | - | - | - | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.8% | - | 91.8% | 76.9% | 63.8% | - | - | - |
| 2017 | 91.9% | - | 88.3% | 73.6% | 77.1% | - | - | - |
| 2022 | 83.9% | - | 87.7% | 74.5% | 62.5% | - | - | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 45,786 | - | 51,583 | 31,850 | 39,357 | - | - | - |
| 2017 | 50,492 | - | 55,937 | 40,587 | 39,677 | - | - | - |
| 2022 | 54,345 | - | 59,334 | 48,255 | 52,807 | - | - | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 20.1% | - | 14.8% | 48.7% | 57.4% | - | - | - |
| 2017 | 18.1% | - | 15.0% | 40.4% | 52.1% | - | - | - |
| 2022 | 24.0% | - | 17.5% | 42.2% | 52.1% | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 6.5 | - | 6.0 | 8.7 | 8.5 | - | - | - |
| 2017 | 8.1 | - | 7.2 | 8.6 | 9.3 | - | - | - |
| 2022 | 9.1 | - | 8.7 | 9.5 | 10.4 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Seafood learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Seafood by gender

Appendix Table C 11, shows the 2012 Seafood sub-group by gender. Women make up less than half, 41%, of this sub-group at NZQF Level 2-4, with 59% of the group being male. As is evident with previous MT sub-groups, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$1.7k in 2014 to \$9k in 2022, the smallest differential out of all MT sub-groups analysed so far. Despite this earning differential, benefit receipt is not sizeably different between the genders. The low number of self-employed does not impact this finding.

Seafood by ethnicity

In Appendix Table C 12, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Seafood sub-group. Once again, our interpretation is focussed on comparing labour market trajectories for those completing a Level 2-4 qualification, as the sample is too small at the higher PSQ levels, particularly for Māori and Pacific. Note that even for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 3%, with Māori at 69% and European at 29%.

We note that the share of Pacific learners receiving income from W&S is highest in all three time points, followed by the European group and then the Māori group. Earnings however do not match the same pattern, with the European cohort outearning the others in 2014 and 2017, with the Pacific group earning the most in 2022. This is due to the fact that the Pacific cohort had highest income growth, at 75%, compared to the European group's 30%. While the Māori group had high earnings growth (44% between 2014 and 2022), the low earnings level in 2014 (\$30k) needs to be taken into account. Including income from self-employment does not increase the income disparities, and income growth does not change substantially.

Seafood by region

Results by region are shown in Appendix Table C 13. Seafood learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. The share of learners living in Auckland is very small and ranges between 5% and 7%, thus numbers need to be interpreted cautiously. We note that there is a premium in average yearly earnings from W&S for those living in Auckland, who outearn those living outside of Auckland in 2014 and 2022. This is also true when income from self-employment is also accounted for.

Veterinary

In this subsection, we analyse the labour market trajectories of the Veterinary sub-group. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Veterinary sub-group. Table 29 looks at outcomes by NZQF level, and Table 30 by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix C.

Veterinary by NZQF level

In interpreting Table 29, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings was 98% in 2014 for those with no PSQs. For those who completed a qualification at Level 2 through 6, the share was lower, but with one exception (Level 3 learners: 62%) at 85% and higher.

Next, we turn to the earnings premium associated with a qualification. First, we observe only little variation in the earnings level by qualification. Moreover, the no PSQ group outearns those with a qualification at every time point—and independent of the qualification level attained in 2012. For example, the average earnings is at \$54.6k for the no PSQ group and at \$43.6k for Level 6 learners (\$11k less). This gap hardly changes when taking income from self-employment into account.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remain small and the results for these categories should be interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 group for the Veterinary sub-group.

Veterinary by related industry

Table 30 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 70% the Veterinary sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion increasing to 76% by 2021. For those who end up in a related industry, we note that they have slightly higher average earnings in 2014 and 2017 but that this earnings premium is lost by 2022.

Table 29. Labour market outcomes for Veterinary sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 97.7% | - | 84.8% | 61.5% | 89.1% | 93.3% | 90.3% | - |
| 2017 | 88.4% | - | 79.6% | 69.2% | 90.9% | 89.3% | 89.7% | - |
| 2022 | 72.1% | - | 75.7% | 69.2% | 86.0% | 81.6% | 83.9% | - |
| Employment intensity | | | | | | | | |
| 2014 | 11.0 | - | 9.6 | 10.6 | 10.3 | 10.4 | 10.4 | - |
| 2017 | 10.8 | - | 10.3 | 10.2 | 10.7 | 10.8 | 10.8 | - |
| 2022 | 11.5 | - | 10.6 | 11.3 | 10.7 | 10.5 | 10.5 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 37,933 | - | 23,532 | 30,041 | 29,511 | 28,579 | 32,200 | - |
| 2017 | 43,770 | - | 34,085 | 36,910 | 38,601 | 37,690 | 40,705 | - |
| 2022 | 54,558 | - | 43,577 | 47,616 | 47,595 | 44,145 | 43,603 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 2.1 | - | 1.8 | 2.0 | 1.6 | 1.9 | 1.8 | - |
| 2017 | 1.8 | - | 1.5 | 1.6 | 1.5 | 1.5 | 1.5 | - |
| 2022 | 1.5 | - | 1.5 | 1.3 | 1.4 | 1.4 | 1.4 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | - | - | - | - | - | - | - | - |
| 2017 | 18.6% | - | - | - | - | - | - | - |
| 2022 | 18.6% | - | 8.7% | - | - | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 100.0% | - | 86.7% | 61.5% | 87.0% | 93.3% | 90.3% | - |
| 2017 | 95.3% | - | 80.6% | 69.2% | 93.2% | 90.5% | 89.7% | - |
| 2022 | 83.7% | - | 80.6% | 76.9% | 90.7% | 87.4% | 87.1% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 39,046 | - | 23,978 | 30,041 | 31,570 | 28,924 | 32,148 | - |
| 2017 | 45,017 | - | 36,836 | 36,910 | 40,547 | 38,084 | 40,846 | - |
| 2022 | 57,914 | - | 44,367 | 44,670 | 49,289 | 46,341 | 47,528 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | - | - | 31.4% | - | 21.7% | 23.3% | - | - |
| 2017 | - | - | 23.3% | - | - | 11.9% | - | - |
| 2022 | - | - | 23.3% | - | - | 16.1% | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | - | - | 7.9 | - | 7.5 | 6.7 | - | - |
| 2017 | - | - | 8.7 | - | - | 7.0 | - | - |
| 2022 | - | - | 10.4 | - | - | 8.2 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Veterinary learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 30. Labour market outcomes for Veterinary sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 29.9% | 70.1% | 55.4% | 44.6% |
| 2017 | 26.7% | 73.3% | 45.5% | 54.5% |
| 2022 | 24.2% | 75.8% | 38.8% | 61.2% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.6 | 9.7 | 10.9 | 9.8 |
| 2017 | 11.0 | 10.2 | 11.2 | 10.5 |
| 2022 | 11.2 | 10.5 | 10.8 | 10.2 |
| Mean annual earnings from W&S | | | | |
| 2014 | 27,791 | 25,054 | 33,047 | 25,068 |
| 2017 | 38,884 | 34,481 | 40,412 | 36,838 |
| 2022 | 44,502 | 45,250 | 42,774 | 44,043 |
| Mean number of employers per year | | | | |
| 2014 | 1.9 | 1.7 | 1.9 | 1.8 |
| 2017 | 1.5 | 1.5 | 1.6 | 1.4 |
| 2022 | 1.5 | 1.4 | 1.5 | 1.4 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Veterinary learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Veterinary by gender

Appendix Table C 14, shows the 2012 Veterinary sub-group by gender. Women make up the vast majority, 94%, of this sub-group at NZQF Level 2-4, with 6% of the group being male. As is evident with previous MT sub-groups, we note the gap in average earnings between the genders and note that this gap decreases over our time period from \$8.7k in 2014 to \$6.5k in 2022. Also of note is that this difference is substantially different when accounting for self-employment, with women earning \$14.4k less in 2014, narrowing to only \$2.5k less by 2021, illustrating the fact that the female cohort's income increased at a higher rate than the men's, however it is still not enough to fully catch up.

Veterinary by region

Results by region are shown in Appendix Table C 15. Veterinary learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. About 15% of the Level 2-4 learners live in Auckland and the remaining are outside of Auckland. There is a premium in average yearly earnings from W&S for those living in Auckland for the NZQF Level 2-4 and the NZQF Level 5-7 groups in all time periods. This pattern does not change when taking income from self-employment into account.

6 Ringa Hora

This section focuses on learners graduating in 2012 with an NZSCED code related to the WDC Ringa Hora (RH).

Ringa Hora are a values based, people-centred organisation that serves Aotearoa by responding to the current and future workforce needs of the Service sector.



For the purposes of this analysis, RH has been split into 6 sub-groups, named: Business, Finance & Industry Support; Hospitality & Cleaning; Travel & Aviation; Retail & Distribution; Security & Government; and Real Estate & Rental. Note that the names of the groupings do not refer to entire industries, but the sub-set of NZSCED codes related to RH. The mapping of qualifications via NZSCED codes to the sub-groups can be found in Appendix Table D 1. RH has also provided an exhaustive list of ANZSIC codes to identify the qualification-specific related industries. Unique ANZSIC codes map to multiple sub-groups, with significant overlap between groups.

6.1 Descriptive profile by industry sub-group

Figure 5. Proportion of RH sub-groups in the population of interest



Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH learners between 18 and 54 (inclusive) years old in 2012, according to their education records

Table 31 presents demographic information for learners from the 6 RH sub-groups who graduated in 2012. Notably, only two sub-groups had a proportion of males close to 50%, namely, Real Estate &

Rental (47%), and Security & Government (47%). For the remaining sub-groups, the share of men ranges between 31% (Travel & Aviation) and 39% (Hospitality & Cleaning). In regards to age, Hospitality & Cleaning and Travel & Aviation had the highest proportion of those aged 25 and below, at 67% and 64%, respectively. Real Estate & Rental and Business, Finance & Industry Support had the lowest proportion of young people at 14% and 26%, respectively. Real Estate & Rental also had the highest proportion of those aged over 45, at 26%.

Differences are also observed in terms of born overseas. While about one third (35%) of the Real Estate & Rental learners are born overseas, this is the case for only one out of five Travel & Aviation learners (19%). Real Estate & Rental also had the highest proportion of Asian learners, at 23%, compared to the WDC average of 10%.

Just under half of RH learners are European (47%), followed by Māori (28%), Pacific (14%), Asian (10%) and MELAA/Other (2%).²² The ethnicity distribution across the 6 RH learner groups is varied, with Real Estate & Rental having the highest proportion of European learners.

The distribution of the level of the PSQ completed in 2012 also differs between the sub-groups, however, with Level 3 and Level 4 qualifications being the two dominant groups.

²² MELAA refers to Middle Eastern, Latin American and African.

Table 31. Descriptive statistics by RH group 2012

| | Ringa Hora | Business, finance & industry support | Hospitality & cleaning | Real estate & rental | Retail & distribution | Security & government | Travel & aviation |
|---|---------------|---|---------------------------|----------------------------|--------------------------|--------------------------|----------------------|
| Male | 35.9% | 32.0% | 39.4% | 47.2% | 35.4% | 47.4% | 30.9% |
| Age 25 and below | 40.9% | 25.8% | 67.4% | 14.1% | 33.9% | 30.7% | 63.7% |
| Age above 45 | 14.1% | 18.2% | 5.6% | 27.5% | 14.5% | 18.8% | 7.4% |
| Born overseas | 21.4% | 20.2% | 20.5% | 34.8% | 20.9% | 26.8% | 18.5% |
| Auckland | 39.8% | 36.8% | 34.3% | 49.1% | 43.7% | 54.3% | 41.7% |
| Ethnicity | | | | | | | |
| European | 46.7% | 46.4% | 46.4% | 66.2% | 53.9% | 41.5% | 40.0% |
| Māori | 27.9% | 31.7% | 29.4% | 6.6% | 19.0% | 21.9% | 31.2% |
| Pacific | 13.7% | 11.7% | 10.6% | 1.9% | 16.8% | 23.8% | 19.8% |
| Asian | 9.5% | 7.8% | 11.7% | 22.9% | 8.0% | 10.2% | 7.3% |
| MELAA/Other | 2.2% | 2.5% | 1.9% | 2.4% | 2.4% | 2.5% | 1.6% |
| NZQF level of qualification achieved in 2012 | | | | | | | |
| Level 1 | 5.2% | - | - | - | - | - | - |
| Level 2 | 10.7% | 4.4% | 26.2% | - | 31.1% | 7.6% | - |
| Level 3 | 26.6% | 21.3% | 31.1% | - | 41.4% | 18.5% | 38.7% |
| Level 4 | 38.8% | 37.5% | 28.8% | 98.1% | 27.4% | 26.1% | 49.2% |
| Level 5 | 10.8% | 8.9% | 12.7% | - | - | 40.5% | 6.6% |
| Level 6 | 5.3% | 10.8% | 0.9% | - | - | - | 4.4% |
| Level 7 | 2.6% | 4.4% | - | - | - | 6.8% | 0.7% |
| Number of Learners | 25431 | 10524 | 5322 | 1233 | 2211 | 2394 | 4143 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

6.2 Qualification profile by industry sub-group

In this subsection we describe the prior educational qualifications, as well as further qualification uptake in the following nine years, for our population of RH learners who completed their PSQ in 2012. Table 32 gives the proportion of each industry sub-group who attain qualifications at four different time points: before 2012, and two; five; and nine years²³ after (i.e. 2014, 2017 and 2021). We also summarise, for those who have attained pre or post qualifications, whether they were at a higher NZQF level than the one received in 2012.

According to Table 32, the 2012 Security & Government had the highest share of individuals with a previous qualification (59%), followed by Business, Finance & Industry Support (57%). All other RH sub-groups have between 45% and 55% of their cohort with a previous qualification, except for the Real Estate & Rental sub-group at 33%. Varying substantially across sub-groups is the proportion of learners whose previous qualification is at a higher level than that achieved in 2012, with the proportion varying from 28% for Travel & Aviation to 49% for Real Estate & Rental.

Similar disparities emerge when we consider the qualifications achieved post-completion of the 2012 PSQ, with a range from 8% of the Real Estate & Rental sub-group going on to do further study by 2014, to about 35% for the remaining sub-groups (except Retail & Distribution with 21%). These disparities persist when we look at the share of learners with a further qualification in 2021. Moreover, we can see that those Real Estate & Rental learners not only have the lowest share of future qualification, but at the same time the further qualification is completed in RH only in 10% of the graduates—but the equivalent number is around 30% for the remaining sub-groups.

Tables 33 to 37 further disaggregate the sub-groups by qualification level achieved in 2021. We note that this disaggregation is not possible for the Real Estate & Rental sub-group due to small sample sizes.

²³ We take a 9-year view as 2021 qualification information is the latest available data in the IDI at the time of producing this report.

Table 32. Pre and post qualifications for the 2012 learner cohort by RH sub-group

| | | Business, Finance & Industry Support | Hospitality & Cleaning | Real estate & Rental | Retail & Distribution | Security & Government | Travel & Aviation |
|-------------|---------------------------------|--|---------------------------|----------------------|-----------------------|--------------------------|-------------------|
| Before 2012 | Qualification before 2012 | 56.9% | 53.2% | 32.6% | 45.2% | 58.8% | 53.6% |
| | Higher qualification | 41.0% | 32.3% | 48.5% | 38.6% | 42.3% | 27.9% |
| Before 2012 | Qualification before 2012 in RH | 22.1% | 28.9% | 14.8% | 24.2% | 36.4% | 29.5% |
| | In the same RH sub-group | 70.0% | 78.0% | 31.1% | 33.5% | 41.6% | 71.1% |
| By 2014 | Further qualification | 34.1% | 34.7% | 8.4% | 21.2% | 34.2% | 35.5% |
| | Higher qualification | 50.3% | 64.9% | 24.2% | 59.7% | 43.7% | 43.8% |
| By 2014 | Further qualification in RH | 14.9% | 21.2% | 3.8% | 11.2% | 20.9% | 22.2% |
| | In the same RH sub-group | 69.5% | 80.5% | 60.0% | 48.7% | 59.1% | 70.5% |
| By 2017 | Further qualification | 49.2% | 49.5% | 14.3% | 34.2% | 48.8% | 50.2% |
| | Higher qualification | 56.1% | 64.6% | 37.0% | 63.6% | 45.9% | 48.9% |
| By 2017 | Further qualification in RH | 21.9% | 27.7% | 5.8% | 17.3% | 28.0% | 29.7% |
| | In the same RH sub-group | 65.8% | 70.5% | 50.0% | 46.1% | 56.4% | 65.5% |
| By 2021 | Further qualification | 57.7% | 57.5% | 21.1% | 43.1% | 55.9% | 59.4% |
| | Higher qualification | 58.7% | 65.1% | 44.9% | 66.3% | 47.4% | 54.8% |
| By 2021 | Further qualification in RH | 26.4% | 30.6% | 9.8% | 21.1% | 30.6% | 34.8% |
| | In the same RH sub-group | 68.4% | 67.0% | 55.6% | 42.0% | 52.6% | 60.1% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH learners between 18 and 54 (inclusive) years old in 2012, according to their education records. Cleaning Services not included as counts were too low.

Table 33 shows the pre and post PSQs of the Business, Finance & Industry Support sub-group by the NZQF qualification level the learners achieved in 2012.

We notice that the proportion of learners having a qualification before 2012 varies between 48% (Level 2) and 69% (Level 6). Unsurprisingly, the share of higher past qualifications drops substantially with the qualification level achieved in 2012: for example, 71% of those Level 2 learners with a qualification before 2012 was at a higher level; this is the case only for 8% of the Level 6 learners.

When considering future qualifications, the numbers show that by 2021, every second learner attains a further qualification—and especially for Level 2 and Level 3 learners, the qualification is at a higher level.

Table 33: Pre and post qualifications for the 2012 learner cohort: Business, Finance & Industry Support

| | | NZQF Qualification Level in 2012 | | | | | | |
|----------------|---|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 48.1% | 49.1% | 55.6% | 52.5% | 68.7% | 53.2% |
| | Higher qualification | - | 70.7% | 48.8% | 25.3% | 22.4% | 7.7% | 63.4% |
| Before 2012 RH | Qualification before 2012 RH | - | 10.9% | 13.0% | 20.2% | 31.8% | 49.7% | 28.6% |
| | In Business, Finance & Industry Support | - | 58.8% | 48.5% | 67.7% | 69.0% | 89.4% | 72.7% |
| By 2014 | Further qualification 2014 | - | 33.3% | 31.8% | 32.2% | 29.1% | 42.9% | 27.7% |
| | Higher qualification | - | 79.6% | 65.0% | 33.6% | 41.9% | 26.5% | 31.6% |
| By 2014 RH | Further qualification 2014 RH | - | 12.9% | 12.1% | 13.8% | 17.9% | 31.5% | 20.4% |
| | In Business, Finance & Industry Support | - | 78.9% | 61.9% | 58.0% | 73.6% | 87.4% | 89.3% |
| By 2017 | Further qualification 2017 | - | 49.3% | 47.4% | 47.7% | 41.9% | 56.8% | 37.2% |
| | Higher qualification | - | 83.3% | 65.6% | 39.1% | 45.4% | 42.7% | 37.5% |
| By 2017 RH | Further qualification 2017 RH | - | 20.5% | 19.4% | 21.1% | 23.6% | 41.1% | 24.0% |
| | In Business, Finance & Industry Support | - | 73.3% | 55.7% | 56.9% | 71.6% | 84.9% | 87.1% |
| By 2021 | Further qualification 2021 | - | 54.9% | 57.6% | 55.7% | 49.3% | 66.5% | 43.5% |
| | Higher qualification | - | 85.9% | 69.5% | 42.5% | 43.2% | 46.4% | 38.6% |
| By 2021 RH | Further qualification 2021 RH | - | 21.8% | 25.0% | 24.6% | 27.0% | 46.4% | 26.0% |
| | In Business, Finance & Industry Support | - | 71.0% | 58.1% | 61.7% | 72.4% | 85.8% | 88.2% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Business, Finance & Industry Support learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 34 shows the pre and post PSQs of the Hospitality & Cleaning sub-group by the NZQF qualification level the learners achieved in 2012. We note that there is a trend regarding the proportion of learners with pre PSQ qualifications as NZQF levels increases: NZQF Level 2 learners have the lowest proportion (43%) while Level 5 learners have the highest (74%). The higher the NZQF level, however, the lower the proportion of learners with a prior PSQ at a higher level, from 74% for Level 2 learners to 8% for Level 5 learners.

We see similar results in terms of further qualifications, with NZQF Level 2 to 5 learners having similar proportions of those going on to do further PSQs in 2014 (between 30% and 39%). By 2021, this pattern persists and the uptake of further qualification ranges between 51% (Level 5) and 61% (Level 2).

Lastly, we note that between 26% and 38% of learners have a further PSQ in the same WDC by 2021.

Table 34: Pre and post qualifications for the 2012 learner cohort: Hospitality & Cleaning

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 43.1% | 50.4% | 56.4% | 73.8% | 50.0% | - |
| | Higher qualification | - | 74.0% | 36.7% | 12.5% | 8.4% | - | - |
| Before 2012 | Qualification before 2012 RH | - | 12.9% | 24.1% | 34.1% | 61.8% | - | - |
| | In Hospitality & Cleaning | - | 36.7% | 72.9% | 82.8% | 94.2% | - | - |
| By 2014 | Further qualification 2014 | - | 34.4% | 39.3% | 32.8% | 29.6% | - | - |
| | Higher qualification | - | 85.8% | 74.7% | 51.0% | - | - | - |
| By 2014 | Further qualification 2014 RH | - | 14.7% | 28.4% | 20.2% | 19.6% | - | - |
| | In Hospitality & Cleaning | - | 68.3% | 86.0% | 81.7% | 75.7% | - | - |
| By 2017 | Further qualification 2017 | - | 53.3% | 53.7% | 44.0% | 43.5% | - | - |
| | Higher qualification | - | 88.2% | 71.2% | 47.4% | 20.8% | - | - |
| By 2017 | Further qualification 2017 RH | - | 23.0% | 34.2% | 25.0% | 27.7% | - | - |
| | In Hospitality & Cleaning | - | 62.1% | 79.3% | 70.6% | 57.1% | - | - |
| By 2021 | Further qualification 2021 | - | 61.4% | 61.7% | 51.6% | 51.4% | - | - |
| | Higher qualification | - | 90.1% | 72.1% | 45.1% | 24.2% | - | - |
| By 2021 | Further qualification 2021 RH | - | 26.2% | 37.6% | 27.2% | 30.5% | - | - |
| | In Hospitality & Cleaning | - | 59.3% | 75.7% | 66.4% | 53.7% | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Hospitality & Cleaning learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 35 shows the pre and post PSQs of the Retail & Distribution sub-group by the NZQF qualification level the learners achieved in 2012. We see that between 41% (Level 4) and 47% (Level 3) have achieved a qualification before 2012; and in every second it was a higher qualification for the Level 2 learners.

In terms of further qualifications, the uptake seems fairly similar across the three qualification levels. The Level 2 group had the highest proportion of learners getting a further PSQ in 2014, at 26%. The proportion of learners with a further PSQ rises by between 11 and 14 percentage points by 2017 for all groups, with further growth being more modest and homogenous (between 7 and 10 percentage points) between 2017 and 2021.

As expected, at all three time points we notice that the higher the NZQF level, the lower the proportion of learners with a further PSQ at a higher level.

Lastly, between 20%-22% of the learners have a further PSQ in the same WDC by 2021. Moreover, for Level 2 learners this is predominantly in the Retail & Distributions sub-group (71%). The respective number is substantially lower with 19% for Level 4 learners.

Table 35: Pre and post qualifications for the 2012 learner cohort: Retail & Distribution

| | | NZQF Qualification Level in 2012 | | | | | | |
|----------------|-------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 45.9% | 47.4% | 41.1% | - | - | - |
| | Higher qualification | - | 53.3% | 42.1% | 14.5% | - | - | - |
| Before 2012 RH | Qualification before 2012 RH | - | 18.8% | 28.1% | 24.8% | - | - | - |
| | In Retail & Distribution | - | - | 46.5% | 36.0% | - | - | - |
| By 2014 | Further qualification 2014 | - | 25.6% | 17.4% | 21.9% | - | - | - |
| | Higher qualification | - | 67.3% | 66.7% | 39.0% | - | - | - |
| By 2014 RH | Further qualification 2014 RH | - | 11.6% | 10.5% | 12.3% | - | - | - |
| | In Retail & Distribution | - | 80.0% | 41.4% | - | - | - | - |
| By 2017 | Further qualification 2017 | - | 40.1% | 30.7% | 33.5% | - | - | - |
| | Higher qualification | - | 75.3% | 66.3% | 41.0% | - | - | - |
| By 2017 RH | Further qualification 2017 RH | - | 17.5% | 16.3% | 18.1% | - | - | - |
| | In Retail & Distribution | - | 73.0% | 43.2% | 21.2% | - | - | - |
| By 2021 | Further qualification 2021 | - | 48.5% | 40.5% | 40.4% | - | - | - |
| | Higher qualification | - | 78.0% | 71.6% | 40.3% | - | - | - |
| By 2021 RH | Further qualification 2021 RH | - | 21.8% | 21.2% | 20.2% | - | - | - |
| | In Retail & Distribution | - | 71.1% | 35.1% | 19.4% | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Retail & Distribution learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 36 shows the pre and post PSQs of the Security & Government sub-group by the NZQF qualification level the learners achieved in 2012. We see that the share with a higher qualification increases with the qualification attained in 2012: while 35% of the Level 2 learners had a qualification before 2012, the respective share is at 69% for Level 5 learners. At the same time, the share of those with a prior qualification at a higher level declines and is lowest for Level 5 learners (28%).

In terms of further qualifications, we observe some difference in the further qualifications for Level 2 to 5 learners. The Level 3 group had the highest proportion of learners getting a further PSQ in 2014, at 45%. The lowest share is observed for Level 4 learners with 24%. However, by 2021 the gap closes and the proportion with a further qualification rises to a bandwidth between 52% (Level 4) and 61% (Level 5). Interestingly, for the vast majority of the Level 2 learners, the further qualification is at a higher level compared to the one of 2012.

Table 36: Pre and post qualifications for the 2012 learner cohort: Security & Government

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 34.9% | 45.6% | 54.8% | 69.3% | - | 75.9% |
| | Higher qualification | - | 77.3% | 51.5% | 41.2% | 28.1% | - | 82.9% |
| Before 2012 | Qualification before 2012 RH | - | 11.1% | 18.8% | 22.6% | 54.8% | - | 61.1% |
| | In Security & Government | - | - | 46.4% | 68.1% | 24.9% | - | 81.8% |
| By 2014 | Further qualification 2014 | - | 35.6% | 45.3% | 24.2% | 40.0% | - | - |
| | Higher qualification | - | 85.7% | 40.3% | 41.7% | 36.2% | - | - |
| By 2014 | Further qualification 2014 RH | - | 25.4% | 27.7% | 7.6% | 28.3% | - | - |
| | In Security & Government | - | 93.3% | 86.8% | - | 42.7% | - | - |
| By 2017 | Further qualification 2017 | - | 50.0% | 53.4% | 42.0% | 54.4% | - | 25.0% |
| | Higher qualification | - | 85.7% | 51.4% | 46.9% | 35.1% | - | - |
| By 2017 | Further qualification 2017 RH | - | 30.4% | 29.8% | 14.0% | 38.6% | - | 15.9% |
| | In Security & Government | - | 94.1% | 84.6% | 37.0% | 44.8% | - | - |
| By 2021 | Further qualification 2021 | - | 55.6% | 59.5% | 51.6% | 61.4% | - | 30.0% |
| | Higher qualification | - | 83.3% | 53.3% | 47.5% | 37.2% | - | - |
| By 2021 | Further qualification 2021 RH | - | 31.5% | 31.0% | 18.2% | 41.2% | - | 17.5% |
| | In Security & Government | - | 88.2% | 79.5% | 31.4% | 42.7% | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Security & Government learners between 18 and 54 (inclusive) years old in 2012, according to their education records

Table 37 shows the pre and post PSQs of the Travel & Aviation sub-group by the NZQF qualification level the learners achieved in 2012. We focus on Level 3 and 4 learners, who make up 88% of the graduates. The table shows that about every second learner had a qualification before 2012, and for 47% of the Level 3 learners it is at a higher level.

In terms of future qualification, we observe a similar uptake of future qualification between Level 3 and Level 4 learners. For example, in 2014 about one out of three learners have received a further qualification and until 2021 this share increases to about 60%. Interestingly, especially for those Level 3 learners, the future qualification is on a higher level compared to the one of 2012.

Table 37: Pre and post qualifications for the 2012 learner cohort: Travel & Aviation

| | | NZQF Qualification Level in 2012 | | | | | | |
|----------------|-------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | - | 47.3% | 55.7% | 73.9% | 49.2% | - |
| | Higher qualification | - | - | 47.4% | 18.5% | - | 26.7% | - |
| Before 2012 RH | Qualification before 2012 RH | - | - | 22.2% | 30.8% | 59.8% | 36.1% | - |
| | In Travel & Aviation | - | - | 53.8% | 77.5% | 80.0% | 72.7% | - |
| By 2014 | Further qualification 2014 | - | - | 38.9% | 31.5% | 41.6% | 42.0% | - |
| | Higher qualification | - | - | 63.8% | 29.0% | 31.3% | - | - |
| By 2014 RH | Further qualification 2014 RH | - | - | 25.7% | 17.3% | 31.2% | 34.0% | - |
| | In Travel & Aviation | - | - | 77.9% | 57.8% | 83.3% | 76.5% | - |
| By 2017 | Further qualification 2017 | - | - | 55.2% | 46.2% | 53.9% | 46.7% | - |
| | Higher qualification | - | - | 67.6% | 34.4% | 41.5% | - | - |
| By 2017 RH | Further qualification 2017 RH | - | - | 35.2% | 24.0% | 36.8% | 33.3% | - |
| | In Travel & Aviation | - | - | 72.0% | 55.1% | 75.0% | 73.3% | - |
| By 2021 | Further qualification 2021 | - | - | 63.2% | 56.3% | 66.7% | 49.0% | - |
| | Higher qualification | - | - | 73.0% | 43.2% | 38.0% | - | - |
| By 2021 RH | Further qualification 2021 RH | - | - | 39.2% | 29.9% | 42.7% | 34.7% | - |
| | In Travel & Aviation | - | - | 67.6% | 50.0% | 71.9% | 76.5% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Travel & Aviation learners between 18 and 54 (inclusive) years old in 2012, according to their education records

6.3 Labour market trajectories by sub-group

This sub-section presents the labour market outcomes of the RH learner cohort, by sub-group at three different time points: two, five- and ten-years post-graduation (2014, 2017, 2022). First, we examine the sub-groups in their entirety before analysing outcomes by industry, gender, ethnicity and region.

Table 38 describes the labour market outcomes of RH learners in aggregate and by industry sub-group. The employment rate differs substantially by sub-group. A high employment proportion is found for the sub-groups Retail & Distribution and Security & Government (both 84%); at the other end of the spectrum, the employment share is particularly low for Real Estate & Rental (42%). The differences persist but are less stark when self-employment is also accounted for.

Unlike the HAR and MT WDCs, we do not see a consistent pattern of decreasing employment rates over time. When comparing the overall employment rate between 2014 (74.5%) and 2022 (73.6%), the difference is marginal. As with the previous WDCs, this fluctuation in employment does not seem to affect earnings growth, which is consistently positive for all sub-groups over time. It is worth remembering that all \$ figures in Table 38 are deflated to 2022 dollars to ensure they are comparable across time points.

There are substantial earning differences across sub-groups, with the Hospitality & Cleaning sub-group earning the least across all three time points (\$26.6k in 2014, \$35.9k in 2017, and \$46.9k in 2022), while Security & Government out earned all other sub-groups (\$54.3k in 2014, \$62.1k in 2017, and \$71.7k in 2021).

The rate of benefit receipt also varied substantially by sub-group, with the RH average sitting between 20% and 26%. The lowest proportion of benefit receipt that we can comment on is for the Real Estate & Rental sub-group, whose proportion of learners receiving benefits falls between 5% and 9%. This is particularly interesting as we recall that the Real Estate and Rental Services sub-group also has some of the lowest employment rates of the RH WDC. At the other end of the benefit spectrum, the Travel & Aviation sub-group had the highest proportion of benefit receipt between 28% and 34%, while the Business, Finance & Industry Support sub-group was a close second sitting between 25% and 31%.

Table 38. Labour market outcomes by RH sub-groups

| | Ringa Hora | Business, finance & industry support | Hospitality & cleaning | Real estate & rental | Retail & distribution | Security & governmen t | Travel & aviation |
|--|---------------|---|---------------------------|-------------------------|--------------------------|------------------------------|----------------------|
| Share by sub-group | | | | | | | |
| 2014 | 100% | 42.1% | 20.6% | 5.1% | 8.8% | 9.5% | 15.6% |
| 2017 | 100% | 42.5% | 20.3% | 5.1% | 8.9% | 9.3% | 15.5% |
| 2022 | 100% | 42.2% | 20.6% | 5.0% | 8.8% | 9.2% | 15.8% |
| 1) Earnings from Wages & Salaries (W&S) | | | | | | | |
| Employment | | | | | | | |
| 2014 | 74.5% | 75.2% | 82.1% | 41.6% | 84.3% | 83.6% | 80.2% |
| 2017 | 74.7% | 76.7% | 79.5% | 43.7% | 82.1% | 83.6% | 82.6% |
| 2022 | 73.6% | 75.7% | 77.7% | 48.0% | 80.8% | 80.6% | 78.5% |
| Employment intensity | | | | | | | |
| 2014 | 9.8 | 10.2 | 9.6 | 8.3 | 10.7 | 10.5 | 9.8 |
| 2017 | 10.3 | 10.4 | 10.0 | 9.8 | 10.7 | 10.7 | 10.2 |
| 2022 | 10.4 | 10.6 | 10.2 | 9.9 | 10.5 | 10.9 | 10.3 |
| Mean annual earnings from W&S | | | | | | | |
| 2014 | 41,232 | 47,154 | 26,602 | 40,005 | 43,452 | 54,355 | 35,825 |
| 2017 | 51,176 | 53,481 | 35,921 | 59,946 | 50,106 | 62,108 | 45,496 |
| 2022 | 59,291 | 62,653 | 46,957 | 68,959 | 52,301 | 71,771 | 53,111 |
| Mean number of employers per year | | | | | | | |
| 2014 | 1.5 | 1.4 | 1.7 | 1.4 | 1.4 | 1.5 | 1.6 |
| 2017 | 1.4 | 1.4 | 1.6 | 1.4 | 1.4 | 1.4 | 1.5 |
| 2022 | 1.4 | 1.4 | 1.5 | 1.3 | 1.5 | 1.3 | 1.5 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | |
| Self-employment | | | | | | | |
| 2014 | 8.1% | 7.8% | 2.9% | 25.3% | 5.0% | 5.3% | 2.5% |
| 2017 | 9.5% | 9.6% | 3.8% | 25.9% | 7.4% | 6.9% | 3.4% |
| 2022 | 10.9% | 11.2% | 6.5% | 23.8% | 9.4% | 9.0% | 5.6% |
| Sum of employment and self-employment | | | | | | | |
| 2014 | 79.1% | 78.8% | 83.5% | 59.7% | 86.5% | 84.9% | 81.3% |
| 2017 | 80.2% | 81.5% | 81.4% | 62.4% | 86.0% | 86.1% | 83.9% |
| 2022 | 79.3% | 80.9% | 80.9% | 64.0% | 84.0% | 84.6% | 81.2% |
| Mean annual income from W&S and self-employment | | | | | | | |
| 2014 | 40,748 | 48,214 | 26,857 | 33,125 | 44,510 | 55,520 | 36,267 |
| 2017 | 51,955 | 55,098 | 36,442 | 59,201 | 51,875 | 63,180 | 45,934 |
| 2022 | 61,318 | 64,802 | 48,517 | 73,780 | 54,117 | 72,364 | 54,333 |
| 3) Income from benefits | | | | | | | |
| Benefit reciprocity | | | | | | | |
| 2014 | 25.8% | 30.5% | 35.9% | 9.4% | 21.8% | 23.5% | 33.5% |
| 2017 | 20.4% | 24.4% | 30.7% | 4.8% | 17.6% | 17.8% | 26.9% |
| 2022 | 22.3% | 25.0% | 32.2% | 7.9% | 20.9% | 19.6% | 28.4% |
| Benefit intensity | | | | | | | |
| 2014 | 8.0 | 8.9 | 7.7 | 6.8 | 8.5 | 8.3 | 8.0 |
| 2017 | 8.8 | 9.3 | 8.7 | 8.1 | 9.0 | 9.3 | 8.6 |
| 2022 | 9.5 | 10.0 | 9.4 | 8.8 | 9.6 | 9.7 | 9.3 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Travel & Aviation

In this subsection we analyse the labour market outcomes of the Travel & Aviation Services sub-group at three time points: two, five and ten years post-graduation. Table 39 looks at outcomes by NZQF level, while Table 40 disaggregates the outcomes by whether working in a related industry or not. Further disaggregations by gender, ethnicity and region are discussed, with the results presented in Appendix D.

Travel & Aviation by NZQF level

Table 39 allows us to see how the labour market outcomes for those who studied in the Travel & Aviation sub-group track over time by qualification level. As mentioned earlier, the no PSQ group is calibrated to have similar characteristics (e.g. age, gender, ethnicity, region and employment intensity) as the Travel & Aviation Level 2 sub-group in this section. As evident in Table 31, a number of the NZQF levels' sample size is too small to permit results to be outputted due to Stats NZ confidentiality rules. As NZQF Level 2 is affected by low sample sizes, so is the PSQ group which uses Level 2 learners as a reference category. Moreover, the vast majority of learners have either a Level 3 (39%) or Level 4 (49%) qualification and we restrict our interpretation on these two groups.

The share of those receiving any W&S in 2014 was higher for the Level 4 group (83%) compared to Level 3 learners (75%), but the gap between both groups shrinks substantially over time (in 2022, the employment rate was between 77%-78%).

Next, we turn to the earnings premium associated with a qualification. In 2014, we observe a wage premium in 2014 for those with a Level 4 qualification than Level 3: while Level 4 learners, on average, received income from W&S of about \$36.6k, Level 3 graduates earned \$30.6k. However, it is also noteworthy that the gap narrows over time and after accounting for self-employed income.

In terms of self-employment, the fraction for both groups are very small and below 5% in most periods. Moreover, we observe that about 31% of the Level 4 learners and 40% of the Level 3 learners received benefits in 2014. For both groups the numbers declined until 2017 and bounced back up in 2022.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remain small and the results for these categories should be interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 group for the Travel & Aviation sub-group.

Travel & Aviation by related industry

Table 40 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 77% of the Travel & Aviation sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion increasing to 86% by 2022. Of those that do end up in a related industry, we note that they have substantially higher average earnings in 2014 and that this industry premium does not dissipate over time and is evident two, five and ten years post-graduation. This gap is also visible in terms of benefit recipiency, with much lower levels for those working in a related industry.

Table 39. Labour market outcomes for Travel & Aviation sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | - | - | - | 75.4% | 83.1% | 79.2% | 94.0% | 90.0% |
| 2017 | - | - | - | 80.1% | 82.9% | 89.5% | 93.5% | 100.0% |
| 2022 | - | - | - | 76.9% | 78.4% | 82.9% | 87.5% | - |
| Employment intensity | | | | | | | | |
| 2014 | - | - | - | 9.1 | 10.0 | 10.3 | 10.4 | 12.3 |
| 2017 | - | - | - | 9.8 | 10.5 | 10.2 | 11.4 | 11.4 |
| 2022 | - | - | - | 10.1 | 10.4 | 10.5 | 11.7 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | - | - | - | 30,567 | 36,618 | 30,847 | 60,054 | 11,4927 |
| 2017 | - | - | - | 39,251 | 46,301 | 40,701 | 80,062 | 13,1704 |
| 2022 | - | - | - | 48,118 | 51,759 | 55,672 | 95,603 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | - | - | - | 1.6 | 1.6 | 1.7 | 1.4 | 1.4 |
| 2017 | - | - | - | 1.5 | 1.4 | 1.6 | 1.4 | 1.1 |
| 2022 | - | - | - | 1.5 | 1.4 | 1.4 | 1.4 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | - | - | - | 1.5% | 2.9% | - | - | - |
| 2017 | - | - | - | 2.4% | 3.5% | - | - | - |
| 2022 | - | - | - | 4.6% | 5.0% | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | - | - | - | 75.8% | 84.3% | 81.8% | 94.0% | 90.0% |
| 2017 | - | - | - | 81.0% | 84.1% | 92.1% | 95.7% | 100.0% |
| 2022 | - | - | - | 79.0% | 80.9% | 88.2% | 93.8% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | - | - | - | 30,921 | 37,228 | 31,294 | 61,380 | 11,4927 |
| 2017 | - | - | - | 39,900 | 46,618 | 42,234 | 79,323 | 13,1704 |
| 2022 | - | - | - | 49,687 | 52,365 | 57,043 | 98,682 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | - | - | - | 40.2% | 31.1% | 26.0% | - | - |
| 2017 | - | - | - | 33.8% | 24.7% | 14.5% | - | - |
| 2022 | - | - | - | 34.3% | 27.3% | 15.8% | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | - | - | - | 8.6 | 7.8 | 6.4 | - | - |
| 2017 | - | - | - | 8.9 | 8.6 | 6.7 | - | - |
| 2022 | - | - | - | 9.5 | 9.2 | 7.6 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Travel & Aviation learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 40. Labour market outcomes for Travel & Aviation sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 23.1% | 76.9% | 30.8% | 69.2% |
| 2017 | 21.1% | 78.9% | 33.3% | 66.7% |
| 2022 | 14.0% | 86.0% | 33.3% | 66.7% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.3 | 9.2 | 11.3 | 10.2 |
| 2017 | 11.4 | 9.8 | 11.3 | 10.4 |
| 2022 | 11.4 | 10.0 | 11.5 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 56,044 | 27,353 | 82,302 | 34,268 |
| 2017 | 68,118 | 36,379 | 94,728 | 45,082 |
| 2022 | 73,340 | 46,279 | 107,448 | 59,838 |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.6 | 1.4 | 1.7 |
| 2017 | 1.3 | 1.5 | 1.4 | 1.5 |
| 2022 | 1.5 | 1.5 | 1.4 | 1.4 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 6.6% | 32.3% | - | - |
| 2017 | 4.5% | 25.6% | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | 5.7 | 7.1 | - | - |
| 2017 | 6.4 | 7.8 | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Travel & Aviation learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Travel & Aviation gender

Appendix Table D 2, shows the 2012 Travel & Aviation sub-group by gender. Women make up 72% of this sub-group at NZQF Level 2-4, with 28% of the group being male. As is evident in other WDCs, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$22k in 2014 to \$25.2k in 2022. In fact, the female cohort earned \$7k less ten-years post-graduation in 2022 than the male cohort was earning in their first year of working (2014). Looking at self-employed income does not close this gap.

Travel & Aviation by ethnicity

In Appendix Table D 3, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Travel & Aviation sub-group. Our interpretation is focussed on comparing labour market trajectories for those completing a Level 2-4 qualification, as the sample is too small at the higher PSQ levels, particularly for Māori and Pacific.

We note that in 2014 the share of learners receiving income from W&S is highest for the European group (90%), followed by the Pacific group (75%) and the Māori group (70%). In terms of earnings, the European cohort is outearning the others in 2014 and the gap widens further by 2022.

Travel & Aviation by region

Results by region are shown in Appendix Table D 4. Travel & Aviation learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. About 43% of the Level 2-4 learners live in Auckland and 58% outside of Auckland. There is a premium in average yearly earnings from W&S for those living in Auckland: the average earnings from W&S was at \$36.3k for those learners living in Auckland and \$32.2k for those living outside of Auckland. Noteworthy is further that the gap between those living in and outside of Auckland is growing over time.

Business, Finance & Industry Support

In this subsection, we analyse the labour market trajectories of the Business, Finance & Industry Support sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Business, Finance & Industry Support sub-group. Table 41 looks at outcomes by NZQF level, while Table 42 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix D.

Business, Finance & Industry Support by NZQF level

In interpreting Table 41, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings was 99% in 2014 for those with no PSQs. For those who completed a qualification, the share was lower (between 61% and 89%). These proportions increase when self-employment is also accounted for (to between 65% and 93%).

Next, we turn to the earnings premium associated with a qualification. Interestingly, in 2014 we observe a higher wage premium (the difference compared to what no PSQ earn) for those with a Level 3 or higher qualification: for example, while Level 4 learners, on average, received income from W&S of about \$48.4k, those with no PSQ received on average \$42.2k. Moreover, that gap persists over time. Finally, it can also be observed that earnings steadily increases with the qualification level.

In 2014 we notice a pattern where the proportion of individuals receiving benefits decreases as the NZQL level of study in 2012 increases, with Level 2 learners having the highest proportion (42%) and Level 7 learners having the lowest (5%).

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data.

Business, Finance & Industry Support by related industry

Table 42 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. The majority (81%) of the Business, Finance & Industry Support sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion remaining stable over time. Of those that do

end up in a related industry, we note that they have lower average earnings in 2014 and this industry penalty is persistent over time and is still evident in 2022. Similarly, benefit receipt is higher for those in a related industry in all three time points.

For the NZQF Level 5-7, we see a different pattern, with 69% of the Business, Finance & Industry Support sub-group graduates working in a non-related industry in 2014, with that proportion remaining stable over time. Of those that do end up in a related industry, we note that they have almost identical average earnings in 2014 but due to substantially higher wage growth, we can observe an earnings premium in 2022, by which Level 5-7 learners earn \$9k more when working in a related industry compared to working in a non-related industry.

Table 41. Labour market outcomes for Business, Finance & Industry Support sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.6% | - | 60.8% | 80.2% | 74.9% | 75.3% | 84.7% | 88.3% |
| 2017 | 88.4% | - | 67.6% | 81.8% | 75.5% | 77.8% | 85.8% | 83.8% |
| 2022 | 80.2% | - | 66.2% | 81.3% | 74.2% | 78.6% | 84.6% | 77.7% |
| Employment intensity | | | | | | | | |
| 2014 | 10.2 | - | 9.4 | 10.4 | 10.1 | 10.2 | 10.5 | 10.9 |
| 2017 | 10.6 | - | 9.8 | 10.6 | 10.4 | 10.7 | 10.8 | 11.3 |
| 2022 | 10.7 | - | 9.6 | 10.7 | 10.6 | 11.1 | 10.9 | 11.1 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 42,214 | - | 35,947 | 48,364 | 48,227 | 50,592 | 44,517 | 73,211 |
| 2017 | 50,344 | - | 39,602 | 53,006 | 53,911 | 59,633 | 55,894 | 90,803 |
| 2022 | 56,336 | - | 48,037 | 60,910 | 62,015 | 72,631 | 66,604 | 105,121 |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.9 | - | 1.4 | 1.4 | 1.4 | 1.4 | 1.5 | 1.4 |
| 2017 | 1.5 | - | 1.5 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 |
| 2022 | 1.4 | - | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 3.4% | - | 8.1% | 4.5% | 8.5% | 16.2% | 8.2% | 13.1% |
| 2017 | 4.7% | - | 11.0% | 5.9% | 10.5% | 17.6% | 11.5% | 13.1% |
| 2022 | 5.8% | - | 11.3% | 7.8% | 11.7% | 15.3% | 14.2% | 22.3% |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.7% | - | 64.9% | 82.2% | 79.0% | 85.1% | 87.0% | 92.7% |
| 2017 | 90.0% | - | 73.1% | 84.3% | 80.9% | 88.7% | 90.2% | 89.2% |
| 2022 | 83.0% | - | 71.1% | 84.7% | 79.9% | 87.2% | 89.5% | 90.0% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 42,780 | - | 38,568 | 49,164 | 48,750 | 52,901 | 45,696 | 76,207 |
| 2017 | 50,988 | - | 41,195 | 53,668 | 55,422 | 63,787 | 57,871 | 92,805 |
| 2022 | 57,128 | - | 50,729 | 62,395 | 63,505 | 76,707 | 69,780 | 106,191 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 27.7% | - | 41.2% | 28.6% | 31.4% | 18.6% | 17.0% | 5.1% |
| 2017 | 21.7% | - | 35.2% | 23.9% | 24.2% | 12.3% | 11.5% | - |
| 2022 | 25.8% | - | 38.0% | 24.0% | 26.2% | 12.8% | 9.3% | - |
| Benefit intensity | | | | | | | | |
| 2014 | 7.4 | - | 9.0 | 8.6 | 8.8 | 7.7 | 7.1 | 6.7 |
| 2017 | 8.2 | - | 8.8 | 9.0 | 9.3 | 8.1 | 7.3 | - |
| 2022 | 9.4 | - | 10.2 | 9.6 | 10.0 | 9.1 | 9.1 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Business, Finance & Industry Support learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 42. Labour market outcomes for Business, Finance & Industry Support sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 18.7% | 81.3% | 31.3% | 68.7% |
| 2017 | 18.3% | 81.7% | 31.1% | 68.9% |
| 2022 | 16.4% | 83.6% | 28.4% | 71.6% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 9.5 | 10.3 | 10.4 | 10.5 |
| 2017 | 9.5 | 10.6 | 10.8 | 10.9 |
| 2022 | 10.0 | 10.7 | 11.0 | 11.0 |
| Mean annual earnings from W&S | | | | |
| 2014 | 37,544 | 49,837 | 52,205 | 51,941 |
| 2017 | 41,340 | 55,223 | 63,606 | 63,254 |
| 2022 | 54,694 | 61,924 | 81,324 | 72,866 |
| Mean number of employers per year | | | | |
| 2014 | 1.9 | 1.3 | 1.7 | 1.4 |
| 2017 | 1.8 | 1.3 | 1.5 | 1.3 |
| 2022 | 1.8 | 1.3 | 1.5 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 31.2% | 18.5% | 13.4% | 10.9% |
| 2017 | 28.2% | 14.0% | 8.3% | 7.0% |
| 2022 | 26.8% | 15.0% | 6.4% | 6.5% |
| Benefit intensity | | | | |
| 2014 | 7.3 | 7.6 | 6.3 | 6.8 |
| 2017 | 7.4 | 8.0 | 6.3 | 7.0 |
| 2022 | 8.6 | 8.5 | 7.8 | 7.7 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Business, Finance & Industry Support learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Business, Finance & Industry Support gender

Appendix Table D 5, shows the 2012 Business, Finance & Industry Support sub-group by gender. Women make up 66% of this sub-group at NZQF Level 2-4, with 35% of the group being male. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap persists over our time period (around \$30k). In fact, the female cohort earned \$17k less ten-years post-graduation than the male cohort was earning in their first year of working (2014). Looking at self-employed income does not close this gap. Benefit receipt is twice as high for the women in this sub-group than the men. Notably, the proportion of learners receiving at least one month of benefits is over 32% for women at all time points, while this proportion only reached a maximum of 16% for the male cohort.

The NZQF Level 5-7 cohort looks similar, with 65% of the group being made up of women. The males in this group also earn more than their female counterparts. The earnings differential between genders increases from \$16.9k in 2014, to \$29.7k by 2021.

Business, Finance & Industry Support by ethnicity

In Appendix Table D 6, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Business, Finance & Industry Support sub-group. Note that for the NZQF Level 2-4 group, Pacific comprise around 16% of the sample, with Māori at 34% and European at 50%. The NZQF Level 5-7 group looks substantially different, with 8% of the sample being made up of Pacific learners, 22% Māori and 70% European.

For the NZQF Level 2-4 group we note that the European learners have the highest proportion of learners receiving income from W&S in all three time points, followed by the Pacific learners and then the Māori learners. Earnings match the same pattern, with the European cohort outearning the other ethnicity groups in all time periods, and the Māori learners having similar earnings to the Pacific group. We note that ten-years post-graduation both Pacific and Māori cohorts earn less (\$51k) than what the European cohort did two years post-graduation (\$55k). Benefit receipt is also lowest for the European sub-group in all time periods. It is notable that in 2014 almost half of the Māori group received income from benefits in at least one month.

For the NZQF Level 5-7 group we note that the European learners again have the highest proportion of learners receiving income from W&S in 2014, followed by the Māori learners and then Pacific learners. Over time, this distribution flips with the Pacific group having the largest share in 2022. Earnings match the same pattern, with the European cohort outearning the other ethnicity groups in

all time periods, and the Māori learners having higher earnings than the Pacific group. We note that benefit receipt is also lowest for the European cohort in all time periods.

Business, Finance & Industry Support by region

Results by region are shown in Appendix Table D 7. Business, Finance & Industry Support learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. In 2014, 43% of Level 2-4 learners lived in Auckland and 57% outside of Auckland. There is a premium in average yearly earnings from W&S for those living in Auckland for both the NZQF Level 2-4 group and NZQF Level 5-7 cohort, which is especially visible in the later years. This is consistent with previous research highlighting an Auckland wage and productivity premium (e.g. Lewis & Stillman, 2007; Maré, 2008; Fabling, 2021). However, this is despite the fact that Auckland dwellers have a lower employment rate, on average, compared to those living outside of Auckland and higher proportion of benefit receipt for both the NZQF Level 2-4 group and NZQF Level 5-7 cohort.

Security & Government

In this subsection we analyse the labour market outcomes of the Security & Government sub-group at three time points: two, five and ten years post-graduation. Table 43 looks at outcomes by NZQF level, while Table 44 disaggregates the outcomes by whether working in a related industry or not. Further disaggregations by gender, ethnicity and region are discussed, with the results presented in Appendix D.

Security & Government by NZQF level

Table 43 allows us to see how the labour market outcomes for those who studied in the Security & Government sub-group track over time by qualification level. As mentioned earlier, the no PSQ group is calibrated to have similar characteristics (e.g. age, gender, ethnicity, region and employment intensity) as the Security & Government Level 2 sub-group in this section.

The share of those receiving any W&S was highest in 2014 for those who completed a Level 4 (94%) or Level 2 (92%) qualification in 2012. For those who completed a qualification at Level 3 or 5 the share was lower (between 74% and 83%), with no obvious patterns emerging over time.

Next, we turn to the earnings premium associated with a qualification. Interestingly, in 2014 those learners with a Level 2, 4 and 5 qualification have similar earnings, which is slightly below that of the no PSQ group. However, due to larger wage growth, Level 3 and 5 learners outearn those with no PSQ by 2022. This observation is not affected by including income from self-employment.

Moreover, we see a decline in benefit recipiency over time. For example, in 2014, 27% of Level 2 learners received benefits and this share drops to 20% in 2022.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data.

Security & Government by related industry

Table 44 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 60% of the Security & Government sub-group at NZQF Level 2-4 do not end up working in a related industry, with this proportion increasing to 76% by 2022. Of the minority that work in a related industry, we note that they have lower average earnings than those working in a non-related industry in 2014 and 2017— however, this relationship flips ten years post-graduation, where those working in a related industry earn, on average, more.

For the NZQF Level 5-7, we see a different pattern, with 96% the Security & Government sub-group graduates working in a non-related industry in 2014, decreasing slightly to 92% by 2021. Of those that do end up in a related industry, we note that they have much higher average earnings in 2014; on average, their earnings are \$32.4k higher compared to those working in a non-related industry. This industry premium decreases in magnitude but does not dissipate over time and is evident five and ten years post-graduation.

Table 43. Labour market outcomes for Security & Government sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.7% | - | 91.5% | 82.5% | 93.9% | 73.8% | - | 91.8% |
| 2017 | 91.2% | - | 90.9% | 81.7% | 91.2% | 76.4% | - | 93.2% |
| 2022 | 83.3% | - | 83.6% | 80.0% | 86.3% | 75.4% | - | 90.0% |
| Employment intensity | | | | | | | | |
| 2014 | 10.9 | - | 10.9 | 10.4 | 11.3 | 9.6 | - | 11.0 |
| 2017 | 11.0 | - | 10.8 | 10.6 | 11.2 | 10.3 | - | 11.2 |
| 2022 | 11.0 | - | 10.8 | 10.8 | 11.2 | 10.5 | - | 11.1 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 48,641 | - | 43,921 | 46,975 | 75,614 | 42,659 | - | 52,947 |
| 2017 | 53,492 | - | 50,262 | 53,242 | 79,304 | 53,100 | - | 69,990 |
| 2022 | 60,130 | - | 57,113 | 62,003 | 84,177 | 65,557 | - | 91,519 |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.6 | - | 1.9 | 1.6 | 1.3 | 1.5 | - | 1.4 |
| 2017 | 1.4 | - | 1.6 | 1.4 | 1.3 | 1.4 | - | 1.3 |
| 2022 | 1.3 | - | 1.4 | 1.4 | 1.3 | 1.4 | - | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 3.5% | - | - | 5.1% | 6.1% | 5.2% | - | - |
| 2017 | 5.6% | - | - | 6.9% | 9.8% | 5.5% | - | - |
| 2022 | 5.5% | - | - | 5.6% | 12.6% | 8.7% | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.8% | - | 89.8% | 84.7% | 95.5% | 75.2% | - | 91.8% |
| 2017 | 92.1% | - | 89.1% | 84.7% | 94.8% | 79.3% | - | 95.5% |
| 2022 | 85.3% | - | 85.5% | 84.0% | 91.6% | 78.4% | - | 90.0% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 49,049 | - | 44,922 | 47,541 | 76,287 | 44,861 | - | 54,092 |
| 2017 | 54,300 | - | 51,895 | 53,975 | 79,351 | 54,488 | - | 70,419 |
| 2022 | 60,666 | - | 56,843 | 61,371 | 84,586 | 67,836 | - | 93,746 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 17.5% | - | 27.1% | 22.6% | 7.1% | 36.9% | - | - |
| 2017 | 15.0% | - | 18.2% | 19.1% | 5.7% | 27.7% | - | - |
| 2022 | 17.9% | - | 20.0% | 21.6% | 7.4% | 29.9% | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 7.6 | - | 7.9 | 8.4 | 6.5 | 8.8 | - | - |
| 2017 | 8.8 | - | 9.3 | 8.6 | 8.9 | 9.7 | - | - |
| 2022 | 9.9 | - | 10.5 | 10.0 | 8.5 | 9.8 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Security & Government learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 44. Labour market outcomes for Security & Government sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 39.9% | 60.1% | 5.0% | 95.0% |
| 2017 | 30.0% | 70.0% | 6.0% | 94.0% |
| 2022 | 23.8% | 76.2% | 8.0% | 92.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.3 | 10.7 | 11.1 | 9.8 |
| 2017 | 11.2 | 10.8 | 11.3 | 10.3 |
| 2022 | 11.0 | 11.0 | 10.9 | 10.6 |
| Mean annual earnings from W&S | | | | |
| 2014 | 57,916 | 64,047 | 66,600 | 43,448 |
| 2017 | 65,333 | 67,099 | 70,457 | 55,021 |
| 2022 | 76,215 | 71,699 | 78,355 | 69,109 |
| Mean number of employers per year | | | | |
| 2014 | 1.7 | 1.4 | 1.7 | 1.4 |
| 2017 | 1.5 | 1.3 | 1.6 | 1.4 |
| 2022 | 1.4 | 1.3 | 1.5 | 1.4 |
| 2) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 11.3% | 10.8% | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | 6.5 | 7.4 | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Security & Government learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Security & Government gender

Appendix Table D 8, shows the 2012 Security & Government sub-group by gender. Women make up about 40% of this sub-group at NZQF Level 2-4, with 60% of the group being male. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap increases only slightly over our time period from \$9.3k in 2014 to \$14.5k in 2022. Looking at self-employed income does not close this gap.

The NZQF Level 5-7 cohort looks slightly different, with 67% of the group being made up of women. The males in this group also earn more than their female counterparts. The earnings differential between genders increases more drastically for this group, from \$16.1k in 2014, to \$35.9k by 2022. Also of note is that the self-employment rate is two times higher for men than women, but this does not translate to any larger earning differences when W&S and self-employed income are combined.

Security & Government by ethnicity

In Appendix Table D 9, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Security & Government sub-group. Note that for the NZQF Level 2-4 group, Pacific comprise around 22% of the sample, with Māori at 26% and European at 53%. The NZQF Level 5-7 group looks substantially different, with 34% of the sample being made up of Pacific learners, 24% Māori and 43% European.

For the NZQF Level 2-4 group we note that the European learners have the highest proportion of learners receiving income from W&S in all three time points, followed by the Māori learners and then the Pacific learners. Earnings match the same pattern, with the European cohort outearning the other ethnicity groups in all time periods, and the Māori learners having higher earnings than the Pacific group. This is despite the fact that the Pacific cohort had the highest income growth, at 19% compared to the Māori group's 17% and the European group's 9%. It is notable that income growth is substantially lower for this group than for the NZQF Level 5-7 group. We note that ten-years post-graduation, both Pacific and Māori cohorts earn less than what the European cohort did two years post-graduation.

For the NZQF Level 5-7 group, we note that the European learners again have the highest proportion of learners receiving income from W&S in all three time points, followed by the Pacific learners and then Māori learners. Earnings do not match the same pattern, with the European cohort outearning the other ethnicity groups in all time periods, and the Māori learners having higher earnings than the Pacific group. This is despite the fact that the Pacific cohort had the highest income growth, at 71% compared to the Māori group's 62% and the European group's 47%. We note that ten-years post-

graduation, both Pacific and Māori cohorts earn less than what the European cohort did two years post-graduation. We note that benefit receipt is also 5 times lower for the European sub-group than the other two cohorts in all time periods.

Security & Government by region

Results by region are shown in Appendix Table D 10. Security & Government learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. 44% of Level 2-4 and 62% of Level 5-7 learners live in Auckland. There is a large premium in average yearly earnings from W&S for those living outside of Auckland for both the NZQF Level 2-4 group and NZQF Level 5-7 cohort. This is inconsistent with previous research highlighting an Auckland wage and productivity premium (e.g. Lewis & Stillman, 2007; Maré, 2008; Fabling, 2021). However, this could be explained by the fact that Auckland dwellers have a lower employment rate on average compared to those living outside of Auckland and higher proportion of benefit receipt for both the NZQF Level 2-4 group and NZQF Level 5-7 cohort.

Hospitality & Cleaning

In this subsection, we analyse the labour market trajectories of the Hospitality & Cleaning sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Hospitality & Cleaning sub-group. Table 45 looks at outcomes by NZQF level, while Table 46 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix D. Our focus is on Levels 2-4 learners who make up almost 90% of the graduates.

Hospitality & Cleaning by NZQF level

In interpreting Table 45, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings was 98% in 2014 for those with no PSQs. For those who completed a qualification, the share was lower (between 79% and 88%).

Next, we turn to the earnings premium associated with a qualification. Interestingly, in 2014 there is a higher wage premium (the difference compared to what no PSQ earn) for those with no PSQ compared to Level 2-4 learners: for example, in 2014 while Level 2 learners, on average, received income from W&S of about \$26.3k, that with no PSQ earned \$28.3k. However, wage growth is substantially larger for Level 2-4 learners compared to that with no PSQ and by 2022, they outearn the reference group. Though the proportion of self-employed learners increases over time, we do not find any clear relationship with the qualification level.

Regarding benefit recipiency, in 2014 between 28% (Level 2) and 43% (Level 3) of the learners received benefits and the share dropped slightly until 2022. For those with no PSQ, we observe a similar level which stays unchanged, about 30% over time.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data.

Hospitality & Cleaning by related industry

Table 46 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 33% of the Hospitality & Cleaning sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion more than doubling to 74% by 2022. Of those that do end up in a related industry, we note that they have similar average earnings in 2014. However, those working in a non-related industry experience a larger wage growth and by 2022, a gap of about \$6k is visible. We notice a similar pattern with benefit receipt, where those working in a related industry have lower benefit recipiency in 2014 and 2017, the roles are reversed by 2021.

Table 45. Labour market outcomes for Hospitality & Cleaning sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 97.9% | - | 87.0% | 78.6% | 78.7% | 86.2% | 92.3% | - |
| 2017 | 85.6% | - | 81.1% | 78.9% | 76.6% | 83.1% | 80.0% | - |
| 2022 | 76.7% | - | 79.6% | 77.7% | 73.8% | 80.8% | 90.9% | - |
| Employment intensity | | | | | | | | |
| 2014 | 10.4 | - | 10.0 | 9.4 | 9.4 | 9.7 | 10.0 | - |
| 2017 | 10.6 | - | 10.2 | 9.6 | 9.9 | 10.5 | 10.9 | - |
| 2022 | 10.6 | - | 10.4 | 10.0 | 10.1 | 10.5 | 11.1 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 28,819 | - | 26,928 | 24,762 | 26,803 | 28,799 | 32,357 | - |
| 2017 | 34,376 | - | 37,175 | 33,265 | 35,895 | 38,946 | 48,869 | - |
| 2022 | 40,978 | - | 50,677 | 43,683 | 44,730 | 49,988 | 67,158 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.7 | - | 1.7 | 1.8 | 1.7 | 1.8 | 2.4 | - |
| 2017 | 1.5 | - | 1.5 | 1.6 | 1.6 | 1.6 | 1.6 | - |
| 2022 | 1.5 | - | 1.4 | 1.5 | 1.6 | 1.5 | 1.6 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 4.5% | - | 3.5% | 1.4% | 4.1% | - | - | - |
| 2017 | 6.5% | - | 4.6% | 2.5% | 4.4% | 4.0% | - | - |
| 2022 | 7.8% | - | 6.8% | 5.2% | 7.7% | 6.2% | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.1% | - | 88.6% | 79.8% | 80.9% | 86.8% | 84.6% | - |
| 2017 | 88.0% | - | 83.5% | 80.2% | 78.9% | 85.9% | 90.0% | - |
| 2022 | 80.4% | - | 83.5% | 80.0% | 77.9% | 83.6% | 90.9% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 29,713 | - | 27,167 | 24,859 | 27,139 | 28,898 | 35,452 | - |
| 2017 | 35,659 | - | 37,451 | 34,082 | 36,320 | 38,694 | 48,741 | - |
| 2022 | 42,838 | - | 52,271 | 44,831 | 47,120 | 50,057 | 72,928 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 29.6% | - | 28.4% | 43.3% | 38.8% | 28.6% | - | - |
| 2017 | 25.1% | - | 27.1% | 35.7% | 32.6% | 23.2% | - | - |
| 2022 | 29.5% | - | 25.8% | 38.5% | 35.3% | 23.7% | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 8.5 | - | 7.4 | 8.0 | 7.6 | 8.0 | - | - |
| 2017 | 9.1 | - | 8.5 | 8.9 | 8.8 | 8.0 | - | - |
| 2022 | 9.9 | - | 9.5 | 9.2 | 9.6 | 9.2 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Hospitality & Cleaning learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 46. Labour market outcomes for Hospitality & Cleaning sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 67.1% | 32.9% | 71.8% | 28.2% |
| 2017 | 42.2% | 57.8% | 49.1% | 50.9% |
| 2022 | 26.1% | 73.9% | 29.9% | 70.1% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.0 | 8.6 | 9.9 | 9.0 |
| 2017 | 10.2 | 9.6 | 10.7 | 10.3 |
| 2022 | 10.3 | 10.2 | 10.9 | 10.4 |
| Mean annual earnings from W&S | | | | |
| 2014 | 25,878 | 26,577 | 29,259 | 30,301 |
| 2017 | 34,179 | 36,155 | 39,670 | 40,065 |
| 2022 | 41,502 | 47,866 | 49,888 | 52,734 |
| Mean number of employers per year | | | | |
| 2014 | 1.9 | 1.5 | 2.0 | 1.4 |
| 2017 | 1.8 | 1.4 | 1.8 | 1.4 |
| 2022 | 1.8 | 1.4 | 2.0 | 1.4 |
| 2) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 26.1% | 38.3% | 20.0% | 23.5% |
| 2017 | 21.9% | 25.7% | 14.1% | 18.5% |
| 2022 | 29.5% | 23.5% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.7 | 7.1 | 7.3 | 6.6 |
| 2017 | 7.3 | 7.7 | 5.8 | 7.5 |
| 2022 | 8.1 | 7.9 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Hospitality & Cleaning learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Hospitality & Cleaning by gender

Appendix Table D 11, shows the 2012 Hospitality & Cleaning sub-group by gender. Women make up 61% of this sub-group at NZQF Level 2-4, with 39% of the group being male. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$6.1k in 2014 to \$12.9k in 2022. Looking at self-employed income does not close this gap. It is also worth noting that the female group has a much higher proportion of benefit recipiency than the male group, especially in 2014, but dropping over time.

Hospitality & Cleaning by ethnicity

In Appendix Table D 12, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Hospitality & Cleaning sub-group. Note that for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 12%, with Māori at 34% and European at 54%.

For the NZQF Level 2-4 group we note that the European learners have the highest proportion of learners receiving income from W&S in all three time points, followed by the Pacific learners and then the Māori learners. Earnings match the same pattern, with the European cohort outearning the other ethnicity groups in all time periods, and the Pacific learners having higher earnings (especially in 2017 and 2022) than the Māori group. We note that benefit receipt is also lower for the European sub-group than the other two cohorts in all time periods.

Hospitality & Cleaning by region

Results by region are shown in Appendix Table D 13. Hospitality & Cleaning learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. About 69% of the Level 2-4 learners lived outside of Auckland and 32% in Auckland. There is a premium in average yearly earnings from W&S for those living outside of Auckland for the NZQF Level 2-4 group in 2014, but this relationship flips for 2022. Noteworthy is that Auckland dwellers have a lower employment rate on average compared to those living outside of Auckland and higher proportion of benefit receipt for the NZQF Level 2-4 group in 2014—but the difference shrinks over time.

Real Estate & Rental

In this subsection, we analyse the labour market trajectories of the Real Estate & Rental sub-group. Unfortunately, due to small sample sizes, we cannot disaggregate the Real Estate and Rental sub-group by NZQF level, by industry (whether related or not) or ethnicity. This is because the Real Estate and Rental sub-group is a small RH sub-group, making up just 5% of this WDC. Disaggregation of this sub-group by gender and region are discussed in text, and presented in the Appendix D.

Real Estate & Rental by gender

Appendix Table D 14, shows the 2012 Real Estate and Rental sub-group by gender. Women make up 53% of this sub-group at NZQF Level 2-4. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap triples over our time period from \$10.5k in 2014 to \$30.4k in 2022. This indicates that the female group's wage growth is substantially smaller than their male counterparts.

Real Estate & Rental by region

Results by region are shown in Appendix Table D 15. Real Estate & Rental learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. There is a premium in average yearly earnings from W&S for those living in Auckland, who outearn those living outside of Auckland in all three time periods. It is also noticeable that the Auckland cohort has a higher benefit reciprocity in 2014 and 2022.

Retail & Distribution

In this subsection, we analyse the labour market trajectories of the Retail & Distribution sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Retail & Distribution sub-group. Table 47 looks at outcomes by NZQF level, while Table 48 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix D.

Retail & Distribution by NZQF level

In interpreting Table 47, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings is 99% in 2014 for those with no PSQs. For those who completed a qualification, the share is lower (between 66% and 95%). These proportions do not change substantially when taking self-employment into account.

Next, we turn to the earnings premium associated with a qualification. Interestingly, in 2014 there is a higher wage premium (the difference compared to what no PSQ earn) for those with a Level 3 qualification than Level 4: while Level 3 learners, on average, received income from W&S of about \$44.5k and those with no PSQ \$39k, Level 4 graduates earned \$41.7k. However, this changes after accounting for self-employed income but only for the years 2014 and 2017.

In 2014 we notice Level 2 learners having the lowest proportion (13%) of benefit receipt and Level 4 learners having the highest (40%), relative to the no PSQ group whose proportions were similar to that of the Level 3 learners (16%).

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data. Despite this aggregation, the NZQF Level 5-7 group remains small and the results for these categories should be interpreted with caution, thus we restrict our interpretations to the NZQF Level 2-4 group for the Retail & Distribution sub-group.

Retail & Distribution by related industry

Table 48 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 64% of the Retail & Distribution sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion increasing to 75% by 2022. Of those that do end up in a related industry, we note that their earnings in 2014 are lower than those in a non-related industry, but that this industry penalty decreases in magnitude over time, from \$5k in 2014 to just over \$1k by 2021.

We do not notice a similar pattern with benefit receipt, where those working in a related industry have lower benefit recipiency in 2014 and 2017, while by 2021 the proportions of benefit recipiency are the same for both groups.

Table 47. Labour market outcomes for Retail & Distribution sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.6% | - | 94.9% | 88.8% | 66.3% | - | - | - |
| 2017 | 90.1% | - | 90.6% | 84.8% | 68.1% | - | - | - |
| 2022 | 82.0% | - | 85.4% | 83.2% | 71.8% | - | - | - |
| Employment intensity | | | | | | | | |
| 2014 | 11.0 | - | 11.2 | 10.9 | 9.5 | - | - | - |
| 2017 | 11.1 | - | 11.1 | 10.7 | 10.1 | - | - | - |
| 2022 | 11.1 | - | 11.1 | 10.3 | 10.0 | - | - | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 39,024 | - | 43,298 | 44,545 | 41,458 | - | - | - |
| 2017 | 43,891 | - | 48,676 | 51,487 | 49,747 | - | - | - |
| 2022 | 48,916 | - | 54,870 | 53,346 | 46,914 | - | - | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.5 | - | 1.3 | 1.3 | 1.4 | - | - | - |
| 2017 | 1.3 | - | 1.3 | 1.3 | 1.5 | - | - | - |
| 2022 | 1.3 | - | 1.3 | 1.5 | 1.5 | - | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 4.2% | - | - | 4.0% | 9.6% | - | - | - |
| 2017 | 5.5% | - | 5.2% | 7.0% | 11.0% | - | - | - |
| 2022 | 6.5% | - | 5.3% | 10.8% | 11.3% | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.9% | - | 95.3% | 89.5% | 72.7% | - | - | - |
| 2017 | 91.9% | - | 92.9% | 87.8% | 75.3% | - | - | - |
| 2022 | 85.1% | - | 87.9% | 86.9% | 74.6% | - | - | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 39,619 | - | 43,412 | 44,766 | 45,622 | - | - | - |
| 2017 | 44,615 | - | 49,245 | 52,613 | 54,376 | - | - | - |
| 2022 | 50,014 | - | 55,436 | 55,693 | 49,835 | - | - | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 16.0% | - | 12.6% | 16.7% | 39.6% | - | - | - |
| 2017 | 14.5% | - | 10.8% | 14.1% | 30.8% | - | - | - |
| 2022 | 18.9% | - | 13.1% | 16.8% | 36.2% | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 7.8 | - | 8.0 | 8.3 | 8.8 | - | - | - |
| 2017 | 8.6 | - | 8.2 | 8.7 | 9.6 | - | - | - |
| 2022 | 9.8 | - | 8.7 | 9.3 | 10.2 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Retail & Distribution learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 48. Labour market outcomes for Retail & Distribution sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 35.8% | 64.2% | - | - |
| 2017 | 29.7% | 70.3% | - | - |
| 2022 | 25.1% | 74.9% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.2 | 10.5 | - | - |
| 2017 | 11.2 | 10.5 | - | - |
| 2022 | 11.1 | 10.3 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 40,374 | 45,261 | - | - |
| 2017 | 47,893 | 51,035 | - | - |
| 2022 | 50,961 | 52,752 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.3 | - | - |
| 2017 | 1.4 | 1.3 | - | - |
| 2022 | 1.6 | 1.4 | - | - |
| 2) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 14.6% | 15.5% | - | - |
| 2017 | 9.3% | 13.1% | - | - |
| 2022 | 13.6% | 14.0% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.7 | 7.8 | - | - |
| 2017 | 7.3 | 7.8 | - | - |
| 2022 | 8.4 | 7.8 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Retail & Distribution learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Retail & Distribution by gender

Appendix Table D 16, shows the 2012 Retail & Distribution sub-group by gender. Women make up 65% of this sub-group at NZQF Level 2-4, with 35% of the group being male. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$6.4k in 2014 to \$13.3k in 2022. This indicates that the female group's wage growth is substantially smaller than their male counterparts. Looking at self-employed income does not narrow this gap, this is despite the fact that a higher proportion of the female cohort is self-employed in all three time points. Finally, we note that the female group has a higher benefit reciprocity than the males, by 6 percentage points; this decreases over time to less than 1 percentage point by 2022.

Retail & Distribution by ethnicity

In Appendix Table D 17, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Retail & Distribution sub-group. Once again, our interpretation is focussed on comparing labour market trajectories for those completing a Level 2-4 qualification. Note that even for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 18%, with Māori at 22% and European at 61%.

We note that the share of European learners receiving income from W&S is highest in all three time points, followed by the Pacific group and the Māori group with similar shares. The European cohort outearns the others in all three time points, followed by the Māori and then the Pacific cohort, except for 2022 when the Pacific cohort outearns the Māori group.

Benefit receipt is also lowest for the European sub-group and highest for the Māori sub-group, with the Pacific group in the middle. It is notable that over 40% of the Māori sub-group receive income from benefits in at least one month.

Retail & Distribution by region

Results by region are shown in Appendix Table D 18. Retail & Distribution learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. There is a premium in average yearly earnings from W&S for those living outside of Auckland, who outearn those living in Auckland in 2014—however, this relationship flips for 2022, when those in Auckland earn slightly more compared to those outside of Auckland.

7 Toi Mai

This section focuses on 2012 learners with an NZSCED code related to the WDC Toi Mai (TM).

Toi Mai represents the creative, cultural, recreation and technology sectors. These sectors are comprised of industries specified in the Australia and New Zealand Standard Industrial Classification 2006 (ANZSIC).

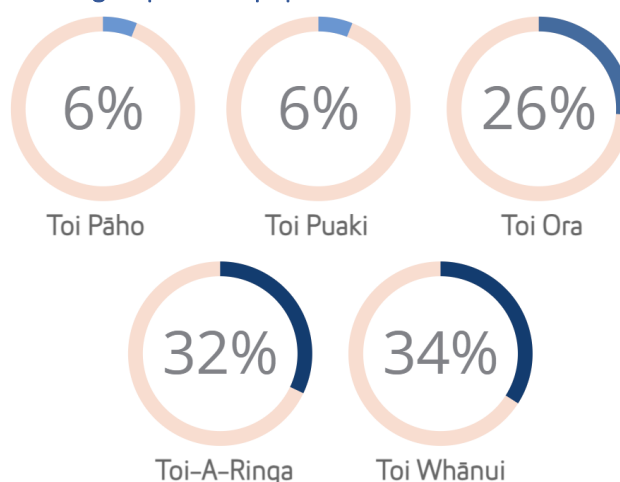


For the purposes of this analysis, TM has been split into five sub-groups, namely: Toi Ora (sport, recreation and cultural organisations), Toi Puaki (expressive arts), Toi Pāho (broadcast and scree), Toi Whānui (enabling technologies) and Toi-A-Ringa (art and design). The number of NZSCED codes related to a sub-group ranges between 4 (Toi Whānui) and 12 (Toi-A-Ringa). This means that a small number of NZSCED codes define the pool of learners. Moreover, residual NZSCED categories that include learners not elsewhere classified (e.g., 039999 “Engineering and Related Technologies not elsewhere classified”) play a substantial role. Furthermore, one NZSCED code (031399 “Electrical and Electronic Engineering and Technology not elsewhere classified”) has been assigned to two WDC sub-groups, which results in double counting of a few individuals.

7.1 Descriptive profile by industry sub-group

The number of learners that are identified in the five sub-groups of TM differs substantially: while about one third of TM’s learners belong to Toi Whānui or Toi-A-Ringa, only about 5% belong to Toi Puaki or Toi Pāho.

Figure 6. Proportion of TM sub-groups in the population of interest



Source: Authors’ compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM learners between 18 and 54 (inclusive) years old in 2012, according to their education records

Table 49 discusses the demographic characteristics for each TM sub-group. Large diversity can be found regarding gender and age. For example, while Toi Puaki has a large share of male learners (70%) and three out of four are below the age of 25 (77%), a flipped distribution is found for Toi Whānui where only 41% are male and one third (37%) aged below 25. Independent of the sub-group we also see that between 32-42% of learners live in Auckland, which is higher compared with other WDCs. When we move to the achieved qualification levels, we see that Level 2-4 are the by far most dominant levels for Toi Ora and Toi Whānui; however, in case of Toi Puaki and Toi Pāho, more than every second learner graduated with Level 5 or 6.

Table 49. Descriptive statistics by TM sub-group 2012

| | Toi Mai | Toi Ora | Toi Puaki | Toi Pāho | Toi Whānui | Toi-A-Ringa |
|---|---------|---------|-----------|----------|------------|-------------|
| Male | 42.9% | 62.9% | 70.2% | 63.4% | 41.1% | 21.9% |
| Age 25 and below | 53.2% | 53.3% | 76.9% | 65.9% | 36.8% | 64.5% |
| Age above 45 | 10.9% | 8.8% | 2.3% | 5.2% | 18.3% | 7.0% |
| Born overseas | 19.1% | 14.4% | 17.3% | 17.4% | 26.3% | 15.9% |
| Auckland | 36.0% | 31.6% | 42.1% | 40.0% | 40.2% | 33.4% |
| Ethnicity | | | | | | |
| European | 49.9% | 53.4% | 58.1% | 66.4% | 38.7% | 55.1% |
| Māori | 29.9% | 31.1% | 21.3% | 17.2% | 32.7% | 29.2% |
| Pacific | 9.3% | 10.1% | 13.8% | 6.2% | 11.1% | 6.5% |
| Asian | 8.5% | 3.1% | 5.0% | 7.0% | 14.8% | 6.7% |
| MELAA/Other | 2.5% | 2.3% | 2.0% | 3.0% | 2.7% | 2.5% |
| NZQF level of qualification achieved in 2012 | | | | | | |
| Level 1 | 0.3% | - | - | - | - | 0.6% |
| Level 2 | 12.8% | 11.9% | 6.8% | 2.7% | 25.9% | 2.2% |
| Level 3 | 32.7% | 35.0% | 14.3% | 10.2% | 38.3% | 31.4% |
| Level 4 | 22.4% | 25.7% | 24.3% | 23.4% | 10.8% | 31.6% |
| Level 5 | 18.1% | 17.2% | 35.6% | 40.8% | 14.2% | 17.1% |
| Level 6 | 11.8% | 9.9% | 17.8% | 16.2% | 9.7% | 13.8% |
| Level 7 | 1.9% | - | - | 5.5% | 1.0% | 3.4% |
| Number of Learners | 21372 | 5481 | 1197 | 1206 | 7215 | 6651 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

7.2 Qualification profile by industry sub-group

In the following, we discuss the qualification profile by TM's sub-groups. First thing to note is that about every second learner had attained a qualification in the five year time window before 2012— but only about one third was in TM. With the exception of Toi Pāho, we also find that more than 80% of learners who have a qualification before 2012 in TM also have one in the same sub-group.

When we look at further qualifications in Table 50, we see that by 2014 between one third (Toi Ora and Toi Pāho) and every second learner (Toi Puaki) attain another qualification, which is in the majority at a higher level than the one attained in 2012. Interestingly, we observe substantially lower fractions regarding a further qualification in TM. This gap gets further pronounced over time: while 62% of learners from Toi Ora have a further qualification by 2021, only 28% have a further qualification in TM. Two exceptions are Toi Puaki and Toi-A-Ringa, where the difference is smaller. Toi Pāho faces the particular challenge with a small number of learners with a further qualification in the same sub-group: by 2021, only 56% of learners with a further qualification have one in Toi Pāho (compared to 89% for Toi Ora).

Table 50. Pre and post qualifications for the 2012 learner cohort by HAR sub-group

| | | Toi Ora | Toi Puaki | Toi Pāho | Toi Whānui | Toi-A-Ringa |
|-------------|--|---------|-----------|----------|------------|-------------|
| Before 2012 | Qualification before 2012 | 55.2% | 54.6% | 53.3% | 56.1% | 59.3% |
| | Higher qualification | 39.1% | 20.2% | 34.6% | 41.5% | 24.4% |
| Before 2012 | Qualification before 2012 in TM | 29.0% | 34.6% | 26.0% | 29.1% | 38.2% |
| | In the same TM sub-group | 85.9% | 82.6% | 50.9% | 83.4% | 86.4% |
| By 2014 | Further qualification | 37.6% | 46.8% | 35.7% | 40.4% | 42.9% |
| | Higher qualification | 61.4% | 65.5% | 56.1% | 68.1% | 61.9% |
| By 2014 | Further qualification in TM | 21.1% | 35.2% | 20.3% | 18.1% | 31.2% |
| | In the same TM sub-group | 91.2% | 81.7% | 62.7% | 84.8% | 89.6% |
| By 2017 | Further qualification | 52.8% | 62.3% | 52.4% | 53.5% | 56.0% |
| | Higher qualification | 59.6% | 64.8% | 58.4% | 69.5% | 62.8% |
| By 2017 | Further qualification in TM | 25.4% | 41.5% | 26.5% | 22.1% | 37.0% |
| | In the same TM sub-group | 89.6% | 77.9% | 58.9% | 81.0% | 87.2% |
| By 2021 | Further qualification | 61.7% | 69.3% | 60.8% | 60.5% | 63.4% |
| | Higher qualification | 60.2% | 66.4% | 60.2% | 70.3% | 64.0% |
| By 2021 | Further qualification in TM | 27.9% | 44.2% | 28.8% | 24.2% | 39.7% |
| | In the same TM sub-group | 89.0% | 73.0% | 56.0% | 77.1% | 86.2% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 51 shows the pre and post PSQs of the Toi Ora sub-group by the NZQF qualification level the learners achieved in 2012. We note that as the NZQF level increases, so does the proportion of those with a prior qualification, starting at 56% for Level 2 learners, to 83% of Level 5 learners. This is expected as many higher NZQF courses require learners to have completed pre-requisite courses at lower levels, this is apparent also in the proportion of learners with a higher qualification, which decreases as the NZQF level increases.

As for further qualification, NZQF Level 5 learners have the highest proportion of learners going on to do further study by 2014, at 54%, increasing to 66% by 2021, however only 18% do so at a higher level. Despite the proportions of all learners going on to do further study increasing over time, the Level 3 learners are the only other group to catch up to the Level 5 students, with 67% going on to do further study by 2021, with half doing so at a higher level.

Table 51: Pre and post qualifications for the 2012 learner cohort: Toi Ora

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|-------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 50.0% | 51.4% | 54.8% | 55.6% | 75.0% | - |
| | Higher qualification | - | 77.1% | 62.9% | 24.8% | 16.0% | 5.9% | - |
| Before 2012 | Qualification before 2012 TM | - | 19.3% | 21.7% | 29.1% | 32.1% | 61.7% | - |
| | In Toi Ora | - | 73.8% | 84.2% | 81.8% | 87.1% | 97.3% | - |
| By 2014 | Further qualification 2014 | - | 47.3% | 30.3% | 36.6% | 44.2% | 44.4% | - |
| | Higher qualification | - | 86.3% | 67.4% | 41.3% | 61.5% | 55.2% | - |
| By 2014 | Further qualification 2014 TM | - | 20.9% | 15.0% | 17.1% | 32.1% | 35.8% | - |
| | In Toi Ora | - | 83.3% | 90.9% | 87.1% | 97.6% | 98.1% | - |
| By 2017 | Further qualification 2017 | - | 60.7% | 46.0% | 52.7% | 58.7% | 58.0% | - |
| | Higher qualification | - | 87.4% | 68.7% | 39.1% | 55.4% | 50.6% | - |
| By 2017 | Further qualification 2017 TM | - | 25.0% | 19.7% | 20.4% | 36.1% | 43.4% | - |
| | In Toi Ora | - | 83.7% | 88.3% | 83.7% | 95.6% | 95.2% | - |
| By 2021 | Further qualification 2021 | - | 67.7% | 56.4% | 60.2% | 66.7% | 69.1% | - |
| | Higher qualification | - | 90.0% | 69.6% | 41.8% | 52.3% | 50.5% | - |
| By 2021 | Further qualification 2021 TM | - | 26.0% | 23.7% | 22.9% | 36.8% | 44.7% | - |
| | In Toi Ora | - | 84.0% | 87.3% | 84.6% | 94.7% | 94.1% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Ora learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 52 shows the pre and post PSQs of the Toi Puaki sub-group by the NZQF qualification level the learners achieved in 2012. We note that generally, as the NZQF level increases, so does the proportion of those with a prior qualification (with the exception of Level 3), starting at 46% for Level 2 learners, to 77% of Level 6 learners. This is expected as many higher NZQF courses require learners to have completed pre-requisite courses at lower levels, this is apparent also in the proportion of learners with a higher qualification, which decreases as the NZQF level increases.

As for further qualification, NZQF Level 6 learners have the highest proportion of learners going on to do further study by 2014, at 52%, increasing to 65% by 2021, with 76% of these qualifications being at a higher level. Unsurprisingly, the group most likely to achieve a further PSQ at a higher NZQF level were those who graduated with a Level 2 qualification in 2012. The proportion of respondents who went on to do a further PSQ at a higher level decreases as the NZQF level achieved in 2012 increases (with the exception of Level 6).

Table 52: Pre and post qualifications for the 2012 learner cohort: Toi Puaki

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 46.2% | 32.1% | 59.8% | 51.4% | 77.1% | - |
| | Higher qualification | - | 66.7% | - | 24.1% | 13.7% | - | - |
| Before 2012 | Qualification before 2012 TM | - | - | - | 32.0% | 31.0% | 67.1% | - |
| | In Toi Puaki | - | - | - | 80.6% | 81.8% | 91.5% | - |
| By 2014 | Further qualification 2014 | - | 50.0% | 45.1% | 40.9% | 49.3% | 51.6% | - |
| | Higher qualification | - | 100.0% | 82.6% | 57.9% | 50.0% | 84.8% | - |
| By 2014 | Further qualification 2014 TM | - | 42.3% | 39.2% | 26.9% | 34.3% | 43.8% | - |
| | In Toi Puaki | - | 90.9% | 80.0% | 84.0% | 93.5% | 60.7% | - |
| By 2017 | Further qualification 2017 | - | 69.6% | 57.1% | 59.5% | 66.7% | 60.7% | - |
| | Higher qualification | - | 93.8% | 78.6% | 60.0% | 52.5% | 76.5% | - |
| By 2017 | Further qualification 2017 TM | - | 43.5% | 44.9% | 38.1% | 42.5% | 44.6% | - |
| | In Toi Puaki | - | 90.0% | 72.7% | 75.0% | 86.3% | 64.0% | - |
| By 2021 | Further qualification 2021 | - | 80.0% | 65.3% | 68.2% | 70.8% | 64.9% | - |
| | Higher qualification | - | 93.8% | 81.3% | 62.1% | 55.3% | 75.7% | - |
| By 2021 | Further qualification 2021 TM | - | 45.0% | 46.9% | 42.4% | 45.0% | 47.4% | - |
| | In Toi Puaki | - | 77.8% | 69.6% | 69.4% | 81.5% | 59.3% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Puaki learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 53 shows the pre and post PSQs of the Toi Pāho sub-group by the NZQF qualification level the learners achieved in 2012. We note that generally, as the NZQF level increases, so does the proportion of those with a prior qualification starting at 34% for Level 2 learners, to 67% of Level 7 learners. This is expected as many higher NZQF courses require learners to have completed pre-requisite courses at lower levels, this is apparent also in the proportion of learners with a higher qualification, which decreases as the NZQF level increases.

As for further qualification, NZQF Level 4 learners have the highest proportion of learners going on to do further study by 2014, at 48%, increasing to 78% by 2021, with 67% doing so at a higher level. The group most likely to achieve a further PSQ at a higher NZQF level were those who graduated with a Level 4 qualification in 2012.

Table 53: Pre and post qualifications for the 2012 learner cohort: Toi Pāho

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|-------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | - | 34.1% | 50.5% | 54.3% | 67.7% | 66.7% |
| | Higher qualification | - | - | 57.1% | 33.3% | 28.1% | 29.5% | 71.4% |
| Before 2012 | Qualification before 2012 TM | - | - | - | 21.1% | 26.8% | 47.7% | - |
| | In Toi Pāho | - | - | - | 50.0% | 36.4% | 74.2% | - |
| By 2014 | Further qualification 2014 | - | - | 23.5% | 48.3% | 34.4% | 32.8% | - |
| | Higher qualification | - | - | - | 71.4% | 46.2% | 68.4% | - |
| By 2014 | Further qualification 2014 TM | - | - | - | 34.5% | 18.5% | 24.1% | - |
| | In Toi Pāho | - | - | - | 73.3% | 50.0% | 57.1% | - |
| By 2017 | Further qualification 2017 | - | - | 39.4% | 68.3% | 53.6% | 40.0% | - |
| | Higher qualification | - | - | 61.5% | 67.9% | 52.7% | 63.6% | - |
| By 2017 | Further qualification 2017 TM | - | - | - | 43.9% | 26.8% | 21.8% | - |
| | In Toi Pāho | - | - | - | 69.4% | 48.6% | 58.3% | - |
| By 2021 | Further qualification 2021 | - | - | 51.5% | 78.0% | 61.4% | 49.1% | - |
| | Higher qualification | - | - | 76.5% | 67.2% | 54.7% | 55.6% | - |
| By 2021 | Further qualification 2021 TM | - | - | - | 46.3% | 27.9% | 27.3% | - |
| | In Toi Pāho | - | - | - | 65.8% | 46.2% | 53.3% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Pāho learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 54 shows the pre and post PSQs of the Toi Whānui sub-group by the NZQF qualification level the learners achieved in 2012. We note that as the NZQF level increases, so does the proportion of those with a prior qualification, starting at 48.1% for Level 2 learners, to 80% of Level 7 learners. This is expected as many higher NZQF courses require learners to have completed pre-requisite courses at lower levels, this is apparent also in the proportion of learners with a higher qualification, which decreases as the NZQF level increases.

As for further qualification, NZQF Level 5 learners have the highest proportion of learners going on to do further study by 2014, at 45%, increasing to 62% by 2021, however only 54% do so at a higher level. Unsurprisingly, the group most likely to achieve a further PSQ at a higher NZQF level were those who graduated with a Level 2 qualification in 2012. The proportion of respondents who went on to do a further PSQ at a higher level decreases as the NZQF level achieved in 2012 increases.

Table 54: Pre and post qualifications for the 2012 learner cohort: Toi Whānui

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 48.1% | 57.3% | 59.8% | 56.0% | 65.8% | 80.0% |
| | Higher qualification | - | 69.4% | 46.6% | 21.9% | 17.7% | 21.4% | - |
| Before 2012 | Qualification before 2012 TM | - | 21.2% | 24.8% | 31.7% | 36.4% | 49.6% | 52.0% |
| | In Toi Whānui | - | 79.7% | 85.6% | 87.8% | 88.8% | 72.4% | 100.0% |
| By 2014 | Further qualification 2014 | - | 41.9% | 39.2% | 43.4% | 44.5% | 33.3% | - |
| | Higher qualification | - | 85.0% | 70.0% | 53.8% | 52.4% | 58.6% | - |
| By 2014 | Further qualification 2014 TM | - | 20.6% | 11.2% | 15.6% | 31.5% | 23.3% | - |
| | In Toi Whānui | - | 86.8% | 78.4% | 78.9% | 96.0% | 73.5% | - |
| By 2017 | Further qualification 2017 | - | 53.0% | 53.7% | 59.9% | 57.4% | 43.5% | 36.4% |
| | Higher qualification | - | 87.8% | 71.5% | 54.2% | 52.8% | 59.8% | - |
| By 2017 | Further qualification 2017 TM | - | 23.1% | 15.1% | 21.9% | 37.1% | 27.0% | - |
| | In Toi Whānui | - | 83.3% | 71.7% | 78.8% | 93.0% | 70.4% | - |
| By 2021 | Further qualification 2021 | - | 60.2% | 61.6% | 67.7% | 62.0% | 48.2% | 47.6% |
| | Higher qualification | - | 90.0% | 71.9% | 55.4% | 54.0% | 55.9% | - |
| By 2021 | Further qualification 2021 TM | - | 25.8% | 17.5% | 24.1% | 38.0% | 27.5% | - |
| | In Toi Whānui | - | 80.7% | 65.3% | 73.2% | 92.2% | 71.7% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Whānui learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 55 shows the pre and post PSQs of the Toi-A-Ringa sub-group by the NZQF qualification level the learners achieved in 2012. We note that aside from Level 1, as the NZQF level increases, so does the proportion of those with a prior qualification, starting at 37% for Level 2 learners, to 92% of Level 7 learners. This is expected as many higher NZQF courses require learners to have completed pre-requisite courses at lower levels, this is apparent also in the proportion of learners with a higher qualification, which decreases as the NZQF level increases.

As for further qualification, NZQF Level 3 learners have the highest proportion of learners going on to do further study by 2014, at 50%, increasing to 70.4% by 2021, with 74% doing so at a higher level.

Unsurprisingly, the group most likely to achieve a further PSQ at a higher NZQF level were those who graduated with a Level 2 qualification in 2012. The proportion of respondents who went on to do a further PSQ at a higher level decreases as the NZQF level achieved in 2012 increases.

Table 55: Pre and post qualifications for the 2012 learner cohort: Toi-A-Ringa

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | 53.8% | 36.7% | 52.3% | 58.8% | 61.5% | 69.0% | 92.1% |
| | Higher qualification | - | 72.2% | 44.1% | 16.5% | 16.4% | 12.3% | 14.3% |
| Before 2012 | Qualification before 2012 TM | - | - | 23.8% | 38.9% | 40.8% | 58.2% | 89.5% |
| | In Toi-A-Ringa | - | - | 72.9% | 88.6% | 90.9% | 89.3% | 97.1% |
| By 2014 | Further qualification 2014 | - | 37.0% | 49.8% | 37.8% | 36.5% | 47.9% | 39.4% |
| | Higher qualification | - | 82.4% | 67.7% | 55.4% | 52.4% | 63.5% | 64.3% |
| By 2014 | Further qualification 2014 TM | - | 23.9% | 32.7% | 27.3% | 27.9% | 41.6% | 31.0% |
| | In Toi-A-Ringa | - | 90.9% | 86.1% | 91.4% | 94.7% | 90.8% | 86.4% |
| By 2017 | Further qualification 2017 | 58.3% | 51.1% | 62.2% | 53.1% | 49.1% | 58.0% | 51.6% |
| | Higher qualification | 100.0% | 87.0% | 72.3% | 57.2% | 50.6% | 61.2% | 57.6% |
| By 2017 | Further qualification 2017 TM | - | 28.9% | 37.0% | 36.0% | 32.2% | 46.2% | 37.5% |
| | In Toi-A-Ringa | - | 100.0% | 84.6% | 88.7% | 91.4% | 87.6% | 79.2% |
| By 2021 | Further qualification 2021 | 66.7% | 61.4% | 70.4% | 60.0% | 57.3% | 63.0% | 59.7% |
| | Higher qualification | 100.0% | 85.2% | 74.1% | 58.3% | 51.9% | 61.7% | 56.8% |
| By 2021 | Further qualification 2021 TM | - | 34.1% | 41.2% | 38.5% | 33.0% | 48.2% | 41.9% |
| | In Toi-A-Ringa | - | 86.7% | 84.7% | 87.3% | 88.1% | 87.9% | 76.9% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi-A-Ringa learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

7.3 Labour market trajectories by sub-group

The following Table 56 discusses the labour market outcomes for the five TM sub-groups of the 2012 learners. The first notable observation is that employment rates defined as the share of learners who received earnings from wages and salaries in at least one month varies substantially between sub-groups and the gaps persist over time. For example, learners from Toi Whānui have an employment rate of 65% (2014) and Toi-A-Ringa of 72% (2014). On the other end of the spectrum is Toi Ora with an employment share of nearly 83% (2014). Low employment rates cannot be explained by the share of female workers: more than two thirds of learners in Toi Puaki are male, but the employment rate sits at 77% (2014).

The differences in employment rates are mirrored by a similar pattern in terms of mean annual earnings: those learners from a sub-group with a low employment rate also have lower mean annual earnings, and the gap persists over time. For example, the mean annual earnings for learners from Toi-A-Ringa was \$24k (2014) and \$37k (2014) for Toi Ora. Note that the difference in these numbers seem not to be caused by difference in employment intensity or the mean number of employer per year, which is an indicator for job stability.

In case of income from self-employment, we see similar shares across the different sub-groups of around 4-6% in 2014. An exception is Toi Ora with 10% in 2014. For the following years, we furthermore observe an increase in self-employment, though the pace differs by sub-group: while there is an increase of 2.7 percentage points between 2014 (4.9%) and 2022 (7.6%) for learners of Toi Whānui, the increase of 7.6 percentage points (4.3% in 2014 and 12.9% in 2022) is much higher for learners of Toi Puaki.

Finally, a negative relationship between mean annual earnings and benefit dependency is found. For example, learner from Toi Ora who have the highest mean earnings from wages & salaries also have the lowest fraction in benefit recipiency (2014: 25%). In contrast, learners from Toi-A-Ringa with substantially lower mean annual earnings have a higher share of benefit recipiency (40%). However, a drop in the share of benefit dependency can be observed across all sub-groups over time.

Table 56. Labour market outcomes by TM sub-groups

| | Toi Mai | Toi Ora | Toi Puaki | Toi Pāho | Toi Whānui | Toi-A-Ringa |
|--|---------|---------|-----------|----------|------------|-------------|
| Share by sub-group | | | | | | |
| 2014 | 100% | 24.8% | 5.7% | 5.6% | 34.5% | 31.2% |
| 2017 | 100% | 24.9% | 5.4% | 5.4% | 35.0% | 31.1% |
| 2022 | 100% | 25.1% | 5.5% | 5.5% | 34.4% | 31.2% |
| 1) Earnings from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 72.4% | 82.5% | 76.5% | 77.2% | 65.0% | 71.3% |
| 2017 | 75.1% | 81.6% | 83.3% | 81.8% | 70.6% | 72.9% |
| 2022 | 73.1% | 79.1% | 81.2% | 78.2% | 69.8% | 70.0% |
| Employment intensity | | | | | | |
| 2014 | 9.2 | 9.6 | 8.7 | 9.5 | 9.0 | 9.1 |
| 2017 | 10.0 | 10.3 | 10.1 | 10.5 | 9.9 | 9.8 |
| 2022 | 10.3 | 10.5 | 10.5 | 10.6 | 10.3 | 10.0 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 29,535 | 37,060 | 29,621 | 36,346 | 28,214 | 24,326 |
| 2017 | 40,176 | 49,086 | 42,697 | 49,452 | 38,123 | 33,795 |
| 2022 | 51,012 | 60,357 | 56,297 | 62,837 | 49,115 | 43,050 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.6 | 1.7 | 1.7 | 1.7 | 1.5 | 1.6 |
| 2017 | 1.5 | 1.5 | 1.6 | 1.4 | 1.4 | 1.5 |
| 2022 | 1.4 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 6.1% | 10.1% | 4.3% | 5.5% | 4.9% | 4.9% |
| 2017 | 9.0% | 13.0% | 7.7% | 8.0% | 6.3% | 9.0% |
| 2022 | 11.6% | 14.5% | 12.9% | 13.4% | 7.6% | 13.0% |
| Sum of employment and self-employment | | | | | | |
| 2014 | 74.9% | 85.9% | 77.4% | 79.4% | 67.2% | 73.5% |
| 2017 | 79.4% | 87.6% | 85.7% | 85.1% | 73.8% | 77.5% |
| 2022 | 78.9% | 85.9% | 86.5% | 84.9% | 73.8% | 77.1% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 30,638 | 39,025 | 30,013 | 38,006 | 29,055 | 24,792 |
| 2017 | 41,596 | 51,290 | 43,260 | 50,462 | 39,289 | 34,786 |
| 2022 | 53,008 | 63,314 | 58,671 | 64,421 | 50,128 | 45,140 |
| Income from benefits | | | | | | |
| Benefit recipiency | | | | | | |
| 2014 | 37.2% | 24.5% | 33.7% | 28.0% | 45.0% | 40.3% |
| 2017 | 27.7% | 17.5% | 22.3% | 18.8% | 34.2% | 30.3% |
| 2022 | 28.0% | 18.5% | 22.9% | 19.8% | 34.5% | 30.4% |
| Benefit intensity | | | | | | |
| 2014 | 7.7 | 6.7 | 5.6 | 6.7 | 8.4 | 7.7 |
| 2017 | 8.6 | 7.9 | 7.2 | 7.8 | 9.2 | 8.6 |
| 2022 | 9.5 | 9.1 | 8.3 | 8.4 | 10.0 | 9.5 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Toi Ora

In this subsection, we analyse the labour market trajectories of the Toi Ora sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Toi Ora sub-group. Table 57 looks at outcomes by NZQF level, while Table 58 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix E.

Toi Ora by NZQF level

The TM sub-group Toi Ora focuses on sport, recreation and cultural organisations. For this sub-group, Level 3 (35%) and 4 (26%) qualifications play a dominant role. When investigating the labour market outcomes by qualification level of the 2012 learners, we find the highest earnings from wages & salaries among learners with a Level 3 qualification (2014: \$47k). However, it must also be noted that compared to the other qualification levels a large share of Level 3 learners have gained a higher qualification in the five year time window prior. For the learners from the other qualification levels, their mean annual earnings is below the level of individuals without any post-school qualification (PSQ). However, over time this relationship flips. For example, learners with a Level 4 qualification started in 2014 with mean annual earnings of \$33k (PSQ: \$37k) and it increased to \$57k in 2022 (PSQ: \$46k).

The table also reveals that income from self-employment plays an important role, in particular for learners with a qualification of Level 3 (2014: 15%) and higher—and the shares grew over time (Level 3 in 2022: 18%). Moreover, when looking at the fraction who receive income from either wages & salaries and/or self-employment, we observe stable numbers over time. For example, the share dropped only marginally from 90% in 2014 to 87% in 2020 for learners with a Level 3 qualification. One explanation for this stable pattern is the relatively high share of young learners (every second learner is 25 and below). In contrast, the labour market participation for individuals without any post-school qualification noticeably fell from 99% (2014) to 84% (2022).

While we find some elevated levels of benefit reciprocity (e.g., every third Level 4 learner in 2014), these shares drop over time (23% for Level 4 learner in 2022). In contrast, we observe no change over time in benefit dependency among individuals without any post-school qualification.

Toi Ora by related industry

For Toi Ora, 16 unique ANZSIC industry codes are used to identify a related industry. Table 58 shows the labour market outcomes for employed individuals, differentiated between whether they worked in a related or in a non-related industry. Learners are aggregated at the qualification level with the first group having a qualification at Level 2-4 and the second group at Level 5-7. The first finding is that only a small share of learners work in a related industry: in 2014 the share was 25% (Level 2-4) and dropped to 11% in 2022. One explanation for the low number might be that individuals tend to be self-employed when working in this sector and therefore do not show up in the IR-EMS records. Moreover, and more surprisingly, we do not observe an earnings premium when employed in a related industry. For example, for learners with a Level 2-4 qualification, the mean annual earnings in 2014 was \$35k when employed in a related industry and \$41k when employed in a non-related industry.

Table 57. Labour market outcomes for Toi Ora sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.9% | - | 72.6% | 85.0% | 80.0% | 86.0% | 86.8% | - |
| 2017 | 88.8% | - | 76.9% | 82.0% | 79.3% | 84.9% | 88.8% | - |
| 2022 | 79.4% | - | 72.9% | 79.0% | 77.2% | 83.7% | 84.9% | - |
| Employment intensity | | | | | | | | |
| 2014 | 10.5 | - | 8.6 | 10.4 | 8.7 | 9.7 | 9.9 | - |
| 2017 | 10.7 | - | 9.8 | 10.5 | 9.9 | 10.2 | 10.8 | - |
| 2022 | 10.6 | - | 9.9 | 10.7 | 10.3 | 10.6 | 11.0 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 37,150 | - | 29,827 | 47,450 | 32,462 | 27,743 | 33,557 | - |
| 2017 | 43,526 | - | 40,438 | 56,551 | 46,491 | 40,972 | 51,683 | - |
| 2022 | 46,160 | - | 47,962 | 67,003 | 57,004 | 55,047 | 67,017 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.9 | - | 1.6 | 1.6 | 1.7 | 1.9 | 1.7 | - |
| 2017 | 1.6 | - | 1.5 | 1.5 | 1.6 | 1.6 | 1.5 | - |
| 2022 | 1.5 | - | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 6.4% | - | 4.5% | 14.5% | 8.5% | 7.2% | 9.3% | - |
| 2017 | 8.2% | - | 6.2% | 17.3% | 11.0% | 12.7% | 11.2% | - |
| 2022 | 8.9% | - | 8.9% | 17.8% | 13.5% | 12.5% | 15.1% | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.2% | - | 73.6% | 89.6% | 83.4% | 88.3% | 90.7% | - |
| 2017 | 91.8% | - | 79.0% | 89.1% | 85.2% | 90.5% | 94.4% | - |
| 2022 | 83.6% | - | 77.1% | 87.0% | 84.5% | 89.1% | 92.1% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 38,543 | - | 30,807 | 49,822 | 33,973 | 29,719 | 35,204 | - |
| 2017 | 44,572 | - | 41,499 | 59,105 | 48,334 | 43,385 | 54,559 | - |
| 2022 | 47,574 | - | 50,988 | 70,130 | 59,024 | 58,270 | 69,931 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 21.2% | - | 35.3% | 19.5% | 32.0% | 20.8% | 16.6% | - |
| 2017 | 18.7% | - | 29.7% | 14.9% | 21.9% | 11.9% | 9.8% | - |
| 2022 | 23.4% | - | 33.9% | 16.5% | 22.6% | 11.7% | 7.2% | - |
| Benefit intensity | | | | | | | | |
| 2014 | 8.5 | - | 6.5 | 7.2 | 7.0 | 5.9 | 5.9 | - |
| 2017 | 9.2 | - | 8.5 | 7.9 | 7.8 | 7.4 | 6.9 | - |
| 2022 | 9.8 | - | 9.2 | 9.2 | 9.3 | 8.5 | 8.6 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Ora learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 58. Labour market outcomes for Toi Ora sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 25.0% | 75.0% | 25.1% | 74.9% |
| 2017 | 16.1% | 83.9% | 18.6% | 81.4% |
| 2022 | 11.2% | 88.8% | 12.4% | 87.6% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.5 | 9.2 | 10.2 | 9.7 |
| 2017 | 11.1 | 10.1 | 10.6 | 10.4 |
| 2022 | 11.0 | 10.3 | 10.7 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 35,472 | 41,170 | 24,911 | 31,627 |
| 2017 | 45,948 | 51,547 | 36,807 | 46,883 |
| 2022 | 55,592 | 61,141 | 48,190 | 61,545 |
| Mean number of employers per year | | | | |
| 2014 | 1.9 | 1.5 | 2.3 | 1.7 |
| 2017 | 1.8 | 1.5 | 2.1 | 1.5 |
| 2022 | 1.7 | 1.4 | 2.0 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 12.3% | 23.3% | 14.3% | 16.2% |
| 2017 | 6.1% | 16.7% | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | 5.7 | 6.3 | 3.8 | 5.3 |
| 2017 | 6.1 | 7.1 | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Ora learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Toi Ora by gender

Results by gender are shown in Appendix Table E 2. Independent of the 2012 qualification level we observe a two-third male and one-third female split. Moreover, the table shows that women have a slightly higher employment rate. For example, while 85% of the males with a NZQF Level 5-7 qualification were employed in 2014, this fraction sits at 89% for women. However, at the same time we find that women earn less: in 2014, male learners with a qualification ranging between Level 2-4 earned on average \$43k per year but \$8k less if female (\$35k). Interestingly, we also observe a substantially higher share of women being self-employed: in 2014, 16% of Level 2-4 female learners were self-employed compared to just 8% of Level 2-4 male learners.

Toi Ora by ethnicity

Results by ethnicity are shown in Appendix Table E 3. We split our analysis across three ethnicity categories: European, Māori and Pacific. As mentioned earlier, MELAA, Asian and Other ethnicities are outside the scope of our analysis.

Independent of the qualification level, we see that Europeans are the largest ethnicity, with among Level 2-4 learners about every third being Māori. We find that Europeans have the highest employment rate as well as the highest employment intensity measured as number of months employed per year. At the same time, mean annual earnings are much higher for Europeans compared to the two other ethnicities. Differences are also observed regarding self-employment, which is almost exclusively seen for Europeans.

Toi Ora by region

Appendix Table E 4 presents the labour market outcomes by location. Independent of the qualification level, most learners live outside of Auckland. However, in general we do not observe substantial labour market related differences by location. The share of learners in employment is rather similar between learners living in or outside of Auckland and no substantial differences in earnings can be found.

Toi Puaki

In the following, we provide an in-depth analysis of TM's sub-group Toi Puaki, which focuses on expressive arts. 5 unique NZSCED are used to identify learners that belong to this sub-group. As discussed, about 24% of learners have Level 4 and 36% a Level 5 qualification. Moreover, it must be kept in mind that the pool of learners is rather small with about 1200 individuals. Finally, the identification of related industry is based on three unique ANSIC industry codes, which resulted in the suppression of most numbers. Therefore, the breakdown by related industry is not provided for Toi Puaki.

Toi Puaki by NZQF level

We can see in Table 59, that about three out of four learners were employed in 2014 (e.g., 75% of Level 4 learners) and independent of the qualification background, this share rose steadily over time (e.g., 83% of Level 4 learners in 2022). This trend is in stark contrast to individuals without any further post-school qualification, where we see a drop from 100% in 2014 to 71% in 2022.

In terms of earnings, the numbers reveal that Level 4 and Level 5 learners had similar earnings in 2014 which is also close to the figure for individuals without any further post-school qualification. However, wage progression over time differed substantially between learners and non-learners. While the mean annual earnings from wages & salaries rose from \$32k in 2014 to \$60k in 2022 for Level 4 learners (+\$28k), the change was much smaller with \$34k (2014) to \$47k (2022) for individuals without any post-school qualification (+\$13k). At the same time, the share of learners receiving benefits dropped noticeably, starting at 33% for Level 5 learners in 2014 and reaching 20% in 2022- while the fraction moved up for non-learners within the same time window (20% in 2014 and 29% in 2022).

Table 59. Labour market outcomes for Toi Puaki sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 100.0% | - | 65.4% | 74.5% | 75.3% | 77.4% | 81.3% | - |
| 2017 | 77.8% | - | 73.9% | 85.7% | 80.0% | 88.2% | 80.4% | - |
| 2022 | 71.4% | - | 81.8% | 79.6% | 82.6% | 84.2% | 77.6% | - |
| Employment intensity | | | | | | | | |
| 2014 | 10.3 | - | 8.1 | 7.9 | 8.8 | 8.8 | 9.4 | - |
| 2017 | 11.1 | - | 11.0 | 9.0 | 10.1 | 10.0 | 10.6 | - |
| 2022 | 10.4 | - | 10.4 | 9.8 | 10.6 | 10.6 | 10.8 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 34,356 | - | 21,508 | 20,434 | 31,620 | 35,862 | 24,411 | - |
| 2017 | 45,814 | - | 40,757 | 32,716 | 45,561 | 46,019 | 41,064 | - |
| 2022 | 46,732 | - | 48,789 | 41,997 | 59,668 | 60,901 | 56,043 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.9 | - | 1.3 | 1.6 | 1.7 | 1.6 | 1.9 | - |
| 2017 | 1.4 | - | 1.6 | 1.6 | 1.7 | 1.6 | 1.8 | - |
| 2022 | 1.5 | - | 1.4 | 1.5 | 1.5 | 1.4 | 1.6 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | - | - | - | - | - | - | - | - |
| 2017 | - | - | - | - | 9.4% | - | 14.3% | - |
| 2022 | - | - | - | - | 10.5% | 10.8% | 20.7% | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 100.0% | - | 65.4% | 72.5% | 76.3% | 78.2% | 82.8% | - |
| 2017 | 80.6% | - | 78.3% | 83.7% | 82.4% | 89.9% | 83.9% | - |
| 2022 | 80.0% | - | 86.4% | 83.7% | 87.2% | 88.3% | 82.8% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 35,807 | - | 21,508 | 21,232 | 31,138 | 36,434 | 25,367 | - |
| 2017 | 46,433 | - | 38,794 | 33,766 | 45,452 | 46,770 | 42,964 | - |
| 2022 | 46,496 | - | 53,114 | 44,477 | 59,543 | 64,280 | 61,898 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 19.4% | - | 38.5% | 39.2% | 36.6% | 32.3% | 28.1% | - |
| 2017 | - | - | - | 26.5% | 24.7% | 21.0% | 14.3% | - |
| 2022 | 28.6% | - | - | 32.7% | 25.6% | 20.0% | 19.0% | - |
| Benefit intensity | | | | | | | | |
| 2014 | 7.2 | - | 5.2 | 5.7 | 5.9 | 5.1 | 5.7 | - |
| 2017 | - | - | - | 7.9 | 7.7 | 6.8 | 6.4 | - |
| 2022 | 9.2 | - | - | 9.3 | 8.2 | 7.9 | 6.5 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Puaki learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Toi Puaki by gender

Appendix Table E 5 discusses the labour market outcomes for Toi Puaki learners, differentiated by gender. First noticeable observation is that independent of the qualification level, the share of male learners is substantially higher than that of female: three out of the four Level 2-4 and two out of three Level 5-7 Toi Puaki learners are male. Another noteworthy observation is the large earnings gap between men and women: Level 2-4 male learners had earnings in 2014 of about \$30k per year and \$17k for the female learners. This gap of \$13k increases to \$18k in 2022 (male: \$57k; female: \$39k).

Toi Puaki by ethnicity

Differences by ethnicity are discussed in Appendix Table E 6. More than half of the learners are of European ethnicity, while about 20% (Level 5-7), resp. 27% (Level 2-4) are Māori. While a higher employment share among Europeans can be observed for 2014 (87% for NZQF level 5-7) compared to Māori (67%), both numbers reach similar levels at the end of our time window: after also including income from self-employment, both Europeans and Māori have a share of 88%. However, while labour market participation seem to harmonise, a gap in earnings persists over time, with Europeans earning more than Māori or Pacific. For example, European Level 2-4 learners earned \$58k in 2022 but Māori learners only \$37k for and Pacific learners \$50k.

Toi Puaki by region

In Appendix Table E 7, the labour market outcomes by location is presented. Most learners live outside of Auckland, especially among those learners with a Level 2-4 qualification (63%). Employment rates are higher among learners living outside of Auckland, though the gap closes over time: in 2014, about 67% (78%) of Level 2-4 learners living in (outside of) Auckland were employed and the share rose to 79% (83%) in 2022. Moreover, in 2014 mean earnings from wages & salaries were noticeably lower for learners in Auckland (\$20k compared to \$31k for Level 2-4 learners living outside of Auckland) but narrowed over time (in 2022 for Level 2-4 learners: Auckland: \$51k; outside of Auckland: \$54k)

Toi Pāho

This subsection focuses on the labour market outcomes of Toi Pāho learner. Toi Pāho has its focus on broadcast and screen and for the identification of the learners, 4 unique NZSCED codes were used. Similar with Toi Puaki, Toi Pāho is a small sub-group with just 1200 learners. For the identification of the related industry 10 unique ANSCI industry codes were used. However, due to small cell sizes, the majority of information is suppressed and therefore findings by related industry is not discussed in this report. The two dominant qualification levels are Level 5 (41%) and Level 4 (23%). Only 3% had a Level 2 qualification; however, this pool of learners is used to create the weights for the group of individuals without any further post-school qualification. Due to the small sample size it was not possible to generate the weights and therefore reference numbers are not provided.

Toi Pāho by NZQF level

Table 60 displays labour-market related numbers by qualification level for Toi Pāho learners. We see that annual mean earnings ranged between \$32k and \$43k in 2014, depending on the qualification level. Furthermore, earnings increased over time and range between \$51k and \$71k in 2022.

Table 60. Labour market outcomes for Toi Pāho sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | - | - | 90.0% | 85.7% | 69.0% | 80.8% | 72.9% | 78.9% |
| 2017 | - | - | 88.9% | 87.9% | 81.7% | 82.6% | 79.6% | 75.0% |
| 2022 | - | - | 88.9% | 82.9% | 78.6% | 78.0% | 77.4% | 72.2% |
| Employment intensity | | | | | | | | |
| 2014 | - | - | 10.3 | 10.1 | 9.6 | 9.2 | 9.9 | 10.0 |
| 2017 | - | - | 11.6 | 10.6 | 10.7 | 10.2 | 10.6 | 10.7 |
| 2022 | - | - | 12.2 | 9.9 | 10.8 | 10.5 | 10.6 | 10.2 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | - | - | 33,326 | 31,529 | 36,073 | 38,514 | 33,711 | 43,492 |
| 2017 | - | - | 49,930 | 44,865 | 50,493 | 50,229 | 48,236 | 56,362 |
| 2022 | - | - | 60,725 | 51,003 | 66,483 | 64,822 | 59,716 | 70,942 |
| Mean number of employers per year | | | | | | | | |
| 2014 | - | - | 1.2 | 2.0 | 1.8 | 1.6 | 1.9 | 1.3 |
| 2017 | - | - | 1.2 | 1.4 | 1.6 | 1.4 | 1.5 | 1.5 |
| 2022 | - | - | 1.5 | 1.5 | 1.4 | 1.3 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | - | - | - | - | - | 5.3% | - | - |
| 2017 | - | - | - | - | - | 7.2% | 14.8% | - |
| 2022 | - | - | - | - | - | 13.5% | 18.9% | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | - | - | 90.0% | 85.7% | 71.3% | 82.1% | 78.0% | 94.7% |
| 2017 | - | - | 88.9% | 87.9% | 85.4% | 85.5% | 83.3% | 81.3% |
| 2022 | - | - | 100.0% | 85.7% | 83.3% | 85.1% | 86.8% | 88.9% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | - | - | 33,326 | 31,529 | 35,244 | 39,659 | 34,361 | 58,447 |
| 2017 | - | - | 49,930 | 45,920 | 49,535 | 50,382 | 49,078 | 80,057 |
| 2022 | - | - | 57,514 | 56,328 | 66,148 | 65,429 | 58,419 | 86,552 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | - | - | - | 31.4% | 32.2% | 26.5% | 23.7% | - |
| 2017 | - | - | - | 21.2% | 22.0% | 18.1% | - | - |
| 2022 | - | - | - | 25.7% | 20.2% | 18.4% | 17.0% | - |
| Benefit intensity | | | | | | | | |
| 2014 | - | - | - | 8.0 | 6.2 | 6.6 | 5.8 | - |
| 2017 | - | - | - | 7.1 | 7.8 | 7.4 | - | - |
| 2022 | - | - | - | 7.9 | 9.5 | 7.6 | 7.6 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Pāho learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Toi Pāho by gender

Appendix Table E 8 presents the labour market outcomes by gender. We can see that independent of the qualification level, about two out of three learners are male. Interestingly, in 2014 the gap in mean annual earnings by gender for Level 5-7 learners is small: men earned on average \$39k and women \$35k. However, over time the gap increased substantially as men reached \$68k in 2020 and women \$57k. An even more pronounced gap is found for learners with a Level 2-4 qualification: while men were earning \$41k in 2012 and \$70k in 2022 (+\$29k), women started at \$22k in 2012 and progressed to \$48k in 2022 (+\$26k).

Toi Pāho by ethnicity

In Appendix Table E 9, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific. Independent of the qualification level we observe that about three quarters of the learners are of European ethnicity and the share of Māori ranges between 16-20% (due to small sample sizes we do not discuss numbers for Pacific). Moreover, we observe for both qualification groups that Europeans earn more than Māori. For example, regarding the NZQF 5-7 group, Europeans had a mean annual earnings from wages & salaries of around \$42k (2014) which went up over time to \$68k (2022). In contrast to that, Māori started in 2014 at \$25k and it increased to \$53k in 2022.

Toi Pāho by region

Appendix Table E 10 holds the labour market related information by location. Independent of the qualification level we can observe that most learners (about 60%) live outside of Auckland. A noteworthy observation is that among Level 2-4 learners who live in Auckland the employment share sits in 2014 at 66%, which is much lower than the employment share of Level 2-4 learners living outside of Auckland (82%). Moreover, independent of the qualification level, learners living in Auckland receive lower earnings from wages & salaries, though the gap seems to close over time for Level 5-7 learners.

Toi Whānui

Toi Whānui has its focus on enabling technologies and nine unique NZSCED codes are used to identify the pool of learners. The majority of learners have a Level 3 (38%) or Level 2 (26%) qualification. The identification of the related industries is based on 5 unique ANZSIC industry codes. The number of individuals identified as working in a related industry is very small and therefore also not discussed here.

Toi Whānui by NZQF level

Table 61 provides information on the association between qualification and labour market outcome for Toi Whānui learners. First thing to notice is that the employment level is relatively low compared to other sub-groups in TM: in 2014, about 60% of Level 3 learners were employed. Moreover, mean annual earnings is on a comparable lower level: in 2014, it was at \$28k for Level 3 learners. Even though we see that a higher qualification level is associated with higher earnings, the premium is rather small. In 2014, Level 7 learners had earnings of \$38k.

The low earnings level becomes especially apparent when comparing the earning figures with those of individuals without any further qualification: in 2014, their mean was sitting at \$63k. Moreover, the difference in earnings closes over time only for learners with a higher qualification level: while the 2022 earnings were at \$78k for individuals without PSQ, it went up to \$84k for Level 7 learners. However, it must be kept in mind that only few ANZSIC industry codes were used to identify the related industry and only few learners actually end up in such an industry - which questions the suitability of the reference group of individuals without any further post-school qualification.

Unsurprisingly, the numbers also reveal a high level of benefit dependency: every second Level 3 learner received benefits in 2014, and this share dropped only slightly to 40% in 2022, which might be a result of the small wage progression over the observed time window.

Table 61. Labour market outcomes for Toi Whānui sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.3% | - | 64.1% | 60.3% | 66.9% | 67.6% | 79.1% | 75.0% |
| 2017 | 87.1% | - | 69.8% | 65.2% | 73.5% | 77.2% | 81.5% | 77.3% |
| 2022 | 79.8% | - | 68.4% | 66.1% | 74.9% | 73.1% | 78.4% | 76.2% |
| Employment intensity | | | | | | | | |
| 2014 | 10.7 | - | 9.2 | 8.8 | 8.5 | 9.1 | 9.7 | 9.8 |
| 2017 | 10.8 | - | 9.9 | 9.7 | 9.8 | 10.2 | 10.7 | 10.6 |
| 2022 | 11.1 | - | 10.2 | 10.0 | 10.2 | 10.7 | 10.8 | 11.2 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 62,572 | - | 27,497 | 27,248 | 20,543 | 30,509 | 36,239 | 38,033 |
| 2017 | 71,607 | - | 33,970 | 35,156 | 33,330 | 43,909 | 52,634 | 56,529 |
| 2022 | 78,216 | - | 42,802 | 44,022 | 47,045 | 58,705 | 67,399 | 84,444 |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.6 | - | 1.5 | 1.5 | 1.6 | 1.5 | 1.5 | 1.4 |
| 2017 | 1.3 | - | 1.5 | 1.4 | 1.5 | 1.4 | 1.4 | 1.2 |
| 2022 | 1.3 | - | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 5.1% | - | 5.8% | 5.0% | - | 3.1% | 8.1% | - |
| 2017 | 8.8% | - | 7.3% | 6.7% | 2.9% | 4.5% | 8.5% | - |
| 2022 | 9.5% | - | 8.6% | 6.9% | 5.6% | 6.2% | 12.4% | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.3% | - | 66.7% | 62.7% | 68.2% | 69.5% | 82.0% | 70.8% |
| 2017 | 90.6% | - | 73.3% | 69.0% | 74.4% | 79.4% | 86.0% | 81.8% |
| 2022 | 85.1% | - | 72.9% | 69.8% | 77.5% | 76.4% | 84.5% | 81.0% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 63,411 | - | 28,014 | 28,189 | 21,092 | 31,164 | 37,878 | 40,442 |
| 2017 | 76,116 | - | 34,982 | 36,094 | 33,632 | 45,115 | 55,937 | 53,822 |
| 2022 | 79,701 | - | 43,369 | 45,040 | 48,138 | 60,729 | 68,105 | 85,572 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 17.4% | - | 45.4% | 50.0% | 48.6% | 40.2% | 27.0% | - |
| 2017 | 13.5% | - | 35.3% | 40.0% | 36.6% | 29.9% | 12.5% | - |
| 2022 | 18.5% | - | 35.7% | 40.5% | 37.2% | 27.9% | 14.4% | - |
| Benefit intensity | | | | | | | | |
| 2014 | 7.6 | - | 8.9 | 8.9 | 8.5 | 7.4 | 5.9 | - |
| 2017 | 7.8 | - | 9.4 | 9.3 | 9.2 | 8.6 | 7.4 | - |
| 2022 | 8.9 | - | 10.1 | 10.2 | 9.3 | 9.8 | 9.0 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Whānui learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Toi Whānui by gender

Appendix Table E 11 refers to labour market outcomes by gender for Toi Whānui. The first interesting observation is that there is a clear qualification-related gender-gap: the lower levels of qualification (Level 2-4) are dominated by females (around 70%), and the higher qualification levels by male (about 75%) learners. Moreover, and in contrast to many other sub-groups, the differences in earnings between male and female learners are small (though increasing over time for Level 2-4 learners). Another noteworthy observation is the comparable levels of benefit dependency, which drops over time at a similar pace.

Toi Whānui by ethnicity

In Appendix Table E 12, we show the labour market outcomes by ethnicity. In contrast to most other sub-groups, we see a similar share of European or Māori among Level 2-4 learners: while about 40% define themselves as European, the respective share is at 46% for Māori. However, for the higher qualification group Level 5-7 we see that about two thirds are of European ethnicity.

Regarding employment and earnings, we find that Europeans have a somewhat higher share of learners who received income from wages & salaries. Furthermore, the earnings from wages & salaries is at a higher level and the relationship persists over time. When it comes to benefit reciprocity, we see high levels among all three ethnicities; though the share among Māori is almost double compared to that of Europeans.

Toi Whānui by location

Appendix Table E 13 presents labour market outcomes by location. About two-thirds of the Level 2-4 learners and every second of the Level 5-7 learners live outside of Auckland. We do not observe large differences in the employment shares by location. In line with many other sub-groups, we see that earnings from wages & salaries is slightly higher for Auckland-based learners and the gap persists over time. When it comes to benefit dependency, location-related differences are hardly detectable.

Toi-A-Ringa

The last sub-group we investigate is Toi-A-Ringa which focusses on art and design. The identification of the pool of learners is based on 12 unique NZSCED codes. The majority of learners have a Level 3 (31%) or Level 4 (32%) qualification and a further third a Level 5-6 qualification. The identification of related industry is based on eight unique ANZSIC industry codes.

Toi-A-Ringa by NZQF level

Labour-market related findings by qualification level for Toi-A-Ringa are presented in Table 62. The first observation is the comparably low employment rate, which ranges between 67% and 76% and does not change substantially across the qualification levels. Furthermore, the table shows a low level of earnings: in 2014, Level 3 and 4 learners had earnings of \$24k-\$26k, which increased to \$41k-\$42k by 2022. We do not see that earning level rise noticeably with the qualification level. We also observe for the higher qualification levels (Level 4 and above) that earnings from self-employment becomes a more relevant income source over time: while 5% of Level 4 learners received income from self-employment in 2014, this share tripled to 14% in 2022.

At the same time and unsurprising given the low earnings level, we see that about one out of three Toi-A-Ringa learners received benefits in 2014, though the share dropped constantly over time.

Toi-A-Ringa by related industry

Table 63 shows the labour market outcomes differentiated by industry type. As the share of Level 5-6 learners employed in a related industry is small, we focus the discussion on Level 2-4 learners. Here we find that in 2014, about one out of three learners (32%) were employed in a related industry. However, this fraction dropped over time substantially and halved (16%) when reaching 2022. At the same time, we cannot observe substantial differences in the mean annual earnings of learners working in a related or in a non-related industry. For example, in 2014 earnings from wages & salaries was around \$26k for an employment in a related and \$24k for an employment in a non-related industry.

Table 62. Labour market outcomes for Toi-A-Ringa sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 96.3% | 66.7% | 78.3% | 68.8% | 70.8% | 75.0% | 71.3% | 76.1% |
| 2017 | 81.3% | 72.7% | 71.1% | 71.8% | 72.4% | 73.9% | 75.9% | 76.6% |
| 2022 | 67.6% | 72.7% | 66.7% | 69.6% | 69.3% | 70.4% | 71.9% | 72.6% |
| Employment intensity | | | | | | | | |
| 2014 | 10.5 | 6.8 | 9.6 | 8.8 | 9.3 | 9.3 | 9.0 | 9.4 |
| 2017 | 10.6 | 9.6 | 10.8 | 9.6 | 9.7 | 9.9 | 10.1 | 10.4 |
| 2022 | 10.7 | 9.5 | 10.0 | 9.9 | 9.9 | 10.2 | 10.4 | 10.3 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 32,792 | 14,742 | 25,424 | 23,803 | 25,504 | 25,058 | 22,389 | 23,699 |
| 2017 | 38,728 | 25,234 | 33,480 | 32,865 | 32,820 | 35,214 | 35,515 | 38,054 |
| 2022 | 43,698 | 39,738 | 35,372 | 41,511 | 41,363 | 45,250 | 48,138 | 46,934 |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.5 | 1.3 | 1.6 | 1.6 | 1.6 | 1.8 | 1.6 | 1.5 |
| 2017 | 1.4 | 1.7 | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 |
| 2022 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 8.3% | - | - | 3.0% | 4.5% | 6.8% | 4.9% | 14.1% |
| 2017 | 12.0% | - | - | 5.4% | 9.4% | 11.0% | 11.5% | 18.8% |
| 2022 | 14.9% | - | - | 8.7% | 14.1% | 15.4% | 16.2% | 21.0% |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 97.2% | 58.3% | 80.4% | 70.2% | 73.0% | 77.4% | 74.1% | 81.7% |
| 2017 | 86.4% | 81.8% | 77.8% | 74.2% | 77.6% | 79.4% | 80.5% | 85.9% |
| 2022 | 76.4% | 81.8% | 71.1% | 73.9% | 77.3% | 79.2% | 80.4% | 85.5% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 34,277 | 18,806 | 26,110 | 24,290 | 25,734 | 25,849 | 22,950 | 24,182 |
| 2017 | 42,118 | 25,391 | 34,397 | 33,484 | 34,064 | 36,906 | 36,727 | 37,547 |
| 2022 | 46,773 | 43,547 | 38,063 | 43,193 | 44,267 | 47,104 | 49,597 | 46,164 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 25.2% | - | 34.8% | 48.6% | 39.0% | 37.1% | 30.8% | 31.0% |
| 2017 | 24.7% | - | 31.1% | 37.8% | 31.2% | 23.3% | 22.2% | 17.2% |
| 2022 | 26.5% | - | 40.0% | 39.3% | 28.1% | 24.8% | 22.3% | 19.4% |
| Benefit intensity | | | | | | | | |
| 2014 | 9.6 | - | 8.1 | 8.3 | 7.8 | 7.2 | 6.4 | 6.2 |
| 2017 | 9.7 | - | 8.1 | 8.9 | 8.5 | 8.5 | 7.9 | 7.8 |
| 2022 | 10.5 | - | 8.9 | 9.8 | 9.7 | 9.1 | 8.5 | 7.8 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi-A-Ringa learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 63. Labour market outcomes for Toi-A-Ringa sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 31.5% | 68.5% | 12.9% | 87.1% |
| 2017 | 21.4% | 78.6% | 8.2% | 91.8% |
| 2022 | 15.7% | 84.3% | 5.8% | 94.2% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.1 | 8.6 | 10.3 | 9.0 |
| 2017 | 10.5 | 9.5 | 10.1 | 10.0 |
| 2022 | 10.1 | 9.8 | 10.9 | 10.2 |
| Mean annual earnings from W&S | | | | |
| 2014 | 26,229 | 24,029 | 26,739 | 23,428 |
| 2017 | 34,485 | 32,378 | 32,820 | 35,871 |
| 2022 | 38,125 | 41,809 | 42,845 | 46,804 |
| Mean number of employers per year | | | | |
| 2014 | 1.7 | 1.6 | 2.0 | 1.6 |
| 2017 | 1.5 | 1.5 | 1.5 | 1.5 |
| 2022 | 1.4 | 1.4 | 1.5 | 1.4 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 20.8% | 38.1% | - | - |
| 2017 | 13.7% | 29.0% | - | - |
| 2022 | 16.5% | 26.7% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.0 | 6.8 | - | - |
| 2017 | 6.5 | 7.5 | - | - |
| 2022 | 7.2 | 8.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi-A-Ringa learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Toi-A-Ringa by gender

Appendix Table E 14 shows the labour market outcomes by gender. The first striking observation is that the vast majority of Toi-A-Ringa learners are female: their share was 83% for Level 2-4 in 2014. We do not see much difference in employment shares by gender, and also the earning levels are similar for 2014: Level 2-4 female learner earnings from wages & salaries was at \$24k and for male learners at \$27k. However, over time the earning differential grew, when in 2022 the mean earning level reached \$50k for male and \$39k for female learners. While we observe that male's earnings progressed stronger over time, we hardly observe gender-related differences in the reduction of benefit dependency over time.

Toi-A-Ringa by ethnicity

Appendix Table E 15 holds the labour market outcomes by ethnicity. We can see that among Level 2-4 learners, about one third identify themselves as Māori and this share drops to 20% among Level 5-7 learners. We can observe somewhat higher employment levels among Europeans, but this is restricted to Level 2-4 learners and to 2014; over time, the gap closes between the ethnicities. Most interestingly and in contrast to most other sub-groups, we do not find much differences in earnings from wages & salaries between Europeans and Māori.

Toi-A-Ringa by region

Appendix Table E 16 presents the labour market outcomes for learners in Auckland and outside of Auckland. Independent of the learners qualification level, about two thirds live outside of Auckland. While we do not observe any noteworthy differences in employment by location, earnings from wages & salaries is somewhat larger for Auckland based learners: in 2014, Level 2-4 learners from Auckland earned \$28k and learners outside of Auckland \$23k. This gap persists over time.

8 Toitū te Waiora

This section focuses on 2012 learners graduating with an NZSCED code related to Toitū te Waiora (TTW).

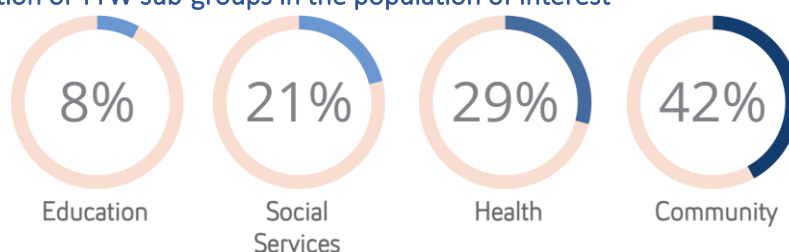
Toitū te Waiora represents the community, health, education and social services sectors. These sectors are comprised of industries specified in the Australia and New Zealand Standard Industrial Classification 2006 (ANZSIC).



For the purposes of this analysis, TTW has been split into four sub-groups: Education, Social Services, Health and Community. Similar to the WDC section Hanga-Ora-Rau it is important to note that the sub-group names do not refer to an entire industry; the pool of learners is identified by using specific NZSCED codes. The mapping of qualifications vis NZSCED codes to the sub-groups can be found in Appendix Table F 1.

8.1 Descriptive profile by industry sub-group

Figure 7. Proportion of TTW sub-groups in the population of interest



Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW learners between 18 and 54 (inclusive) years old in 2012, according to their education records

As Figure 7 highlights, the distribution of learners across the four sub-groups is very uneven: two out of five learners (42%) belong to the sub-group Community, 29% to Health and another 21% to Social Services. The by far smallest sub-group is Education, where less than one out of ten learners (8%) completed their qualification.

Table 64 holds the distribution of the demographic characteristics and it is apparent that the sub-groups Health and Social Services have a large share of female workers (more than four out of five). This pattern is flipped for the sub-group Community where 58% are male.

Differences are also observable regarding the age distribution, where the learners of Community and Social Services have a much higher share of young learners compared to Education and Health, which have a larger share of learners aged 45 and above. Except for Social Services, about two thirds of the learners are of European ethnicity, around 20% of Māori ethnicity and below 10% of Pacific ethnicity. For Social Services, the ethnic distribution looks different with a larger share of Europeans (49%) and a higher share of Māori (30%) and Pacific (14%).

Finally, we can also observe large differences in terms of qualifications. For the sub-groups Community and Health, Level 2 and Level 3 qualifications are very common while Level 4 qualification is the dominant one for Social Services and Level 5 for Education.

Table 64. Descriptive statistics by TTW group 2012

| | Toitū Te Waiora | Community | Education | Health | Social Services |
|---|-----------------|-----------|-----------|--------|-----------------|
| Male | 35.2% | 57.9% | 38.4% | 16.8% | 13.3% |
| Age 25 and below | 25.6% | 30.0% | 10.9% | 14.5% | 37.5% |
| Age above 45 | 25.9% | 21.7% | 33.7% | 36.7% | 16.8% |
| Born overseas | 19.6% | 17.0% | 20.6% | 23.6% | 18.8% |
| Auckland | 25.5% | 24.1% | 22.0% | 22.9% | 32.9% |
| Ethnicity | | | | | |
| European | 59.6% | 63.0% | 63.2% | 61.7% | 48.6% |
| Māori | 23.4% | 22.9% | 23.4% | 19.4% | 29.6% |
| Pacific | 9.3% | 7.8% | 6.7% | 9.0% | 13.6% |
| Asian | 5.1% | 4.2% | 3.9% | 6.7% | 5.5% |
| MELAA/Other | 2.6% | 2.1% | 3.3% | 3.2% | 2.5% |
| NZQF level of qualification achieved in 2012 | | | | | |
| Level 1 | 7.6% | 16.3% | - | - | - |
| Level 2 | 15.0% | 13.9% | - | 30.7% | - |
| Level 3 | 31.8% | 35.7% | 3.9% | 37.3% | 27.6% |
| Level 4 | 22.5% | 18.4% | 29.2% | 15.8% | 37.1% |
| Level 5 | 16.6% | 14.6% | 53.5% | 10.4% | 14.6% |
| Level 6 | 4.8% | 0.5% | - | 4.8% | 15.0% |
| Level 7 | 1.7% | - | 5.3% | 1.0% | 4.0% |
| Number of Learners | 12978 | 5511 | 1077 | 3714 | 2727 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

8.2 Qualification profile by industry sub-group

The qualification profile for each Toitū te Waiora sub-group is shown in Table 65. First noticeable observation is that independent of the sub-group about every second learner had already received a qualification in the five-year time window before 2012. Moreover, only one out of five had a prior qualification in TTW. Interestingly, almost all TTW-related prior qualifications of the Community sub-group (91%) were also attained in the same sub-group—for the other sub-groups, the corresponding share is around three quarters.

Concerning future qualifications, we observe a large immediate uptake of further qualifications: by 2014, already about one third of the learners have completed another qualification. And especially in the sub-group Health, most of these further qualifications (67%) are at a higher level compared to that one of 2012. In contrast, less than 40% of the learners of the sub-group Education with a further qualification by 2014 have one at a higher level compared to the one received in 2012. This pattern persists over time and differences are still observable in 2021.

Next, we investigate the qualification patterns by qualification level for each sub-group separately (we do not discuss the sub-group Education due to small variation in qualification levels).

Table 65. Pre and post qualifications for the 2012 learner cohort by TTW sub-group

| | | Community | Education | Health | Social Services |
|-------------|---|-----------|-----------|--------|-----------------|
| Before 2012 | Qualification before 2012 | 55.7% | 56.7% | 48.4% | 54.8% |
| | Higher qualification | 48.6% | 34.3% | 40.4% | 26.7% |
| Before 2012 | Qualification before 2012 in TTW | 21.9% | 23.3% | 22.7% | 19.1% |
| | In the same TTW sub-group | 91.1% | 71.4% | 79.8% | 73.0% |
| By 2014 | Further qualification | 32.0% | 36.7% | 28.0% | 35.1% |
| | Higher qualification | 48.0% | 38.8% | 67.2% | 53.0% |
| By 2014 | Further qualification in TTW | 14.7% | 16.1% | 15.2% | 12.4% |
| | In the same TTW sub-group | 92.9% | 83.0% | 84.8% | 81.3% |
| By 2017 | Further qualification | 47.7% | 56.4% | 44.9% | 56.6% |
| | Higher qualification | 52.1% | 42.7% | 71.2% | 62.8% |
| By 2017 | Further qualification in TTW | 19.7% | 23.5% | 24.7% | 20.9% |
| | In the same TTW sub-group | 88.2% | 75.3% | 81.9% | 75.3% |
| By 2021 | Further qualification | 56.0% | 63.3% | 55.6% | 66.8% |
| | Higher qualification | 56.7% | 46.9% | 76.4% | 65.1% |
| By 2021 | Further qualification in TTW | 23.1% | 26.4% | 32.9% | 27.2% |
| | In the same TTW sub-group | 83.7% | 73.6% | 84.3% | 70.5% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 66 refers to the sub-group Community. Regarding qualification received before 2012, we can see that for Level 2 learners the prior qualification was in most cases at a higher level (84%)—but at the same time, fewer than one out of five learners (19%) had one in TTW. The picture looks quite different for Level 5 learners, where only 15% of those with a prior qualification was at a higher level—but 37% had a prior qualification in TTW. In terms of future qualification, we can see a sizeable uptake independent of the 2012 qualification level. However, for those Level 2 learners, by 2021 79% of the qualifications are at a higher level. The corresponding share is at 24% for Level 5 learners. Another noticeable observation is that while we find a substantial uptake of further qualification, only a small share is in TTW. For example, 60% of the Level 2 learners have a further qualification by 2021, but only 26% have a further qualification in TTW.

Table 66: Pre and post qualifications for the 2012 learner cohort: Community

| | | NZQF Qualification Level in 2012 | | | | | | |
|--------------|---------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | 41.2% | 53.7% | 58.9% | 58.4% | 61.7% | 90.0% | - |
| | Higher qualification | 85.5% | 84.1% | 50.5% | 27.8% | 15.1% | - | - |
| | Qualification before 2012 TTW | 9.6% | 18.7% | 19.1% | 28.0% | 36.8% | - | - |
| By 2014 | In Community | 96.6% | 93.8% | 91.2% | 88.4% | 89.9% | - | - |
| | Further qualification 2014 | 17.6% | 34.4% | 33.4% | 43.2% | 27.0% | - | - |
| | Higher qualification | 82.0% | 81.2% | 44.0% | 42.6% | - | - | - |
| By 2017 | Further qualification 2014 TTW | - | 20.2% | 13.2% | 24.8% | 13.7% | - | - |
| | In Community | - | 100.0% | 91.5% | 93.6% | 90.9% | - | - |
| | Further qualification 2017 | 33.8% | 53.4% | 50.6% | 54.4% | 41.3% | - | - |
| By 2021 | Higher qualification | 88.2% | 77.3% | 48.4% | 42.8% | 13.4% | - | - |
| | Further qualification 2017 TTW | 6.2% | 23.1% | 19.0% | 29.8% | 19.6% | - | - |
| | In Community | 82.4% | 93.0% | 90.4% | 87.9% | 82.6% | - | - |
| By 2021 | Further qualification 2021 | 41.2% | 60.2% | 59.1% | 62.3% | 52.7% | - | - |
| | Higher qualification | 91.1% | 79.1% | 55.0% | 45.2% | 23.8% | - | - |
| | Further qualification 2021 TTW | 7.4% | 26.4% | 23.1% | 33.8% | 23.4% | - | - |
| In Community | 80.0% | 87.7% | 86.2% | 83.3% | 73.2% | - | - | |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Community learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

In Table 67, the qualification profile for the sub-group Health is presented. First thing to notice is the large variation in prior qualification: while only 33% of Level 2 learners have completed a qualification in the five year time window before 2012, the respective number is 61% for Level 6 learners. Moreover, only a small number of Level 2 learners have a prior qualification in TTW (7%), but the share is much larger for the other qualification levels (e.g., Level 6: 28%). In terms of future qualification, we can see that independent of the 2012 qualification level a high uptake of further qualification. By 2021, more than every second learner has completed at least one further qualification. For those Level 2 learners, in 96% of the cases the further qualification is at a higher level. The respective share is much lower for 2012 learners with a higher qualification level. Moreover, we can observe that among those Level 2 learners a large share of those with a further qualification have one in TTW (41%).

Table 67: Pre and post qualifications for the 2012 learner cohort: Health

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 33.3% | 56.0% | 56.1% | 45.0% | 60.7% | 66.7% |
| | Higher qualification | - | 78.7% | 33.1% | 30.0% | 19.0% | 21.6% | - |
| Before 2012 | Qualification before 2012 TTW | - | 7.3% | 37.9% | 15.8% | 21.7% | 27.9% | - |
| | In Health | - | 32.1% | 88.1% | 71.0% | 78.6% | 88.2% | - |
| By 2014 | Further qualification 2014 | - | 31.5% | 22.1% | 31.1% | 27.5% | 39.3% | - |
| | Higher qualification | - | 93.0% | 67.3% | 46.4% | 21.2% | 54.5% | - |
| By 2014 | Further qualification 2014 TTW | - | 21.4% | 12.9% | 10.0% | 11.7% | 17.9% | - |
| | In Health | - | 94.9% | 78.9% | 50.0% | 92.9% | 80.0% | - |
| By 2017 | Further qualification 2017 | - | 49.4% | 36.3% | 53.2% | 45.8% | 50.9% | 70.0% |
| | Higher qualification | - | 93.7% | 72.0% | 55.4% | 36.4% | 50.0% | - |
| By 2017 | Further qualification 2017 TTW | - | 32.2% | 20.3% | 18.5% | 25.0% | 27.3% | - |
| | In Health | - | 94.7% | 77.3% | 40.6% | 96.7% | 60.0% | - |
| By 2021 | Further qualification 2021 | - | 58.6% | 47.6% | 66.7% | 56.7% | 60.4% | 70.0% |
| | Higher qualification | - | 95.6% | 79.5% | 58.8% | 50.0% | 53.1% | - |
| By 2021 | Further qualification 2021 TTW | - | 40.8% | 30.0% | 21.6% | 36.7% | 30.2% | - |
| | In Health | - | 93.7% | 85.7% | 43.2% | 90.9% | 62.5% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW T Health learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

The qualification profile for Social Services is shown in Table 68. Regarding past qualification, we can observe that between 50-60% of the 2012 learners had received a qualification in the five year time window prior to 2012. Noticeable is that for Level 3 and 4 learners, only for a small share (Level 3: 16%; Level 4: 11%) the prior qualification was in TTW. Regarding future qualification, by 2021 about two thirds of the learners had another qualification, which was in 79% (52%) of the cases at a higher level for Level 2 (5) learners. While we observe that a large part of learners complete a further qualification after 2012, especially for those Level 3-5 learners these are not in TTW. For example, while 72% of Level 5 learners have a further qualification, only 17% have a further qualification in TTW. Moreover, we can observe that for Level 2 learners, only 59% of the further qualification in TTW refer to the sub-group Social Services.

Table 68: Pre and post qualifications for the 2012 learner cohort: Social Services

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|---------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | - | 50.2% | 52.2% | 57.9% | 65.9% | 64.9% |
| | Higher qualification | - | - | 42.1% | 17.5% | 20.8% | 20.2% | 50.0% |
| | Qualification before 2012 TTW | - | - | 15.5% | 10.6% | 24.8% | 39.3% | 29.7% |
| | In Social Services | - | - | 41.0% | 72.2% | 81.8% | 84.9% | 81.8% |
| By 2014 | Further qualification 2014 | - | - | 33.2% | 33.4% | 39.2% | 41.1% | 33.3% |
| | Higher qualification | - | - | 68.4% | 39.3% | 61.2% | 47.2% | - |
| | Further qualification 2014 TTW | - | - | 11.8% | 7.5% | 8.8% | 27.1% | 21.2% |
| | In Social Services | - | - | 75.0% | 75.0% | 81.8% | 88.6% | 100.0% |
| By 2017 | Further qualification 2017 | - | - | 50.6% | 60.6% | 61.7% | 57.3% | 48.4% |
| | Higher qualification | - | - | 75.2% | 59.0% | 64.9% | 50.7% | 66.7% |
| | Further qualification 2017 TTW | - | - | 18.2% | 20.6% | 14.2% | 33.9% | 22.6% |
| | In Social Services | - | - | 59.5% | 75.0% | 76.5% | 85.7% | - |
| By 2021 | Further qualification 2021 | - | - | 64.2% | 68.8% | 71.5% | 65.9% | 57.6% |
| | Higher qualification | - | - | 78.6% | 60.3% | 68.2% | 51.9% | 63.2% |
| | Further qualification 2021 TTW | - | - | 28.3% | 26.3% | 17.1% | 39.8% | 21.2% |
| | In Social Services | - | - | 59.4% | 70.0% | 76.2% | 83.7% | 100.0% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Social Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

8.3 Labour market trajectories by sub-group

This sub-section presents the labour market outcomes of the TTW learner cohort, by sub-group at three different time points: two, five and ten years post-graduation (2014, 2017, 2022). First, we examine the sub-groups in their entirety before analysing outcomes by industry, gender, ethnicity and region.

Table 69 presents the labour market outcomes for the four sub-groups. The table shows that the share of employed is at a similar level (between 87% and 93% in 2014) across the sub-groups Community, Education and Health. However, for Social Services we find a much lower share, which was at 71% in 2014. In terms of earnings, we find that in 2014 earnings from wages & salaries for the sub-group Social Services and Health is with \$27k, resp. \$37k, much lower compared to the earnings of the sub-groups Education (\$53k) and Community (\$58k). The earnings gap persists over time: by 2022, the earnings for Community learners is \$71k compared to \$47k for Social Services learners.

Regarding income from self-employment, we can also observe differences across the four sub-groups: while in 2014 only 6% of the Health learners received income from self-employment, this share is almost twice as high for learners of the sub-group Education (12%).

The differences in earnings also translates into differences in benefits reciprocity. The highest share of benefit recipients are among Social Services learners: in 2014, 44% received benefits. For learners from the sub-group Education who have a substantially higher earnings, the share was much lower with 11% in 2014. It also needs to be noted that we see a decline in benefit reciprocity for Social Services learners, which dropped to 30% in 2022.

Table 69. Labour market outcomes by TTW sub-groups

| | Toitū Te Waiora | Community | Education | Health | Social Services |
|--|-----------------|-----------|-----------|--------|-----------------|
| Share by sub-group | | | | | |
| 2014 | 100% | 42.3% | 8.1% | 28.8% | 21.1% |
| 2017 | 100% | 42.4% | 8.3% | 28.8% | 20.9% |
| 2022 | 100% | 42.6% | 8.4% | 28.5% | 20.9% |
| 1) Earnings from Wages & Salaries (W&S) | | | | | |
| Employment | | | | | |
| 2014 | 85.5% | 86.8% | 90.3% | 92.8% | 71.0% |
| 2017 | 83.8% | 84.7% | 86.9% | 87.9% | 75.6% |
| 2022 | 80.1% | 81.1% | 84.5% | 82.0% | 73.7% |
| Employment intensity | | | | | |
| 2014 | 10.6 | 10.7 | 10.9 | 11.0 | 9.3 |
| 2017 | 10.7 | 10.9 | 10.9 | 10.9 | 10.0 |
| 2022 | 10.8 | 11.0 | 11.0 | 11.0 | 10.3 |
| Mean annual earnings from W&S | | | | | |
| 2014 | 45,672 | 58,187 | 53,086 | 36,718 | 27,365 |
| 2017 | 51,884 | 64,989 | 58,305 | 41,439 | 35,998 |
| 2022 | 60,576 | 70,686 | 65,244 | 53,497 | 46,595 |
| Mean number of employers per year | | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.4 | 1.5 |
| 2017 | 1.4 | 1.3 | 1.3 | 1.4 | 1.5 |
| 2022 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | | |
| Self-employment | | | | | |
| 2014 | 7.5% | 7.8% | 12.1% | 5.9% | 7.3% |
| 2017 | 8.9% | 10.0% | 12.5% | 7.3% | 7.5% |
| 2022 | 9.9% | 11.1% | 13.4% | 7.9% | 8.9% |
| Sum of employment and self-employment | | | | | |
| 2014 | 88.2% | 89.8% | 93.9% | 94.0% | 74.9% |
| 2017 | 87.7% | 89.2% | 91.5% | 90.6% | 79.5% |
| 2022 | 85.0% | 87.0% | 90.2% | 85.2% | 78.4% |
| Mean annual income from W&S and self-employment | | | | | |
| 2014 | 46,340 | 59,089 | 53,995 | 37,223 | 27,633 |
| 2017 | 53,126 | 66,494 | 60,101 | 42,199 | 36,733 |
| 2022 | 61,546 | 71,788 | 66,356 | 54,241 | 47,269 |
| 3) Income from benefits | | | | | |
| Benefit reciprocity | | | | | |
| 2014 | 23.6% | 18.7% | 11.2% | 19.5% | 43.6% |
| 2017 | 18.1% | 14.3% | 11.3% | 15.7% | 31.6% |
| 2022 | 18.5% | 15.3% | 11.3% | 16.8% | 30.1% |
| Benefit intensity | | | | | |
| 2014 | 8.2 | 7.9 | 9.2 | 8.3 | 8.4 |
| 2017 | 8.6 | 8.3 | 8.6 | 8.5 | 9.0 |
| 2022 | 9.6 | 9.4 | 9.4 | 9.4 | 9.9 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Community

In this subsection, we will discuss the labour market outcomes in detail for the TTW sub-group Community. Note that the identification of the Community learners is based on 5 unique NZSCED codes. To identify related industry, nine unique ANZSIC industry codes were used.

Community by NZQF level

Table 70 holds the information on the labour market outcomes by qualification level. Independent of the qualification level (with the exception of Level 4), the share of employed learners is around 90% in 2014. However, we also can see a drop in the share of employment over time: for example, in 2014 89% of Level 2 learners were employed and this number drops to 84% in 2022. However, for some qualification levels the decrease over time is slowed down by a simultaneous increase of self-employment. For example, the employment share drops by 10 percentage points from 83% (2014) to 73% (2022) for Level 5 learners; but when also accounting for income from self-employment, the respective share drops only by 4 percentage points from 87% (2014) to 83% (2022).

The earnings profile follows an unusual pattern, as Level 2 learners have the highest earnings from wages & salaries (\$67k in 2014) and Level 5 learners the lowest (\$40k in 2014). Moreover, this gap does not close over time: in 2022, earnings was \$81k for Level 2 learners and \$57k for Level 5 learners.

The surprising pattern of lower earnings and income by higher qualification level is also found for benefit dependency. In 2014, about 6% of the Level 2 learners received benefits while in the same year the share was with 28% almost six times higher for Level 5 learners. The gap closes somewhat over time but remains visible: in 2022, 8% of the Level 2 learners receive benefits compared 19% of the Level 5 learners.

When comparing Level 2 learners with individuals without any further post school qualification, we observe higher earning and income streams for the Level 2 learners at all time points.

Community by related industry

Labour market outcomes by related industry are presented in Table 71. While for 2014 only one out of four Level 2-4 learners (23%) are identified as being employed in a related industry, this share is almost twice as high for Level 5-7 learners (41%). Another noteworthy observation is that the share of Level 2-4 learners employed in a related industry is stable over time but for Level 5-7 learners we see a large decline, reaching 24% in 2022.

In terms of an earnings premium, employment in a related industry goes along with higher earnings from wages & salaries. Furthermore, we can also see that the gap increases over time, particularly among Level 2-4 learners: in 2014, the earnings was about \$5k higher (\$64k vs \$59k) and increased to \$14k in 2022 (\$84k vs \$70k).

Table 70. Labour market outcomes for Community sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.9% | 96.5% | 89.1% | 87.7% | 77.2% | 83.3% | 88.9% | - |
| 2017 | 89.9% | 94.9% | 85.8% | 85.8% | 78.1% | 77.4% | 77.8% | - |
| 2022 | 81.6% | 87.9% | 83.7% | 83.2% | 74.7% | 73.2% | 88.9% | - |
| Employment intensity | | | | | | | | |
| 2014 | 11.1 | 11.5 | 11.1 | 10.8 | 9.9 | 10.0 | 10.8 | - |
| 2017 | 11.1 | 11.4 | 11.3 | 11.0 | 10.4 | 10.4 | 12.3 | - |
| 2022 | 11.1 | 11.3 | 11.1 | 11.1 | 10.6 | 10.4 | 12.3 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 52,116 | 62,760 | 66,856 | 63,713 | 46,523 | 39,993 | 70,201 | - |
| 2017 | 59,407 | 66,690 | 76,639 | 69,629 | 53,435 | 49,329 | 83,234 | - |
| 2022 | 63,661 | 70,394 | 80,751 | 75,696 | 60,124 | 56,554 | 90,840 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.4 | 1.3 | 1.4 | 1.3 | 1.4 | 1.6 | 1.6 | - |
| 2017 | 1.3 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.3 | - |
| 2022 | 1.3 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 7.2% | - | 15.4% | 6.9% | 7.9% | 8.7% | - | - |
| 2017 | 9.4% | 3.3% | 17.8% | 8.3% | 11.1% | 12.3% | - | - |
| 2022 | 11.3% | 3.7% | 18.0% | 8.9% | 11.5% | 17.2% | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.3% | 96.5% | 96.0% | 90.1% | 80.4% | 86.7% | 100.0% | - |
| 2017 | 92.9% | 95.6% | 94.3% | 89.3% | 82.7% | 83.8% | 88.9% | - |
| 2022 | 87.4% | 90.1% | 92.2% | 87.6% | 81.6% | 82.8% | 100.0% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 52,819 | 62,907 | 68,414 | 64,659 | 47,605 | 41,086 | 66,238 | - |
| 2017 | 60,308 | 67,717 | 77,623 | 71,645 | 55,423 | 50,430 | 82,046 | - |
| 2022 | 64,478 | 70,689 | 83,615 | 76,184 | 62,448 | 57,826 | 80,799 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 11.7% | 7.0% | 5.7% | 19.9% | 31.0% | 27.5% | - | - |
| 2017 | 10.4% | 6.6% | 5.3% | 15.7% | 24.2% | 17.0% | - | - |
| 2022 | 13.7% | 11.8% | 7.8% | 15.4% | 22.0% | 18.8% | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 8.0 | 6.7 | 7.1 | 7.8 | 8.5 | 7.5 | - | - |
| 2017 | 9.0 | 7.5 | 8.9 | 8.2 | 8.6 | 8.3 | - | - |
| 2022 | 9.9 | 9.2 | 8.6 | 9.6 | 9.9 | 8.7 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Community learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 71. Labour market outcomes for Community sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 22.9% | 77.1% | 40.9% | 59.1% |
| 2017 | 22.7% | 77.3% | 28.6% | 71.4% |
| 2022 | 22.4% | 77.6% | 24.2% | 75.8% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.3 | 10.5 | 10.7 | 9.7 |
| 2017 | 11.5 | 10.8 | 11.1 | 10.2 |
| 2022 | 11.4 | 10.8 | 11.3 | 10.3 |
| Mean annual earnings from W&S | | | | |
| 2014 | 64,148 | 58,994 | 48,380 | 39,335 |
| 2017 | 74,592 | 64,994 | 64,395 | 46,949 |
| 2022 | 83,683 | 69,821 | 74,333 | 55,074 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.4 | 1.7 | 1.6 |
| 2017 | 1.3 | 1.3 | 1.4 | 1.4 |
| 2022 | 1.2 | 1.3 | 1.3 | 1.4 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 4.3% | 16.7% | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | 9.3 | 6.7 | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Community learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Community by gender

Appendix Table F 2 holds the labour market outcomes differentiated by gender and potentially explains why we observe lower earnings for higher qualification levels. As the table shows, about two-third of the Level 2-4 learners are male (2014: 63%)—but only one out of four Level 5-7 learners (2014: 24%). In terms of earnings, we can observe substantial gender differences, with male learners earnings being two times higher compared to those of female learners: in 2014, the respective figure was \$73k for Level 2-4 male learners and \$36k for Level 2-4 female learners. However, when comparing Level 2-4 with Level 5-7 earnings for males, we can observe a higher earnings for those male learners with a higher qualification level. In 2014, the earnings from wages & salaries for male Level 2-4 learners was \$73k and \$81k for Level 5-7 male learners.

Community by ethnicity

Appendix Table F 3 presents the labour market outcomes for the three ethnic groups European, Māori and Pacific. Our focus is on Level 2-4 learners as a large share of numbers are suppressed for Level 5-7 learners. About two third of the Level 2-4 learners are of European ethnicity (2014: 69%) and one out of four of Māori ethnicity (2014: 24%). The remaining six percent refer to individuals identifying as belonging to the Pacific ethnicity. We can observe a substantially higher employment rate among Europeans (2014: 89%) compared to Māori (2014: 80%) or Pacific (2014: 70%). Furthermore, the earnings from wages & salaries is much higher for Europeans (2014: \$65k) than for Māori (2014: \$49k) or Pacific (2014: \$46k); and the gap persists over time. At the same time, benefits dependency is higher among Māori (2014: 39%) and Pacific (2014: 41%) than Europeans (2014: 11%).

Community by region

Appendix Table F 4 shows the labour market outcomes for learners living in Auckland or outside of Auckland. Independent of the qualification we can see that between one out of four or five learners live in Auckland. The table also shows that the employment rate of learners living outside of Auckland is higher, and the gap persists when also accounting for income from self-employment. For example, in 2014 about 73% of the Level 2-4 learners living in Auckland were employed and 75% were employed and/or self-employed; however, learners living outside of Auckland, the respective numbers increase from 89% to 92%. Another noteworthy finding is that earnings from wages & salaries are substantially higher for learners living outside of Auckland, in particular for Level 2-4 learners. At the same time, the share receiving benefits is more than two times higher for learners living in Auckland.

Education

The following section discusses the labour market outcomes for learners from TTW's subgroup Education. The identification of the learners is based on a single NZSCED code. The identification of related industry is based on ten unique ANZSIC industry codes. Noteworthy is that as there is no Level 2 qualification, we were not able to construct the reference group of individuals without any post-school qualification. Moreover, almost 83% of the learners have either a Level 4 or Level 5 qualification and therefore our discussion will focus on these two qualification levels.

Education by NZQF level

Table 72 holds the labour market outcomes by qualification level for the sub-group Education. In terms of employment, we observe for 2014 similar levels for Level 4 (91%) and 5 (88%) learners. The numbers hardly change over time for Level 4 learners but we can see a decline for Level 5 learners, reaching 81% in 2022. However, when accounting for income from self-employment, the drop over time is much smaller: while in 2014 about 93% of Level 5 learners were employed and/or self-employed, the share went down to 89% in 2022. We can also see that Level 4's earnings from wages & salaries are slightly higher compared that of Level 5 learners and the gap increases over time.

Education by related industry

Table 73 differentiates the labour market outcomes by related and non-related industry. Substantial differences are found by qualification: while only one out of four Level 2-4 learners (2014: 28%) are found to be employed in a related industry, the respective share is at 68% in 2014 for Level 5-7 learners. Moreover, we can see a decline in the respective shares, especially among Level 5-7 learners, reaching 51% by 2022. For Level 2-4 learners, we observe much lower earnings from wages & salaries when employed in a related industry (2014: \$35k) than in a non-related industry (2014: \$59k) and the gap persists over time. For Level 5-7 learners, we observe the opposite though the gap narrows over time.

Table 72. Labour market outcomes for Education sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | - | - | - | 100.0% | 91.3% | 88.3% | - | 100.0% |
| 2017 | - | - | - | 92.3% | 88.0% | 84.7% | - | 100.0% |
| 2022 | - | - | - | 92.3% | 90.2% | 80.9% | - | 94.4% |
| Employment intensity | | | | | | | | |
| 2014 | - | - | - | 10.7 | 10.9 | 10.9 | - | 11.1 |
| 2017 | - | - | - | 11.1 | 11.2 | 10.8 | - | 11.3 |
| 2022 | - | - | - | 11.2 | 11.1 | 10.9 | - | 11.6 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | - | - | - | 22,612 | 57,213 | 51,034 | - | 69,745 |
| 2017 | - | - | - | 28,251 | 64,381 | 55,062 | - | 76,010 |
| 2022 | - | - | - | 40,721 | 70,898 | 60,872 | - | 88,842 |
| Mean number of employers per year | | | | | | | | |
| 2014 | - | - | - | 1.6 | 1.2 | 1.4 | - | 1.5 |
| 2017 | - | - | - | 1.4 | 1.3 | 1.3 | - | 1.1 |
| 2022 | - | - | - | 1.2 | 1.3 | 1.4 | - | 1.1 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | - | - | - | - | - | 16.2% | - | - |
| 2017 | - | - | - | - | - | 16.4% | - | - |
| 2022 | - | - | - | - | - | 16.3% | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | - | - | - | 100.0% | 92.4% | 93.3% | - | 94.4% |
| 2017 | - | - | - | 100.0% | 91.3% | 90.4% | - | 100.0% |
| 2022 | - | - | - | 84.6% | 92.4% | 88.8% | - | 94.4% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | - | - | - | 23,335 | 58,468 | 51,386 | - | 77,373 |
| 2017 | - | - | - | 27,195 | 65,566 | 56,607 | - | 79,661 |
| 2022 | - | - | - | 45,995 | 74,241 | 61,122 | - | 88,842 |
| 3) Income from benefits | | | | | | | | |
| Benefit recipiency | | | | | | | | |
| 2014 | - | - | - | - | 7.6% | 14.0% | - | - |
| 2017 | - | - | - | - | 12.0% | 11.9% | - | - |
| 2022 | - | - | - | - | 9.8% | 14.0% | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | - | - | - | - | 10.0 | 8.7 | - | - |
| 2017 | - | - | - | - | 7.5 | 9.5 | - | - |
| 2022 | - | - | - | - | 10.1 | 9.4 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Education learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 73. Labour market outcomes for Education sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 27.6% | 72.4% | 68.0% | 32.0% |
| 2017 | 25.8% | 74.2% | 60.4% | 39.6% |
| 2022 | 21.1% | 78.9% | 50.6% | 49.4% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.4 | 11.0 | 11.1 | 10.7 |
| 2017 | 11.0 | 11.2 | 10.9 | 10.7 |
| 2022 | 10.7 | 11.2 | 11.0 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 35,400 | 58,514 | 56,043 | 47,316 |
| 2017 | 40,120 | 66,678 | 60,179 | 52,078 |
| 2022 | 50,521 | 71,684 | 64,773 | 62,056 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.2 | 1.4 | 1.5 |
| 2017 | 1.5 | 1.3 | 1.3 | 1.3 |
| 2022 | 1.4 | 1.2 | 1.4 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | - | - | 7.6% | 14.3% |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | 7.6 | 9.0 |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Education learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Education by gender

In Appendix Table F 5, the labour market outcomes by gender is presented. The first noteworthy finding is that the share of male is large among Level 2-4 learners (2014: 55%) than among Level 5-7 learners (2014: 31%). In terms of labour market outcomes, we find higher employment rates among Level 2-4 male learners (2014: 97%) compared to Level 2-4 female learners (2014: 87%). When it comes to earnings from wages & salaries, we observe large gender-related differences. For example, in 2014 the respective figure was for male Level 2-4 learners \$67k and for female learners \$35k. Furthermore, for female learners we can see that a higher qualification level goes along with higher earnings. For example, in 2014 the Level 2-4 earnings were at \$35k and the Level 5-7 earnings at \$47k.

Education by ethnicity

Appendix Table F 6 differentiates the labour market outcomes by ethnicity, with a focus on European, Māori and Pacific. In 2014, 63% of Level 2-4 learners were European, 25% Māori and 12% Pacific. Among the Level 5-7 learners, we observe a higher share of Europeans (70%) and a lower share of Pacific (6%). In contrast to many other sub-groups, we do not observe any substantial differences in the earnings from wages & salaries between European and Māori among Level 2-4 learners. However, among Level 5-7 learners we find persistently higher earnings among Europeans. For example, in 2014 European annual mean earnings were \$56k and that of Māori \$10k lower (\$45k).

Education by region

Appendix Table F 7 holds the labour market outcomes by region. Independent of the learners qualification level, about three out of four learners live outside of Auckland. However, in terms of employment and earnings, no substantial differences between learners living in Auckland and outside of Auckland are found.

Health

The following sub-section discusses the labour market outcomes for TTW's learners of the sub-group Health. The identification of the learners is based on eight unique NZSCED codes. Moreover, related industries are detected using 18 unique ANZSIC industry codes. As 94% of learners have a qualification between Level 2-5, we will be focussing on these groups. When we discuss labour market outcomes by aggregated qualification levels, we focus on Level 2-4 as only 15% of the learners have a Level 5-7 qualification.

Health by NZQF level

Table 74 shows labour market outcomes by qualification level. In terms of employment, we find in 2014 high levels independent of the qualification level: for example, 95% of the Level 2 learners and 88% of the Level 5 learners were employed. However, the employment rate declines over time and at a higher pace for Level 2 learners: in 2022, the employment rate reaches 79% for Level 2 learners (-16 percentage points since 2014) and 83% for Level 5 learners (-5 percentage points since 2014).

Regarding earnings from wages & salary, we find that a higher qualification goes along with higher earnings: in 2014, Level 2 learners earnings were \$32k and the respective figure for Level 5 learners \$44k. Moreover, this gap persists over time. Higher earnings are also associated with lower benefit dependency: while less than one out of ten Level 5 learners (8%) received benefits in 2014, the respective share was 25% for Level 2 learners.

Comparing the labour market outcomes between Level 2 learners and individuals without any post-school qualifications, we see very similar numbers across multiple dimensions, including employment, earnings from wages & salaries and benefit reciprocity.

Health by related industry

Table 75 breaks the labour market outcomes down by industry. The first observation is that about two out of three Level 2-4 learners are employed in a related industry in 2014; however, this share drops over time, reaching 62% in 2022. When it comes to earnings from wages & salaries, the respective level is somewhat higher for those learners employed in a related industry (2014: \$36k) compared to learners employed in a non-related industry (2014: \$32k). Furthermore, the gap increases further over time: in 2022, Level 2-4 learners working in a related industry had earnings from wages & salaries of around \$55k and those in a non-related industry of \$47k.

Table 74. Labour market outcomes for Health sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.6% | - | 95.3% | 96.6% | 85.0% | 88.3% | 76.8% | 90.9% |
| 2017 | 89.8% | - | 88.1% | 92.4% | 83.2% | 84.0% | 75.9% | 100.0% |
| 2022 | 80.9% | - | 79.0% | 85.4% | 79.5% | 83.2% | 75.9% | 100.0% |
| Employment intensity | | | | | | | | |
| 2014 | 11.1 | - | 11.1 | 11.3 | 9.8 | 10.8 | 10.7 | 11.2 |
| 2017 | 11.1 | - | 10.8 | 11.2 | 10.1 | 11.1 | 10.7 | 11.6 |
| 2022 | 11.1 | - | 11.0 | 11.2 | 10.7 | 11.1 | 10.5 | 10.9 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 34,385 | - | 31,792 | 38,482 | 34,400 | 44,439 | 42,939 | 63,244 |
| 2017 | 38,080 | - | 35,142 | 41,720 | 42,967 | 51,839 | 46,830 | 77,965 |
| 2022 | 47,039 | - | 48,064 | 52,309 | 59,526 | 61,555 | 54,847 | 82,817 |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.4 | - | 1.5 | 1.4 | 1.5 | 1.5 | 1.3 | 1.4 |
| 2017 | 1.3 | - | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 |
| 2022 | 1.3 | - | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 3.4% | - | 3.8% | 4.7% | 3.9% | 16.7% | - | - |
| 2017 | 4.0% | - | 5.4% | 5.8% | 6.9% | 16.0% | 16.7% | - |
| 2022 | 4.2% | - | 5.8% | 6.9% | 5.8% | 16.0% | 18.5% | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 98.7% | - | 95.6% | 96.6% | 86.7% | 94.2% | 83.9% | 90.9% |
| 2017 | 90.7% | - | 89.5% | 93.5% | 86.1% | 91.6% | 87.0% | 100.0% |
| 2022 | 82.6% | - | 81.3% | 87.8% | 81.9% | 91.6% | 85.2% | 90.0% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 34,877 | - | 32,162 | 39,069 | 34,250 | 45,556 | 42,043 | 64,383 |
| 2017 | 38,829 | - | 35,576 | 42,518 | 43,267 | 53,606 | 46,541 | 77,965 |
| 2022 | 47,509 | - | 48,324 | 52,755 | 60,187 | 62,809 | 57,490 | 93,358 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 22.6% | - | 25.2% | 13.8% | 31.1% | 8.3% | 17.9% | - |
| 2017 | 19.8% | - | 21.0% | 11.6% | 24.9% | 5.9% | 13.0% | - |
| 2022 | 23.2% | - | 22.8% | 13.9% | 21.1% | 7.6% | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 8.8 | - | 8.8 | 7.9 | 8.0 | 7.5 | 7.9 | - |
| 2017 | 9.3 | - | 9.3 | 8.0 | 7.7 | 8.1 | 8.2 | - |
| 2022 | 10.1 | - | 10.0 | 8.7 | 9.4 | 7.8 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Health learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 75. Labour market outcomes for Health sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 70.1% | 29.9% | 39.6% | 60.4% |
| 2017 | 63.4% | 36.6% | 42.8% | 57.2% |
| 2022 | 61.8% | 38.2% | 26.8% | 73.2% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.4 | 10.0 | 11.2 | 10.5 |
| 2017 | 11.2 | 10.3 | 11.2 | 10.7 |
| 2022 | 11.3 | 10.5 | 11.6 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 36,434 | 32,656 | 48,517 | 43,049 |
| 2017 | 40,702 | 37,638 | 55,978 | 48,793 |
| 2022 | 54,828 | 47,426 | 66,067 | 59,891 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.4 | 1.7 | 1.3 |
| 2017 | 1.4 | 1.4 | 1.5 | 1.3 |
| 2022 | 1.4 | 1.3 | 1.6 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 17.5% | 23.0% | - | - |
| 2017 | 12.2% | 16.3% | - | - |
| 2022 | 9.3% | 15.7% | - | - |
| Benefit intensity | | | | |
| 2014 | 8.1 | 8.2 | - | - |
| 2017 | 7.7 | 7.4 | - | - |
| 2022 | 7.1 | 8.7 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Health learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Health by gender

Appendix Table F 8 shows the labour market outcomes by gender. The first noteworthy observation is that among Level 2-4 learners, with a share of 84%, the very vast majority is female. In contrast to other sub-groups, we do not see much differences in terms of employment. However, earnings from wages & salaries is like in other sub-groups higher for male learners compared to female learners. In 2014, the gap was about \$7k (male: \$41k, female: \$34k) and this increased to \$12k (male: \$62k, female: \$50k) in 2022.

Health by ethnicity

Appendix Table F 9 differentiates the labour market outcomes by the three ethnic groups European, Māori and Pacific. Two-thirds of the Level 2-4 learners are European (66%), almost one out of four Māori (23%) and 11% are Pacific. Most interestingly and in contrast to most other sub-groups, the differences in the labour market outcomes between the ethnicities are small. For example with respect to earnings from wages & salaries, we see similar levels between Europeans (2014: \$34k) and Māori (2014: \$36k), which also increase at a similar pace over time (European in 2022: \$49k, Māori in 2022: \$52k).

Health by region

Appendix Table F 10 shows the labour market outcomes for learners living in and outside of Auckland. In line with other sub-groups almost four out of five Level 2-4 learners (79%) live outside of Auckland. While employment shares are similar between learners living in and outside of Auckland, differences are noticeable regarding earnings from wages & salaries. In 2014, Level 2-4 learners living in Auckland earned slightly more than those learners living outside of Auckland (\$37k vs \$35k). However, over time the gap increased and in 2022 the differences sums up almost \$9k (\$59k vs \$50k).

Social Services

This sub-section discusses the labour market outcomes for TTW's Social Services learners graduating in 2012. The identification of the learners is based on nine unique NZSCED codes and the identification of the related industry on three unique ANZSIC industry codes. As there are no Level 2 learners, it was not possible to create a reference pool of individuals without post-school qualification.

Social Services by NZQL

Table 76 presents the labour market outcomes by qualification level. It shows that employment rate is lower in 2014 for Level 3-4 learners (between 63-67%) compared to Level 5-7 learners (between 80-91%). However, over time the gap between the qualification levels narrows as we see a decline in employment rates among Level 5-7 learners. When we look earnings, the first observation is the low level: in 2014, the earnings from wages & salaries for Level 3 learners was \$22k, which moved up to \$40k in 2022. We see higher earnings with a higher qualification level, though the difference is not substantial. For example, Level 5 learners earned in 2014 on average \$26k.

The low earning level translates into high levels of benefit reciprocity, with about every second Level 3-4 learner receiving benefits in 2014. However, it also needs to be noted that since then, numbers dropped for these two groups, reaching around one-third by 2022.

Social Services by related industry

Table 77 differentiates the labour market outcomes by industry type. First thing to notice is that only a small fraction of learners are identified as being employed in a related industry. For example, the respective figure for Level 2-4 learners in 2014 was 17%. At the same time, not much difference in earnings by industry type is found.

Table 76. Labour market outcomes for Social Services sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | - | - | - | 63.2% | 66.6% | 80.2% | 82.2% | 90.9% |
| 2017 | - | - | - | 68.8% | 74.5% | 82.5% | 82.4% | 84.4% |
| 2022 | - | - | - | 69.2% | 74.4% | 78.2% | 75.8% | 81.8% |
| Employment intensity | | | | | | | | |
| 2014 | - | - | - | 8.9 | 8.8 | 9.8 | 10.0 | 11.0 |
| 2017 | - | - | - | 9.6 | 9.7 | 10.4 | 10.6 | 11.3 |
| 2022 | - | - | - | 9.9 | 10.2 | 10.2 | 10.8 | 11.5 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | - | - | - | 22,172 | 21,551 | 26,222 | 39,395 | 62,129 |
| 2017 | - | - | - | 29,754 | 32,094 | 38,300 | 45,910 | 66,208 |
| 2022 | - | - | - | 39,713 | 45,219 | 45,229 | 57,588 | 72,424 |
| Mean number of employers per year | | | | | | | | |
| 2014 | - | - | - | 1.6 | 1.5 | 1.7 | 1.4 | 1.3 |
| 2017 | - | - | - | 1.5 | 1.5 | 1.5 | 1.4 | 1.3 |
| 2022 | - | - | - | 1.4 | 1.4 | 1.3 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | - | - | - | 12.6% | 2.8% | - | 10.9% | - |
| 2017 | - | - | - | 10.8% | 3.2% | - | 14.4% | - |
| 2022 | - | - | - | 9.3% | 4.3% | 6.5% | 20.8% | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | - | - | - | 72.4% | 67.8% | 81.7% | 86.0% | 97.0% |
| 2017 | - | - | - | 77.5% | 75.8% | 84.2% | 88.0% | 87.5% |
| 2022 | - | - | - | 75.3% | 76.7% | 81.5% | 86.7% | 87.9% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | - | - | - | 22,265 | 21,494 | 26,489 | 40,810 | 61,046 |
| 2017 | - | - | - | 29,137 | 32,553 | 38,840 | 48,349 | 71,307 |
| 2022 | - | - | - | 39,706 | 45,270 | 46,255 | 58,185 | 76,830 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | - | - | - | 44.8% | 55.0% | 35.7% | 23.3% | - |
| 2017 | - | - | - | 35.9% | 38.7% | 24.2% | 14.4% | - |
| 2022 | - | - | - | 32.6% | 37.2% | 23.4% | 17.5% | - |
| Benefit intensity | | | | | | | | |
| 2014 | - | - | - | 8.6 | 8.7 | 7.2 | 8.5 | - |
| 2017 | - | - | - | 9.1 | 8.9 | 9.1 | 8.9 | - |
| 2022 | - | - | - | 10.0 | 10.1 | 9.8 | 9.5 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Social Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 77. Labour market outcomes for Social Services sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 16.9% | 83.1% | 21.4% | 78.6% |
| 2017 | 16.9% | 83.1% | 21.3% | 78.7% |
| 2022 | 14.7% | 85.3% | 16.3% | 83.7% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 9.1 | 8.7 | 10.2 | 10.0 |
| 2017 | 10.0 | 9.6 | 10.7 | 10.5 |
| 2022 | 10.5 | 10.0 | 10.5 | 10.6 |
| Mean annual earnings from W&S | | | | |
| 2014 | 21,833 | 21,472 | 33,327 | 37,372 |
| 2017 | 29,645 | 31,249 | 41,416 | 45,739 |
| 2022 | 42,734 | 42,684 | 52,364 | 54,170 |
| Mean number of employers per year | | | | |
| 2014 | 1.8 | 1.5 | 1.8 | 1.4 |
| 2017 | 1.8 | 1.5 | 1.7 | 1.4 |
| 2022 | 1.6 | 1.4 | 1.5 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 42.9% | 41.9% | 25.5% | 19.8% |
| 2017 | 28.4% | 29.1% | - | - |
| 2022 | 19.3% | 25.0% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.3 | 7.6 | 6.0 | 7.3 |
| 2017 | 8.0 | 7.6 | - | - |
| 2022 | 7.5 | 9.1 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Social Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Social Services by gender

Appendix Table F 11 shows the labour market outcomes broken down by gender. The first striking observation is that this sub-group has a very large share of female learners: 87% of Level 2-4 learners. In line with other sub-groups, we find the employment rate is higher among male learners, in particular among those with a Level 2-4 qualification. We also find that males have higher earnings, independent of the qualification level. For example, in 2014 earnings from wages & salaries was \$31k for males and \$20k for female Level 2-4 learners. This gap also persists over time. While male learners receive higher earnings, the share of benefit recipients is below that of the female learners.

Social Services by ethnicity

Appendix Table F 12 shows the labour market outcomes by ethnicity. Compared to other sub-groups, we can see that the labour market outcomes are much more evenly distributed across the three ethnicities European, Māori and Pacific. First, among Level 2-4 learners, there is an almost equal share of Europeans (46% in 2014) and Māori (36% in 2014). Next, the employment share is similar across the three ethnicities, ranging between 61% for Māori and 68% for Pacific. Moreover, no substantial differences in earnings are observed.

Social Services by region

Appendix Table F 13 shows the labour market outcomes by location. About one third of the Level 2-4 learners and one quarter of the Level 5-7 learners live in Auckland and the rest outside of Auckland. Employment rates hardly differ by location. Even though the earnings start at a similar level in 2014, Aucklanders experience stronger earning progression. For example, Level 2-4 learners in and outside of Auckland had earnings of \$22k. However, by 2022 earnings of those learners living in Auckland went up \$48k and for those learners outside of Auckland to \$40k. A similar trend is observed for Level 5-7 learners, though the gap is much smaller.

9 Waihanga Ara Rau

This section focuses on learners graduating in 2012 with an NZSCED code related to Waihanga Ara Rau (WAR).

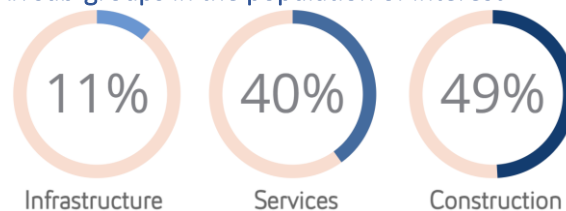
Waihanga Ara Rau represents the construction and infrastructure workforce. This workforce is broken down into 3 sectors which are comprised of industries specified in the Australia and New Zealand Standard Industrial Classification 2006 (ANZSIC).



For the purposes of this analysis, WAR has been split into the following three sub-group: Infrastructure, Services and Construction. In total, 38 unique NZSCED codes were used to identify the pool of learners. Broken down by sub-group, 6 NZSCED codes were used to identify learners related to Infrastructure, 12 for Services and 20 for Construction. In total, our final sample consists of 21,045 WAR learners completing their qualification in 2012.

9.1 Descriptive profile by industry sub-group

Figure 8. Proportion of WAR sub-groups in the population of interest



Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records

Figure 8 shows the distribution of learners across the three sub-groups. As the graph shows, Infrastructure is the smallest sub-group with a share of 11% of the learners, while Services (40%) and Construction (49%) are of almost similar size.

Table 78 presents demographic information for learners from the three WAR sub-groups who graduated in 2012. The table shows substantial differences in demographic characteristics across the three sub-groups. While the learners of the sub-groups Construction and Infrastructure are almost exclusively male (in both cases 95%), only 41% of the Services learners are male. Further differences are also found when looking at the age profile: while almost every second learner (43%) of the sub-

group Construction is of age 25 or below when completing their qualification, the share is much lower for Infrastructure (30%) and Services (26%). Differences are also found regarding birthplace and location of residence, with learners from Services having the largest share born overseas or living in Auckland. Substantial differences are also observed in terms of qualification. Around 90% of the learners in the sub-groups Construction and Infrastructure have a qualification ranging between Level 2 and 4. However, about one third of the learners of the sub-group Services have a Level 5 or 6 qualification.

Table 78. Descriptive statistics by WAR group 2012

| | Waihanga Ara Rau | Construction | Infrastructure | Services |
|---|------------------|--------------|----------------|----------|
| Male | 72.8% | 94.4% | 94.9% | 40.8% |
| Age 25 and below | 34.8% | 43.2% | 29.9% | 25.8% |
| Age above 45 | 14.6% | 11.7% | 15.8% | 18.0% |
| Born overseas | 16.5% | 13.9% | 8.0% | 21.8% |
| Auckland | 24.8% | 21.4% | 13.7% | 32.0% |
| Ethnicity | | | | |
| European | 59.6% | 64.8% | 53.2% | 55.1% |
| Māori | 25.8% | 23.2% | 39.0% | 25.3% |
| Pacific | 6.9% | 6.4% | 4.9% | 8.0% |
| Asian | 5.5% | 3.6% | 1.5% | 8.9% |
| MELAA/Other | 2.2% | 1.9% | 1.4% | 2.8% |
| NZQF level of qualification achieved in 2012 | | | | |
| Level 1 | - | - | - | - |
| Level 2 | 15.1% | 23.6% | 14.6% | 5.3% |
| Level 3 | 24.2% | 20.8% | 50.0% | 21.2% |
| Level 4 | 41.9% | 48.4% | 23.8% | 38.8% |
| Level 5 | 7.0% | 4.0% | 3.1% | 11.7% |
| Level 6 | 9.5% | 3.1% | 8.2% | 17.5% |
| Level 7 | 2.3% | - | - | 5.5% |
| Number of Learners | 21045 | 10377 | 2406 | 8490 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

9.2 Qualification profile by industry sub-group

In this sub-section, we look at the qualification profile for each sub-group separately. Table 79 shows the distribution of prior and future qualification. At least half of the learners graduating in 2012 have already completed a different qualification in the five year time window prior. While only a small share of learners in the sub-groups Construction (30%) and Services (22%) had their prior qualification in WAR, the share is much higher for Infrastructure (41%).

In terms of further qualification, we see a similar pace across the three sub-groups. In 2014, about one-third of the learners completed a further qualification, which also was often at a higher level compared to the one completed in 2012. By 2021, the share of learners with a further qualification grows further and ranges between 50% (Construction) and 64% (Infrastructure).

Table 79. Pre and post qualifications for the 2012 learner cohort by WAR sub-group

| | | Construction | Infrastructure | Services |
|-------------|----------------------------------|--------------|----------------|----------|
| Before 2012 | Qualification before 2012 | 49.8% | 60.8% | 57.1% |
| | Higher qualification | 32.7% | 33.2% | 30.6% |
| Before 2012 | Qualification before 2012 in WAR | 29.8% | 40.5% | 21.5% |
| | In the same WAR sub-group | 86.0% | 81.5% | 80.1% |
| By 2014 | Further qualification | 28.5% | 32.3% | 33.3% |
| | Higher qualification | 45.2% | 42.0% | 40.5% |
| By 2014 | Further qualification in WAR | 20.4% | 22.9% | 13.7% |
| | In the same WAR sub-group | 86.7% | 78.5% | 90.8% |
| By 2017 | Further qualification | 43.5% | 53.3% | 48.0% |
| | Higher qualification | 46.7% | 45.4% | 48.3% |
| By 2017 | Further qualification in WAR | 29.2% | 38.0% | 19.2% |
| | In the same WAR sub-group | 84.6% | 79.4% | 86.6% |
| By 2021 | Further qualification | 49.5% | 63.5% | 56.5% |
| | Higher qualification | 49.4% | 48.6% | 51.1% |
| By 2021 | Further qualification in WAR | 33.5% | 45.7% | 23.1% |
| | In the same WAR sub-group | 81.6% | 80.2% | 85.5% |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table 80 breaks down the qualification profile for learners of the sub-group Construction by qualification level. As 90% of the qualifications completed in 2010 are between Level 2 and 4, we will be focussing on these groups. There are two noteworthy observations. First, the share of learners with a higher prior qualification is much higher among Level 2 learners compared to Level 3 or 4 learners: of those with a prior qualification, 71% (15%) were at a higher level for Level 2 (4) learners. Second, the uptake of further qualification also differs by the qualification level: not only is the share of learners having completed a further qualification by 2021 substantially higher for Level 2 learners (61%) compared to Level 4 learners (38%). Also the fraction of higher future qualifications is much higher for Level 2 learners (82%) compared to Level 4 learners (20%).

Table 80: Pre and post qualifications for the 2012 learner cohort: Construction

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|---------------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 48.6% | 51.5% | 47.1% | 61.6% | 72.2% | - |
| | Higher qualification | - | 71.3% | 36.9% | 15.3% | 16.5% | - | - |
| Before 2012 | Qualification before 2012 WAR | - | 22.0% | 29.4% | 31.4% | 44.9% | 46.3% | - |
| | In Construction | - | 68.9% | 85.4% | 90.9% | 91.9% | 94.0% | - |
| By 2014 | Further qualification 2014 | - | 36.8% | 34.0% | 19.6% | 40.3% | 43.6% | - |
| | Higher qualification | - | 77.3% | 51.5% | 15.5% | 20.0% | 26.8% | - |
| By 2014 | Further qualification 2014 WAR | - | 25.0% | 25.1% | 14.3% | 29.8% | 34.0% | - |
| | In Construction | - | 78.4% | 91.1% | 89.6% | 94.6% | 93.8% | - |
| By 2017 | Further qualification 2017 | - | 54.7% | 51.8% | 32.0% | 56.7% | 58.9% | - |
| | Higher qualification | - | 78.4% | 56.3% | 17.5% | 20.6% | 28.3% | - |
| By 2017 | Further qualification 2017 WAR | - | 33.6% | 36.5% | 21.9% | 39.2% | 45.6% | - |
| | In Construction | - | 78.1% | 86.9% | 86.6% | 91.5% | 90.2% | - |
| By 2021 | Further qualification 2021 | - | 61.3% | 58.9% | 37.6% | 63.0% | 67.4% | - |
| | Higher qualification | - | 82.1% | 61.2% | 20.4% | 25.3% | 29.0% | - |
| By 2021 | Further qualification 2021 WAR | - | 38.0% | 41.7% | 25.8% | 44.5% | 50.0% | - |
| | In Construction | - | 76.1% | 84.1% | 83.0% | 86.8% | 87.0% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Construction learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

In Table 81, the qualification profile by qualification level is provided for the sub-group Infrastructure. Again, we will be focusing on the qualification Levels 2-4 as the share of learners with a higher qualification level is very small. Interestingly, regarding prior and future qualifications, a similar pattern like that of the sub-group Construction can be observed. First, the share of learners with a higher prior qualification is much higher among Level 2 learners (68%) than Level 4 learners (7%). Furthermore, regarding future qualifications, we see that in particular Level 2 learners complete a further qualification at a higher level (by 2021 the share is 81%) compared to Level 4 learners (by 2021 the share is 12%).

Table 81: Pre and post qualifications for the 2012 learner cohort: Infrastructure

| | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 55.9% | 60.3% | 64.4% | 80.0% | 53.0% | - |
| | Higher qualification | - | 68.2% | 41.7% | 7.3% | - | - | - |
| Before 2012 | Qualification before 2012 WAR | - | 28.8% | 39.7% | 49.2% | 60.0% | 33.3% | - |
| | In Infrastructure | - | 82.4% | 78.0% | 88.3% | 80.0% | 77.3% | - |
| By 2014 | Further qualification 2014 | - | 36.9% | 34.0% | 27.4% | 47.8% | 25.0% | - |
| | Higher qualification | - | 75.6% | 45.3% | - | - | - | - |
| By 2014 | Further qualification 2014 WAR | - | 27.0% | 23.6% | 19.6% | 30.4% | 20.0% | - |
| | In Infrastructure | - | 80.0% | 76.4% | 82.9% | - | - | - |
| By 2017 | Further qualification 2017 | - | 55.0% | 52.6% | 56.2% | 56.5% | 50.9% | - |
| | Higher qualification | - | 78.3% | 55.2% | 12.0% | - | 28.6% | - |
| By 2017 | Further qualification 2017 WAR | - | 36.7% | 36.3% | 41.0% | 47.8% | 43.6% | - |
| | In Infrastructure | - | 80.0% | 79.9% | 90.4% | 72.7% | 45.8% | - |
| By 2021 | Further qualification 2021 | - | 64.3% | 60.9% | 68.9% | 69.6% | 57.6% | - |
| | Higher qualification | - | 80.6% | 62.4% | 11.5% | - | 32.4% | - |
| By 2021 | Further qualification 2021 WAR | - | 41.1% | 43.4% | 52.5% | 56.5% | 45.8% | - |
| | In Infrastructure | - | 82.6% | 79.5% | 89.2% | 76.9% | 48.1% | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Infrastructure learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Finally, Table 82 discusses the qualification profile by qualification level for WAR’s sub-group Services. We can see that the majority of learners have completed a qualification in the five year time window prior to 2012, though the fraction is much higher among Level 6 learners (65%) than Level 2 learners (47%). And again, we observe that prior higher qualifications is particularly large among Level 2 learners (76%). Another interesting pattern refers to future qualifications. While we can see that the completion of a further qualification is fairly similar across the different qualification levels (e.g., 54% of the Level 2 learners and 62% of the Level 6 learners completed a further qualification by 2021), substantial differences are found about whether the future qualification was in the same sub-group: by 2021, the share of Level 2 learners completing a further qualification in the sub-group Services is 53% - but for Level 6 learners, the corresponding share is 94%.

Table 82: Pre and post qualifications for the 2012 learner cohort: Services

| | | NZQF Qualification Level in 2012 | | | | | | |
|-----------------|--------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | - | 46.7% | 52.5% | 57.7% | 57.0% | 65.3% | 55.4% |
| | Higher qualification | - | 75.7% | 47.3% | 27.1% | 21.8% | 8.0% | 63.2% |
| Before 2012 WAR | Qualification before 2012 WAR | - | 10.0% | 11.3% | 16.5% | 28.2% | 43.4% | 23.6% |
| | In Services | - | 53.3% | 44.1% | 73.5% | 86.0% | 94.0% | 91.9% |
| By 2014 | Further qualification 2014 | - | 32.9% | 33.8% | 31.8% | 31.3% | 39.3% | 28.3% |
| | Higher qualification | - | 76.6% | 64.4% | 32.7% | 38.1% | 22.7% | 35.9% |
| By 2014 WAR | Further qualification 2014 WAR | - | 10.5% | 8.6% | 9.7% | 14.8% | 27.2% | 19.6% |
| | In Services | - | 60.0% | 72.9% | 92.9% | 93.5% | 96.8% | 96.3% |
| By 2017 | Further qualification 2017 | - | 48.2% | 50.8% | 47.0% | 42.8% | 53.4% | 38.5% |
| | Higher qualification | - | 83.8% | 65.6% | 39.6% | 44.5% | 38.7% | 40.0% |
| By 2017 WAR | Further qualification 2017 WAR | - | 18.4% | 14.2% | 14.1% | 20.1% | 35.7% | 23.1% |
| | In Services | - | 61.5% | 69.2% | 88.7% | 90.0% | 94.9% | 93.3% |
| By 2021 | Further qualification 2021 | - | 54.3% | 61.0% | 55.1% | 51.5% | 61.8% | 45.8% |
| | Higher qualification | - | 86.8% | 69.2% | 43.5% | 42.5% | 41.9% | 38.3% |
| By 2021 WAR | Further qualification 2021 WAR | - | 21.4% | 19.1% | 17.6% | 22.9% | 40.5% | 24.4% |
| | In Services | - | 53.3% | 68.9% | 89.0% | 88.2% | 94.4% | 93.8% |

Source: Authors’ compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

9.3 Labour market trajectories by sub-group

This sub-section presents the labour market outcomes of the WAR learner cohort, by sub-group at three different time points: two, five and ten years post-graduation (2014, 2017, 2022). First, we examine the sub-groups in their entirety before analysing outcomes by industry, gender, ethnicity and region.

Table 83 presents the labour market outcomes for the three WAR sub-groups. Regarding employment, the table shows similar levels for 2014 across the three sub-groups, ranging between 80% (Services and Construction) and 90% (Infrastructure). While the employment level drops over the following ten years (e.g., from 80% in 2014 to 74% in 2022 for Construction), we observe an increase in the share of learners receiving income from self-employment. Therefore, when looking at the share of learners who are employed and/or self-employed, we observe that the proportions are stable over time (e.g., 88% in 2014 to 86% in 2022 for Construction).

Regarding earnings from wages & salaries, we see similar levels for learners of the sub-groups Services (in 2014: \$51k) and Construction (in 2014: \$56k) and higher earnings for learners of the sub-group Infrastructure (in 2014: \$65k). By 2022, we see earnings increase, though the gaps between the sub-groups stays untouched.

In terms of benefit recipiency, the share is similar for learners completing their qualification in the sub-groups Infrastructure (2014: 13%) and Construction (2014: 15%) and higher for Services (2014: 22%). However, the gap between the sub-groups narrows over time. By 2022, the share remain almost unchanged for learners of the sub-groups Construction and Infrastructure but drops for those learners of the sub-group Services (2022: 18%).

Table 83. Labour market outcomes by WAR sub-groups

| | Waihanga Ara Rau | Construction | Infrastructure | Services |
|--|------------------|--------------|----------------|----------|
| Share by sub-group | | | | |
| 2014 | 100% | 48.8% | 11.6% | 40.6% |
| 2017 | 100% | 48.8% | 11.7% | 40.6% |
| 2022 | 100% | 49.4% | 11.7% | 40.0% |
| 1) Earnings from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 81.0% | 80.0% | 89.9% | 79.7% |
| 2017 | 79.9% | 78.0% | 88.9% | 79.6% |
| 2022 | 76.6% | 73.7% | 83.6% | 78.5% |
| Employment intensity | | | | |
| 2014 | 10.5 | 10.5 | 11.0 | 10.4 |
| 2017 | 10.7 | 10.7 | 11.0 | 10.7 |
| 2022 | 10.8 | 10.8 | 11.0 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 54,849 | 55,808 | 64,777 | 51,023 |
| 2017 | 63,823 | 65,884 | 71,709 | 59,347 |
| 2022 | 72,901 | 74,627 | 81,215 | 68,686 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2017 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2022 | 1.3 | 1.3 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 10.7% | 12.7% | 5.9% | 9.8% |
| 2017 | 13.9% | 16.6% | 8.3% | 12.2% |
| 2022 | 16.4% | 19.5% | 10.8% | 14.1% |
| Sum of employment and self-employment | | | | |
| 2014 | 86.8% | 87.7% | 92.6% | 84.2% |
| 2017 | 88.0% | 88.8% | 92.4% | 85.8% |
| 2022 | 86.2% | 86.4% | 88.9% | 85.4% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 56,452 | 57,686 | 66,072 | 52,331 |
| 2017 | 66,351 | 69,144 | 73,406 | 61,167 |
| 2022 | 76,268 | 78,767 | 84,528 | 71,107 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 17.7% | 14.5% | 13.2% | 22.4% |
| 2017 | 14.0% | 12.1% | 11.5% | 16.9% |
| 2022 | 15.6% | 14.3% | 14.7% | 17.5% |
| Benefit intensity | | | | |
| 2014 | 7.5 | 6.6 | 6.9 | 8.3 |
| 2017 | 8.2 | 7.9 | 7.5 | 8.7 |
| 2022 | 9.2 | 8.9 | 8.4 | 9.6 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Construction

In this subsection, we analyse the labour market trajectories of the Construction sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Construction sub-group. Table 84 looks at outcomes by NZQF level, while Table 85 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by ethnicity and region are then discussed in text, and presented in the Appendix G. Also presented in Appendix G is the disaggregation by gender, which we do not discuss here due to the very small proportion of women in this sub-group.

Construction by NZQF level

In interpreting Table 84, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings was 99% in 2014 for those with no PSQs. For those who completed a qualification, the share was lower (between 78% and 85%).

Next, we turn to the earnings premium associated with a qualification. Interestingly, there is a higher wage premium (the difference compared to what no PSQ earn) for those with a Level 5 qualification than Level 6: while Level 5 learners, on average, received income from W&S of about \$77.3k and those with no PSQ \$51.2, Level 6 graduates earned \$51.3k. This does not change over time and after accounting for self-employed income. When looking at W&S and self-employed income in 2021, we note that all learners outearn the no PSQ group, and that a clear pattern emerges that, with the exception of Level 6 learners, earnings increase as NZQF level of study increases. The same pattern is similar for the proportion of self-employed learners in 2014, however the proportions are mixed when observed over time. We notice a pattern for the proportion of individuals receiving benefits. We note that the proportion decreases as the NZQL level of study in 2012 increases, for Level 2, 3 and 4 learners.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data.

Construction by related industry

Table 85 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 53% of the Construction sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion increasing to 59% by 2021. Of those that do end up in a related industry, we note that they have lower average earnings and that this industry penalty does not dissipate over time and is evident two, five and ten years post-graduation.

For the NZQF Level 5-7, we see a different pattern, with 86% the Construction sub-group graduates working in a non-related industry in 2014, decreasing to 83% by 2021. Of those that do end up in a related industry, we note that, similar to the NZQF Level 2-4 learners, they have lower average earnings and that this industry penalty does not dissipate over time and is evident two, five and ten years post-graduation.

Table 84. Labour market outcomes for Construction sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.7% | - | 77.5% | 85.3% | 78.4% | 84.7% | 81.9% | - |
| 2017 | 88.7% | - | 77.5% | 85.8% | 73.7% | 85.7% | 84.4% | - |
| 2022 | 78.9% | - | 74.9% | 79.3% | 69.2% | 80.8% | 86.0% | - |
| Employment intensity | | | | | | | | |
| 2014 | 10.8 | - | 10.3 | 10.4 | 10.5 | 11.2 | 10.2 | - |
| 2017 | 10.9 | - | 10.6 | 10.7 | 10.8 | 11.1 | 11.0 | - |
| 2022 | 10.9 | - | 10.5 | 10.8 | 10.9 | 11.2 | 11.1 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 51,218 | - | 54,176 | 53,237 | 56,207 | 77,370 | 51,318 | - |
| 2017 | 57,843 | - | 63,795 | 62,505 | 66,792 | 83,418 | 70,210 | - |
| 2022 | 61,803 | - | 70,433 | 70,943 | 75,936 | 92,749 | 87,194 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.5 | - | 1.4 | 1.5 | 1.4 | 1.3 | 1.5 | - |
| 2017 | 1.4 | - | 1.4 | 1.4 | 1.3 | 1.2 | 1.3 | - |
| 2022 | 1.3 | - | 1.3 | 1.4 | 1.3 | 1.2 | 1.2 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 5.6% | - | 8.6% | 6.4% | 17.7% | 16.9% | 8.5% | - |
| 2017 | 8.6% | - | 10.5% | 8.3% | 23.6% | 19.3% | 10.0% | - |
| 2022 | 11.0% | - | 12.2% | 11.3% | 26.6% | 22.5% | 14.0% | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.0% | - | 81.6% | 87.9% | 90.2% | 93.5% | 87.2% | - |
| 2017 | 92.3% | - | 83.2% | 89.8% | 90.6% | 95.0% | 91.1% | - |
| 2022 | 85.3% | - | 81.6% | 86.0% | 88.1% | 92.5% | 90.3% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 52,477 | - | 55,887 | 54,267 | 58,497 | 78,906 | 52,667 | - |
| 2017 | 59,662 | - | 65,309 | 64,324 | 71,551 | 86,088 | 71,132 | - |
| 2022 | 64,073 | - | 72,946 | 73,063 | 81,648 | 96,078 | 90,145 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 12.1% | - | 20.6% | 19.1% | 10.0% | - | 14.9% | - |
| 2017 | 11.2% | - | 20.6% | 14.7% | 7.6% | - | 8.9% | - |
| 2022 | 16.6% | - | 23.5% | 17.7% | 9.4% | - | 7.5% | - |
| Benefit intensity | | | | | | | | |
| 2014 | 6.4 | - | 6.7 | 6.8 | 6.6 | - | 5.7 | - |
| 2017 | 7.8 | - | 8.3 | 7.9 | 7.4 | - | 7.9 | - |
| 2022 | 9.1 | - | 9.5 | 8.9 | 8.5 | - | 8.2 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Construction learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 85. Labour market outcomes for Construction sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 46.8% | 53.2% | 15.4% | 84.6% |
| 2017 | 44.2% | 55.8% | 18.3% | 81.7% |
| 2022 | 41.4% | 58.6% | 16.9% | 83.1% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.7 | 10.2 | 11.3 | 10.8 |
| 2017 | 10.9 | 10.6 | 10.8 | 11.1 |
| 2022 | 10.9 | 10.6 | 10.9 | 11.3 |
| Mean annual earnings from W&S | | | | |
| 2014 | 53,116 | 56,570 | 66,480 | 66,659 |
| 2017 | 63,641 | 65,940 | 71,711 | 78,503 |
| 2022 | 72,528 | 73,796 | 85,279 | 91,792 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.3 | 1.6 | 1.4 |
| 2017 | 1.4 | 1.3 | 1.4 | 1.2 |
| 2022 | 1.3 | 1.3 | 1.3 | 1.2 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 7.6% | 15.3% | - | - |
| 2017 | 5.0% | 12.6% | - | - |
| 2022 | 6.8% | 13.1% | - | - |
| Benefit intensity | | | | |
| 2014 | 4.8 | 6.3 | - | - |
| 2017 | 5.5 | 7.1 | - | - |
| 2022 | 6.1 | 8.0 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Construction learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Construction by ethnicity

In Appendix Table G 3, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Construction sub-group. Note that for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 7%, with Māori at 26% and European at 68%.

We note that the share of European learners receiving income from W&S is highest in 2022, followed by the Pacific group and lastly the Māori group. Earnings have a less definite pattern, with the European cohort outearning the others in all three time points, followed by the Pacific and then the Māori cohort earning the least. This is despite the fact that the Pacific group had the highest income growth out of all three groups. Benefit receipt is also lowest for the European sub-group and highest for the Māori sub-group, with the Pacific group in the middle. It is notable that over a third of the Māori sub-group receive income from benefits in at least one month.

Construction by region

Results by region are shown in Appendix Table G 4. Construction learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. There is a premium in average yearly earnings from W&S for those living outside of Auckland for those that complete Level 5-7 qualifications. However, this is not the case for the NZQF Level 2-4 group, where those outside of Auckland outearn the Auckland group in 2014. This appears to be inconsistent with previous research highlighting an Auckland wage and productivity premium (e.g. Lewis & Stillman, 2007; Maré, 2008; Fabling, 2021). However, this could be explained by the fact that Auckland dwellers have a lower employment rate on average compared to those living outside of Auckland and a higher proportion of benefit receipt in 2014 and 2022. Notably, the gap closes over time, with the Auckland group out-earning the outside Auckland group by 2022.

Infrastructure

In this subsection, we analyse the labour market trajectories of the Infrastructure sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Infrastructure sub-group. Table 86 looks at outcomes by NZQF level, while Table 87 focuses on outcomes by industry (whether related or not). Further disaggregation of findings by ethnicity and region are then discussed in text, and presented in the Appendix G. Also presented in Appendix G is the disaggregation by gender, which we do not discuss here due to the very small proportion of women in this sub-group.

Infrastructure by NZQF level

In interpreting Table 86, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings was 100% in 2014 for those with no PSQs. For those who completed a qualification, the share was lower (between 83% and 97%). These employment rates decrease over time for all groups, including the no PSQ cohort.

Next, we turn to the earnings premium associated with a qualification. Interestingly, we note that Level 2 learners are out-earned by the no PQS group in 2014, however, this does not persist over time, with the Level 2 learners out-earning the no PSQ group and Level 3 learners by 2022. Outside of this, we notice that as NZQF level of study increases, so does income from W&S, with incomes also increasing over time for all groups. This pattern is the same when looking at W&S and self-employed income.

We notice a pattern for the proportion of individuals receiving benefits. We note that the proportion decreases as the NZQL level of study in 2012 increases, for Level 2, 3 and 4 learners.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data.

Infrastructure by related industry

Table 87 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 75% of the Infrastructure sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion increasing to 79% by 2022. Of those that do end up in a related industry, we note that they have higher average earnings from W&S and that this industry premium does not dissipate over time and is evident two, five and ten years post-graduation.

For the NZQF Level 5-7, we see a lower proportion, with 63% the Construction sub-group graduates working in a non-related industry in 2014, increasing to 66% by 2021. Of those that do end up in a related industry, we note that, similar to the NZQF 2-4 learners, they have higher average earnings but that this industry premium dissipates over time and is evident ten years post-graduation.

Table 86. Labour market outcomes for Infrastructure sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 99.5% | - | 82.9% | 87.5% | 96.1% | 95.8% | 96.7% | - |
| 2017 | 93.8% | - | 82.7% | 86.4% | 94.4% | 95.8% | 92.9% | - |
| 2022 | 87.4% | - | 75.7% | 80.3% | 91.5% | 87.5% | 95.0% | - |
| Employment intensity | | | | | | | | |
| 2014 | 11.3 | - | 10.0 | 10.9 | 11.5 | 10.9 | 11.4 | - |
| 2017 | 11.2 | - | 10.4 | 10.8 | 11.5 | 11.2 | 11.7 | - |
| 2022 | 11.2 | - | 11.0 | 10.7 | 11.3 | 11.7 | 11.5 | - |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 64,438 | - | 53,984 | 62,145 | 70,182 | 83,784 | 71,818 | - |
| 2017 | 69,241 | - | 63,733 | 66,586 | 77,176 | 92,224 | 91,557 | - |
| 2022 | 72,767 | - | 75,872 | 73,119 | 85,116 | 98,525 | 111,416 | - |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.5 | - | 1.4 | 1.5 | 1.4 | 1.4 | 1.2 | - |
| 2017 | 1.3 | - | 1.4 | 1.4 | 1.4 | 1.2 | 1.2 | - |
| 2022 | 1.3 | - | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 3.4% | - | - | 6.6% | 5.0% | - | - | - |
| 2017 | 5.2% | - | - | 9.5% | 8.4% | - | - | - |
| 2022 | 6.1% | - | 8.1% | 12.0% | 10.2% | - | - | - |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.6% | - | 85.6% | 91.0% | 97.2% | 95.8% | 96.7% | - |
| 2017 | 95.4% | - | 84.5% | 91.3% | 97.2% | 95.8% | 98.2% | - |
| 2022 | 90.0% | - | 80.2% | 86.6% | 95.5% | 95.8% | 98.3% | - |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 64,817 | - | 56,131 | 64,170 | 70,791 | 83,515 | 73,339 | - |
| 2017 | 70,113 | - | 66,620 | 68,867 | 77,299 | 92,860 | 90,116 | - |
| 2022 | 73,762 | - | 80,405 | 76,653 | 88,872 | 96,834 | 113,981 | - |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 8.5% | - | 25.2% | 15.4% | 5.0% | - | - | - |
| 2017 | 9.3% | - | 20.0% | 14.6% | 3.9% | - | - | - |
| 2022 | 13.3% | - | 24.3% | 18.0% | 6.8% | - | - | - |
| Benefit intensity | | | | | | | | |
| 2014 | 6.1 | - | 7.7 | 6.8 | 6.3 | - | - | - |
| 2017 | 7.3 | - | 7.3 | 7.8 | 6.4 | - | - | - |
| 2022 | 8.9 | - | 8.0 | 8.9 | 7.5 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Infrastructure learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 87. Labour market outcomes for Infrastructure sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 25.6% | 74.4% | 36.6% | 63.4% |
| 2017 | 23.6% | 76.4% | 35.1% | 64.9% |
| 2022 | 21.5% | 78.5% | 34.2% | 65.8% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 11.6 | 10.7 | 12.0 | 10.9 |
| 2017 | 11.5 | 10.7 | 11.3 | 11.5 |
| 2022 | 11.5 | 10.8 | 11.3 | 11.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 81,763 | 56,827 | 86,921 | 69,568 |
| 2017 | 86,884 | 63,613 | 94,367 | 89,126 |
| 2022 | 94,745 | 72,131 | 107,681 | 109,183 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.5 | 1.3 | 1.3 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.2 |
| 2022 | 1.3 | 1.4 | 1.1 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Infrastructure learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Infrastructure by ethnicity

In Appendix Table G 6, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Infrastructure sub-group. Note that for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 5%, with Māori at 43% and European at 52%.

We note that the share of European learners receiving income from W&S is highest in 2014 and 2017, followed by the Pacific group and lastly the Māori group. Earnings have a less definite pattern, with the European cohort outearning the others in all three time points, followed by the Pacific and then the Māori cohort earning the least, except for in 2014, when the outearned the Pacific group. This pattern does not change when income from self-employment is also accounted for.

Infrastructure by region

Results by region are shown in Appendix Table G 7. Infrastructure learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. There is a premium in average yearly earnings from W&S for those living outside of Auckland for those that complete Level 5-7 qualifications in 2014 and 2017. Notably, the gap closes over time, with the Auckland group out-earning the outside Auckland group by 2022. However, this is not the case for the NZQF Level 2-4 group, where those outside of Auckland outearn the Auckland group in 2014. This appears to be inconsistent with previous research highlighting an Auckland wage and productivity premium (e.g. Lewis & Stillman, 2007; Maré, 2008; Fabling, 2021). However, this could be explained by the fact that Auckland dwellers have a lower employment rate on average compared to those living outside of Auckland and a higher proportion of benefit receipt. Notably, the gap closes over time, with the Auckland group out-earning the outside Auckland group by 2017.

Services

In this subsection, we analyse the labour market trajectories of the Services sub-group in comparison to those without PSQs. Recall that we apply entropy balancing to ensure that the characteristics of the comparison group (in terms of age, gender, ethnicity, location and employment intensity) are similar to those of the Services sub-group. Table 88 looks at outcomes by NZQF level, while Table 89 focusses on outcomes by industry (whether related or not). Further disaggregation of findings by gender, ethnicity and region are then discussed in text, and presented in the Appendix G.

Services by NZQF level

In interpreting Table 88, the results for each NZQF level can be compared to those in the first column, which is the comparison group without PSQs. The share of those receiving any W&S earnings was 99% in 2014 for those with no PSQs, decreasing to 84% by 2022. For those who completed a qualification, the share was lower, between 65% and 88% in 2014, and 67% and 84% by 2022. These employment rates decrease over time for all groups except Level 2 and 3 learners.

Next, we turn to the earnings premium associated with a qualification. Interestingly, we note that Level 2 learners are outearned by the no PQS group in all time periods, even when accounting for self-employed income. We also notice that the Level 4 learners outearn both Level 5 and 6 learners in 2014, but that this does not persist over time. This pattern is the same when looking at W&S and self-employed income.

We notice a pattern for the proportion of individuals receiving benefits. We note that the proportion decreases as the NZQL level of study in 2012 increases, interestingly, the no PSQ group has the second lowest benefit reciprocity out of all the groups.

For the remaining tables, where we study the labour market outcomes by sub-populations, we aggregate the qualification levels into two groups: NZQF Level 2-4 and NZQF Level 5-7, to minimise the impact of small sample sizes on our ability to draw meaningful conclusions from the data.

Services by related industry

Table 89 allows us to consider the labour market outcomes for graduates working in an industry related to their area of study relative to graduates working in a non-related industry. Approximately 99% of the Services sub-group at NZQF Level 2-4 do not end up working in a related industry two years post-graduation, with that proportion not changing by 2022.

For the NZQF Level 5-7, we see a lower proportion, with 92% of the Construction sub-group graduates working in a non-related industry in 2014, increasing to 93% by 2021. Of those that do end up in a related industry, we note that they have higher average earnings in all three time points.

Table 88. Labour market outcomes for Services sub-group: by NZQF level

| | NZQF Level Qualification gained in 2012 | | | | | | | |
|--|---|---------|---------|---------|---------|---------|---------|---------|
| | No PSQ | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| 1) Income from Wages & Salaries (W&S) | | | | | | | | |
| Employment | | | | | | | | |
| 2014 | 98.9% | - | 65.0% | 78.1% | 79.7% | 76.5% | 85.9% | 87.8% |
| 2017 | 91.9% | - | 67.4% | 80.7% | 78.5% | 76.3% | 85.2% | 84.7% |
| 2022 | 84.2% | - | 66.9% | 80.2% | 77.2% | 77.3% | 84.4% | 77.1% |
| Employment intensity | | | | | | | | |
| 2014 | 11.2 | - | 9.4 | 10.4 | 10.4 | 10.2 | 10.5 | 10.8 |
| 2017 | 11.3 | - | 9.9 | 10.5 | 10.7 | 10.7 | 10.9 | 11.2 |
| 2022 | 11.3 | - | 9.7 | 10.7 | 10.9 | 11.0 | 10.9 | 11.1 |
| Mean annual earnings from W&S | | | | | | | | |
| 2014 | 54,756 | - | 38,141 | 51,119 | 51,841 | 50,111 | 46,518 | 71,458 |
| 2017 | 62,944 | - | 43,330 | 55,474 | 58,459 | 60,552 | 60,774 | 88,580 |
| 2022 | 65,333 | - | 52,041 | 63,256 | 66,226 | 71,313 | 72,783 | 104,101 |
| Mean number of employers per year | | | | | | | | |
| 2014 | 1.4 | - | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 | 1.4 |
| 2017 | 1.3 | - | 1.6 | 1.3 | 1.4 | 1.4 | 1.4 | 1.3 |
| 2022 | 1.3 | - | 1.4 | 1.3 | 1.3 | 1.4 | 1.3 | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | | | | | |
| Self-employment | | | | | | | | |
| 2014 | 5.7% | - | 7.0% | 5.4% | 10.6% | 16.4% | 8.7% | 12.9% |
| 2017 | 6.4% | - | 9.9% | 6.9% | 13.0% | 19.0% | 12.3% | 13.7% |
| 2022 | 9.3% | - | 12.2% | 9.1% | 14.4% | 16.9% | 16.0% | 22.9% |
| Sum of employment and self-employment | | | | | | | | |
| 2014 | 99.2% | - | 68.5% | 80.5% | 84.7% | 85.9% | 88.3% | 93.5% |
| 2017 | 94.4% | - | 73.0% | 83.8% | 85.6% | 87.7% | 90.9% | 89.3% |
| 2022 | 89.9% | - | 72.7% | 84.4% | 84.5% | 86.8% | 90.6% | 90.1% |
| Mean annual income from W&S and self-employment | | | | | | | | |
| 2014 | 56,285 | - | 40,821 | 52,154 | 52,514 | 51,882 | 48,453 | 73,874 |
| 2017 | 63,574 | - | 45,192 | 56,096 | 59,822 | 64,285 | 62,981 | 91,844 |
| 2022 | 67,895 | - | 54,354 | 64,787 | 67,611 | 75,105 | 77,158 | 104,755 |
| 3) Income from benefits | | | | | | | | |
| Benefit reciprocity | | | | | | | | |
| 2014 | 9.2% | - | 37.8% | 30.3% | 23.3% | 17.7% | 14.8% | 5.0% |
| 2017 | 8.9% | - | 31.2% | 25.0% | 16.7% | 12.3% | 9.8% | - |
| 2022 | 12.4% | - | 36.7% | 24.3% | 18.5% | 12.5% | 8.2% | - |
| Benefit intensity | | | | | | | | |
| 2014 | 6.5 | - | 8.3 | 8.8 | 8.5 | 7.6 | 6.9 | 6.7 |
| 2017 | 7.9 | - | 8.3 | 9.0 | 8.9 | 8.3 | 7.3 | - |
| 2022 | 8.6 | - | 9.7 | 9.7 | 9.7 | 9.3 | 8.8 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records, and non-learners according to 2014 Census data. All income variables are deflated to March 2022 dollars.

Table 89. Labour market outcomes for Services sub-group: By related-industry employment

| | NZQF 2-4 | | NZQF 5-7 | |
|---|------------------|----------------------|------------------|----------------------|
| | Related Industry | Non-Related Industry | Related Industry | Non-Related Industry |
| Share in related industry (based on W&S information) | | | | |
| 2014 | 1.2% | 98.8% | 7.7% | 92.3% |
| 2017 | 1.4% | 98.6% | 7.6% | 92.4% |
| 2022 | 1.5% | 98.5% | 7.0% | 93.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment intensity | | | | |
| 2014 | 10.7 | 10.3 | 10.7 | 10.4 |
| 2017 | 11.0 | 10.6 | 11.5 | 10.8 |
| 2022 | 10.6 | 10.7 | 11.3 | 10.9 |
| Mean annual earnings from W&S | | | | |
| 2014 | 57,802 | 50,531 | 53,886 | 51,564 |
| 2017 | 64,608 | 56,222 | 72,650 | 64,305 |
| 2022 | 73,372 | 64,054 | 90,835 | 75,894 |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.4 | 1.5 | 1.5 |
| 2017 | 1.5 | 1.4 | 1.5 | 1.3 |
| 2022 | 1.4 | 1.3 | 1.3 | 1.3 |
| 2) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Services gender

Appendix Table G 8, shows the 2012 Services sub-group by gender. Women make up 60% of this sub-group at NZQF Level 2-4, with 40% of the group being male. As is evident in previous WDCs, we note the gap in average earnings between the genders and note that this gap increases over our time period from \$30.6k in 2014 to \$31.9k in 2022. In fact, the female cohort earned \$17k less ten-years post-graduation than the male cohort was earning in their first year of working (2014). Looking at self-employed income does not close this gap. Benefit receipt is more than double for the women in this sub-group than the men.

The NZQF Level 5-7 cohort looks similar, with 59% of the group being made up of women. The males in this group also earn more than their female counterparts. The earnings differential between genders increases from \$16k in 2014, to \$30.8k by 2021.

Services by ethnicity

In Appendix Table G 9, we break down the labour market indicators by ethnicity, focussing on European, Māori and Pacific for the Services sub-group. Note that for the NZQF Level 2-4 group, Pacific comprise a small proportion of the sample, at around 10%, with Māori at 33% and European at 57%. The NZQF Level 5-7 group looks similar, with 7% of the sample being made up of Pacific learners, 20% Māori and 77% European.

For NZQF Level 2-4 learners, we note that the share of European learners receiving income from W&S is highest in all three time points, followed by the Pacific group and lastly the Māori group. Earnings have the same pattern, with the European cohort outearning the others in all three time points, followed by the Pacific and then the Māori cohort earning the least. This pattern does not change when income from self-employment is also accounted for. Benefit receipt is also lowest for the European sub-group and highest for the Māori sub-group, with the Pacific group in the middle. It is notable that over a third of the Māori sub-group receive income from benefits in at least one month.

For the NZQF Level 5-7 group we note that the share of European learners receiving income from W&S is also the highest in all time periods, with the Māori group having the second highest, followed by the Pacific group, who have higher employment rates only in 2022. Earnings from W&S have different pattern, with the European cohort outearning the others in all three time points, followed by the Māori cohort and finally the Pacific group earning the least. This is despite the fact that the Māori cohort had the highest rate of benefit recipiency in 2014 and 2017.

Services by region

Results by region are shown in Appendix Table G 10. Services learners from the 2012 cohort who live in Auckland are compared to those living outside of Auckland. For the NZQF Level 2-4 group, there is a premium in average yearly earnings from W&S for those living in Auckland. Auckland-based individuals outearn those living outside of Auckland in all three time periods, regardless of self-employed income. The same is true for the for the NZQF Level 5-7 group. This appears to be consistent with previous research highlighting an Auckland wage and productivity premium (e.g. Lewis & Stillman, 2007; Maré, 2008; Fabling, 2021).

10 Conclusion and Next Steps

This study investigates the labour market impacts of a post-school qualification (below a Bachelor's qualification) in New Zealand. We provide detailed empirical evidence for each of the six WDC's sub-groups on employment, earnings and benefit reciprocity trajectories in the ten year time window post completion of a qualification in 2012. A standout finding is the clear positive relationship between higher qualification levels and labour market returns: for learners completing a higher qualification we generally observe higher employment rates, higher earnings from wages and salaries and lower benefit reciprocity.

This study uses the detailed qualification- and labour-market-related administrative data hosted by Stats NZ's Integrated Data Infrastructure (IDI). As the information is population wide, it enables us to identify sub-groups with a small number of learners. For future research in this space, the following aspects are likely to be worthy of further exploration:

1. For numerous sub-groups, the identification of learners is based on a few (and in some cases just a single) NZSCED codes. Thus, the identification of the relevant NZSCED codes is crucial, and small changes can impact the conclusions. As WDCs review relevant sub-groups of interest, it is worth reviewing the NZSCED codes linked with each group with this in mind.
2. Many learners obtain multiple qualifications during their life course and/or change the direction of their career. This becomes clear by the large number of 2012 graduates who already had a prior qualification and who also go on to a further qualification in our ten-year time window. Future research can look to account for the variation in prior qualification history as well as future educational uptake when making causal inferences.
3. The employer's industry code is used to identify related industries. However, the learner's occupation and the employer's industry do not always align. Future research could utilise the Census as a future potential source of information on occupation.
4. There is substantial variation in earnings, both between WDC sub-groups as well as within a sub-group (e.g., by gender or ethnicity). Potential sources of information which could account for this variation are the type of contract or hours worked. There are a few sources in the IDI available that hold hours worked, though these are limited to point-in-time observations (e.g., Census) or provide information only for a reduced sample. Sub-sample analysis could be undertaken in future iterations of this work that account for variation in hours worked.

5. The focus of this study is on the labour market returns of a post-school qualifications. However, a qualification can enrich an individuals life across multiple dimensions, e.g., by improving their wellbeing and health. Future research can undertake a more holistic approach to assessing the impacts of completing these qualifications.

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Appendix A

Table A 1. Datasets used

Population data

Census 2014
Border movement
APC constants

Income and work data

Inland Revenue – Employee Monthly Schedule
Inland Revenue – IR3 table

Education and training data

Industry training
Tertiary Education

Source: Authors' compilation from Stats NZ IDI.

Appendix B

Table B 1. HAR grouping and NZSCED concordance

| HAR Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|----------------------|---------------------|---|
| Engineering | | |
| | 030599 | Automotive Engineering and Technology not elsewhere classified |
| | 030507 | Automotive Vehicle Refinishing |
| | 030711 | Boiler-making and Welding |
| | 030301 | Chemical Engineering |
| | 040323 | Glazing |
| | 030101 | Manufacturing Engineering |
| | 031703 | Marine Construction |
| | 031701 | Maritime Engineering |
| | 030799 | Mechanical and Industrial Engineering & Technology not elsewhere classified |
| | 030701 | Mechanical Engineering |
| | 030713 | Metal Casting and Pattern Making |
| | 030303 | Mining and Resources Engineering |
| | 030511 | Panel Beating |
| | 030399 | Process and Resources Engineering not elsewhere classified |
| | 031315 | Refrigeration, Heating and Air Conditioning |
| | 030709 | Sheetmetal Working |
| | 030503 | Vehicle Mechanics |
| Logistics | | |
| | 030515 | Automotive Vehicle Operations |
| | 039901 | Environmental Engineering |
| | 080311 | International Business |
| | 031705 | Marine Craft Operation |
| | 031799 | Maritime Engineering and Technology not elsewhere classified |
| | 089901 | Purchasing, Warehousing and Distribution |
| | 039907 | Rail Operations |
| Manufacturing | | |
| | 030501 | Automotive Engineering |
| | 110107 | Baking and Pastry Making |
| | 110105 | Butchery |
| | 120599 | Employment Skills Programmes not elsewhere classified |
| | 030307 | Food (excluding Seafood) Processing Technology |
| | 030107 | Garment Making |
| | 030199 | Manufacturing Engineering and Technology not elsewhere classified. |
| | 030108 | Plastics Processing Technology |
| | 030103 | Printing |
| | 030105 | Textile Making |
| | 030304 | Wood Based Manufacturing |

Source: Authors' compilation from WDCs data.

Appendix B - Engineering

Table B 2. Labour market outcomes for Engineering sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 93.5% | 6.5% | - | - |
| 2017 | 93.4% | 6.6% | - | - |
| 2022 | 93.5% | 6.5% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 90.4% | 80.6% | - | - |
| 2017 | 89.1% | 79.4% | - | - |
| 2022 | 84.0% | 76.8% | - | - |
| Employment intensity | | | | |
| 2014 | 10.9 | 10.7 | - | - |
| 2017 | 11.0 | 10.8 | - | - |
| 2022 | 11.1 | 10.6 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 60,666 | 48,828 | - | - |
| 2017 | 68,781 | 51,285 | - | - |
| 2022 | 76,233 | 55,375 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | - | - |
| 2017 | 1.4 | 1.5 | - | - |
| 2022 | 1.3 | 1.3 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | 6.8% | 6.9% | - | - |
| 2022 | 9.8% | 8.1% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 91.8% | 82.5% | - | - |
| 2017 | 92.2% | 84.3% | - | - |
| 2022 | 89.2% | 80.8% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 61,221 | 49,664 | - | - |
| 2017 | 69,916 | 50,989 | - | - |
| 2022 | 77,767 | 56,584 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 15.6% | 28.2% | - | - |
| 2017 | 11.4% | 22.5% | - | - |
| 2022 | 14.1% | 28.3% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.5 | 8.2 | - | - |
| 2017 | 7.4 | 9.1 | - | - |
| 2022 | 8.9 | 9.6 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Engineering learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table B 3. Labour market outcomes for Engineering sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|-------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 68.4% | 25.5% | 6.1% | - | - | - |
| 2017 | 68.9% | 25.3% | 5.8% | - | - | - |
| 2022 | 69.3% | 25.0% | 5.7% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 93.7% | 79.9% | 85.7% | 96.4% | - | - |
| 2017 | 91.4% | 79.6% | 92.9% | 90.4% | - | - |
| 2022 | 86.2% | 75.7% | 84.3% | 90.9% | - | - |
| Employment intensity | | | | | | |
| 2014 | 11.2 | 9.9 | 10.7 | 11.4 | - | - |
| 2017 | 11.2 | 10.3 | 10.8 | 11.8 | - | - |
| 2022 | 11.3 | 10.4 | 10.9 | 11.3 | - | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 64,480 | 48,726 | 51,640 | 90,465 | - | - |
| 2017 | 72,736 | 55,626 | 56,281 | 102,001 | - | - |
| 2022 | 79,894 | 62,449 | 66,000 | 99,782 | - | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.2 | - | - |
| 2017 | 1.3 | 1.5 | 1.3 | 1.3 | - | - |
| 2022 | 1.3 | 1.4 | 1.4 | 1.2 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 4.6% | - | - | - | - | - |
| 2017 | 8.1% | 3.0% | - | - | - | - |
| 2022 | 11.6% | 5.0% | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 95.6% | 80.7% | 85.7% | 96.4% | - | - |
| 2017 | 95.1% | 81.3% | 95.2% | 94.2% | - | - |
| 2022 | 92.4% | 78.2% | 86.7% | 94.5% | - | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 64,954 | 49,423 | 51,944 | 92,786 | - | - |
| 2017 | 74,016 | 56,279 | 57,507 | 101,473 | - | - |
| 2022 | 81,454 | 63,250 | 66,718 | 105,687 | - | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 10.2% | 33.8% | 20.9% | - | - | - |
| 2017 | 6.6% | 28.3% | 14.3% | - | - | - |
| 2022 | 8.7% | 33.7% | 19.3% | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 6.0 | 7.5 | 5.7 | - | - | - |
| 2017 | 7.4 | 7.9 | 6.5 | - | - | - |
| 2022 | 8.8 | 9.1 | 7.7 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Engineering learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table B 4. Labour market outcomes for Engineering sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 21.0% | 79.0% | 30.3% | 69.7% |
| 2017 | 20.3% | 79.7% | 31.0% | 69.0% |
| 2022 | 19.1% | 80.9% | 24.7% | 75.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 85.5% | 90.8% | 87.0% | 92.5% |
| 2017 | 85.9% | 89.0% | 90.9% | 91.8% |
| 2022 | 79.2% | 84.7% | 94.4% | 89.1% |
| Employment intensity | | | | |
| 2014 | 10.6 | 11.0 | 11.2 | 11.6 |
| 2017 | 10.8 | 11.1 | 11.3 | 11.6 |
| 2022 | 10.9 | 11.1 | 11.5 | 11.4 |
| Mean annual earnings from W&S | | | | |
| 2014 | 57,966 | 60,526 | 77,632 | 94,403 |
| 2017 | 66,643 | 68,014 | 86,170 | 99,720 |
| 2022 | 74,734 | 74,980 | 107,515 | 102,302 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | 1.3 | 1.3 |
| 2017 | 1.4 | 1.4 | 1.3 | 1.3 |
| 2022 | 1.3 | 1.3 | 1.1 | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 4.2% | 3.7% | - | - |
| 2017 | 7.7% | 6.7% | - | - |
| 2022 | 9.2% | 9.8% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 87.6% | 92.2% | 91.3% | 96.2% |
| 2017 | 90.1% | 92.1% | 95.5% | 95.9% |
| 2022 | 84.6% | 89.7% | 100.0% | 96.4% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 58,273 | 61,056 | 74,281 | 93,450 |
| 2017 | 67,748 | 68,959 | 89,424 | 100,189 |
| 2022 | 76,751 | 76,469 | 123,273 | 104,470 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 17.8% | 16.0% | - | - |
| 2017 | 13.1% | 11.8% | - | - |
| 2022 | 18.8% | 14.2% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.0 | 6.6 | - | - |
| 2017 | 7.3 | 7.8 | - | - |
| 2022 | 8.8 | 8.9 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Engineering learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix B – Logistics

Table B 5. Pre and post qualifications for the 2012 cohort by Logistics

| Logistics | | NZQF Qualification Level in 2012 | | | | | | |
|-------------|--------------------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
| | | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 | Level 6 | Level 7 |
| Before 2012 | Qualification before 2012 | n/a | - | 49.2% | 48.1% | 65.2% | - | - |
| | Higher qualification | n/a | - | 50.9% | 38.5% | - | - | - |
| Before 2012 | Qualification before 2012 HAR | n/a | - | 14.8% | 25.9% | 43.5% | - | - |
| | In Logistics | n/a | - | 55.4% | 71.4% | 90.0% | - | - |
| By 2014 | Further qualification 2014 | n/a | - | 24.6% | 28.6% | - | - | - |
| | Higher qualification | n/a | - | 50.7% | - | - | - | - |
| By 2014 | Further qualification 2014 HAR | n/a | - | 6.6% | - | - | - | - |
| | In Logistics | n/a | - | 63.4% | - | - | - | - |
| By 2017 | Further qualification 2017 | n/a | - | 37.9% | 37.5% | - | - | - |
| | Higher qualification | n/a | - | 54.7% | - | - | - | - |
| By 2017 | Further qualification 2017 HAR | n/a | - | 10.0% | 17.5% | - | - | - |
| | In Logistics | n/a | - | 52.5% | - | - | - | - |
| By 2021 | Further qualification 2021 | n/a | - | 46.0% | 48.9% | - | - | - |
| | Higher qualification | n/a | - | 59.0% | 45.5% | - | - | - |
| By 2021 | Further qualification 2021 HAR | n/a | - | 11.9% | 22.2% | - | - | - |
| | In Logistics | n/a | - | 49.3% | 90.0% | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Logistics learners between 18 and 54 (inclusive) years old in 2012, according to their education records.

Table B 6. Labour market outcomes for Logistics sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 68.7% | 31.3% | - | - |
| 2017 | 68.6% | 31.4% | - | - |
| 2022 | 68.2% | 31.8% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 86.6% | 78.3% | - | - |
| 2017 | 84.7% | 77.2% | - | - |
| 2022 | 77.8% | 71.0% | - | - |
| Employment intensity | | | | |
| 2014 | 10.6 | 9.9 | - | - |
| 2017 | 10.7 | 10.2 | - | - |
| 2022 | 10.8 | 10.3 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 56,111 | 37,539 | - | - |
| 2017 | 65,288 | 42,828 | - | - |
| 2022 | 72,074 | 50,840 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.6 | - | - |
| 2017 | 1.5 | 1.4 | - | - |
| 2022 | 1.5 | 1.4 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 9.3% | 8.7% | - | - |
| 2017 | 10.7% | 12.6% | - | - |
| 2022 | 14.2% | 12.9% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 91.0% | 83.1% | - | - |
| 2017 | 90.7% | 84.0% | - | - |
| 2022 | 86.0% | 76.7% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 57,054 | 37,435 | - | - |
| 2017 | 66,891 | 43,582 | - | - |
| 2022 | 74,615 | 52,632 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 17.0% | 27.1% | - | - |
| 2017 | 13.3% | 22.8% | - | - |
| 2022 | 16.4% | 22.9% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.4 | 8.2 | - | - |
| 2017 | 7.6 | 8.7 | - | - |
| 2022 | 9.2 | 9.4 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Logistics learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table B 7. Labour market outcomes for Logistics sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|-------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 62.9% | 30.4% | 6.7% | - | - | - |
| 2017 | 63.6% | 30.1% | 6.4% | - | - | - |
| 2022 | 64.7% | 29.3% | 6.0% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 86.6% | 81.3% | 87.8% | 83.3% | - | - |
| 2017 | 84.6% | 80.4% | 84.6% | 72.2% | - | - |
| 2022 | 76.8% | 76.1% | 75.7% | 83.3% | - | - |
| Employment intensity | | | | | | |
| 2014 | 10.6 | 10.0 | 10.4 | 10.1 | - | - |
| 2017 | 10.8 | 10.0 | 10.6 | 10.1 | - | - |
| 2022 | 10.8 | 10.1 | 11.0 | 10.9 | - | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 54,701 | 45,016 | 44,562 | 87,663 | - | - |
| 2017 | 63,042 | 52,216 | 52,844 | 92,932 | - | - |
| 2022 | 70,610 | 55,990 | 62,873 | 112,993 | - | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.7 | 1.6 | 1.5 | 1.4 | - | - |
| 2017 | 1.5 | 1.5 | 1.5 | 1.2 | - | - |
| 2022 | 1.5 | 1.4 | 1.3 | 1.3 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 11.4% | 3.7% | - | - | - | - |
| 2017 | 13.6% | 5.4% | - | - | - | - |
| 2022 | 16.1% | 8.3% | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 92.0% | 82.4% | 90.2% | 77.8% | - | - |
| 2017 | 92.0% | 83.2% | 87.2% | 77.8% | - | - |
| 2022 | 85.9% | 79.4% | 78.4% | 88.9% | - | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 55,430 | 45,841 | 46,401 | 94,959 | - | - |
| 2017 | 64,812 | 53,228 | 51,531 | 92,753 | - | - |
| 2022 | 73,064 | 58,980 | 62,119 | 109,408 | - | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 13.7% | 34.2% | 22.0% | - | - | - |
| 2017 | 11.1% | 28.8% | - | - | - | - |
| 2022 | 13.1% | 31.1% | 21.6% | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 7.3 | 8.3 | 7.8 | - | - | - |
| 2017 | 8.1 | 8.4 | - | - | - | - |
| 2022 | 9.4 | 9.5 | 9.0 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Logistics learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table B 8. Labour market outcomes for Logistics sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 23.7% | 76.3% | 65.5% | 34.5% |
| 2017 | 22.7% | 77.3% | 64.3% | 35.7% |
| 2022 | 21.8% | 78.2% | 60.0% | 40.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 78.3% | 85.6% | 78.9% | 80.0% |
| 2017 | 79.2% | 83.0% | 77.8% | 90.0% |
| 2022 | 72.2% | 76.6% | 77.8% | 91.7% |
| Employment intensity | | | | |
| 2014 | 10.4 | 10.4 | 10.4 | 11.3 |
| 2017 | 10.6 | 10.5 | 10.5 | 10.1 |
| 2022 | 10.7 | 10.6 | 11.3 | 10.0 |
| Mean annual earnings from W&S | | | | |
| 2014 | 50,336 | 50,673 | 61,754 | 116,738 |
| 2017 | 58,204 | 58,946 | 72,797 | 94,285 |
| 2022 | 67,593 | 65,244 | 93,537 | 101,835 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.7 | 1.4 | 1.3 |
| 2017 | 1.4 | 1.5 | 1.3 | 1.1 |
| 2022 | 1.3 | 1.5 | 1.2 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 8.3% | 9.3% | - | - |
| 2017 | 10.1% | 11.6% | - | - |
| 2022 | 11.1% | 14.3% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 83.4% | 89.5% | 84.2% | 80.0% |
| 2017 | 85.2% | 89.5% | 83.3% | 90.0% |
| 2022 | 78.5% | 84.5% | 88.9% | 83.3% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 49,933 | 51,790 | 62,726 | 116,738 |
| 2017 | 57,458 | 60,648 | 73,686 | 94,761 |
| 2022 | 68,686 | 67,863 | 89,724 | 113,525 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 21.7% | 19.8% | - | - |
| 2017 | 14.1% | 17.0% | - | - |
| 2022 | 22.2% | 17.2% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.4 | 7.8 | - | - |
| 2017 | 8.7 | 7.9 | - | - |
| 2022 | 9.6 | 9.2 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Logistics learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix B – Manufacturing

Table B 9. Labour market outcomes for Manufacturing sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 64.2% | 35.8% | 43.9% | 56.1% |
| 2017 | 64.2% | 35.8% | 42.8% | 57.2% |
| 2022 | 64.1% | 35.9% | 43.6% | 56.4% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 84.8% | 76.6% | 86.9% | 80.3% |
| 2017 | 85.5% | 74.3% | 87.8% | 85.5% |
| 2022 | 80.3% | 71.8% | 84.3% | 79.5% |
| Employment intensity | | | | |
| 2014 | 10.1 | 9.7 | 10.7 | 10.2 |
| 2017 | 10.6 | 10.1 | 10.7 | 10.5 |
| 2022 | 10.6 | 10.1 | 10.9 | 10.4 |
| Mean annual earnings from W&S | | | | |
| 2014 | 43,511 | 32,707 | 52,971 | 39,719 |
| 2017 | 52,363 | 39,079 | 65,736 | 51,039 |
| 2022 | 60,602 | 44,386 | 81,647 | 61,096 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.5 | 1.5 | 1.6 |
| 2017 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2022 | 1.4 | 1.4 | 1.4 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 1.9% | 1.7% | 8.4% | 6.6% |
| 2017 | 3.5% | 2.8% | 13.3% | 8.4% |
| 2022 | 6.4% | 4.4% | 15.7% | 11.4% |
| Sum of employment and self-employment | | | | |
| 2014 | 85.4% | 77.3% | 89.7% | 83.2% |
| 2017 | 86.9% | 75.3% | 91.8% | 87.8% |
| 2022 | 83.6% | 74.1% | 89.2% | 84.8% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 43,653 | 32,980 | 52,944 | 40,847 |
| 2017 | 52,798 | 39,893 | 66,740 | 52,605 |
| 2022 | 61,764 | 44,878 | 85,334 | 62,231 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 28.9% | 45.8% | 17.8% | 18.2% |
| 2017 | 21.4% | 38.3% | 10.2% | 13.7% |
| 2022 | 25.8% | 38.7% | 12.7% | 12.1% |
| Benefit intensity | | | | |
| 2014 | 7.1 | 8.6 | 5.3 | 8.0 |
| 2017 | 7.8 | 9.3 | 7.6 | 8.9 |
| 2022 | 9.1 | 10.1 | 7.6 | 9.3 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Manufacturing learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table B 10. Labour market outcomes for Manufacturing sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 46.1% | 35.7% | 18.2% | 79.1% | 14.9% | 6.0% |
| 2017 | 46.5% | 35.7% | 17.8% | 78.9% | 15.3% | 5.8% |
| 2022 | 46.7% | 35.7% | 17.6% | 79.2% | 15.2% | 5.6% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 86.6% | 77.7% | 77.7% | 86.8% | 76.7% | 66.7% |
| 2017 | 84.2% | 77.9% | 80.6% | 88.7% | 79.3% | 81.8% |
| 2022 | 79.5% | 74.6% | 76.9% | 84.0% | 76.7% | 81.8% |
| Employment intensity | | | | | | |
| 2014 | 10.4 | 9.5 | 9.5 | 10.6 | 9.6 | 9.7 |
| 2017 | 10.8 | 9.9 | 10.3 | 10.8 | 10.4 | 9.3 |
| 2022 | 10.8 | 9.8 | 10.5 | 10.5 | 10.4 | 10.5 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 42,954 | 36,412 | 37,965 | 48,284 | 44,554 | 36,917 |
| 2017 | 51,662 | 42,932 | 47,040 | 61,852 | 52,393 | 38,268 |
| 2022 | 59,671 | 47,361 | 55,071 | 73,465 | 65,689 | 53,545 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.5 | 1.5 | 1.4 | 1.6 | 1.6 | 1.3 |
| 2017 | 1.4 | 1.5 | 1.4 | 1.4 | 1.5 | 1.3 |
| 2022 | 1.3 | 1.5 | 1.4 | 1.3 | 1.4 | 1.1 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 2.7% | - | - | 8.2% | - | - |
| 2017 | 4.2% | - | - | 12.0% | - | - |
| 2022 | 7.8% | 2.5% | - | 14.1% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 87.4% | 77.9% | 78.4% | 89.3% | 76.7% | 58.3% |
| 2017 | 85.9% | 78.2% | 81.3% | 92.7% | 79.3% | 81.8% |
| 2022 | 83.4% | 76.0% | 78.3% | 89.1% | 80.0% | 90.9% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 43,390 | 36,435 | 37,763 | 48,911 | 47,196 | 42,872 |
| 2017 | 51,988 | 43,560 | 47,939 | 62,672 | 54,376 | 38,268 |
| 2022 | 60,639 | 47,835 | 56,583 | 75,957 | 65,991 | 49,222 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 27.5% | 48.1% | 35.1% | 14.5% | 33.3% | - |
| 2017 | 21.8% | 40.3% | 25.6% | 10.7% | 24.1% | - |
| 2022 | 23.4% | 44.0% | 31.0% | 10.3% | - | - |
| Benefit intensity | | | | | | |
| 2014 | 7.8 | 7.9 | 7.7 | 6.6 | 8.1 | - |
| 2017 | 8.5 | 8.4 | 8.4 | 8.0 | 9.3 | - |
| 2022 | 9.6 | 9.6 | 9.5 | 8.1 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table B 11. Labour market outcomes for Manufacturing sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 36.7% | 63.3% | 28.0% | 72.0% |
| 2017 | 35.4% | 64.6% | 28.5% | 71.5% |
| 2022 | 33.7% | 66.3% | 27.7% | 72.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 75.4% | 85.6% | 82.4% | 84.0% |
| 2017 | 78.2% | 83.2% | 86.2% | 87.1% |
| 2022 | 71.6% | 80.1% | 80.0% | 82.4% |
| Employment intensity | | | | |
| 2014 | 9.5 | 10.2 | 10.4 | 10.4 |
| 2017 | 10.2 | 10.5 | 10.3 | 10.7 |
| 2022 | 10.3 | 10.5 | 10.6 | 10.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 35,352 | 42,170 | 46,992 | 45,332 |
| 2017 | 46,485 | 48,880 | 56,932 | 57,616 |
| 2022 | 55,112 | 55,160 | 78,577 | 66,791 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.5 | 1.6 | 1.6 |
| 2017 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 1.8% | 1.8% | - | - |
| 2017 | 3.3% | 3.2% | - | - |
| 2022 | 5.7% | 5.8% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 76.4% | 86.2% | 83.8% | 87.4% |
| 2017 | 79.8% | 84.4% | 87.7% | 90.8% |
| 2022 | 74.5% | 83.1% | 83.1% | 87.6% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 35,391 | 42,442 | 46,718 | 46,250 |
| 2017 | 46,881 | 49,484 | 57,113 | 59,464 |
| 2022 | 56,528 | 55,985 | 80,894 | 69,577 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 36.2% | 34.2% | 22.1% | 17.1% |
| 2017 | 25.8% | 28.4% | 12.3% | 12.9% |
| 2022 | 32.7% | 29.2% | 12.3% | 12.4% |
| Benefit intensity | | | | |
| 2014 | 7.9 | 7.8 | 6.9 | 6.6 |
| 2017 | 8.8 | 8.4 | 8.5 | 8.0 |
| 2022 | 9.9 | 9.4 | 8.1 | 8.7 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of HAR Manufacturing learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are delated to March 2022 dollars.

Appendix C

Table C 1. MT grouping and NZSCED concordance

| MT Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|---------------------|---------------------|---|
| Agriculture | | |
| | 050101 | Agricultural Science |
| | 050199 | Agriculture not elsewhere classified |
| | 059999 | Agriculture, Environmental and Related Studies not elsewhere classified |
| | 050105 | Animal Husbandry |
| | 050104 | Beekeeping |
| | 050106 | Crop Production |
| | 050108 | Equine Trades |
| | 080321 | Farm Management and Agribusiness |
| | 050112 | General Land Skills |
| | 050110 | Wool and Fibre Harvesting |
| | 050103 | Wool and Fibre Science |
| Horticulture | | |
| | 050301 | Horticulture |
| | 040105 | Landscape Architecture |
| | 050303 | Viticulture |
| Forestry | | |
| | 050501 | Forestry Studies |
| Seafood | | |
| | 030308 | Seafood Processing |
| | 050701 | Aquaculture |
| | 050702 | Seafood Harvesting (Fishing) |
| | 050799 | Fisheries Studies not elsewhere classified |
| Support | | |
| | 010711 | Hydrology |
| | 059901 | Pest and Weed Control |
| Veterinary | | |
| | 061101 | Veterinary Science |
| | 061103 | Veterinary Assisting |
| | 061199 | Veterinary Studies not elsewhere classified |

Source: Authors' compilation from WDCs data.

Appendix C – Agriculture

Table C 2. Labour market outcomes for Agriculture sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 71.8% | 28.2% | 63.6% | 36.4% |
| 2017 | 71.8% | 28.2% | 63.6% | 36.4% |
| 2022 | 71.7% | 28.3% | 65.0% | 35.0% |
| 4) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 86.2% | 82.5% | 89.3% | 88.4% |
| 2017 | 82.0% | 78.6% | 81.3% | 79.1% |
| 2022 | 74.4% | 74.2% | 71.2% | 74.4% |
| Employment intensity | | | | |
| 2014 | 10.5 | 9.7 | 10.7 | 9.7 |
| 2017 | 10.5 | 9.8 | 11.0 | 9.9 |
| 2022 | 10.6 | 9.8 | 10.7 | 10.3 |
| Mean annual earnings from W&S | | | | |
| 2014 | 50,449 | 34,383 | 54,892 | 38,687 |
| 2017 | 56,249 | 37,930 | 64,748 | 45,202 |
| 2022 | 63,662 | 43,762 | 72,883 | 55,363 |
| Mean number of employers per year | | | | |
| 2014 | 1.9 | 2.1 | 1.9 | 1.5 |
| 2017 | 1.7 | 1.9 | 1.8 | 1.5 |
| 2022 | 1.6 | 1.7 | 1.5 | 1.4 |
| 5) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 12.2% | 10.8% | 17.3% | 32.6% |
| 2017 | 16.4% | 14.6% | 28.0% | 32.6% |
| 2022 | 19.3% | 18.3% | 37.5% | 34.9% |
| Sum of employment and self-employment | | | | |
| 2014 | 92.0% | 87.3% | 98.7% | 100.0% |
| 2017 | 91.0% | 84.4% | 96.0% | 93.0% |
| 2022 | 86.4% | 83.3% | 93.8% | 93.0% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 53,501 | 37,333 | 60,127 | 52,853 |
| 2017 | 58,453 | 41,153 | 71,231 | 53,181 |
| 2022 | 69,420 | 49,709 | 80,171 | 61,529 |
| 6) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 16.8% | 24.1% | - | - |
| 2017 | 15.5% | 22.4% | - | - |
| 2022 | 16.7% | 23.0% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.0 | 8.4 | - | - |
| 2017 | 7.8 | 9.0 | - | - |
| 2022 | 9.2 | 9.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Agriculture learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table C 3. Labour market outcomes for Agriculture sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 69.8% | 27.9% | 2.2% | 87.8% | 12.2% | - |
| 2017 | 69.6% | 28.3% | 2.1% | 89.5% | 10.5% | - |
| 2022 | 70.2% | 27.7% | 2.1% | 89.9% | 10.1% | - |
| 4) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 86.2% | 82.0% | 84.6% | 89.1% | 85.7% | - |
| 2017 | 80.8% | 80.9% | 83.3% | 80.4% | 83.3% | - |
| 2022 | 73.8% | 74.6% | 75.0% | 72.0% | 75.0% | - |
| Employment intensity | | | | | | |
| 2014 | 10.6 | 9.4 | 8.8 | 10.2 | 10.6 | - |
| 2017 | 10.5 | 9.8 | 9.6 | 10.6 | 10.9 | - |
| 2022 | 10.6 | 9.8 | 9.9 | 10.5 | 10.4 | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 49,310 | 36,566 | 35,706 | 48,766 | 47,260 | - |
| 2017 | 54,740 | 41,809 | 43,552 | 58,371 | 57,809 | - |
| 2022 | 61,519 | 48,570 | 52,291 | 66,148 | 67,809 | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.8 | 2.3 | 1.7 | 1.8 | 1.6 | - |
| 2017 | 1.7 | 2.1 | 1.6 | 1.8 | 1.4 | - |
| 2022 | 1.5 | 1.8 | 1.6 | 1.5 | 1.3 | - |
| 5) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 15.0% | 4.7% | - | 22.8% | - | - |
| 2017 | 20.6% | 5.3% | - | 31.4% | - | - |
| 2022 | 24.1% | 7.5% | - | 39.3% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 93.4% | 83.4% | 84.6% | 98.0% | 100.0% | - |
| 2017 | 91.7% | 83.1% | 86.1% | 95.1% | 100.0% | - |
| 2022 | 88.3% | 78.2% | 75.0% | 93.5% | 91.7% | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 52,826 | 37,786 | 37,103 | 57,546 | 52,826 | - |
| 2017 | 57,479 | 43,015 | 43,212 | 65,833 | 51,724 | - |
| 2022 | 68,076 | 51,257 | 55,207 | 74,507 | 68,576 | - |
| 6) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 11.0% | 38.9% | 30.8% | - | - | - |
| 2017 | 10.8% | 34.0% | 30.6% | - | - | - |
| 2022 | 11.8% | 35.4% | 36.1% | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 7.2 | 7.8 | 8.2 | - | - | - |
| 2017 | 8.1 | 8.4 | 8.1 | - | - | - |
| 2022 | 8.8 | 9.7 | 9.5 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Agriculture learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table C 4. Labour market outcomes for Agriculture sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 7.2% | 92.8% | - | - |
| 2017 | 7.5% | 92.5% | - | - |
| 2022 | 7.6% | 92.4% | - | - |
| 4) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 80.0% | 85.6% | - | - |
| 2017 | 78.4% | 81.3% | - | - |
| 2022 | 68.9% | 74.8% | - | - |
| Employment intensity | | | | |
| 2014 | 9.5 | 10.3 | - | - |
| 2017 | 9.9 | 10.3 | - | - |
| 2022 | 10.1 | 10.4 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 40,063 | 46,496 | - | - |
| 2017 | 45,438 | 51,696 | - | - |
| 2022 | 54,229 | 58,324 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 2.0 | - | - |
| 2017 | 1.5 | 1.8 | - | - |
| 2022 | 1.5 | 1.6 | - | - |
| 5) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 5.4% | 12.3% | - | - |
| 2017 | 11.9% | 16.2% | - | - |
| 2022 | 11.9% | 19.6% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 83.8% | 91.2% | - | - |
| 2017 | 84.3% | 89.6% | - | - |
| 2022 | 77.0% | 86.2% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 40,519 | 49,729 | - | - |
| 2017 | 46,400 | 54,370 | - | - |
| 2022 | 57,122 | 64,484 | - | - |
| 6) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 29.2% | 18.0% | - | - |
| 2017 | 26.9% | 16.7% | - | - |
| 2022 | 33.3% | 17.3% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.3 | 7.6 | - | - |
| 2017 | 8.3 | 8.2 | - | - |
| 2022 | 9.3 | 9.3 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Agriculture learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix C – Horticulture

Table C 5. Labour market outcomes for Horticulture sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 56.0% | 44.0% | 63.3% | 36.7% |
| 2017 | 56.1% | 43.9% | 63.0% | 37.0% |
| 2022 | 56.1% | 43.9% | 65.5% | 34.5% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 76.8% | 68.9% | 84.2% | 81.8% |
| 2017 | 76.5% | 68.5% | - | - |
| 2022 | 69.7% | 67.9% | - | - |
| Employment intensity | | | | |
| 2014 | 9.8 | 9.9 | 10.9 | 9.9 |
| 2017 | 10.3 | 10.3 | - | - |
| 2022 | 10.6 | 10.3 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 41,845 | 32,861 | 53,408 | 31,555 |
| 2017 | 49,472 | 39,231 | - | - |
| 2022 | 59,129 | 45,166 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.5 | 1.6 | 1.8 |
| 2017 | 1.4 | 1.4 | - | - |
| 2022 | 1.4 | 1.5 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 9.5% | 14.3% | - | - |
| 2017 | 11.2% | 17.2% | - | - |
| 2022 | 12.4% | 16.6% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 81.8% | 77.1% | 89.5% | 90.9% |
| 2017 | 83.4% | 78.4% | 94.1% | 70.0% |
| 2022 | 77.8% | 78.2% | 84.2% | 80.0% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 44,681 | 34,679 | 52,266 | 32,872 |
| 2017 | 52,546 | 40,060 | 61,749 | 45,021 |
| 2022 | 60,127 | 47,921 | 79,149 | 47,305 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 29.1% | 30.4% | - | - |
| 2017 | 25.8% | 23.4% | - | - |
| 2022 | 25.9% | 24.0% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.5 | 8.9 | - | - |
| 2017 | 8.4 | 9.1 | - | - |
| 2022 | 9.8 | 9.8 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Horticulture learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table C 6. Labour market outcomes for Horticulture sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|-------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 64.9% | 31.7% | 3.4% | 100.0% | - | - |
| 2017 | 64.9% | 31.8% | 3.3% | 100.0% | - | - |
| 2022 | 65.2% | 31.7% | 3.1% | 100.0% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 76.9% | 66.7% | 70.0% | 86.4% | - | - |
| 2017 | 74.0% | 71.0% | 73.7% | 78.9% | - | - |
| 2022 | 70.9% | 65.4% | 66.7% | 81.0% | - | - |
| Employment intensity | | | | | | |
| 2014 | 10.4 | 8.4 | 10.0 | 10.8 | - | - |
| 2017 | 10.8 | 9.2 | 10.1 | 11.8 | - | - |
| 2022 | 10.8 | 9.6 | 10.1 | 10.6 | - | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 43,212 | 25,668 | 38,106 | 47,294 | - | - |
| 2017 | 50,751 | 32,855 | 42,886 | 62,934 | - | - |
| 2022 | 57,942 | 40,467 | 50,353 | 70,017 | - | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.6 | 1.5 | 1.6 | - | - |
| 2017 | 1.4 | 1.5 | 1.3 | 1.3 | - | - |
| 2022 | 1.4 | 1.6 | 1.2 | 1.2 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 15.5% | - | - | - | - | - |
| 2017 | 18.2% | - | - | - | - | - |
| 2022 | 19.3% | - | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 85.3% | 68.3% | 70.0% | 90.9% | - | - |
| 2017 | 85.0% | 72.7% | 78.9% | 94.7% | - | - |
| 2022 | 83.2% | 67.6% | 66.7% | 90.5% | - | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 45,433 | 26,674 | 38,952 | 48,944 | - | - |
| 2017 | 52,062 | 32,776 | 41,789 | 57,731 | - | - |
| 2022 | 59,455 | 42,394 | 48,734 | 67,890 | - | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 17.8% | 56.5% | - | - | - | - |
| 2017 | 13.9% | 50.3% | - | - | - | - |
| 2022 | 14.4% | 50.0% | - | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 8.3 | 8.1 | - | - | - | - |
| 2017 | 8.8 | 8.7 | - | - | - | - |
| 2022 | 9.3 | 10.0 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Horticulture learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table C 7. Labour market outcomes for Horticulture sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 22.9% | 77.1% | 41.4% | 58.6% |
| 2017 | 21.5% | 78.5% | 42.3% | 57.7% |
| 2022 | 20.4% | 79.6% | 37.0% | 63.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 70.5% | 74.1% | 66.7% | 100.0% |
| 2017 | 72.4% | 73.2% | 63.6% | 80.0% |
| 2022 | 65.1% | 69.8% | 70.0% | 82.4% |
| Employment intensity | | | | |
| 2014 | 10.3 | 9.7 | 10.6 | 10.5 |
| 2017 | 10.5 | 10.3 | 11.3 | 12.3 |
| 2022 | 10.6 | 10.4 | 11.6 | 10.7 |
| Mean annual earnings from W&S | | | | |
| 2014 | 46,277 | 35,828 | 39,776 | 48,254 |
| 2017 | 50,982 | 43,697 | 49,501 | 71,290 |
| 2022 | 59,428 | 51,589 | 68,125 | 72,470 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.5 | 1.6 | 1.7 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.4 |
| 2022 | 1.2 | 1.5 | 1.4 | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 11.6% | 11.6% | - | - |
| 2017 | 14.2% | 13.7% | - | - |
| 2022 | 15.9% | 13.8% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 77.4% | 80.0% | 83.3% | 94.1% |
| 2017 | 82.1% | 80.9% | 81.8% | 93.3% |
| 2022 | 75.4% | 78.5% | 90.0% | 94.1% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 45,847 | 39,075 | 37,305 | 52,762 |
| 2017 | 49,308 | 46,683 | 50,428 | 60,663 |
| 2022 | 61,357 | 53,139 | 55,141 | 71,785 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 24.0% | 31.6% | - | - |
| 2017 | 17.9% | 26.6% | - | - |
| 2022 | 23.8% | 25.2% | - | - |
| Benefit intensity | | | | |
| 2014 | 8.2 | 8.1 | - | - |
| 2017 | 9.6 | 8.6 | - | - |
| 2022 | 9.7 | 9.9 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Horticulture learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix C – Forestry

Table C 8. Labour market outcomes for Forestry sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 93.9% | 6.1% | - | - |
| 2017 | 94.1% | 5.9% | - | - |
| 2022 | 94.0% | 6.0% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 86.5% | 69.6% | - | - |
| 2017 | 86.4% | 77.3% | - | - |
| 2022 | 80.7% | 77.3% | - | - |
| Employment intensity | | | | |
| 2014 | 10.7 | 8.9 | - | - |
| 2017 | 10.6 | 9.3 | - | - |
| 2022 | 10.7 | 9.4 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 52,651 | 31,271 | - | - |
| 2017 | 60,620 | 36,013 | - | - |
| 2022 | 69,747 | 42,468 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.6 | - | - |
| 2017 | 1.5 | 1.3 | - | - |
| 2022 | 1.4 | 1.4 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 89.6% | 69.6% | - | - |
| 2017 | 90.4% | 77.3% | - | - |
| 2022 | 85.6% | 77.3% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 53,327 | 32,984 | - | - |
| 2017 | 61,932 | 37,580 | - | - |
| 2022 | 74,003 | 45,729 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 18.5% | 52.2% | - | - |
| 2017 | 15.6% | 40.9% | - | - |
| 2022 | 20.5% | 40.9% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.1 | 8.3 | - | - |
| 2017 | 7.3 | 10.2 | - | - |
| 2022 | 8.1 | 11.6 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Forestry learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table C 9. Labour market outcomes for Forestry sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|-------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 40.6% | 53.7% | 5.6% | - | - | - |
| 2017 | 41.4% | 53.2% | 5.4% | - | - | - |
| 2022 | 41.8% | 53.0% | 5.2% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 88.2% | 83.6% | 85.7% | - | - | - |
| 2017 | 87.6% | 83.8% | 90.0% | - | - | - |
| 2022 | 84.2% | 76.2% | 94.7% | - | - | - |
| Employment intensity | | | | | | |
| 2014 | 11.1 | 10.2 | 10.1 | - | - | - |
| 2017 | 11.2 | 10.1 | 10.5 | - | - | - |
| 2022 | 11.2 | 10.1 | 11.0 | - | - | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 59,920 | 46,246 | 39,751 | - | - | - |
| 2017 | 71,293 | 51,017 | 49,803 | - | - | - |
| 2022 | 81,279 | 58,067 | 58,571 | - | - | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.5 | 1.6 | 1.5 | - | - | - |
| 2017 | 1.4 | 1.5 | 1.4 | - | - | - |
| 2022 | 1.3 | 1.5 | 1.5 | - | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 11.2% | - | - | - | - | - |
| 2017 | 15.0% | 4.1% | - | - | - | - |
| 2022 | 15.8% | 5.7% | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 93.4% | 84.6% | 90.5% | - | - | - |
| 2017 | 94.8% | 85.3% | 90.0% | - | - | - |
| 2022 | 91.4% | 79.8% | 94.7% | - | - | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 60,987 | 46,556 | 40,606 | - | - | - |
| 2017 | 72,433 | 52,089 | 51,072 | - | - | - |
| 2022 | 87,462 | 60,390 | 57,848 | - | - | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 11.2% | 27.4% | - | - | - | - |
| 2017 | 7.2% | 25.9% | - | - | - | - |
| 2022 | 9.2% | 32.6% | - | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 6.2 | 7.8 | - | - | - | - |
| 2017 | 7.3 | 7.8 | - | - | - | - |
| 2022 | 8.3 | 8.5 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Forestry learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table C 10. Labour market outcomes for Forestry sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 8.9% | 91.1% | - | - |
| 2017 | 9.1% | 90.9% | - | - |
| 2022 | 8.4% | 91.6% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 76.5% | 86.4% | - | - |
| 2017 | 76.5% | 86.5% | - | - |
| 2022 | 64.5% | 81.4% | - | - |
| Employment intensity | | | | |
| 2014 | 9.0 | 10.7 | - | - |
| 2017 | 9.9 | 10.6 | - | - |
| 2022 | 10.7 | 10.6 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 39,077 | 52,511 | - | - |
| 2017 | 56,168 | 59,800 | - | - |
| 2022 | 73,762 | 68,028 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.6 | - | - |
| 2017 | 1.4 | 1.5 | - | - |
| 2022 | 1.4 | 1.4 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 79.4% | 89.3% | - | - |
| 2017 | 79.4% | 90.6% | - | - |
| 2022 | 71.0% | 86.1% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 40,218 | 53,247 | - | - |
| 2017 | 55,636 | 61,142 | - | - |
| 2022 | 69,631 | 72,686 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 35.3% | 18.8% | - | - |
| 2017 | 20.6% | 17.0% | - | - |
| 2022 | 32.3% | 20.9% | - | - |
| Benefit intensity | | | | |
| 2014 | 8.5 | 7.1 | - | - |
| 2017 | 8.9 | 7.5 | - | - |
| 2022 | 9.4 | 8.3 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Forestry learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix C – Seafood

Table C 11. Labour market outcomes for Seafood sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 58.9% | 41.1% | - | - |
| 2017 | 58.7% | 41.3% | - | - |
| 2022 | 58.8% | 41.2% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 79.3% | 74.4% | - | - |
| 2017 | 78.4% | 74.2% | - | - |
| 2022 | 73.6% | 73.0% | - | - |
| Employment intensity | | | | |
| 2014 | 8.9 | 9.7 | - | - |
| 2017 | 9.4 | 10.1 | - | - |
| 2022 | 10.0 | 10.1 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 37,723 | 35,952 | - | - |
| 2017 | 44,825 | 40,677 | - | - |
| 2022 | 54,803 | 45,905 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.5 | - | - |
| 2017 | 1.6 | 1.4 | - | - |
| 2022 | 1.5 | 1.5 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 79.3% | 75.2% | - | - |
| 2017 | 79.5% | 75.8% | - | - |
| 2022 | 74.7% | 77.0% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 38,258 | 36,322 | - | - |
| 2017 | 45,121 | 41,267 | - | - |
| 2022 | 55,078 | 45,652 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 41.9% | 44.0% | - | - |
| 2017 | 35.8% | 38.7% | - | - |
| 2022 | 39.1% | 40.2% | - | - |
| Benefit intensity | | | | |
| 2014 | 8.1 | 9.3 | - | - |
| 2017 | 7.7 | 9.9 | - | - |
| 2022 | 9.2 | 10.1 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Seafood learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table C 12. Labour market outcomes for Seafood sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|-------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 28.5% | 68.5% | 3.1% | - | - | - |
| 2017 | 28.1% | 68.8% | 3.1% | - | - | - |
| 2022 | 28.4% | 68.5% | 3.1% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 88.1% | 71.8% | 88.9% | - | - | - |
| 2017 | 85.4% | 71.1% | 88.9% | - | - | - |
| 2022 | 80.5% | 69.2% | 88.9% | - | - | - |
| Employment intensity | | | | | | |
| 2014 | 10.5 | 8.4 | 9.2 | - | - | - |
| 2017 | 10.7 | 9.1 | 10.6 | - | - | - |
| 2022 | 10.8 | 9.5 | 11.5 | - | - | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 48,523 | 30,089 | 37,544 | - | - | - |
| 2017 | 57,442 | 35,381 | 47,999 | - | - | - |
| 2022 | 63,145 | 43,360 | 65,564 | - | - | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.5 | 1.6 | 1.4 | - | - | - |
| 2017 | 1.4 | 1.6 | 1.7 | - | - | - |
| 2022 | 1.4 | 1.6 | 1.5 | - | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | - | - | - | - | - | - |
| 2017 | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 89.3% | 72.3% | 88.9% | - | - | - |
| 2017 | 86.6% | 72.1% | 88.9% | - | - | - |
| 2022 | 84.1% | 71.2% | 100.0% | - | - | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 48,906 | 30,355 | 37,544 | - | - | - |
| 2017 | 58,388 | 35,749 | 47,999 | - | - | - |
| 2022 | 62,290 | 43,527 | 58,279 | - | - | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 20.2% | 54.5% | - | - | - | - |
| 2017 | 15.9% | 47.8% | - | - | - | - |
| 2022 | 18.3% | 49.5% | - | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 7.9 | 8.6 | - | - | - | - |
| 2017 | 7.8 | 8.8 | - | - | - | - |
| 2022 | 8.6 | 9.8 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Seafood learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table C 13. Labour market outcomes for Seafood sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 5.3% | 94.7% | - | - |
| 2017 | 7.0% | 93.0% | - | - |
| 2022 | 6.8% | 93.2% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 81.3% | 77.1% | - | - |
| 2017 | 85.7% | 76.0% | - | - |
| 2022 | 75.0% | 73.6% | - | - |
| Employment intensity | | | | |
| 2014 | 9.5 | 9.2 | - | - |
| 2017 | 9.4 | 9.7 | - | - |
| 2022 | 10.2 | 10.0 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 42,571 | 36,697 | - | - |
| 2017 | 43,486 | 43,138 | - | - |
| 2022 | 55,901 | 50,550 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.6 | - | - |
| 2017 | 1.3 | 1.6 | - | - |
| 2022 | 1.5 | 1.5 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 87.5% | 77.8% | - | - |
| 2017 | 85.7% | 77.1% | - | - |
| 2022 | 75.0% | 75.7% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 39,528 | 37,024 | - | - |
| 2017 | 43,538 | 43,778 | - | - |
| 2022 | 55,912 | 50,779 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | - | - | - | - |
| 2017 | 33.3% | 37.3% | - | - |
| 2022 | 40.0% | 39.5% | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | - | - |
| 2017 | 9.1 | 8.7 | - | - |
| 2022 | 10.3 | 9.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Seafood learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix C – Veterinary

Table C 14. Labour market outcomes for Veterinary sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 6.1% | 93.9% | - | - |
| 2017 | 6.3% | 93.8% | - | - |
| 2022 | 6.3% | 93.7% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 80.0% | 84.4% | - | - |
| 2017 | 90.0% | 81.3% | - | - |
| 2022 | 90.0% | 77.7% | - | - |
| Employment intensity | | | | |
| 2014 | 9.9 | 9.9 | - | - |
| 2017 | 9.5 | 10.5 | - | - |
| 2022 | 11.0 | 10.6 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 33,909 | 25,180 | - | - |
| 2017 | 39,680 | 35,361 | - | - |
| 2022 | 51,523 | 44,564 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.8 | - | - |
| 2017 | 1.4 | 1.5 | - | - |
| 2022 | 1.3 | 1.4 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 70.0% | 85.7% | - | - |
| 2017 | 80.0% | 83.3% | - | - |
| 2022 | 100.0% | 83.1% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 40,209 | 25,785 | - | - |
| 2017 | 48,795 | 37,293 | - | - |
| 2022 | 48,166 | 45,282 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Veterinary learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table C 15. Labour market outcomes for Veterinary sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 14.6% | 85.4% | 16.7% | 83.3% |
| 2017 | 15.1% | 84.9% | 16.7% | 83.3% |
| 2022 | 10.7% | 89.3% | 12.8% | 87.2% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 75.0% | 85.0% | 95.0% | 93.0% |
| 2017 | 79.2% | 82.2% | 84.2% | 89.5% |
| 2022 | 76.5% | 78.2% | 86.7% | 83.3% |
| Employment intensity | | | | |
| 2014 | 10.7 | 9.8 | 10.7 | 10.4 |
| 2017 | 10.2 | 10.5 | 11.4 | 10.7 |
| 2022 | 11.6 | 10.5 | 11.2 | 10.3 |
| Mean annual earnings from W&S | | | | |
| 2014 | 30,443 | 25,182 | 31,354 | 29,103 |
| 2017 | 36,861 | 35,773 | 43,189 | 37,577 |
| 2022 | 48,702 | 44,643 | 58,055 | 41,333 |
| Mean number of employers per year | | | | |
| 2014 | 1.8 | 1.8 | 1.7 | 1.9 |
| 2017 | 1.4 | 1.5 | 1.6 | 1.5 |
| 2022 | 1.5 | 1.4 | 1.5 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 79.2% | 87.1% | 95.0% | 93.0% |
| 2017 | 79.2% | 84.4% | 89.5% | 88.4% |
| 2022 | 82.4% | 82.4% | 93.3% | 87.3% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 30,055 | 25,525 | 31,276 | 29,414 |
| 2017 | 40,359 | 37,590 | 41,041 | 38,794 |
| 2022 | 46,276 | 46,184 | 56,711 | 45,070 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 33.3% | 29.3% | - | - |
| 2017 | 29.2% | 20.0% | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | 8.8 | 7.7 | - | - |
| 2017 | 9.0 | 8.6 | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of MT Veterinary learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix D

Table D 1. RH grouping and NZSCED concordance

| RH Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|---|---------------------|---|
| Aviation & tourism | | |
| | 031501 | Aerospace Engineering |
| | 031599 | Aerospace Engineering and Technology not elsewhere classified |
| | 031507 | Air Traffic Control |
| | 031503 | Aircraft Maintenance Engineering |
| | 031505 | Aircraft Operation |
| | 080701 | Tourism Studies |
| Hospitality | | |
| | 110109 | Cookery |
| | 039909 | Cleaning |
| | 110103 | Food and Beverage Service |
| | 110101 | Hospitality |
| | 080319 | Hospitality Management |
| Real estate & rental | | |
| | 080503 | Real Estate |
| Business & industry support | | |
| | 080199 | Accountancy not elsewhere classified |
| | 080301 | Business Management |
| | 080901 | General Office Administration |
| | 080315 | Project Management |
| | 080317 | Quality Management |
| | 050901 | Land, Parks and Wildlife Management |
| | 080599 | Sales and Marketing not elsewhere classified |
| | 081101 | Banking and Finance |
| | 081199 | Banking, Finance and Related Fields not elsewhere classified |
| Retail & distribution | | |
| | 080501 | Sales |
| Government, defence & security | | |
| | 099905 | Security Services |
| | 080399 | Business and Management not elsewhere classified |
| | 080313 | Public and Health Care Administration |

Source: Authors' compilation from WDCs data.

Appendix D – Travel & Aviation

Table D 2. Labour market outcomes for Travel & Aviation sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 28.0% | 72.0% | 53.7% | 46.3% |
| 2017 | 28.0% | 72.0% | 52.3% | 47.7% |
| 2022 | 27.8% | 72.2% | 51.1% | 48.9% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 88.3% | 76.2% | 90.4% | 81.0% |
| 2017 | 89.6% | 78.4% | 97.1% | 87.1% |
| 2022 | 85.1% | 74.8% | 86.6% | 84.4% |
| Employment intensity | | | | |
| 2014 | 10.5 | 9.3 | 10.8 | 10.1 |
| 2017 | 11.0 | 9.8 | 11.1 | 10.3 |
| 2022 | 11.1 | 9.9 | 11.4 | 10.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 49,218 | 27,112 | 63,768 | 29,997 |
| 2017 | 61,183 | 35,110 | 78,726 | 40,736 |
| 2022 | 67,607 | 42,377 | 97,677 | 50,710 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.7 | 1.4 | 1.8 |
| 2017 | 1.4 | 1.5 | 1.3 | 1.6 |
| 2022 | 1.4 | 1.5 | 1.3 | 1.5 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 3.7% | 1.7% | - | - |
| 2017 | 4.5% | 2.4% | - | - |
| 2022 | 7.3% | 3.9% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 89.7% | 76.8% | 93.2% | 81.0% |
| 2017 | 91.0% | 79.5% | 98.5% | 88.7% |
| 2022 | 88.9% | 76.5% | 94.0% | 89.1% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 50,022 | 27,448 | 63,297 | 31,109 |
| 2017 | 61,603 | 35,512 | 80,521 | 40,673 |
| 2022 | 68,795 | 43,171 | 97,629 | 52,720 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 19.0% | 41.5% | - | - |
| 2017 | 13.8% | 34.8% | - | - |
| 2022 | 16.3% | 36.0% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.9 | 8.4 | - | - |
| 2017 | 7.3 | 8.9 | - | - |
| 2022 | 8.5 | 9.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Travel & Aviation learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table D 3. Labour market outcomes for Travel & Aviation sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 41.0% | 36.9% | 22.2% | 64.2% | 20.8% | 15.0% |
| 2017 | 40.5% | 37.5% | 22.0% | 67.2% | 19.8% | 12.9% |
| 2022 | 41.4% | 36.9% | 21.6% | 67.2% | 19.8% | 12.9% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 89.8% | 69.5% | 75.1% | 93.5% | 84.0% | 66.7% |
| 2017 | 87.2% | 73.7% | 82.1% | 92.3% | 87.0% | 93.3% |
| 2022 | 83.3% | 70.7% | 75.7% | 87.2% | 82.6% | 80.0% |
| Employment intensity | | | | | | |
| 2014 | 10.6 | 8.7 | 8.9 | 10.7 | 9.9 | 10.3 |
| 2017 | 10.9 | 9.4 | 9.6 | 11.2 | 9.8 | 9.3 |
| 2022 | 10.7 | 9.6 | 9.9 | 11.0 | 10.5 | 11.7 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 42,195 | 25,913 | 27,146 | 57,131 | 30,513 | 34,388 |
| 2017 | 52,208 | 34,354 | 36,525 | 73,704 | 42,298 | 35,780 |
| 2022 | 57,592 | 41,924 | 44,532 | 84,990 | 59,621 | 55,342 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 |
| 2017 | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 |
| 2022 | 1.4 | 1.5 | 1.6 | 1.4 | 1.3 | 1.6 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 3.2% | 2.2% | - | - | - | - |
| 2017 | 5.2% | 2.3% | - | 9.0% | - | - |
| 2022 | 8.1% | 3.1% | - | 15.4% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 91.0% | 70.6% | 75.1% | 96.1% | 84.0% | 66.7% |
| 2017 | 89.8% | 74.0% | 82.1% | 96.2% | 87.0% | 93.3% |
| 2022 | 87.3% | 72.4% | 76.7% | 93.6% | 87.0% | 86.7% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 42,926 | 26,372 | 27,336 | 57,480 | 30,651 | 34,301 |
| 2017 | 52,549 | 34,807 | 36,732 | 72,762 | 45,115 | 35,780 |
| 2022 | 59,100 | 42,544 | 44,343 | 87,799 | 60,172 | 51,855 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 18.5% | 52.9% | 41.9% | 9.1% | - | - |
| 2017 | 13.9% | 48.3% | 31.4% | - | - | - |
| 2022 | 15.2% | 48.9% | 35.9% | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 7.6 | 8.8 | 7.8 | 3.9 | - | - |
| 2017 | 8.1 | 9.2 | 8.1 | - | - | - |
| 2022 | 8.5 | 9.7 | 9.4 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Travel & Aviation learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table D 4. Labour market outcomes for Travel & Aviation sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 42.5% | 57.5% | 43.4% | 56.6% |
| 2017 | 42.3% | 57.7% | 41.7% | 58.3% |
| 2022 | 40.9% | 59.1% | 39.7% | 60.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 79.8% | 79.5% | 79.7% | 90.9% |
| 2017 | 83.7% | 80.0% | 94.5% | 88.3% |
| 2022 | 77.6% | 77.7% | 88.5% | 84.8% |
| Employment intensity | | | | |
| 2014 | 9.7 | 9.6 | 10.6 | 10.5 |
| 2017 | 10.2 | 10.1 | 10.5 | 10.9 |
| 2022 | 10.4 | 10.1 | 10.9 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 36,388 | 32,176 | 49,058 | 49,041 |
| 2017 | 46,107 | 40,864 | 59,436 | 63,309 |
| 2022 | 53,210 | 47,894 | 73,022 | 75,292 |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.6 | 1.5 | 1.6 |
| 2017 | 1.4 | 1.5 | 1.5 | 1.5 |
| 2022 | 1.5 | 1.5 | 1.4 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | 2.1% | 3.7% | - | - |
| 2022 | 3.8% | 5.5% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 80.3% | 80.8% | 81.4% | 93.5% |
| 2017 | 84.4% | 81.5% | 94.5% | 90.9% |
| 2022 | 79.5% | 80.5% | 92.3% | 89.9% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 36,613 | 32,851 | 48,924 | 49,200 |
| 2017 | 46,503 | 41,321 | 62,639 | 62,496 |
| 2022 | 53,671 | 49,230 | 74,633 | 78,497 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 33.3% | 36.9% | - | - |
| 2017 | 24.3% | 32.4% | - | - |
| 2022 | 29.4% | 31.3% | - | - |
| Benefit intensity | | | | |
| 2014 | 8.1 | 8.2 | - | - |
| 2017 | 8.4 | 8.8 | - | - |
| 2022 | 9.5 | 9.3 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Travel & Aviation learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix D – Business, Finance & Industry Support

Table D 5. Labour market outcomes for Business, Finance & Industry Support sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 34.5% | 65.5% | 35.1% | 64.9% |
| 2017 | 34.8% | 65.2% | 34.5% | 65.5% |
| 2022 | 34.6% | 65.4% | 34.0% | 66.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 84.3% | 71.2% | 80.1% | 82.7% |
| 2017 | 83.6% | 73.4% | 81.5% | 83.3% |
| 2022 | 81.8% | 72.9% | 78.6% | 82.9% |
| Employment intensity | | | | |
| 2014 | 10.9 | 9.7 | 10.5 | 10.5 |
| 2017 | 11.0 | 10.1 | 11.1 | 10.7 |
| 2022 | 11.1 | 10.3 | 11.2 | 10.9 |
| Mean annual earnings from W&S | | | | |
| 2014 | 66,085 | 35,943 | 63,136 | 46,204 |
| 2017 | 72,398 | 40,778 | 78,755 | 55,288 |
| 2022 | 80,483 | 49,081 | 95,077 | 65,417 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.4 | 1.5 | 1.5 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 7.4% | 6.9% | 13.8% | 11.0% |
| 2017 | 10.4% | 8.2% | 16.2% | 13.2% |
| 2022 | 11.0% | 9.9% | 17.9% | 15.1% |
| Sum of employment and self-employment | | | | |
| 2014 | 87.8% | 74.4% | 88.8% | 86.9% |
| 2017 | 88.7% | 77.4% | 91.1% | 88.8% |
| 2022 | 88.0% | 77.1% | 88.9% | 88.8% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 66,662 | 36,898 | 66,005 | 47,103 |
| 2017 | 73,721 | 41,842 | 83,835 | 56,534 |
| 2022 | 81,453 | 50,754 | 99,260 | 68,294 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 15.9% | 39.3% | 12.3% | 17.3% |
| 2017 | 12.1% | 31.7% | 7.7% | 11.6% |
| 2022 | 14.1% | 32.6% | 8.3% | 10.4% |
| Benefit intensity | | | | |
| 2014 | 7.4 | 9.1 | 5.8 | 7.9 |
| 2017 | 8.0 | 9.4 | 7.5 | 7.9 |
| 2022 | 9.2 | 10.1 | 9.3 | 8.9 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Business, Finance & Industry Support learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table D 6. Labour market outcomes for Business, Finance & Industry Support sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 49.4% | 34.2% | 16.3% | 70.6% | 21.3% | 8.1% |
| 2017 | 49.9% | 34.4% | 15.7% | 70.6% | 21.5% | 8.0% |
| 2022 | 50.4% | 34.3% | 15.3% | 71.0% | 21.8% | 7.3% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 84.1% | 65.7% | 71.9% | 85.1% | 79.9% | 69.1% |
| 2017 | 82.2% | 71.3% | 73.8% | 84.6% | 81.4% | 76.9% |
| 2022 | 80.2% | 70.3% | 74.3% | 81.7% | 80.1% | 83.0% |
| Employment intensity | | | | | | |
| 2014 | 10.6 | 9.5 | 9.4 | 10.7 | 9.8 | 9.9 |
| 2017 | 10.9 | 9.8 | 10.0 | 11.0 | 10.4 | 10.4 |
| 2022 | 11.0 | 10.0 | 10.2 | 11.0 | 10.9 | 11.0 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 55,140 | 38,964 | 36,729 | 56,717 | 43,150 | 38,987 |
| 2017 | 60,916 | 43,271 | 43,725 | 69,369 | 51,302 | 47,192 |
| 2022 | 68,525 | 51,745 | 51,269 | 81,003 | 64,805 | 59,937 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 | 1.4 |
| 2017 | 1.3 | 1.4 | 1.4 | 1.3 | 1.4 | 1.5 |
| 2022 | 1.3 | 1.4 | 1.5 | 1.3 | 1.5 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 10.8% | 2.5% | - | 14.9% | 6.9% | - |
| 2017 | 13.2% | 3.3% | - | 17.2% | 8.6% | - |
| 2022 | 15.3% | 4.7% | - | 19.3% | 7.8% | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 88.8% | 67.1% | 72.9% | 92.3% | 82.6% | 70.9% |
| 2017 | 88.6% | 72.6% | 75.2% | 93.0% | 85.7% | 78.8% |
| 2022 | 87.6% | 72.4% | 75.4% | 91.5% | 82.3% | 85.1% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 56,139 | 39,165 | 36,830 | 58,443 | 43,616 | 38,261 |
| 2017 | 62,173 | 44,277 | 44,018 | 72,059 | 52,746 | 46,823 |
| 2022 | 70,047 | 52,585 | 51,998 | 83,841 | 65,804 | 62,337 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 19.2% | 49.8% | 38.9% | 9.8% | 31.3% | 30.9% |
| 2017 | 13.4% | 43.1% | 31.8% | 5.9% | 24.3% | 21.2% |
| 2022 | 14.4% | 44.1% | 34.6% | 6.5% | 19.1% | 21.3% |
| Benefit intensity | | | | | | |
| 2014 | 8.7 | 9.3 | 8.2 | 7.0 | 8.1 | 7.1 |
| 2017 | 9.0 | 9.3 | 9.2 | 7.4 | 7.8 | 8.8 |
| 2022 | 9.5 | 10.2 | 9.8 | 9.0 | 10.0 | 7.8 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Business, Finance & Industry Support learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table D 7. Labour market outcomes for Business, Finance & Industry Support sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 43.1% | 56.9% | 27.8% | 72.2% |
| 2017 | 41.0% | 59.0% | 28.5% | 71.5% |
| 2022 | 38.6% | 61.4% | 27.2% | 72.8% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 72.1% | 78.5% | 76.1% | 84.1% |
| 2017 | 74.3% | 78.8% | 80.8% | 83.2% |
| 2022 | 71.6% | 78.9% | 81.2% | 81.1% |
| Employment intensity | | | | |
| 2014 | 10.0 | 10.3 | 10.6 | 10.5 |
| 2017 | 10.2 | 10.5 | 10.8 | 10.9 |
| 2022 | 10.5 | 10.6 | 11.2 | 10.9 |
| Mean annual earnings from W&S | | | | |
| 2014 | 47,960 | 47,241 | 56,423 | 50,493 |
| 2017 | 53,921 | 51,936 | 65,628 | 62,488 |
| 2022 | 63,291 | 59,284 | 82,886 | 72,417 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.4 | 1.4 | 1.5 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 4.6% | 9.0% | 10.6% | 12.7% |
| 2017 | 6.5% | 10.7% | 12.6% | 15.1% |
| 2022 | 7.4% | 12.2% | 13.4% | 17.0% |
| Sum of employment and self-employment | | | | |
| 2014 | 74.4% | 82.6% | 82.1% | 89.8% |
| 2017 | 77.8% | 84.0% | 86.4% | 90.7% |
| 2022 | 75.3% | 84.5% | 88.1% | 88.9% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 48,366 | 48,246 | 58,333 | 52,253 |
| 2017 | 54,557 | 53,472 | 71,032 | 64,373 |
| 2022 | 64,428 | 61,113 | 86,851 | 75,848 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 34.5% | 28.8% | 17.4% | 14.6% |
| 2017 | 27.9% | 22.8% | 10.7% | 10.1% |
| 2022 | 31.8% | 22.7% | 10.9% | 9.2% |
| Benefit intensity | | | | |
| 2014 | 8.8 | 8.7 | 7.3 | 7.4 |
| 2017 | 9.4 | 9.0 | 8.1 | 7.6 |
| 2022 | 10.1 | 9.7 | 8.8 | 9.1 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Business, Finance & Industry Support learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix D – Security & Government

Table D 8. Labour market outcomes for Security & Government sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 59.9% | 40.1% | 32.6% | 67.4% |
| 2017 | 59.5% | 40.5% | 31.9% | 68.1% |
| 2022 | 59.3% | 40.7% | 32.6% | 67.4% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 89.8% | 89.2% | 84.7% | 73.0% |
| 2017 | 88.1% | 86.4% | 88.1% | 75.0% |
| 2022 | 84.9% | 82.7% | 81.0% | 75.4% |
| Employment intensity | | | | |
| 2014 | 11.0 | 10.9 | 10.4 | 9.6 |
| 2017 | 11.1 | 10.8 | 11.1 | 10.0 |
| 2022 | 11.1 | 10.8 | 11.2 | 10.4 |
| Mean annual earnings from W&S | | | | |
| 2014 | 65,484 | 55,756 | 54,932 | 38,813 |
| 2017 | 72,475 | 58,233 | 70,883 | 47,735 |
| 2022 | 78,833 | 64,270 | 93,514 | 57,564 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.5 | 1.4 | 1.5 |
| 2017 | 1.4 | 1.3 | 1.4 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | 7.2% | 4.3% |
| 2017 | 8.8% | 6.5% | 9.9% | 3.7% |
| 2022 | 10.5% | 7.3% | 16.0% | 5.3% |
| Sum of employment and self-employment | | | | |
| 2014 | 91.5% | 89.9% | 86.5% | 74.3% |
| 2017 | 91.6% | 87.7% | 92.1% | 76.9% |
| 2022 | 90.4% | 85.3% | 87.0% | 77.3% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 66,197 | 56,446 | 58,261 | 39,727 |
| 2017 | 73,149 | 58,618 | 72,336 | 48,950 |
| 2022 | 78,792 | 64,318 | 95,235 | 58,410 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 12.7% | 19.6% | 20.7% | 38.3% |
| 2017 | 8.8% | 16.9% | 13.9% | 29.6% |
| 2022 | 11.9% | 17.3% | 16.0% | 31.9% |
| Benefit intensity | | | | |
| 2014 | 6.6 | 9.0 | 6.9 | 9.1 |
| 2017 | 8.1 | 9.4 | 8.1 | 9.9 |
| 2022 | 9.3 | 10.1 | 9.2 | 9.8 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Security & Government learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table D 9. Labour market outcomes for Security & Government sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 52.6% | 25.8% | 21.6% | 42.3% | 23.9% | 33.8% |
| 2017 | 52.7% | 26.8% | 20.5% | 42.5% | 24.1% | 33.5% |
| 2022 | 53.1% | 26.5% | 20.4% | 43.3% | 23.8% | 33.0% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 95.3% | 84.9% | 80.8% | 87.5% | 60.3% | 68.8% |
| 2017 | 93.4% | 79.6% | 81.7% | 89.4% | 60.9% | 71.9% |
| 2022 | 88.3% | 75.6% | 78.3% | 86.7% | 67.7% | 67.4% |
| Employment intensity | | | | | | |
| 2014 | 11.3 | 10.3 | 10.6 | 10.9 | 8.9 | 8.5 |
| 2017 | 11.2 | 10.7 | 10.4 | 11.2 | 9.7 | 9.5 |
| 2022 | 11.1 | 10.6 | 11.1 | 11.3 | 10.0 | 9.8 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 73,385 | 50,701 | 42,922 | 62,079 | 31,566 | 26,494 |
| 2017 | 78,386 | 54,736 | 49,909 | 74,386 | 41,476 | 34,777 |
| 2022 | 82,476 | 61,278 | 61,321 | 91,291 | 51,019 | 44,517 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.5 | 1.7 | 1.4 | 1.4 | 1.5 |
| 2017 | 1.3 | 1.4 | 1.5 | 1.2 | 1.4 | 1.6 |
| 2022 | 1.3 | 1.4 | 1.4 | 1.3 | 1.5 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 6.8% | - | - | 10.0% | - | - |
| 2017 | 9.3% | - | - | 10.6% | - | - |
| 2022 | 9.4% | - | - | 15.9% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 96.3% | 86.0% | 83.3% | 90.8% | 61.8% | 68.8% |
| 2017 | 96.2% | 82.8% | 84.5% | 92.9% | 64.1% | 73.0% |
| 2022 | 92.8% | 81.1% | 82.6% | 92.9% | 69.4% | 67.4% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 74,238 | 51,915 | 43,329 | 63,654 | 32,509 | 26,767 |
| 2017 | 78,796 | 54,645 | 51,608 | 77,791 | 40,041 | 34,337 |
| 2022 | 81,835 | 62,220 | 60,842 | 91,491 | 50,652 | 45,561 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 8.4% | 30.1% | 17.9% | 10.0% | 58.8% | 53.1% |
| 2017 | 6.0% | 24.7% | 14.1% | 6.2% | 53.1% | 37.1% |
| 2022 | 6.7% | 28.9% | 18.8% | 8.0% | 46.8% | 47.7% |
| Benefit intensity | | | | | | |
| 2014 | 7.8 | 8.6 | 7.3 | 8.1 | 9.3 | 8.8 |
| 2017 | 8.2 | 9.6 | 7.9 | 7.4 | 10.5 | 9.5 |
| 2022 | 9.2 | 9.6 | 9.5 | 8.6 | 10.1 | 9.8 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Security & Government learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table D 10. Labour market outcomes for Security & Government sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 44.4% | 55.6% | 62.3% | 37.7% |
| 2017 | 42.6% | 57.4% | 61.0% | 39.0% |
| 2022 | 39.5% | 60.5% | 58.6% | 41.4% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 85.1% | 93.2% | 72.3% | 83.7% |
| 2017 | 85.2% | 89.4% | 73.7% | 87.1% |
| 2022 | 79.5% | 86.2% | 71.1% | 85.8% |
| Employment intensity | | | | |
| 2014 | 10.7 | 11.2 | 9.3 | 10.6 |
| 2017 | 10.6 | 11.2 | 10.0 | 10.9 |
| 2022 | 11.0 | 11.1 | 10.4 | 11.0 |
| Mean annual earnings from W&S | | | | |
| 2014 | 50,273 | 69,869 | 34,842 | 58,505 |
| 2017 | 58,117 | 72,550 | 47,415 | 67,235 |
| 2022 | 65,594 | 77,842 | 63,919 | 76,816 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.5 | 1.4 | 1.5 |
| 2017 | 1.4 | 1.4 | 1.4 | 1.3 |
| 2022 | 1.3 | 1.3 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 5.1% | 5.9% | - | - |
| 2017 | 8.0% | 8.3% | 3.6% | 8.9% |
| 2022 | 9.6% | 8.9% | 5.0% | 14.2% |
| Sum of employment and self-employment | | | | |
| 2014 | 86.9% | 93.6% | 73.2% | 86.0% |
| 2017 | 87.0% | 92.2% | 75.3% | 90.3% |
| 2022 | 84.2% | 90.6% | 72.8% | 91.3% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 51,014 | 71,023 | 35,538 | 61,643 |
| 2017 | 59,685 | 72,834 | 48,064 | 69,961 |
| 2022 | 65,577 | 77,673 | 65,064 | 78,515 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 18.3% | 13.2% | 42.3% | 16.3% |
| 2017 | 16.0% | 9.6% | 32.0% | 12.9% |
| 2022 | 17.8% | 11.2% | 36.1% | 12.6% |
| Benefit intensity | | | | |
| 2014 | 7.4 | 8.3 | 8.9 | 7.9 |
| 2017 | 8.3 | 9.1 | 9.8 | 9.0 |
| 2022 | 9.9 | 9.9 | 10.0 | 8.9 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Security & Government learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix D – Hospitality & Cleaning

Table D 11. Labour market outcomes for Hospitality & Cleaning sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 39.0% | 61.0% | 40.6% | 59.4% |
| 2017 | 38.4% | 61.6% | 40.2% | 59.8% |
| 2022 | 38.1% | 61.9% | 40.1% | 59.9% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 86.6% | 78.1% | 90.5% | 84.6% |
| 2017 | 84.9% | 75.2% | 88.2% | 81.4% |
| 2022 | 82.8% | 73.6% | 87.0% | 79.1% |
| Employment intensity | | | | |
| 2014 | 9.9 | 9.3 | 9.6 | 9.8 |
| 2017 | 10.3 | 9.6 | 10.8 | 10.3 |
| 2022 | 10.5 | 9.9 | 10.7 | 10.4 |
| Mean annual earnings from W&S | | | | |
| 2014 | 29,495 | 23,666 | 31,113 | 28,697 |
| 2017 | 40,955 | 31,355 | 43,867 | 36,962 |
| 2022 | 53,820 | 40,936 | 56,759 | 47,722 |
| Mean number of employers per year | | | | |
| 2014 | 1.8 | 1.7 | 1.8 | 1.8 |
| 2017 | 1.6 | 1.6 | 1.6 | 1.6 |
| 2022 | 1.5 | 1.5 | 1.5 | 1.5 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 3.3% | 2.7% | - | - |
| 2017 | 4.3% | 3.3% | - | - |
| 2022 | 7.7% | 5.8% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 88.2% | 79.5% | 89.3% | 85.4% |
| 2017 | 87.3% | 76.7% | 92.1% | 83.2% |
| 2022 | 86.6% | 76.7% | 88.3% | 81.7% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 29,956 | 23,799 | 31,685 | 28,936 |
| 2017 | 41,492 | 31,959 | 43,089 | 37,484 |
| 2022 | 56,784 | 41,819 | 58,264 | 47,907 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 26.8% | 43.8% | 17.9% | 33.3% |
| 2017 | 23.1% | 37.4% | 15.8% | 25.7% |
| 2022 | 25.5% | 38.6% | 15.6% | 27.0% |
| Benefit intensity | | | | |
| 2014 | 6.7 | 8.1 | 6.7 | 8.3 |
| 2017 | 7.6 | 9.3 | 6.4 | 9.3 |
| 2022 | 8.4 | 9.8 | 8.6 | 9.6 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Hospitality & Cleaning learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table D 12. Labour market outcomes for Hospitality Cleaning sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 53.8% | 34.3% | 12.0% | 55.6% | 31.8% | 12.6% |
| 2017 | 53.7% | 34.5% | 11.8% | 54.3% | 32.1% | 13.6% |
| 2022 | 54.1% | 34.5% | 11.4% | 55.2% | 32.4% | 12.4% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 88.7% | 73.8% | 75.2% | 92.9% | 77.1% | 73.7% |
| 2017 | 83.1% | 73.3% | 77.9% | 89.5% | 80.0% | 68.4% |
| 2022 | 80.8% | 72.6% | 75.7% | 86.3% | 72.3% | 66.7% |
| Employment intensity | | | | | | |
| 2014 | 10.1 | 8.7 | 8.9 | 10.3 | 8.8 | 9.6 |
| 2017 | 10.5 | 8.9 | 9.4 | 10.6 | 10.0 | 10.5 |
| 2022 | 10.6 | 9.4 | 10.1 | 10.8 | 10.0 | 11.1 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 28,724 | 21,749 | 21,323 | 34,007 | 25,588 | 24,830 |
| 2017 | 39,338 | 28,268 | 31,812 | 42,480 | 35,590 | 41,250 |
| 2022 | 50,558 | 37,203 | 44,769 | 55,266 | 48,376 | 51,326 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.8 | 1.7 | 1.6 | 1.9 | 1.7 | 1.8 |
| 2017 | 1.6 | 1.6 | 1.5 | 1.6 | 1.6 | 1.3 |
| 2022 | 1.5 | 1.6 | 1.6 | 1.5 | 1.5 | 1.6 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 3.3% | - | - | - | - | - |
| 2017 | 3.9% | - | - | - | - | - |
| 2022 | 8.0% | - | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 90.3% | 74.0% | 75.2% | 92.9% | 77.1% | 78.9% |
| 2017 | 84.8% | 73.8% | 77.9% | 90.8% | 80.0% | 68.4% |
| 2022 | 85.0% | 73.5% | 77.2% | 88.7% | 74.5% | 72.2% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 28898 | 21809 | 21587 | 34394 | 25561 | 23175 |
| 2017 | 39712 | 28764 | 32099 | 43416 | 36428 | 41250 |
| 2022 | 52974 | 37540 | 44623 | 57209 | 47154 | 48157 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 26.6% | 57.6% | 45.0% | 17.9% | 56.3% | 47.4% |
| 2017 | 21.5% | 52.1% | 40.0% | 15.8% | 42.2% | 36.8% |
| 2022 | 23.2% | 54.1% | 39.0% | 17.5% | 40.4% | - |
| Benefit intensity | | | | | | |
| 2014 | 7.4 | 8.1 | 7.8 | 7.2 | 8.5 | 8.5 |
| 2017 | 8.5 | 9.0 | 8.8 | 7.7 | 8.8 | 9.7 |
| 2022 | 8.9 | 9.9 | 9.4 | 7.4 | 10.4 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Hospitality & Cleaning learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table D 13. Labour market outcomes for Hospitality & Cleaning sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 31.5% | 68.5% | 45.9% | 54.1% |
| 2017 | 31.2% | 68.8% | 47.4% | 52.6% |
| 2022 | 29.8% | 70.2% | 44.0% | 56.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 75.9% | 84.0% | 86.3% | 88.4% |
| 2017 | 77.8% | 79.6% | 83.3% | 84.0% |
| 2022 | 72.5% | 78.9% | 80.0% | 81.5% |
| Employment intensity | | | | |
| 2014 | 9.1 | 9.8 | 9.5 | 9.8 |
| 2017 | 9.6 | 10.0 | 10.3 | 10.7 |
| 2022 | 10.3 | 10.2 | 10.7 | 10.6 |
| Mean annual earnings from W&S | | | | |
| 2014 | 23586 | 27156 | 27949 | 30881 |
| 2017 | 35091 | 35375 | 38745 | 40877 |
| 2022 | 48549 | 45347 | 53539 | 51192 |
| Mean number of employers per year | | | | |
| 2014 | 1.7 | 1.8 | 1.7 | 1.9 |
| 2017 | 1.6 | 1.6 | 1.6 | 1.6 |
| 2022 | 1.5 | 1.5 | 1.5 | 1.6 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 3.9% | 2.6% | - | - |
| 2017 | 4.6% | 3.3% | - | - |
| 2022 | 7.6% | 6.1% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 77.9% | 85.3% | 85.3% | 88.4% |
| 2017 | 80.2% | 81.1% | 85.6% | 86.0% |
| 2022 | 76.8% | 81.9% | 83.5% | 84.3% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 24017 | 27338 | 28820 | 31113 |
| 2017 | 36020 | 35869 | 39392 | 40773 |
| 2022 | 51293 | 46616 | 52568 | 52010 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 40.1% | 35.8% | 24.2% | 30.4% |
| 2017 | 30.7% | 32.5% | 18.9% | 25.0% |
| 2022 | 34.3% | 33.3% | 18.8% | 25.9% |
| Benefit intensity | | | | |
| 2014 | 7.6 | 7.8 | 6.5 | 8.5 |
| 2017 | 8.7 | 8.8 | 8.8 | 7.8 |
| 2022 | 9.6 | 9.3 | 9.3 | 9.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Hospitality & Cleaning learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix D – Real Estate & Rental

Table D 14. Labour market outcomes for Real Estate & Rental sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 47.3% | 52.7% | - | - |
| 2017 | 46.9% | 53.1% | - | - |
| 2022 | 47.1% | 52.9% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 35.7% | 47.3% | - | - |
| 2017 | 39.1% | 48.7% | - | - |
| 2022 | 43.9% | 52.1% | - | - |
| Employment intensity | | | | |
| 2014 | 8.5 | 8.2 | - | - |
| 2017 | 9.8 | 9.8 | - | - |
| 2022 | 10.1 | 9.6 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 45,883 | 35,362 | - | - |
| 2017 | 70,137 | 51,492 | - | - |
| 2022 | 85,957 | 55,529 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | - | - |
| 2017 | 1.4 | 1.4 | - | - |
| 2022 | 1.2 | 1.3 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 28.0% | 22.2% | - | - |
| 2017 | 27.0% | 24.9% | - | - |
| 2022 | 26.3% | 21.4% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 56.0% | 63.1% | - | - |
| 2017 | 59.2% | 66.0% | - | - |
| 2022 | 62.0% | 65.6% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 33,524 | 29,502 | - | - |
| 2017 | 64,916 | 50,815 | - | - |
| 2022 | 86,167 | 60,544 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 6.6% | 11.8% | - | - |
| 2017 | - | - | - | - |
| 2022 | 5.8% | 9.4% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.5 | 7.1 | - | - |
| 2017 | - | - | - | - |
| 2022 | 8.4 | 9.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Real Estate and Rental learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table D 15. Labour market outcomes for Real Estate & Rental sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 50.4% | 49.6% | - | - |
| 2017 | 49.3% | 50.7% | - | - |
| 2022 | 45.6% | 54.4% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 41.2% | 42.9% | - | - |
| 2017 | 41.0% | 47.3% | - | - |
| 2022 | 44.6% | 51.5% | - | - |
| Employment intensity | | | | |
| 2014 | 8.1 | 8.5 | - | - |
| 2017 | 9.8 | 9.9 | - | - |
| 2022 | 9.7 | 9.9 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 41,313 | 37,464 | - | - |
| 2017 | 66,683 | 52,936 | - | - |
| 2022 | 75,330 | 62,993 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.3 | - | - |
| 2017 | 1.4 | 1.4 | - | - |
| 2022 | 1.3 | 1.3 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 24.2% | 25.7% | - | - |
| 2017 | 23.0% | 28.7% | - | - |
| 2022 | 21.7% | 25.8% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 58.8% | 60.7% | - | - |
| 2017 | 58.5% | 67.0% | - | - |
| 2022 | 59.6% | 67.7% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 30,670 | 31,890 | - | - |
| 2017 | 63,743 | 51,363 | - | - |
| 2022 | 74,999 | 69,682 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 10.8% | 8.4% | - | - |
| 2017 | 4.4% | 4.8% | - | - |
| 2022 | 9.0% | 7.1% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.5 | 6.9 | - | - |
| 2017 | 7.3 | 9.6 | - | - |
| 2022 | 9.2 | 8.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Real Estate and Rental learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix D – Retail & Distribution

Table D 16. Labour market outcomes for Retail & Distribution sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 35.4% | 64.6% | - | - |
| 2017 | 35.2% | 64.8% | - | - |
| 2022 | 34.4% | 65.6% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 86.3% | 83.1% | - | - |
| 2017 | 85.0% | 80.2% | - | - |
| 2022 | 82.1% | 80.1% | - | - |
| Employment intensity | | | | |
| 2014 | 10.9 | 10.7 | - | - |
| 2017 | 11.0 | 10.6 | - | - |
| 2022 | 10.8 | 10.4 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 47,677 | 41,259 | - | - |
| 2017 | 55,694 | 47,020 | - | - |
| 2022 | 60,961 | 47,645 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.3 | - | - |
| 2017 | 1.4 | 1.4 | - | - |
| 2022 | 1.4 | 1.5 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 3.3% | 5.9% | - | - |
| 2017 | 5.6% | 8.4% | - | - |
| 2022 | 8.0% | 10.1% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 87.5% | 86.3% | - | - |
| 2017 | 88.0% | 84.9% | - | - |
| 2022 | 84.8% | 83.6% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 48,285 | 42,385 | - | - |
| 2017 | 57,376 | 48,768 | - | - |
| 2022 | 62,959 | 49,374 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 17.9% | 23.7% | - | - |
| 2017 | 13.2% | 20.2% | - | - |
| 2022 | 20.1% | 21.1% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.5 | 8.9 | - | - |
| 2017 | 8.2 | 9.2 | - | - |
| 2022 | 9.1 | 9.9 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Retail & Distribution learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table D 17. Labour market outcomes for Retail & Distribution sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|-------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 60.5% | 21.6% | 17.9% | - | - | - |
| 2017 | 61.6% | 21.0% | 17.4% | - | - | - |
| 2022 | 61.9% | 21.5% | 16.6% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 90.8% | 72.0% | 74.3% | - | - | - |
| 2017 | 86.1% | 73.6% | 76.0% | - | - | - |
| 2022 | 85.4% | 71.4% | 74.2% | - | - | - |
| Employment intensity | | | | | | |
| 2014 | 11.2 | 9.6 | 9.6 | - | - | - |
| 2017 | 11.1 | 10.0 | 9.9 | - | - | - |
| 2022 | 10.7 | 9.7 | 10.5 | - | - | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 48,744 | 33,502 | 31,985 | - | - | - |
| 2017 | 55,184 | 40,260 | 39,562 | - | - | - |
| 2022 | 54,655 | 45,638 | 48,963 | - | - | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.3 | 1.4 | 1.5 | - | - | - |
| 2017 | 1.3 | 1.4 | 1.6 | - | - | - |
| 2022 | 1.4 | 1.6 | 1.5 | - | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 7.9% | - | - | - | - | - |
| 2017 | 10.9% | - | - | - | - | - |
| 2022 | 12.7% | - | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 94.6% | 72.7% | 74.3% | - | - | - |
| 2017 | 92.4% | 73.6% | 76.0% | - | - | - |
| 2022 | 89.8% | 72.2% | 75.3% | - | - | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 50,083 | 33,869 | 31,985 | - | - | - |
| 2017 | 57,185 | 41,115 | 40,470 | - | - | - |
| 2022 | 56,670 | 46,882 | 50,362 | - | - | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 9.8% | 45.5% | 39.4% | - | - | - |
| 2017 | 9.0% | 40.0% | 27.9% | - | - | - |
| 2022 | 11.0% | 47.6% | 33.0% | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 7.9 | 9.2 | 8.1 | - | - | - |
| 2017 | 8.4 | 9.3 | 9.5 | - | - | - |
| 2022 | 8.6 | 9.9 | 10.3 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Retail & Distribution learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table D 18. Labour market outcomes for Retail & Distribution sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 42.8% | 57.2% | - | - |
| 2017 | 41.6% | 58.4% | - | - |
| 2022 | 39.9% | 60.1% | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 75.9% | 90.5% | - | - |
| 2017 | 77.2% | 85.3% | - | - |
| 2022 | 74.6% | 84.9% | - | - |
| Employment intensity | | | | |
| 2014 | 10.3 | 11.1 | - | - |
| 2017 | 10.4 | 10.9 | - | - |
| 2022 | 10.2 | 10.7 | - | - |
| Mean annual earnings from W&S | | | | |
| 2014 | 41,657 | 44,795 | - | - |
| 2017 | 49,365 | 50,726 | - | - |
| 2022 | 53,087 | 51,844 | - | - |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | - | - |
| 2017 | 1.4 | 1.3 | - | - |
| 2022 | 1.5 | 1.5 | - | - |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 3.8% | 6.2% | - | - |
| 2017 | 6.2% | 8.5% | - | - |
| 2022 | 7.3% | 10.7% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 77.9% | 93.0% | - | - |
| 2017 | 80.8% | 89.4% | - | - |
| 2022 | 76.9% | 88.7% | - | - |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 42,458 | 45,889 | - | - |
| 2017 | 50,943 | 52,621 | - | - |
| 2022 | 54,370 | 53,933 | - | - |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 31.7% | 14.4% | - | - |
| 2017 | 22.5% | 13.9% | - | - |
| 2022 | 30.0% | 15.1% | - | - |
| Benefit intensity | | | | |
| 2014 | 8.8 | 7.9 | - | - |
| 2017 | 9.7 | 8.5 | - | - |
| 2022 | 10.3 | 8.6 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of RH Retail & Distribution learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix E

Table E 1. TM grouping and NZSCED concordance

| TM Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|-------------------|---------------------|---|
| Toi Ora | | |
| | 040399 | Building not elsewhere classified |
| | 039999 | Engineering and Related Technologies not elsewhere classified |
| | 069903 | Human Movement and Sports Science |
| | 091301 | Librarianship and Information Management |
| | 092101 | Sport and Recreation Activities |
| | 092103 | Sports Coaching, Playing, Officiating and Instructing |
| Toi Pāho | | |
| | 100701 | Audio Visual Studies |
| | 100799 | Communication and Media Studies not elsewhere classified |
| | 031399 | Electrical and Electronic Engineering and Technology not elsewhere classified |
| | 100703 | Journalism, Communication and Media Studies |
| Toi Puaki | | |
| | 100105 | Dance |
| | 100103 | Drama and Theatre Studies |
| | 031399 | Electrical and Electronic Engineering and Technology not elsewhere classified |
| | 100101 | Music |
| | 100199 | Performing Arts not elsewhere classified |
| Toi Whānui | | |
| | 020103 | Computer Applications and Programming |
| | 020399 | Information Systems not elsewhere classified |
| | 029999 | Information Technology not elsewhere classified |
| | 020115 | Multimedia Computing Science |
| | 020113 | Networks and Communications |
| | 020117 | Operating Systems |
| | 029901 | Security Science |
| | 020305 | Systems Analysis and Design |
| | 080904 | Text and Information Processing |

| TM Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|--------------|---------------------|---|
| Toi-A-Ringa | 110301 | Beauty Therapy |
| | 109999 | Creative Arts not elsewhere classified |
| | 100505 | Fashion Design |
| | 100301 | Fine Arts |
| | 100309 | Floristry |
| | 100599 | Graphic and Design Studies not elsewhere classified |
| | 100501 | Graphic Arts and Design Studies |
| | 110303 | Hairdressing |
| | 100307 | Jewellery Making |
| | 110399 | Personal Services not elsewhere classified |
| | 100303 | Photography |
| | 100399 | Visual Arts and Crafts not elsewhere classified |

Source: Authors' compilation from WDCs data.

Appendix E – Toi Ora

Table E 2. Labour market outcomes for Toi Ora sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 61.8% | 38.2% | 62.9% | 37.1% |
| 2017 | 61.5% | 38.5% | 62.0% | 38.0% |
| 2022 | 61.0% | 39.0% | 61.7% | 38.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 80.5% | 82.3% | 84.8% | 89.1% |
| 2017 | 79.8% | 80.8% | 85.1% | 87.5% |
| 2022 | 76.4% | 78.8% | 82.7% | 86.7% |
| Employment intensity | | | | |
| 2014 | 9.3 | 10.0 | 9.5 | 10.2 |
| 2017 | 10.2 | 10.2 | 10.4 | 10.6 |
| 2022 | 10.4 | 10.5 | 10.9 | 10.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 42,946 | 34,671 | 30,581 | 28,689 |
| 2017 | 55,723 | 42,485 | 47,416 | 41,541 |
| 2022 | 65,971 | 52,408 | 65,724 | 50,499 |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.7 | 1.8 | 1.9 |
| 2017 | 1.5 | 1.5 | 1.6 | 1.6 |
| 2022 | 1.4 | 1.4 | 1.4 | 1.5 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 7.6% | 16.0% | 8.0% | 8.3% |
| 2017 | 9.8% | 18.6% | 12.5% | 11.2% |
| 2022 | 11.7% | 19.6% | 14.6% | 12.7% |
| Sum of employment and self-employment | | | | |
| 2014 | 83.1% | 87.3% | 88.6% | 91.0% |
| 2017 | 85.0% | 88.0% | 91.9% | 91.4% |
| 2022 | 82.8% | 86.8% | 89.4% | 91.8% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 44,655 | 37,273 | 32,447 | 30,366 |
| 2017 | 57,164 | 45,734 | 49,837 | 44,062 |
| 2022 | 68,621 | 55,774 | 69,694 | 52,149 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 28.8% | 22.3% | 19.7% | 18.6% |
| 2017 | 21.4% | 17.4% | 11.3% | 10.5% |
| 2022 | 23.9% | 17.6% | 9.8% | 10.1% |
| Benefit intensity | | | | |
| 2014 | 6.7 | 7.7 | 5.2 | 7.0 |
| 2017 | 7.7 | 8.5 | 6.9 | 7.9 |
| 2022 | 9.1 | 9.5 | 8.2 | 9.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Ora learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table E 3. Labour market outcomes for Toi Ora sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 54.7% | 35.1% | 10.2% | 62.8% | 26.0% | 11.2% |
| 2017 | 54.8% | 35.7% | 9.5% | 63.3% | 26.0% | 10.7% |
| 2022 | 55.1% | 35.5% | 9.3% | 64.7% | 25.8% | 9.5% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 88.3% | 71.1% | 76.1% | 88.4% | 83.0% | 86.0% |
| 2017 | 83.8% | 74.6% | 81.0% | 89.2% | 80.0% | 89.7% |
| 2022 | 80.3% | 71.7% | 77.7% | 85.0% | 83.7% | 86.1% |
| Employment intensity | | | | | | |
| 2014 | 10.5 | 8.1 | 8.4 | 10.1 | 9.0 | 9.6 |
| 2017 | 10.8 | 9.2 | 9.9 | 10.5 | 10.5 | 10.6 |
| 2022 | 11.0 | 9.5 | 10.2 | 10.9 | 10.5 | 10.7 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 48,363 | 27,217 | 26,036 | 32,253 | 25,196 | 24,502 |
| 2017 | 59,829 | 36,879 | 40,244 | 46,829 | 43,261 | 39,358 |
| 2022 | 68,717 | 47,226 | 53,522 | 62,445 | 54,819 | 55,603 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.6 | 1.7 | 1.6 | 1.9 | 1.8 | 1.7 |
| 2017 | 1.4 | 1.6 | 1.6 | 1.6 | 1.6 | 1.8 |
| 2022 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 16.0% | 4.2% | - | 10.8% | - | - |
| 2017 | 19.4% | 5.3% | - | 16.0% | - | - |
| 2022 | 20.7% | 7.9% | - | 17.1% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 93.8% | 72.4% | 77.8% | 92.5% | 84.0% | 86.0% |
| 2017 | 92.4% | 77.1% | 83.8% | 95.7% | 83.2% | 94.9% |
| 2022 | 90.1% | 75.5% | 80.6% | 91.9% | 88.8% | 88.9% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 50,369 | 28,244 | 27,924 | 34,767 | 26,324 | 24,845 |
| 2017 | 61,673 | 37,941 | 41,287 | 50,738 | 42,887 | 40,678 |
| 2022 | 71,597 | 49,538 | 55,288 | 66,311 | 55,701 | 60,204 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 11.2% | 50.2% | 30.8% | 14.1% | 32.0% | 20.9% |
| 2017 | 7.5% | 38.7% | 22.9% | 6.1% | 21.1% | - |
| 2022 | 8.6% | 42.3% | 26.2% | 6.1% | 19.4% | - |
| Benefit intensity | | | | | | |
| 2014 | 6.7 | 7.3 | 6.3 | 5.5 | 6.2 | 6.4 |
| 2017 | 7.5 | 8.4 | 7.1 | 6.7 | 7.4 | - |
| 2022 | 8.4 | 9.5 | 9.1 | 6.7 | 9.3 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Ora learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table E 4. Labour market outcomes for Toi Ora sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 33.8% | 66.2% | 27.3% | 72.7% |
| 2017 | 32.9% | 67.1% | 28.2% | 71.7% |
| 2022 | 30.4% | 69.6% | 24.5% | 75.5% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 78.3% | 82.6% | 86.1% | 86.3% |
| 2017 | 78.6% | 80.7% | 81.4% | 87.8% |
| 2022 | 74.6% | 78.5% | 79.2% | 85.6% |
| Employment intensity | | | | |
| 2014 | 9.6 | 9.6 | 9.5 | 9.9 |
| 2017 | 10.3 | 10.2 | 10.6 | 10.4 |
| 2022 | 10.5 | 10.4 | 10.7 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 39,883 | 39,678 | 27,078 | 30,898 |
| 2017 | 52,891 | 49,576 | 44,704 | 45,305 |
| 2022 | 64,710 | 58,871 | 58,686 | 60,021 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.7 | 1.7 | 1.9 |
| 2017 | 1.5 | 1.6 | 1.6 | 1.6 |
| 2022 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 9.9% | 11.2% | 7.0% | 8.5% |
| 2017 | 12.2% | 13.7% | 11.5% | 12.5% |
| 2022 | 12.3% | 15.9% | 15.8% | 12.8% |
| Sum of employment and self-employment | | | | |
| 2014 | 82.2% | 85.9% | 89.6% | 89.2% |
| 2017 | 85.2% | 86.7% | 88.5% | 93.0% |
| 2022 | 81.1% | 85.8% | 88.1% | 91.0% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 41,376 | 41,933 | 29,095 | 32,629 |
| 2017 | 54,316 | 51,803 | 47,142 | 47,840 |
| 2022 | 67,047 | 61,988 | 63,522 | 62,424 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 24.2% | 27.5% | 21.7% | 18.3% |
| 2017 | 16.7% | 21.2% | 11.5% | 11.1% |
| 2022 | 22.9% | 20.9% | 11.9% | 9.6% |
| Benefit intensity | | | | |
| 2014 | 6.9 | 7.0 | 5.9 | 5.8 |
| 2017 | 7.8 | 8.1 | 8.0 | 6.8 |
| 2022 | 9.4 | 9.2 | 9.2 | 8.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Ora learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix E – Toi Puaki

Table E 5. Labour market outcomes for Toi Puaki sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 74.4% | 25.6% | 67.0% | 33.0% |
| 2017 | 75.0% | 25.0% | 67.8% | 32.2% |
| 2022 | 74.4% | 25.6% | 68.3% | 31.7% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 73.6% | 74.4% | 78.7% | 77.6% |
| 2017 | 82.1% | 79.5% | 89.3% | 77.6% |
| 2022 | 81.9% | 82.5% | 85.6% | 72.4% |
| Employment intensity | | | | |
| 2014 | 8.5 | 8.3 | 9.1 | 8.8 |
| 2017 | 9.9 | 9.7 | 10.3 | 9.7 |
| 2022 | 10.6 | 9.5 | 10.8 | 10.0 |
| Mean annual earnings from W&S | | | | |
| 2014 | 30,397 | 17,468 | 38,474 | 18,076 |
| 2017 | 44,237 | 29,624 | 49,802 | 30,262 |
| 2022 | 57,436 | 39,275 | 65,674 | 41,865 |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.8 | 1.6 | 2.0 |
| 2017 | 1.6 | 1.8 | 1.6 | 1.8 |
| 2022 | 1.5 | 1.6 | 1.4 | 1.6 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 74.4% | 76.7% | 80.1% | 79.1% |
| 2017 | 83.8% | 79.5% | 91.8% | 79.3% |
| 2022 | 87.1% | 85.0% | 91.2% | 77.6% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 30,085 | 17,095 | 39,299 | 18,268 |
| 2017 | 43,838 | 31,233 | 50,815 | 32,682 |
| 2022 | 58,659 | 40,407 | 67,949 | 48,993 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 34.4% | 44.2% | 27.9% | 37.3% |
| 2017 | 24.8% | 30.8% | 14.8% | 27.6% |
| 2022 | 25.9% | 32.5% | 16.8% | 24.1% |
| Benefit intensity | | | | |
| 2014 | 5.7 | 6.4 | 4.9 | 5.8 |
| 2017 | 7.3 | 8.1 | 6.4 | 6.9 |
| 2022 | 8.6 | 9.5 | 6.9 | 8.7 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Puaki learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table E 6. Labour market outcomes for Toi Puaki sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 58.1% | 26.9% | 15.0% | 66.1% | 19.4% | 14.5% |
| 2017 | 57.4% | 27.0% | 15.5% | 65.7% | 19.9% | 14.5% |
| 2022 | 57.4% | 27.7% | 14.9% | 66.3% | 19.5% | 14.2% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 80.6% | 65.1% | 75.0% | 87.0% | 66.7% | 66.7% |
| 2017 | 85.9% | 75.0% | 82.6% | 86.2% | 84.8% | 83.3% |
| 2022 | 85.9% | 75.6% | 86.4% | 83.0% | 78.8% | 83.3% |
| Employment intensity | | | | | | |
| 2014 | 8.9 | 8.1 | 6.9 | 9.5 | 8.6 | 6.6 |
| 2017 | 10.4 | 9.0 | 9.1 | 10.6 | 9.4 | 9.9 |
| 2022 | 10.5 | 9.0 | 10.7 | 10.7 | 10.7 | 10.0 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 32,715 | 19,460 | 12,153 | 36,354 | 22,499 | 15,135 |
| 2017 | 46,163 | 32,602 | 28,326 | 49,198 | 36,918 | 34,183 |
| 2022 | 57,635 | 37,410 | 47,939 | 62,867 | 53,794 | 46,373 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.7 | 1.6 | 1.5 | 1.8 | 1.6 | 1.3 |
| 2017 | 1.6 | 1.6 | 1.8 | 1.6 | 1.7 | 1.7 |
| 2022 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | - | - | - | 5.7% | - | - |
| 2017 | 9.4% | - | - | 11.9% | - | - |
| 2022 | 11.8% | - | - | 16.1% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 82.8% | 62.8% | 75.0% | 87.0% | 69.4% | 66.7% |
| 2017 | 87.1% | 75.0% | 82.6% | 89.9% | 84.8% | 83.3% |
| 2022 | 89.4% | 78.0% | 90.9% | 88.4% | 87.9% | 83.3% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 31,978 | 20,098 | 12,153 | 37,326 | 23,558 | 15,466 |
| 2017 | 46,983 | 32,350 | 28,326 | 50,245 | 36,934 | 35,178 |
| 2022 | 59,829 | 40,516 | 46,198 | 66,731 | 55,801 | 52,645 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 33.3% | 48.8% | - | 26.8% | 44.4% | 40.7% |
| 2017 | 21.2% | 40.0% | - | 15.6% | 27.3% | 29.2% |
| 2022 | 24.7% | 39.0% | - | 14.3% | 33.3% | - |
| Benefit intensity | | | | | | |
| 2014 | 5.6 | 5.9 | - | 4.9 | 6.0 | 5.5 |
| 2017 | 7.9 | 7.7 | - | 6.0 | 8.5 | 5.3 |
| 2022 | 8.8 | 9.4 | - | 7.5 | 6.7 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Puaki learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table E 7. Labour market outcomes for Toi Puaki sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 37.5% | 62.5% | 47.3% | 52.7% |
| 2017 | 35.9% | 64.1% | 46.1% | 53.9% |
| 2022 | 33.1% | 66.9% | 45.1% | 54.9% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 66.7% | 78.1% | 75.0% | 81.3% |
| 2017 | 80.4% | 82.0% | 84.3% | 85.6% |
| 2022 | 78.8% | 82.9% | 81.9% | 80.2% |
| Employment intensity | | | | |
| 2014 | 7.7 | 8.9 | 8.6 | 9.4 |
| 2017 | 9.4 | 10.1 | 10.4 | 10.1 |
| 2022 | 10.3 | 10.3 | 10.6 | 10.6 |
| Mean annual earnings from W&S | | | | |
| 2014 | 20,263 | 30,543 | 25,918 | 36,673 |
| 2017 | 36,687 | 42,855 | 42,764 | 45,744 |
| 2022 | 50,763 | 53,692 | 57,782 | 59,954 |
| Mean number of employers per year | | | | |
| 2014 | 1.7 | 1.6 | 1.6 | 1.8 |
| 2017 | 1.6 | 1.7 | 1.6 | 1.6 |
| 2022 | 1.5 | 1.5 | 1.4 | 1.5 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | 8.4% | 9.3% |
| 2022 | - | - | 12.0% | 16.8% |
| Sum of employment and self-employment | | | | |
| 2014 | 68.3% | 78.1% | 76.0% | 82.2% |
| 2017 | 80.4% | 84.0% | 88.0% | 88.7% |
| 2022 | 86.5% | 86.7% | 85.5% | 86.1% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 20,287 | 30,362 | 27,291 | 37,040 |
| 2017 | 37,871 | 42,383 | 43,212 | 46,979 |
| 2022 | 51,765 | 54,604 | 60,996 | 64,598 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 36.5% | 37.1% | 31.3% | 30.8% |
| 2017 | 17.9% | 31.0% | 18.1% | 19.6% |
| 2022 | 25.0% | 28.6% | 19.3% | 18.8% |
| Benefit intensity | | | | |
| 2014 | 4.9 | 6.6 | 5.1 | 5.4 |
| 2017 | 6.7 | 7.8 | 5.6 | 7.5 |
| 2022 | 8.1 | 9.3 | 8.4 | 7.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Puaki learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix E – Toi Pāho

Table E 8. Labour market outcomes for Toi Pāho sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 63.4% | 36.6% | 64.9% | 35.1% |
| 2017 | 62.1% | 37.9% | 64.9% | 35.1% |
| 2022 | 62.5% | 37.5% | 63.8% | 36.2% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 79.5% | 68.8% | 80.4% | 77.5% |
| 2017 | 81.8% | 87.2% | 83.0% | 78.1% |
| 2022 | 82.5% | 75.0% | 77.9% | 75.3% |
| Employment intensity | | | | |
| 2014 | 9.9 | 9.5 | 9.1 | 10.0 |
| 2017 | 11.1 | 10.3 | 10.2 | 10.6 |
| 2022 | 11.2 | 10.0 | 10.7 | 10.2 |
| Mean annual earnings from W&S | | | | |
| 2014 | 40,801 | 21,736 | 38,728 | 35,355 |
| 2017 | 58,027 | 34,827 | 51,979 | 46,579 |
| 2022 | 70,277 | 47,626 | 67,614 | 57,482 |
| Mean number of employers per year | | | | |
| 2014 | 1.7 | 2.0 | 1.5 | 1.8 |
| 2017 | 1.5 | 1.5 | 1.4 | 1.5 |
| 2022 | 1.4 | 1.5 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | 8.1% | 12.3% |
| 2022 | - | - | 15.4% | 14.3% |
| Sum of employment and self-employment | | | | |
| 2014 | 80.7% | 70.8% | 82.4% | 81.3% |
| 2017 | 85.7% | 85.1% | 85.9% | 83.6% |
| 2022 | 88.7% | 79.2% | 86.0% | 81.8% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 40,502 | 21,096 | 40,600 | 39,957 |
| 2017 | 57,143 | 35,678 | 53,044 | 49,856 |
| 2022 | 70,564 | 48,100 | 67,550 | 63,813 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 27.7% | 39.6% | 25.0% | 22.5% |
| 2017 | 16.9% | 29.8% | 15.6% | 15.1% |
| 2022 | 16.2% | 29.2% | 19.1% | 13.0% |
| Benefit intensity | | | | |
| 2014 | 6.3 | 7.1 | 6.5 | 6.4 |
| 2017 | 7.7 | 8.0 | 7.3 | 7.4 |
| 2022 | 8.9 | 9.1 | 7.4 | 9.2 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Pāho learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table E 9. Labour market outcomes for Toi Pāho sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 73.3% | 15.8% | 10.8% | 74.3% | 21.4% | 4.4% |
| 2017 | 73.0% | 16.5% | 10.4% | 73.2% | 22.1% | 4.7% |
| 2022 | 73.7% | 16.1% | 10.2% | 74.7% | 20.6% | 4.6% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 83.0% | 68.4% | - | 83.7% | 70.5% | - |
| 2017 | 84.5% | 78.9% | 75.0% | 81.3% | 76.2% | - |
| 2022 | 83.9% | 68.4% | 83.3% | 77.9% | 70.0% | - |
| Employment intensity | | | | | | |
| 2014 | 10.0 | 9.6 | - | 9.8 | 7.9 | - |
| 2017 | 10.9 | 10.7 | 11.0 | 10.7 | 9.3 | - |
| 2022 | 10.7 | 10.4 | 10.7 | 10.8 | 9.8 | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 37,360 | 28,274 | - | 41,701 | 25,096 | - |
| 2017 | 52,464 | 45,129 | 41,168 | 54,591 | 39,608 | - |
| 2022 | 65,970 | 47,175 | 50,189 | 68,212 | 53,385 | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.8 | 2.1 | - | 1.6 | 1.6 | - |
| 2017 | 1.5 | 1.3 | 1.4 | 1.4 | 1.4 | - |
| 2022 | 1.4 | 1.4 | 1.7 | 1.3 | 1.5 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | - | - | - | 9.2% | - | - |
| 2017 | - | - | - | 12.2% | - | - |
| 2022 | - | - | - | 15.9% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 84.1% | 68.4% | - | 86.3% | 70.5% | - |
| 2017 | 86.9% | 78.9% | 83.3% | 85.6% | 81.0% | - |
| 2022 | 88.5% | 73.7% | 83.3% | 86.9% | 80.0% | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 37,034 | 28,771 | - | 44,533 | 28,970 | - |
| 2017 | 52,211 | 45,843 | 37,051 | 55,805 | 42,241 | - |
| 2022 | 66,305 | 54,747 | 50,189 | 68,023 | 57,789 | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 26.1% | 42.1% | - | 20.3% | 45.5% | - |
| 2017 | 20.2% | - | - | 10.8% | 31.0% | - |
| 2022 | 17.2% | 36.8% | - | 13.8% | 25.0% | - |
| Benefit intensity | | | | | | |
| 2014 | 7.2 | 8.2 | - | 5.5 | 7.5 | - |
| 2017 | 7.2 | - | - | 6.8 | 8.4 | - |
| 2022 | 8.9 | 9.6 | - | 7.8 | 8.3 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Pāho learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table E 10. Labour market outcomes for Toi Pāho sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 40.5% | 59.5% | 41.9% | 58.1% |
| 2017 | 39.5% | 60.5% | 43.3% | 56.7% |
| 2022 | 37.8% | 62.2% | 39.9% | 60.1% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 66.0% | 82.1% | 77.1% | 80.5% |
| 2017 | 81.6% | 85.3% | 78.9% | 83.1% |
| 2022 | 75.0% | 83.5% | 71.8% | 79.7% |
| Employment intensity | | | | |
| 2014 | 9.3 | 10.1 | 9.2 | 9.5 |
| 2017 | 10.2 | 11.1 | 10.0 | 10.6 |
| 2022 | 10.3 | 11.0 | 10.4 | 10.7 |
| Mean annual earnings from W&S | | | | |
| 2014 | 26,661 | 38,703 | 32,281 | 41,232 |
| 2017 | 40,700 | 53,993 | 47,861 | 51,821 |
| 2022 | 58,260 | 64,476 | 64,487 | 64,385 |
| Mean number of employers per year | | | | |
| 2014 | 1.7 | 1.8 | 1.6 | 1.6 |
| 2017 | 1.5 | 1.5 | 1.4 | 1.4 |
| 2022 | 1.5 | 1.4 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | 10.0% | 10.2% |
| 2022 | - | - | 17.6% | 13.3% |
| Sum of employment and self-employment | | | | |
| 2014 | 66.0% | 83.3% | 79.2% | 84.2% |
| 2017 | 83.7% | 88.0% | 82.2% | 87.3% |
| 2022 | 79.2% | 88.6% | 82.4% | 85.9% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 26,691 | 38,412 | 34,350 | 44,106 |
| 2017 | 41,102 | 53,233 | 49,957 | 53,374 |
| 2022 | 60,492 | 64,845 | 66,756 | 65,915 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 35.8% | 29.5% | 21.9% | 26.3% |
| 2017 | 28.6% | 18.7% | 16.7% | 14.4% |
| 2022 | 29.2% | 17.7% | 17.6% | 16.4% |
| Benefit intensity | | | | |
| 2014 | 6.7 | 6.7 | 5.9 | 6.6 |
| 2017 | 7.6 | 7.6 | 6.5 | 8.1 |
| 2022 | 8.0 | 9.4 | 8.0 | 7.9 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Pāho learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix E – Toi Whānui

Table E 11. Labour market outcomes for Toi Whānui sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 29.3% | 70.7% | 75.4% | 24.6% |
| 2017 | 29.4% | 70.6% | 75.2% | 24.8% |
| 2022 | 29.0% | 71.0% | 75.2% | 24.8% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 61.2% | 63.3% | 72.1% | 73.0% |
| 2017 | 69.9% | 67.2% | 79.5% | 77.3% |
| 2022 | 68.4% | 68.2% | 76.0% | 71.3% |
| Employment intensity | | | | |
| 2014 | 8.7 | 9.0 | 9.4 | 9.3 |
| 2017 | 9.8 | 9.8 | 10.5 | 10.2 |
| 2022 | 10.3 | 10.0 | 10.8 | 10.7 |
| Mean annual earnings from W&S | | | | |
| 2014 | 28,709 | 25,306 | 32,891 | 34,240 |
| 2017 | 39,149 | 32,418 | 48,576 | 45,407 |
| 2022 | 52,343 | 40,684 | 64,601 | 59,086 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.5 | 1.5 | 1.5 |
| 2017 | 1.5 | 1.4 | 1.4 | 1.4 |
| 2022 | 1.4 | 1.4 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 4.4% | 5.1% | 4.3% | 6.6% |
| 2017 | 6.0% | 6.5% | 5.5% | 7.6% |
| 2022 | 7.1% | 7.5% | 8.2% | 9.3% |
| Sum of employment and self-employment | | | | |
| 2014 | 63.2% | 65.6% | 74.0% | 75.9% |
| 2017 | 73.0% | 70.5% | 82.5% | 80.3% |
| 2022 | 72.0% | 71.9% | 80.1% | 77.5% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 30,227 | 25,789 | 34,154 | 34,636 |
| 2017 | 40,210 | 33,269 | 51,079 | 46,011 |
| 2022 | 53,297 | 41,563 | 66,573 | 58,698 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 48.9% | 48.1% | 35.1% | 34.3% |
| 2017 | 37.9% | 37.9% | 22.5% | 24.2% |
| 2022 | 38.9% | 38.1% | 21.4% | 26.4% |
| Benefit intensity | | | | |
| 2014 | 7.8 | 9.2 | 6.4 | 8.5 |
| 2017 | 8.7 | 9.6 | 8.1 | 9.1 |
| 2022 | 9.7 | 10.2 | 9.6 | 9.7 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Whānui learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table E 12. Labour market outcomes for Toi Whānui sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 40.5% | 45.9% | 13.6% | 66.3% | 21.7% | 12.0% |
| 2017 | 40.9% | 45.9% | 13.2% | 65.9% | 22.4% | 11.7% |
| 2022 | 41.1% | 45.9% | 13.1% | 66.6% | 22.0% | 11.4% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 73.5% | 55.9% | 61.5% | 75.1% | 65.0% | 70.9% |
| 2017 | 75.4% | 62.9% | 68.7% | 81.6% | 74.0% | 78.8% |
| 2022 | 72.0% | 65.9% | 68.9% | 76.3% | 70.8% | 72.0% |
| Employment intensity | | | | | | |
| 2014 | 9.8 | 7.7 | 8.3 | 9.6 | 8.2 | 8.9 |
| 2017 | 10.4 | 9.0 | 9.5 | 10.7 | 9.9 | 10.2 |
| 2022 | 10.6 | 9.3 | 10.1 | 11.0 | 10.2 | 10.5 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 29,408 | 20,717 | 26,081 | 34,922 | 26,974 | 27,144 |
| 2017 | 37,925 | 28,696 | 36,087 | 50,571 | 41,395 | 41,342 |
| 2022 | 47,516 | 37,981 | 46,558 | 67,974 | 50,773 | 53,949 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.5 | 1.5 | 1.4 | 1.5 | 1.5 | 1.6 |
| 2017 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 |
| 2022 | 1.4 | 1.4 | 1.4 | 1.3 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 7.2% | - | - | 5.6% | - | - |
| 2017 | 8.2% | 1.7% | - | 6.1% | - | - |
| 2022 | 10.1% | 2.3% | - | 10.3% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 75.6% | 56.2% | 61.5% | 77.0% | 66.0% | 70.9% |
| 2017 | 78.5% | 63.8% | 69.8% | 84.7% | 75.0% | 78.8% |
| 2022 | 77.0% | 66.9% | 69.5% | 81.8% | 71.9% | 76.0% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 30,609 | 21,103 | 26,417 | 36,142 | 27,006 | 27,157 |
| 2017 | 39,220 | 28,893 | 36,416 | 53,217 | 41,893 | 42,280 |
| 2022 | 48,529 | 38,524 | 47,008 | 70,167 | 51,883 | 53,233 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 35.6% | 69.8% | 48.4% | 31.8% | 55.0% | 43.6% |
| 2017 | 27.8% | 58.9% | 34.6% | 20.1% | 38.0% | 25.0% |
| 2022 | 27.6% | 58.7% | 36.2% | 18.9% | 42.7% | 26.0% |
| Benefit intensity | | | | | | |
| 2014 | 8.8 | 9.3 | 8.1 | 6.4 | 7.8 | 7.0 |
| 2017 | 9.0 | 9.5 | 9.1 | 8.5 | 8.3 | 8.4 |
| 2022 | 9.9 | 10.1 | 9.7 | 9.5 | 9.8 | 10.1 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Whānui learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table E 13. Labour market outcomes for Toi Whānui sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 36.8% | 63.2% | 48.9% | 51.1% |
| 2017 | 36.0% | 64.0% | 47.2% | 52.8% |
| 2022 | 34.6% | 65.4% | 43.6% | 56.4% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 56.2% | 66.4% | 72.4% | 71.8% |
| 2017 | 64.8% | 69.7% | 78.1% | 79.4% |
| 2022 | 64.0% | 70.5% | 74.9% | 74.8% |
| Employment intensity | | | | |
| 2014 | 8.8 | 8.9 | 9.3 | 9.5 |
| 2017 | 9.8 | 9.8 | 10.4 | 10.4 |
| 2022 | 10.2 | 10.1 | 10.6 | 10.9 |
| Mean annual earnings from W&S | | | | |
| 2014 | 28,179 | 25,339 | 32,968 | 33,639 |
| 2017 | 36,974 | 33,178 | 48,577 | 47,343 |
| 2022 | 47,683 | 42,340 | 63,526 | 63,125 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.6 | 1.5 | 1.5 |
| 2017 | 1.4 | 1.5 | 1.4 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 5.9% | 4.3% | 4.4% | 5.3% |
| 2017 | 8.1% | 5.5% | 6.8% | 5.3% |
| 2022 | 8.1% | 6.9% | 7.5% | 9.5% |
| Sum of employment and self-employment | | | | |
| 2014 | 59.9% | 67.8% | 74.6% | 74.3% |
| 2017 | 69.9% | 72.0% | 82.1% | 81.5% |
| 2022 | 68.3% | 73.9% | 78.9% | 79.6% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 29,047 | 26,024 | 34,419 | 34,137 |
| 2017 | 37,840 | 34,005 | 50,149 | 49,793 |
| 2022 | 48,231 | 43,376 | 63,696 | 65,693 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 44.1% | 50.8% | 33.5% | 35.9% |
| 2017 | 31.5% | 41.5% | 21.1% | 24.9% |
| 2022 | 34.2% | 40.7% | 21.6% | 23.5% |
| Benefit intensity | | | | |
| 2014 | 8.5 | 9.0 | 7.2 | 6.7 |
| 2017 | 9.3 | 9.4 | 8.3 | 8.2 |
| 2022 | 10.4 | 9.9 | 9.6 | 9.6 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi Whānui learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix E – Toi-A-Ringa

Table E 14. Labour market outcomes for Toi-A-Ringa sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 17.5% | 82.5% | 31.6% | 68.4% |
| 2017 | 17.6% | 82.4% | 31.1% | 68.9% |
| 2022 | 16.8% | 83.2% | 29.9% | 70.1% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 65.5% | 71.1% | 68.6% | 76.5% |
| 2017 | 72.0% | 72.1% | 74.4% | 74.9% |
| 2022 | 69.2% | 69.5% | 72.8% | 70.7% |
| Employment intensity | | | | |
| 2014 | 8.5 | 9.2 | 8.8 | 9.3 |
| 2017 | 9.5 | 9.7 | 9.8 | 10.1 |
| 2022 | 10.2 | 9.8 | 10.6 | 10.1 |
| Mean annual earnings from W&S | | | | |
| 2014 | 27,030 | 24,209 | 24,938 | 23,273 |
| 2017 | 37,412 | 31,893 | 37,080 | 34,968 |
| 2022 | 50,254 | 39,425 | 50,593 | 44,669 |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.6 | 1.5 | 1.8 |
| 2017 | 1.6 | 1.5 | 1.5 | 1.5 |
| 2022 | 1.4 | 1.4 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | 5.9% | 7.1% |
| 2017 | 5.3% | 8.1% | 8.9% | 13.3% |
| 2022 | 9.8% | 11.7% | 13.3% | 17.5% |
| Sum of employment and self-employment | | | | |
| 2014 | 65.9% | 73.2% | 71.4% | 79.2% |
| 2017 | 74.2% | 76.4% | 78.3% | 81.1% |
| 2022 | 74.3% | 75.7% | 79.0% | 80.8% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 27,199 | 24,662 | 25,127 | 24,195 |
| 2017 | 37,419 | 33,010 | 38,128 | 36,367 |
| 2022 | 52,003 | 41,938 | 51,483 | 46,555 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 42.7% | 43.7% | 35.0% | 33.2% |
| 2017 | 32.4% | 34.8% | 24.6% | 20.9% |
| 2022 | 32.2% | 34.3% | 24.1% | 22.5% |
| Benefit intensity | | | | |
| 2014 | 6.4 | 8.4 | 6.3 | 7.1 |
| 2017 | 8.1 | 8.8 | 7.8 | 8.5 |
| 2022 | 9.3 | 9.8 | 9.0 | 8.9 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Toi-A-Ringa learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table E 15. Labour market outcomes for Toi-A-Ringa sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 53.9% | 37.6% | 8.5% | 75.4% | 20.3% | 4.3% |
| 2017 | 53.6% | 38.1% | 8.3% | 75.1% | 20.8% | 4.1% |
| 2022 | 54.2% | 38.0% | 7.8% | 75.3% | 20.8% | 3.9% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 77.9% | 61.1% | 64.1% | 76.7% | 67.2% | 66.7% |
| 2017 | 75.6% | 67.9% | 71.1% | 75.6% | 72.4% | 83.3% |
| 2022 | 71.3% | 66.3% | 67.4% | 72.4% | 67.5% | 65.2% |
| Employment intensity | | | | | | |
| 2014 | 9.7 | 8.3 | 8.1 | 9.5 | 8.5 | 7.6 |
| 2017 | 10.1 | 9.1 | 9.4 | 10.2 | 9.5 | 9.7 |
| 2022 | 10.0 | 9.5 | 10.4 | 10.4 | 9.8 | 10.6 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 25,188 | 24,819 | 20,389 | 24,998 | 20,824 | 20,014 |
| 2017 | 34,071 | 30,907 | 31,489 | 37,272 | 30,790 | 36,478 |
| 2022 | 41,691 | 39,599 | 44,552 | 47,556 | 42,190 | 50,793 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.6 | 1.5 | 1.5 | 1.7 | 1.6 | 1.6 |
| 2017 | 1.5 | 1.5 | 1.4 | 1.5 | 1.5 | 1.5 |
| 2022 | 1.4 | 1.5 | 1.5 | 1.4 | 1.4 | 1.5 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 5.8% | 1.8% | - | 8.0% | - | - |
| 2017 | 10.2% | 3.8% | - | 13.5% | 7.3% | - |
| 2022 | 14.2% | 7.4% | - | 18.2% | 11.4% | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 80.3% | 61.7% | 65.0% | 80.3% | 68.0% | 63.0% |
| 2017 | 80.9% | 69.9% | 72.2% | 82.2% | 75.6% | 83.3% |
| 2022 | 79.4% | 70.1% | 70.7% | 82.7% | 73.2% | 69.6% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 25,849 | 25,223 | 20,077 | 25,751 | 21,642 | 21,053 |
| 2017 | 35,307 | 31,114 | 32,121 | 38,450 | 31,949 | 37,480 |
| 2022 | 44,917 | 40,588 | 44,269 | 48,606 | 43,980 | 52,029 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 34.4% | 57.5% | 51.5% | 28.6% | 50.8% | 44.4% |
| 2017 | 26.2% | 48.5% | 39.2% | 18.7% | 35.8% | 29.2% |
| 2022 | 26.1% | 48.3% | 37.0% | 20.2% | 35.0% | 30.4% |
| Benefit intensity | | | | | | |
| 2014 | 7.6 | 8.6 | 7.5 | 6.7 | 7.5 | 6.8 |
| 2017 | 8.5 | 9.1 | 8.6 | 8.1 | 8.7 | 8.5 |
| 2022 | 9.4 | 10.0 | 9.2 | 8.7 | 9.5 | 9.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi-A-Ringa learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table E 16. Labour market outcomes for Toi-A-Ringa sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 31.9% | 68.1% | 35.2% | 64.8% |
| 2017 | 31.2% | 68.8% | 33.4% | 66.6% |
| 2022 | 29.4% | 70.6% | 29.6% | 70.4% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 67.1% | 71.5% | 71.4% | 75.2% |
| 2017 | 70.9% | 72.5% | 79.4% | 72.6% |
| 2022 | 68.1% | 69.9% | 72.5% | 70.9% |
| Employment intensity | | | | |
| 2014 | 9.1 | 9.1 | 9.1 | 9.2 |
| 2017 | 9.7 | 9.7 | 10.0 | 10.1 |
| 2022 | 10.1 | 9.8 | 10.7 | 10.1 |
| Mean annual earnings from W&S | | | | |
| 2014 | 27,999 | 23,244 | 22,563 | 24,377 |
| 2017 | 36,014 | 31,522 | 36,981 | 34,875 |
| 2022 | 45,958 | 39,377 | 54,502 | 43,027 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.6 | 1.6 | 1.7 |
| 2017 | 1.4 | 1.5 | 1.4 | 1.5 |
| 2022 | 1.4 | 1.4 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 3.5% | 4.1% | 4.9% | 7.5% |
| 2017 | 6.5% | 8.1% | 11.0% | 12.2% |
| 2022 | 10.6% | 11.8% | 14.5% | 17.0% |
| Sum of employment and self-employment | | | | |
| 2014 | 69.0% | 73.5% | 73.9% | 78.1% |
| 2017 | 74.6% | 76.8% | 83.5% | 78.8% |
| 2022 | 73.4% | 76.5% | 80.8% | 79.8% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 27,917 | 23,741 | 23,461 | 24,985 |
| 2017 | 36,932 | 32,326 | 38,226 | 36,197 |
| 2022 | 48,120 | 41,723 | 55,117 | 45,110 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 42.1% | 44.2% | 30.6% | 35.4% |
| 2017 | 31.4% | 35.7% | 17.9% | 24.4% |
| 2022 | 33.8% | 34.1% | 20.2% | 24.3% |
| Benefit intensity | | | | |
| 2014 | 8.0 | 8.0 | 6.2 | 7.1 |
| 2017 | 8.8 | 8.7 | 7.5 | 8.5 |
| 2022 | 9.7 | 9.7 | 8.5 | 9.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TM Toi-A-Ringa learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix F

Table F 1. TTW grouping and NZSCED concordance

| HAR Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|------------------------|---------------------|---|
| Community | | |
| | 110301 | Beauty Therapy |
| | 039905 | Fire Technology and Rescue Services |
| | 091199 | Justice and Law Enforcement not elsewhere classified |
| | 061301 | Occupational Health and Safety |
| | 110399 | Personal Services not elsewhere classified |
| Education | | |
| | 070199 | Teacher Education not elsewhere classified |
| Health | | |
| | 090511 | Community Client Care |
| | 061303 | Environmental Health |
| | 069907 | First Aid |
| | 061307 | Health Education, Promotion, Counselling |
| | 010913 | Human Biology |
| | 069901 | Nutrition and Dietetics |
| | 069905 | Paramedical Studies |
| | 060501 | Pharmacy |
| Social Services | | |
| | 090509 | Care for People with Disabilities |
| | 090502 | Children's Services |
| | 090513 | Counselling |
| | 090599 | Human Welfare Studies and Services not elsewhere classified |
| | 090503 | Nannying and Early Childhood Care |
| | 090501 | Social Work |
| | 090507 | Support for the Older Person |
| | 090515 | Welfare Studies |
| | 090505 | Youth Work |

Source: Authors' compilation from WDCs data.

Appendix F – Community

Table F 2. Labour market outcomes for Community sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 62.7% | 37.3% | 24.1% | 75.9% |
| 2017 | 63.3% | 36.7% | 23.5% | 76.5% |
| 2022 | 63.1% | 36.9% | 23.0% | 77.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 89.5% | 77.8% | 85.5% | 83.1% |
| 2017 | 88.0% | 76.5% | 88.1% | 74.5% |
| 2022 | 84.6% | 74.9% | 84.7% | 71.1% |
| Employment intensity | | | | |
| 2014 | 11.2 | 9.7 | 11.4 | 9.7 |
| 2017 | 11.3 | 10.3 | 11.3 | 10.2 |
| 2022 | 11.3 | 10.4 | 11.3 | 10.3 |
| Mean annual earnings from W&S | | | | |
| 2014 | 72,763 | 35,981 | 81,322 | 30,512 |
| 2017 | 79,418 | 43,110 | 85,440 | 40,112 |
| 2022 | 85,094 | 49,698 | 91,900 | 48,249 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.5 | 1.4 | 1.7 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.5 |
| 2022 | 1.2 | 1.4 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 11.1% | 5.2% | 14.5% | 6.7% |
| 2017 | 12.8% | 8.0% | 18.6% | 11.5% |
| 2022 | 13.0% | 9.0% | 20.3% | 15.7% |
| Sum of employment and self-employment | | | | |
| 2014 | 94.2% | 79.4% | 93.5% | 85.1% |
| 2017 | 93.9% | 80.0% | 96.6% | 80.7% |
| 2022 | 91.4% | 79.4% | 93.2% | 81.2% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 74,069 | 36,031 | 79,842 | 31,789 |
| 2017 | 81,542 | 43,462 | 83,060 | 42,591 |
| 2022 | 86,443 | 50,892 | 91,236 | 49,773 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 9.8% | 36.7% | - | - |
| 2017 | 7.4% | 30.1% | - | - |
| 2022 | 8.0% | 28.6% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.9 | 8.6 | - | - |
| 2017 | 7.4 | 8.8 | - | - |
| 2022 | 8.8 | 9.9 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Community learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table F 3. Labour market outcomes for Community sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 69.3% | 24.4% | 6.3% | - | - | - |
| 2017 | 69.3% | 24.4% | 6.3% | - | - | - |
| 2022 | 69.8% | 24.2% | 6.0% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 89.1% | 79.5% | 69.0% | 85.6% | 79.5% | - |
| 2017 | 86.2% | 81.0% | 73.9% | 79.3% | 76.9% | - |
| 2022 | 82.9% | 76.5% | 80.3% | 75.1% | 68.3% | - |
| Employment intensity | | | | | | |
| 2014 | 11.0 | 9.9 | 9.9 | 10.4 | 8.8 | - |
| 2017 | 11.1 | 10.3 | 10.5 | 10.6 | 9.4 | - |
| 2022 | 11.1 | 10.5 | 10.5 | 10.7 | 10.3 | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 65,364 | 49,032 | 45,701 | 46,346 | 27,631 | - |
| 2017 | 72,675 | 54,834 | 51,595 | 55,143 | 36,083 | - |
| 2022 | 78,046 | 61,819 | 59,298 | 62,189 | 45,847 | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.3 | 1.4 | 1.4 | 1.6 | 1.7 | - |
| 2017 | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 | - |
| 2022 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 11.6% | 4.0% | - | 9.3% | - | - |
| 2017 | 14.1% | 4.9% | - | 13.8% | - | - |
| 2022 | 13.8% | 6.8% | - | 19.2% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 93.7% | 81.0% | 70.4% | 90.2% | 79.5% | - |
| 2017 | 92.2% | 83.6% | 75.4% | 86.7% | 82.1% | - |
| 2022 | 90.0% | 80.3% | 80.3% | 86.5% | 75.6% | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 66,557 | 50,110 | 44,802 | 47,158 | 28,494 | - |
| 2017 | 74,019 | 57,686 | 51,589 | 56,603 | 38,563 | - |
| 2022 | 79,857 | 61,313 | 61,111 | 62,361 | 45,436 | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 11.1% | 38.5% | 40.8% | 20.1% | 51.3% | - |
| 2017 | 8.9% | 31.7% | 29.0% | 12.2% | 33.3% | - |
| 2022 | 9.7% | 30.3% | 24.2% | 13.0% | 34.1% | - |
| Benefit intensity | | | | | | |
| 2014 | 7.7 | 8.3 | 8.5 | 7.4 | 8.0 | - |
| 2017 | 8.3 | 8.6 | 8.5 | 8.0 | 8.7 | - |
| 2022 | 9.3 | 9.9 | 10.1 | 8.5 | 9.5 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Community learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table F 4. Labour market outcomes for Community sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 21.2% | 78.8% | 25.7% | 74.3% |
| 2017 | 20.7% | 79.3% | 24.6% | 75.4% |
| 2022 | 19.6% | 80.4% | 23.7% | 76.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 72.5% | 88.6% | 80.3% | 84.8% |
| 2017 | 75.8% | 85.9% | 75.8% | 78.4% |
| 2022 | 72.3% | 83.3% | 68.9% | 75.0% |
| Employment intensity | | | | |
| 2014 | 9.8 | 10.9 | 9.8 | 10.2 |
| 2017 | 10.2 | 11.1 | 10.2 | 10.5 |
| 2022 | 10.7 | 11.0 | 10.8 | 10.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 46,656 | 63,153 | 37,602 | 44,816 |
| 2017 | 54,230 | 70,160 | 45,767 | 53,878 |
| 2022 | 64,508 | 74,800 | 62,739 | 59,285 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.3 | 1.6 | 1.6 |
| 2017 | 1.4 | 1.3 | 1.4 | 1.4 |
| 2022 | 1.3 | 1.3 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 5.2% | 10.1% | - | - |
| 2017 | 6.7% | 12.1% | - | - |
| 2022 | 8.9% | 12.3% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 75.3% | 92.3% | 81.8% | 90.1% |
| 2017 | 79.2% | 91.2% | 77.4% | 86.3% |
| 2022 | 76.8% | 89.6% | 78.7% | 85.2% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 48,292 | 64,254 | 38,444 | 45,534 |
| 2017 | 58,461 | 71,398 | 44,750 | 56,025 |
| 2022 | 67,062 | 75,992 | 60,122 | 60,454 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 39.0% | 14.7% | 37.9% | 22.5% |
| 2017 | 29.2% | 12.3% | 19.4% | 14.7% |
| 2022 | 28.6% | 12.5% | 24.6% | 15.3% |
| Benefit intensity | | | | |
| 2014 | 8.5 | 7.7 | 7.3 | 7.5 |
| 2017 | 8.5 | 8.2 | 8.3 | 8.4 |
| 2022 | 10.2 | 9.2 | 9.3 | 8.6 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Community learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix F – Education

Table F 5. Labour market outcomes for Education sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 55.2% | 44.8% | 31.3% | 68.7% |
| 2017 | 55.7% | 44.3% | 31.6% | 68.4% |
| 2022 | 56.2% | 43.8% | 31.5% | 68.5% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 96.6% | 87.2% | 90.3% | 87.5% |
| 2017 | 94.9% | 83.0% | 87.1% | 85.1% |
| 2022 | 94.9% | 82.6% | 85.5% | 80.0% |
| Employment intensity | | | | |
| 2014 | 11.4 | 10.3 | 11.4 | 10.7 |
| 2017 | 11.4 | 10.4 | 11.5 | 10.6 |
| 2022 | 11.7 | 10.6 | 11.1 | 10.9 |
| Mean annual earnings from W&S | | | | |
| 2014 | 65,628 | 35,002 | 66,119 | 47,194 |
| 2017 | 71,762 | 39,615 | 72,099 | 50,300 |
| 2022 | 81,214 | 48,389 | 71,337 | 60,139 |
| Mean number of employers per year | | | | |
| 2014 | 1.2 | 1.4 | 1.4 | 1.5 |
| 2017 | 1.2 | 1.5 | 1.3 | 1.3 |
| 2022 | 1.3 | 1.3 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | 12.9% | 16.2% |
| 2017 | - | - | 12.9% | 15.7% |
| 2022 | - | - | 14.5% | 15.6% |
| Sum of employment and self-employment | | | | |
| 2014 | 98.3% | 87.2% | 91.9% | 93.4% |
| 2017 | 94.9% | 87.2% | 91.9% | 90.3% |
| 2022 | 96.6% | 87.0% | 91.9% | 86.7% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 66,241 | 36,777 | 68,104 | 47,361 |
| 2017 | 74,544 | 41,376 | 73,783 | 51,945 |
| 2022 | 84,024 | 51,016 | 70,095 | 61,301 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Education learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table F 6. Labour market outcomes for Education sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 63.4% | 24.8% | 11.9% | 70.0% | 23.9% | 6.1% |
| 2017 | 62.7% | 25.5% | 11.8% | 69.8% | 24.0% | 6.1% |
| 2022 | 64.0% | 25.0% | 11.0% | 70.3% | 23.6% | 6.0% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 93.8% | 96.0% | 83.3% | 89.7% | 83.7% | 90.9% |
| 2017 | 90.6% | 92.3% | 75.0% | 87.2% | 83.7% | 81.8% |
| 2022 | 90.6% | 96.0% | 81.8% | 82.8% | 81.4% | 72.7% |
| Employment intensity | | | | | | |
| 2014 | 10.9 | 11.1 | 9.8 | 11.1 | 10.8 | 10.5 |
| 2017 | 11.2 | 11.1 | 10.3 | 10.9 | 10.7 | 11.1 |
| 2022 | 11.6 | 10.7 | 10.7 | 11.1 | 10.1 | 11.0 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 53,641 | 57,378 | 33,032 | 55,946 | 45,115 | 51,456 |
| 2017 | 59,588 | 63,945 | 40,820 | 58,951 | 49,691 | 60,336 |
| 2022 | 69,801 | 67,798 | 58,431 | 65,952 | 54,788 | 66,832 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.3 | 1.2 | 1.3 | 1.5 | 1.4 | 1.5 |
| 2017 | 1.3 | 1.3 | 1.5 | 1.3 | 1.3 | 1.1 |
| 2022 | 1.3 | 1.3 | 1.4 | 1.3 | 1.3 | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | - | - | - | 17.5% | - | - |
| 2017 | - | - | - | 18.4% | - | - |
| 2022 | - | - | - | 18.0% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 96.9% | 92.0% | 83.3% | 95.2% | 88.4% | 90.9% |
| 2017 | 96.9% | 92.3% | 66.7% | 93.6% | 86.0% | 81.8% |
| 2022 | 95.3% | 96.0% | 90.9% | 90.6% | 83.7% | 81.8% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 54,667 | 60,016 | 33,032 | 55,755 | 45,940 | 54,473 |
| 2017 | 60,477 | 64,585 | 45,922 | 60,746 | 51,497 | 60,336 |
| 2022 | 72,000 | 71,809 | 52,932 | 66,583 | 56,096 | 64,218 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | - | - | - | 9.5% | - | - |
| 2017 | - | - | - | 7.2% | 25.6% | - |
| 2022 | - | - | - | 9.4% | 27.9% | - |
| Benefit intensity | | | | | | |
| 2014 | - | - | - | 9.4 | - | - |
| 2017 | - | - | - | 8.4 | 9.9 | - |
| 2022 | - | - | - | 9.2 | 8.8 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Education learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table F 7. Labour market outcomes for Education sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 26.7% | 73.3% | 22.8% | 77.2% |
| 2017 | 24.8% | 75.2% | 24.0% | 76.0% |
| 2022 | 24.8% | 75.2% | 21.8% | 78.2% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 89.3% | 94.8% | 91.1% | 88.8% |
| 2017 | 84.6% | 91.1% | 83.0% | 86.6% |
| 2022 | 88.5% | 91.1% | 81.4% | 82.5% |
| Employment intensity | | | | |
| 2014 | 10.5 | 10.9 | 10.7 | 10.9 |
| 2017 | 10.7 | 11.2 | 10.6 | 10.9 |
| 2022 | 10.3 | 11.4 | 10.4 | 11.0 |
| Mean annual earnings from W&S | | | | |
| 2014 | 50,382 | 52,749 | 55,841 | 52,069 |
| 2017 | 60,963 | 58,646 | 58,681 | 56,891 |
| 2022 | 66,477 | 67,469 | 64,674 | 63,089 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.2 | 1.4 | 1.4 |
| 2017 | 1.5 | 1.3 | 1.4 | 1.3 |
| 2022 | 1.3 | 1.2 | 1.2 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 89.3% | 96.1% | 95.6% | 92.8% |
| 2017 | 88.5% | 93.7% | 87.2% | 92.6% |
| 2022 | 88.5% | 93.7% | 86.0% | 89.6% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 51,534 | 53,990 | 55,320 | 53,320 |
| 2017 | 62,375 | 59,949 | 61,346 | 57,795 |
| 2022 | 68,797 | 70,914 | 65,839 | 63,272 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Benefit intensity | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Education learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix F – Health

Table F 8. Labour market outcomes for Health sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 15.7% | 84.3% | 19.9% | 80.1% |
| 2017 | 15.5% | 84.5% | 20.1% | 79.9% |
| 2022 | 15.5% | 84.5% | 19.6% | 80.4% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 92.3% | 94.6% | 89.2% | 83.9% |
| 2017 | 89.3% | 88.9% | 89.2% | 80.3% |
| 2022 | 80.0% | 82.3% | 91.7% | 79.1% |
| Employment intensity | | | | |
| 2014 | 10.5 | 11.1 | 11.7 | 10.6 |
| 2017 | 10.9 | 10.9 | 11.5 | 10.9 |
| 2022 | 11.1 | 11.0 | 11.0 | 10.9 |
| Mean annual earnings from W&S | | | | |
| 2014 | 40,626 | 34,291 | 61,882 | 41,178 |
| 2017 | 47,525 | 38,114 | 68,082 | 47,770 |
| 2022 | 62,102 | 50,285 | 83,607 | 54,802 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.4 | 1.5 | 1.4 |
| 2017 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2022 | 1.4 | 1.3 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 7.1% | 3.7% | - | - |
| 2017 | 9.4% | 5.1% | - | - |
| 2022 | 10.3% | 5.4% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 92.9% | 95.0% | 91.9% | 90.6% |
| 2017 | 91.9% | 90.4% | 91.9% | 89.1% |
| 2022 | 84.1% | 84.5% | 94.4% | 88.5% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 40,875 | 34,687 | 60,895 | 42,202 |
| 2017 | 48,167 | 38,617 | 67,218 | 49,807 |
| 2022 | 62,354 | 50,610 | 82,227 | 57,521 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 18.1% | 21.8% | - | - |
| 2017 | 13.4% | 18.0% | - | - |
| 2022 | 16.6% | 18.7% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.5 | 8.4 | - | - |
| 2017 | 7.6 | 8.7 | - | - |
| 2022 | 9.5 | 9.5 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Health learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table F 9. Labour market outcomes for Health sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 66.0% | 23.1% | 10.9% | 78.7% | 14.9% | 6.3% |
| 2017 | 66.2% | 22.9% | 10.9% | 80.6% | 14.1% | 5.3% |
| 2022 | 66.9% | 22.5% | 10.5% | 80.6% | 14.1% | 5.3% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 95.7% | 91.2% | 89.7% | 85.4% | 88.5% | 72.7% |
| 2017 | 89.8% | 86.8% | 86.2% | 83.2% | 83.3% | - |
| 2022 | 81.8% | 78.9% | 85.4% | 81.8% | 83.3% | - |
| Employment intensity | | | | | | |
| 2014 | 11.1 | 10.6 | 10.7 | 10.7 | 10.5 | 11.3 |
| 2017 | 11.0 | 10.4 | 10.9 | 10.8 | 10.9 | - |
| 2022 | 11.0 | 10.8 | 11.2 | 10.9 | 10.2 | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 34,018 | 34,521 | 40,312 | 44,513 | 44,334 | 50,250 |
| 2017 | 38,191 | 38,933 | 43,529 | 50,921 | 50,552 | - |
| 2022 | 49,279 | 52,331 | 61,037 | 62,014 | 51,784 | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.5 | 1.4 | 1.5 | 1.3 | 1.3 |
| 2017 | 1.4 | 1.4 | 1.3 | 1.4 | 1.3 | - |
| 2022 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 4.6% | - | - | 17.5% | - | - |
| 2017 | 6.7% | 4.6% | - | 17.5% | - | - |
| 2022 | 6.9% | 4.7% | - | 19.0% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 95.7% | 92.2% | 90.7% | 92.0% | 88.5% | 81.8% |
| 2017 | 91.8% | 87.3% | 87.2% | 92.0% | 83.3% | 77.8% |
| 2022 | 84.4% | 80.5% | 86.5% | 91.2% | 87.5% | 77.8% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 34,560 | 34,778 | 40,022 | 45,376 | 46,435 | 46,073 |
| 2017 | 38,781 | 39,364 | 43,488 | 52,942 | 52,666 | 56,317 |
| 2022 | 49,456 | 53,451 | 61,880 | 63,514 | 52,245 | 69,872 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 20.5% | 30.2% | 17.5% | 9.5% | - | - |
| 2017 | 16.1% | 28.4% | 11.7% | 5.8% | - | - |
| 2022 | 17.7% | 28.9% | 13.5% | 5.8% | - | - |
| Benefit intensity | | | | | | |
| 2014 | 8.5 | 8.4 | 7.5 | 7.7 | - | - |
| 2017 | 8.9 | 8.2 | 8.2 | 7.9 | - | - |
| 2022 | 9.6 | 9.2 | 9.4 | 9.0 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Health learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table F 10. Labour market outcomes for Health sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 21.5% | 78.5% | 31.6% | 68.4% |
| 2017 | 21.5% | 78.5% | 29.3% | 70.7% |
| 2022 | 20.2% | 79.8% | 27.7% | 72.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 91.5% | 95.0% | 81.4% | 86.7% |
| 2017 | 86.4% | 89.6% | 75.9% | 85.4% |
| 2022 | 82.0% | 82.3% | 76.5% | 83.5% |
| Employment intensity | | | | |
| 2014 | 10.7 | 11.0 | 10.4 | 11.0 |
| 2017 | 10.8 | 10.9 | 10.8 | 11.0 |
| 2022 | 11.2 | 11.0 | 10.8 | 11.0 |
| Mean annual earnings from W&S | | | | |
| 2014 | 37,485 | 34,680 | 44,899 | 45,353 |
| 2017 | 42,561 | 38,795 | 51,499 | 52,001 |
| 2022 | 59,287 | 50,081 | 64,349 | 60,011 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2017 | 1.4 | 1.4 | 1.3 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.4 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 3.8% | 4.4% | - | - |
| 2017 | 5.3% | 6.0% | 13.0% | 16.2% |
| 2022 | 6.3% | 6.2% | 17.6% | 16.5% |
| Sum of employment and self-employment | | | | |
| 2014 | 92.0% | 95.2% | 86.4% | 93.0% |
| 2017 | 89.3% | 91.0% | 83.3% | 93.1% |
| 2022 | 85.2% | 84.3% | 84.3% | 91.7% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 37,818 | 35,114 | 44,574 | 46,172 |
| 2017 | 42,395 | 39,512 | 55,143 | 52,303 |
| 2022 | 59,127 | 50,708 | 65,012 | 61,766 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 18.9% | 21.8% | 13.6% | 10.2% |
| 2017 | 11.7% | 18.9% | - | - |
| 2022 | 16.9% | 18.9% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.7 | 8.4 | 8.2 | 7.5 |
| 2017 | 8.3 | 8.6 | - | - |
| 2022 | 8.8 | 9.6 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Health learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix F – Social Services

Table F 11. Labour market outcomes for Social Services sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 13.4% | 86.6% | 13.5% | 86.5% |
| 2017 | 13.3% | 86.7% | 13.1% | 86.9% |
| 2022 | 12.7% | 87.3% | 13.0% | 87.0% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 76.6% | 63.3% | 84.6% | 81.9% |
| 2017 | 79.7% | 70.5% | 91.7% | 82.4% |
| 2022 | 75.4% | 71.1% | 86.1% | 76.3% |
| Employment intensity | | | | |
| 2014 | 9.5 | 8.7 | 11.1 | 9.9 |
| 2017 | 10.2 | 9.5 | 10.8 | 10.5 |
| 2022 | 10.9 | 10.0 | 11.3 | 10.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 31,489 | 19,662 | 55,830 | 33,558 |
| 2017 | 40,405 | 29,247 | 57,221 | 42,740 |
| 2022 | 54,063 | 40,936 | 70,234 | 51,120 |
| Mean number of employers per year | | | | |
| 2014 | 1.6 | 1.6 | 1.4 | 1.5 |
| 2017 | 1.5 | 1.5 | 1.5 | 1.4 |
| 2022 | 1.4 | 1.4 | 1.4 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 77.9% | 68.3% | 87.2% | 84.7% |
| 2017 | 81.1% | 75.5% | 91.7% | 86.2% |
| 2022 | 78.3% | 75.3% | 91.7% | 83.4% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 31,322 | 19,858 | 54,751 | 34,835 |
| 2017 | 42,422 | 28,919 | 59,279 | 45,056 |
| 2022 | 53,715 | 40,866 | 68,534 | 53,181 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 37.7% | 53.6% | 17.9% | 29.3% |
| 2017 | 29.7% | 39.9% | - | - |
| 2022 | 26.1% | 37.1% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.3 | 8.8 | 7.0 | 7.8 |
| 2017 | 7.7 | 9.1 | - | - |
| 2022 | 10.3 | 10.0 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Social Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table F 12. Labour market outcomes for Social Services sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 45.6% | 35.8% | 18.6% | 68.6% | 25.4% | 6.1% |
| 2017 | 45.8% | 35.8% | 18.4% | 68.5% | 25.7% | 5.8% |
| 2022 | 46.7% | 35.4% | 17.9% | 69.5% | 25.1% | 5.4% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 66.4% | 61.4% | 68.4% | 84.0% | 79.1% | 87.5% |
| 2017 | 69.7% | 69.4% | 80.9% | 84.7% | 80.3% | 80.0% |
| 2022 | 71.1% | 68.5% | 78.9% | 78.9% | 75.4% | 78.6% |
| Employment intensity | | | | | | |
| 2014 | 9.3 | 8.4 | 8.2 | 10.0 | 10.3 | 10.1 |
| 2017 | 9.7 | 9.6 | 9.2 | 10.6 | 10.4 | 11.2 |
| 2022 | 10.1 | 9.7 | 10.4 | 10.5 | 10.7 | 12.0 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 21,797 | 19,835 | 23,202 | 34,702 | 41,624 | 44,737 |
| 2017 | 30,233 | 30,546 | 31,823 | 44,103 | 44,614 | 54,131 |
| 2022 | 40,106 | 41,536 | 46,738 | 51,922 | 55,931 | 68,787 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.6 | 1.6 | 1.5 | 1.5 | 1.4 | 1.3 |
| 2017 | 1.5 | 1.6 | 1.5 | 1.4 | 1.4 | 1.6 |
| 2022 | 1.4 | 1.4 | 1.4 | 1.3 | 1.4 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 12.4% | - | - | 9.4% | - | - |
| 2017 | 10.3% | - | - | 11.4% | - | - |
| 2022 | 10.6% | - | - | 16.7% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 75.1% | 62.4% | 68.4% | 87.8% | 80.6% | 87.5% |
| 2017 | 77.8% | 71.6% | 81.9% | 87.5% | 83.3% | 86.7% |
| 2022 | 77.4% | 70.2% | 78.9% | 87.2% | 76.9% | 85.7% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 21,843 | 20,003 | 23,251 | 35,577 | 42,051 | 44,969 |
| 2017 | 29,927 | 30,205 | 32,593 | 47,255 | 45,123 | 52,469 |
| 2022 | 39,930 | 41,238 | 46,952 | 53,836 | 57,367 | 66,922 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 45.2% | 65.1% | 49.0% | 27.1% | 34.3% | - |
| 2017 | 35.0% | 49.7% | 35.1% | 16.5% | 24.2% | - |
| 2022 | 32.8% | 46.6% | 31.1% | 15.6% | 30.8% | - |
| Benefit intensity | | | | | | |
| 2014 | 8.6 | 8.9 | 7.9 | 7.3 | 8.7 | - |
| 2017 | 9.0 | 9.6 | 7.9 | 8.7 | 9.3 | - |
| 2022 | 10.0 | 10.1 | 9.7 | 9.2 | 9.9 | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Social Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table F 13. Labour market outcomes for Social Services sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 34.9% | 65.1% | 26.4% | 73.6% |
| 2017 | 33.7% | 66.3% | 24.5% | 75.5% |
| 2022 | 31.7% | 68.3% | 22.7% | 77.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 62.5% | 66.2% | 80.3% | 83.0% |
| 2017 | 74.3% | 70.4% | 73.5% | 86.1% |
| 2022 | 72.1% | 71.6% | 68.3% | 79.5% |
| Employment intensity | | | | |
| 2014 | 8.4 | 9.0 | 9.9 | 10.1 |
| 2017 | 9.6 | 9.6 | 10.8 | 10.5 |
| 2022 | 10.1 | 10.1 | 10.4 | 10.7 |
| Mean annual earnings from W&S | | | | |
| 2014 | 21,751 | 21,510 | 38,006 | 36,192 |
| 2017 | 33,800 | 29,345 | 48,960 | 43,667 |
| 2022 | 47,654 | 40,369 | 58,410 | 53,051 |
| Mean number of employers per year | | | | |
| 2014 | 1.5 | 1.6 | 1.4 | 1.5 |
| 2017 | 1.5 | 1.5 | 1.3 | 1.5 |
| 2022 | 1.4 | 1.4 | 1.3 | 1.4 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 4.5% | 8.0% | - | - |
| 2017 | 4.3% | 7.3% | - | - |
| 2022 | 6.4% | 6.5% | 11.1% | 14.4% |
| Sum of employment and self-employment | | | | |
| 2014 | 65.5% | 71.8% | 81.6% | 86.8% |
| 2017 | 77.5% | 75.3% | 77.9% | 89.0% |
| 2022 | 76.2% | 75.4% | 77.8% | 86.0% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 21,806 | 21,472 | 39,318 | 36,816 |
| 2017 | 34,118 | 29,227 | 50,224 | 46,107 |
| 2022 | 47,887 | 40,203 | 57,963 | 54,653 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 49.0% | 52.8% | 27.6% | 28.3% |
| 2017 | 34.8% | 39.9% | 16.2% | 19.1% |
| 2022 | 34.3% | 36.2% | 20.6% | 18.6% |
| Benefit intensity | | | | |
| 2014 | 8.6 | 8.7 | 7.1 | 7.8 |
| 2017 | 8.6 | 9.3 | 9.1 | 8.8 |
| 2022 | 10.0 | 10.1 | 10.8 | 9.2 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of TTW Social Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix G

Table G 1. WAR grouping and NZSCED concordance

| WAR Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|-----------------------|---------------------|---|
| Construction | | |
| | 030711 | Boiler-making and Welding (Engineering Fabrication – steel construction) |
| | 040309 | Bricklaying and Stonemasonry |
| | 040399 | Building not elsewhere classified |
| | 040311 | Carpentry and Joinery |
| | 040313 | Ceiling, Wall and Floor Fixing |
| | 039909 | Cleaning (Hard Floor Surfaces) |
| | 031309 | Communications Equipment Installation and Maintenance |
| | 031399 | Electrical and Electronic Engineering and Technology not elsewhere classified |
| | 031301 | Electrical Engineering |
| | 031313 | Electrical Fitting, Electrical Mechanics |
| | 031303 | Electronic Engineering |
| | 039999 | Engineering and Related Technologies not elsewhere classified |
| | 039905 | Fire Technology and Rescue Services (Fire detection and Alarm system) |
| | 040321 | Floor Coverings (Flooring Fundamentals, Flooring Installations) |
| | 040323 | Glazing |
| | 031701 | Maritime Engineering (for Marine Electric – Electronics level apprenticeship) |
| | 040325 | Painting, Decorating, Sign Writing and Other Finishes |
| | 040327 | Plumbing, Gasfitting and Drainlaying |
| | 040315 | Roof Fixing |
| | 040329 | Scaffolding and Rigging |
| Infrastructure | | |
| | 030999 | Civil Engineering not elsewhere classified |
| | 050501 | Forestry Studies (NZA in Infrastructure (Forestry Earthworks) (L4) Complex Apprenticeship) |
| | 030717 | Plant and Machine Operations |
| | 031311 | Power Line Installation and Maintenance |
| | 030910 | Road Construction |
| | 030907 | Water and Sanitary Engineering |

| WAR Sub-group | NZSCED level 6 code | NZSCED level 6 name |
|-----------------|---------------------|--|
| Services | | |
| | 040101 | Architecture |
| | 040199 | Architecture and Urban Environment not elsewhere classified |
| | 040307 | Building Construction Economics (including Quantity Surveying) |
| | 040303 | Building Construction Management |
| | 040301 | Building Science and Technology |
| | 040305 | Building Surveying (Inspection) |
| | 080301 | Business Management (Project management strand) |
| | 030901 | Construction Engineering |
| | 030703 | Industrial Engineering |
| | 040107 | Interior and Environmental Design |
| | 080315 | Project Management |
| | 031101 | Surveying |

Source: Authors' compilation from WDCs data.

Appendix G – Construction

Table G 2. Labour market outcomes for Construction sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 94.6% | 5.4% | 89.0% | 11.0% |
| 2017 | 94.7% | 5.3% | 88.6% | 11.4% |
| 2022 | 94.9% | 5.1% | 88.8% | 11.2% |
| 4) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 79.7% | 80.9% | 82.1% | 91.7% |
| 2017 | 77.4% | 78.3% | 84.5% | 91.7% |
| 2022 | 72.9% | 73.8% | 83.2% | 83.3% |
| Employment intensity | | | | |
| 2014 | 10.4 | 10.2 | 10.8 | 11.0 |
| 2017 | 10.7 | 10.3 | 11.1 | 10.5 |
| 2022 | 10.8 | 10.6 | 11.2 | 11.3 |
| Mean annual earnings from W&S | | | | |
| 2014 | 55,460 | 46,132 | 68,610 | 52,241 |
| 2017 | 65,770 | 49,984 | 79,950 | 57,920 |
| 2022 | 74,115 | 58,540 | 92,726 | 70,055 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.4 |
| 2017 | 1.4 | 1.4 | 1.3 | 1.2 |
| 2022 | 1.3 | 1.4 | 1.2 | 1.3 |
| 5) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 12.9% | 8.3% | - | - |
| 2017 | 17.0% | 11.2% | - | - |
| 2022 | 20.1% | 9.4% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 87.6% | 83.4% | 90.3% | 95.8% |
| 2017 | 88.7% | 83.6% | 93.0% | 95.8% |
| 2022 | 86.4% | 78.5% | 92.6% | 87.5% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 57,403 | 47,034 | 69,996 | 53,104 |
| 2017 | 69,239 | 50,694 | 81,630 | 63,246 |
| 2022 | 78,560 | 58,931 | 94,841 | 77,360 |
| 6) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 14.3% | 26.8% | - | - |
| 2017 | 11.8% | 26.3% | - | - |
| 2022 | 14.3% | 26.8% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.5 | 8.1 | - | - |
| 2017 | 7.7 | 9.2 | - | - |
| 2022 | 8.9 | 10.0 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Construction learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table G 3. Labour market outcomes for Construction sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 67.7% | 25.5% | 6.8% | 82.7% | 12.6% | 4.7% |
| 2017 | 67.9% | 25.6% | 6.6% | 82.7% | 13.0% | 4.3% |
| 2022 | 68.5% | 25.1% | 6.4% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 82.8% | 72.9% | 76.7% | 86.1% | 83.3% | - |
| 2017 | 78.7% | 73.5% | 82.1% | 85.6% | 83.3% | - |
| 2022 | 74.0% | 69.6% | 74.0% | 84.6% | 76.9% | - |
| Employment intensity | | | | | | |
| 2014 | 10.9 | 9.5 | 9.4 | 11.0 | 9.9 | - |
| 2017 | 11.1 | 9.8 | 10.2 | 11.3 | 11.1 | - |
| 2022 | 11.1 | 9.8 | 10.5 | 11.3 | 10.9 | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 60,473 | 43,178 | 38,408 | 72,816 | 50,532 | - |
| 2017 | 70,944 | 50,828 | 52,319 | 83,657 | 72,692 | - |
| 2022 | 80,065 | 56,315 | 64,172 | 95,641 | 80,944 | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.5 | 1.6 | 1.3 | 1.4 | - |
| 2017 | 1.3 | 1.5 | 1.5 | 1.2 | 1.4 | - |
| 2022 | 1.3 | 1.4 | 1.4 | 1.3 | 1.1 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 15.7% | 4.6% | 4.8% | 13.9% | - | - |
| 2017 | 20.9% | 6.4% | 7.3% | 17.6% | - | - |
| 2022 | 23.4% | 10.2% | 9.0% | 18.6% | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 92.5% | 75.6% | 79.9% | 94.3% | 87.5% | - |
| 2017 | 92.5% | 77.7% | 86.6% | 95.4% | 87.5% | - |
| 2022 | 89.8% | 76.2% | 80.2% | 93.6% | 84.6% | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 62,263 | 44,495 | 39,522 | 73,967 | 58,284 | - |
| 2017 | 73,637 | 54,644 | 54,193 | 84,909 | 76,563 | - |
| 2022 | 84,656 | 59,283 | 65,183 | 96,932 | 96,864 | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 7.6% | 33.3% | 23.8% | 6.3% | - | - |
| 2017 | 6.2% | 30.4% | 15.6% | - | - | - |
| 2022 | 7.5% | 35.0% | 21.5% | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 6.4 | 6.9 | 6.4 | 4.7 | - | - |
| 2017 | 7.6 | 8.2 | 7.2 | - | - | - |
| 2022 | 8.5 | 9.3 | 8.9 | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Construction learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table G 4. Labour market outcomes for Construction sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 20.8% | 79.2% | 24.8% | 75.2% |
| 2017 | 20.6% | 79.4% | 25.2% | 74.8% |
| 2022 | 19.1% | 80.9% | 24.7% | 75.3% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 69.4% | 82.5% | 81.5% | 84.8% |
| 2017 | 68.9% | 79.6% | 84.9% | 85.4% |
| 2022 | 65.7% | 74.6% | 83.0% | 82.7% |
| Employment intensity | | | | |
| 2014 | 9.8 | 10.6 | 10.3 | 11.0 |
| 2017 | 10.4 | 10.8 | 11.0 | 11.1 |
| 2022 | 10.6 | 10.8 | 10.8 | 11.3 |
| Mean annual earnings from W&S | | | | |
| 2014 | 52,466 | 55,504 | 52,635 | 70,583 |
| 2017 | 65,478 | 64,801 | 69,308 | 80,504 |
| 2022 | 78,316 | 72,264 | 84,676 | 91,985 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | 1.5 | 1.3 |
| 2017 | 1.4 | 1.4 | 1.3 | 1.2 |
| 2022 | 1.3 | 1.3 | 1.3 | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 16.7% | 11.6% | - | - |
| 2017 | 21.6% | 15.4% | - | - |
| 2022 | 20.9% | 19.2% | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 80.7% | 89.2% | 85.2% | 93.3% |
| 2017 | 84.5% | 89.5% | 90.6% | 93.6% |
| 2022 | 81.4% | 87.1% | 92.5% | 91.4% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 54,782 | 57,371 | 55,510 | 71,812 |
| 2017 | 73,787 | 66,971 | 74,217 | 82,285 |
| 2022 | 83,025 | 76,414 | 88,703 | 94,393 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 15.5% | 14.8% | - | - |
| 2017 | 11.1% | 12.9% | - | - |
| 2022 | 16.4% | 14.5% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.5 | 6.7 | - | - |
| 2017 | 7.8 | 8.0 | - | - |
| 2022 | 9.3 | 8.9 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Construction learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix G – Infrastructure

Table G 5. Labour market outcomes for Infrastructure sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 95.7% | 4.3% | 88.1% | 11.9% |
| 2017 | 95.7% | 4.3% | 87.7% | 12.3% |
| 2022 | 95.7% | 4.3% | 88.2% | 11.8% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 89.8% | 69.0% | 97.3% | 100.0% |
| 2017 | 88.6% | 78.6% | 94.4% | 90.0% |
| 2022 | 82.7% | 71.4% | 93.3% | 90.0% |
| Employment intensity | | | | |
| 2014 | 11.0 | 9.4 | 11.4 | 11.2 |
| 2017 | 11.0 | 9.2 | 11.6 | 11.3 |
| 2022 | 11.0 | 10.0 | 11.6 | 11.5 |
| Mean annual earnings from W&S | | | | |
| 2014 | 64,321 | 34,498 | 76,213 | 73,784 |
| 2017 | 70,344 | 37,788 | 93,671 | 80,916 |
| 2022 | 78,452 | 46,784 | 110,756 | 92,443 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.6 | 1.3 | 1.2 |
| 2017 | 1.4 | 1.3 | 1.2 | 1.3 |
| 2022 | 1.3 | 1.4 | 1.2 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 92.8% | 72.4% | 98.6% | 100.0% |
| 2017 | 92.4% | 75.0% | 98.6% | 90.0% |
| 2022 | 88.2% | 75.0% | 98.7% | 90.0% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 65,782 | 34,160 | 76,294 | 73,774 |
| 2017 | 72,158 | 40,856 | 93,272 | 80,916 |
| 2022 | 82,194 | 48,307 | 111,924 | 92,760 |
| 3) Income from benefits | | | | |
| Benefit reciprocity | | | | |
| 2014 | 12.7% | 44.8% | - | - |
| 2017 | 11.4% | 39.3% | - | - |
| 2022 | 15.0% | 42.9% | - | - |
| Benefit intensity | | | | |
| 2014 | 6.8 | 8.9 | - | - |
| 2017 | 7.2 | 9.6 | - | - |
| 2022 | 8.1 | 10.7 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Infrastructure learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table G 6. Labour market outcomes for Infrastructure sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|---------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 52.1% | 42.6% | 5.2% | - | - | - |
| 2017 | 52.3% | 42.7% | 5.0% | - | - | - |
| 2022 | 53.0% | 42.2% | 4.8% | - | - | - |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 92.1% | 86.0% | 88.2% | 98.3% | 94.1% | - |
| 2017 | 90.8% | 85.1% | 87.5% | 94.5% | 93.8% | - |
| 2022 | 85.0% | 78.9% | 90.3% | 93.2% | 88.2% | - |
| Employment intensity | | | | | | |
| 2014 | 11.3 | 10.5 | 10.4 | 11.5 | 10.6 | - |
| 2017 | 11.3 | 10.4 | 10.8 | 11.7 | 11.2 | - |
| 2022 | 11.4 | 10.3 | 11.1 | 11.5 | 12.0 | - |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 70,687 | 54,318 | 51,897 | 79,745 | 64,673 | - |
| 2017 | 77,703 | 58,691 | 59,784 | 96,819 | 80,524 | - |
| 2022 | 87,321 | 63,865 | 68,435 | 111,873 | 100,491 | - |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.5 | 1.6 | 1.2 | 1.4 | - |
| 2017 | 1.3 | 1.5 | 1.5 | 1.2 | 1.2 | - |
| 2022 | 1.3 | 1.4 | 1.5 | 1.2 | 1.4 | - |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 9.4% | - | - | - | - | - |
| 2017 | 12.8% | 3.6% | - | - | - | - |
| 2022 | 14.7% | 6.7% | - | - | - | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 96.5% | 87.4% | 88.2% | 98.3% | 94.1% | - |
| 2017 | 95.8% | 86.9% | 87.5% | 98.2% | 93.8% | - |
| 2022 | 92.3% | 81.9% | 90.3% | 98.3% | 94.1% | - |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 72,399 | 54,598 | 54,343 | 81,109 | 64,901 | - |
| 2017 | 80,132 | 59,328 | 60,655 | 96,883 | 80,844 | - |
| 2022 | 90,971 | 67,042 | 68,483 | 113,699 | 97,902 | - |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 7.4% | 22.3% | - | - | - | - |
| 2017 | 5.9% | 21.5% | - | - | - | - |
| 2022 | 7.4% | 27.4% | - | - | - | - |
| Benefit intensity | | | | | | |
| 2014 | 6.1 | 7.7 | - | - | - | - |
| 2017 | 7.2 | 7.7 | - | - | - | - |
| 2022 | 8.5 | 8.5 | - | - | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Infrastructure learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table G 7. Labour market outcomes for Infrastructure sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 12.7% | 87.3% | 21.4% | 78.6% |
| 2017 | 11.9% | 88.1% | 21.0% | 79.0% |
| 2022 | 11.3% | 88.7% | 21.4% | 78.6% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 83.5% | 89.9% | 100.0% | 98.5% |
| 2017 | 80.8% | 89.0% | 100.0% | 93.8% |
| 2022 | 71.6% | 83.8% | 94.4% | 92.4% |
| Employment intensity | | | | |
| 2014 | 10.3 | 11.0 | 10.4 | 11.4 |
| 2017 | 10.6 | 10.9 | 10.6 | 11.6 |
| 2022 | 10.8 | 11.0 | 12.4 | 11.6 |
| Mean annual earnings from W&S | | | | |
| 2014 | 62,757 | 63,269 | 65,763 | 77,560 |
| 2017 | 72,025 | 68,887 | 83,783 | 92,998 |
| 2022 | 83,948 | 76,388 | 120,653 | 107,111 |
| Mean number of employers per year | | | | |
| 2014 | 1.4 | 1.4 | 1.4 | 1.2 |
| 2017 | 1.4 | 1.4 | 1.3 | 1.2 |
| 2022 | 1.2 | 1.4 | 1.3 | 1.2 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | - | - | - | - |
| 2017 | - | - | - | - |
| 2022 | - | - | - | - |
| Sum of employment and self-employment | | | | |
| 2014 | 88.2% | 92.4% | 100.0% | 98.5% |
| 2017 | 84.6% | 92.6% | 100.0% | 95.3% |
| 2022 | 78.4% | 89.0% | 100.0% | 98.5% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 64,427 | 64,737 | 65,877 | 78,791 |
| 2017 | 74,204 | 70,683 | 86,726 | 94,803 |
| 2022 | 84,763 | 80,367 | 117,904 | 107,614 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 18.8% | 13.7% | - | - |
| 2017 | 12.8% | 12.6% | - | - |
| 2022 | 20.3% | 15.7% | - | - |
| Benefit intensity | | | | |
| 2014 | 7.6 | 6.8 | - | - |
| 2017 | 7.7 | 7.5 | - | - |
| 2022 | 9.2 | 8.3 | - | - |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Infrastructure learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Appendix G – Services

Table G 8. Labour market outcomes for Services sub-group: by gender

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|--------|----------|--------|
| | Male | Female | Male | Female |
| Distribution by gender | | | | |
| 2014 | 39.9% | 60.1% | 41.1% | 58.9% |
| 2017 | 40.2% | 59.8% | 40.6% | 59.4% |
| 2022 | 40.2% | 59.8% | 40.2% | 59.8% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 84.7% | 73.5% | 82.9% | 83.2% |
| 2017 | 83.7% | 74.6% | 82.4% | 81.8% |
| 2022 | 81.4% | 74.6% | 79.3% | 81.6% |
| Employment intensity | | | | |
| 2014 | 10.9 | 9.9 | 10.5 | 10.5 |
| 2017 | 11.0 | 10.2 | 11.2 | 10.7 |
| 2022 | 11.1 | 10.4 | 11.2 | 10.8 |
| Mean annual earnings from W&S | | | | |
| 2014 | 68,020 | 37,363 | 61,209 | 45,148 |
| 2017 | 74,495 | 42,620 | 79,311 | 55,198 |
| 2022 | 82,599 | 50,624 | 95,616 | 64,777 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.5 | 1.5 | 1.5 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.4 |
| 2022 | 1.2 | 1.4 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 8.7% | 8.7% | 12.0% | 12.0% |
| 2017 | 11.9% | 10.2% | 15.3% | 14.5% |
| 2022 | 13.1% | 11.9% | 18.7% | 16.2% |
| Sum of employment and self-employment | | | | |
| 2014 | 88.9% | 77.4% | 90.1% | 87.5% |
| 2017 | 90.2% | 79.7% | 91.5% | 88.4% |
| 2022 | 88.6% | 79.8% | 89.6% | 89.0% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 68,716 | 38,459 | 63,292 | 46,681 |
| 2017 | 75,577 | 43,824 | 83,233 | 56,669 |
| 2022 | 83,627 | 52,449 | 100,457 | 67,175 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 14.0% | 35.2% | 10.7% | 16.6% |
| 2017 | 10.3% | 27.5% | 6.8% | 11.6% |
| 2022 | 11.6% | 28.7% | 6.9% | 10.4% |
| Benefit intensity | | | | |
| 2014 | 7.1 | 9.0 | 5.7 | 7.9 |
| 2017 | 7.7 | 9.2 | 7.1 | 8.0 |
| 2022 | 9.1 | 9.9 | 9.4 | 8.9 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.

Table G 9. Labour market outcomes for Services sub-group: by ethnicity

| | NZQF 2-4 | | | NZQF 5-7 | | |
|--|----------|--------|---------|----------|--------|---------|
| | European | Māori | Pacific | European | Māori | Pacific |
| Distribution of ethnicity (prioritised) | | | | | | |
| 2014 | 56.9% | 33.1% | 10.0% | 73.7% | 19.7% | 6.6% |
| 2017 | 57.2% | 33.2% | 9.7% | 73.7% | 20.1% | 6.2% |
| 2022 | 57.7% | 33.0% | 9.3% | 74.2% | 20.0% | 5.8% |
| 1) Income from Wages & Salaries (W&S) | | | | | | |
| Employment | | | | | | |
| 2014 | 83.9% | 69.7% | 77.9% | 86.2% | 80.0% | 71.2% |
| 2017 | 81.6% | 74.2% | 77.6% | 84.0% | 80.3% | 76.6% |
| 2022 | 79.4% | 73.8% | 77.7% | 80.9% | 78.8% | 84.1% |
| Employment intensity | | | | | | |
| 2014 | 10.6 | 9.8 | 9.9 | 10.7 | 9.9 | 9.9 |
| 2017 | 10.9 | 10.1 | 10.5 | 11.0 | 10.5 | 10.5 |
| 2022 | 11.0 | 10.2 | 10.5 | 11.0 | 10.9 | 10.8 |
| Mean annual earnings from W&S | | | | | | |
| 2014 | 56,535 | 41,583 | 43,550 | 55,699 | 43,792 | 38,197 |
| 2017 | 62,978 | 46,335 | 51,596 | 70,172 | 53,056 | 48,636 |
| 2022 | 70,875 | 54,141 | 57,177 | 82,124 | 65,969 | 58,894 |
| Mean number of employers per year | | | | | | |
| 2014 | 1.4 | 1.4 | 1.3 | 1.5 | 1.5 | 1.4 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.3 | 1.4 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.4 | 1.3 | 1.4 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | | | |
| Self-employment | | | | | | |
| 2014 | 11.8% | 3.3% | - | 13.8% | 7.1% | - |
| 2017 | 14.4% | 4.4% | - | 17.6% | 7.9% | - |
| 2022 | 16.3% | 6.1% | - | 20.1% | 9.3% | - |
| Sum of employment and self-employment | | | | | | |
| 2014 | 89.0% | 71.5% | 79.2% | 92.4% | 81.9% | 73.1% |
| 2017 | 88.6% | 76.4% | 80.3% | 92.8% | 84.9% | 78.7% |
| 2022 | 87.7% | 76.3% | 79.9% | 91.4% | 82.1% | 86.4% |
| Mean annual income from W&S and self-employment | | | | | | |
| 2014 | 57,731 | 41,884 | 43,748 | 57,898 | 44,546 | 37,473 |
| 2017 | 64,354 | 47,215 | 51,552 | 72,940 | 54,731 | 48,188 |
| 2022 | 72,283 | 55,209 | 57,901 | 85,022 | 66,942 | 61,707 |
| 3) Income from benefits | | | | | | |
| Benefit reciprocity | | | | | | |
| 2014 | 18.6% | 43.9% | 29.2% | 9.1% | 30.3% | 28.8% |
| 2017 | 12.5% | 38.1% | 21.8% | 5.6% | 23.7% | 23.4% |
| 2022 | 13.6% | 38.3% | 25.9% | 6.4% | 19.2% | 20.5% |
| Benefit intensity | | | | | | |
| 2014 | 8.3 | 9.1 | 7.8 | 6.9 | 8.0 | 6.9 |
| 2017 | 8.8 | 8.8 | 9.3 | 7.6 | 8.0 | 8.8 |
| 2022 | 9.2 | 10.1 | 9.3 | 8.8 | 9.8 | 7.9 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records, excluding MELAA, Asian and Other ethnicities. All income variables are deflated to March 2022 dollars.

Table G 10. Labour market outcomes for Services sub-group: by region

| | NZQF 2-4 | | NZQF 5-7 | |
|--|----------|------------------|----------|------------------|
| | Auckland | Outside Auckland | Auckland | Outside Auckland |
| Distribution by location | | | | |
| 2014 | 35.3% | 64.7% | 25.6% | 74.4% |
| 2017 | 33.7% | 66.3% | 26.1% | 73.9% |
| 2022 | 31.0% | 69.0% | 25.1% | 74.9% |
| 1) Income from Wages & Salaries (W&S) | | | | |
| Employment | | | | |
| 2014 | 76.3% | 78.8% | 77.7% | 84.9% |
| 2017 | 77.4% | 78.9% | 79.7% | 83.2% |
| 2022 | 74.7% | 78.3% | 80.6% | 80.5% |
| Employment intensity | | | | |
| 2014 | 10.4 | 10.3 | 10.4 | 10.5 |
| 2017 | 10.5 | 10.6 | 10.8 | 10.9 |
| 2022 | 10.8 | 10.7 | 11.2 | 10.9 |
| Mean annual earnings from W&S | | | | |
| 2014 | 54,992 | 48,366 | 55,829 | 50,366 |
| 2017 | 61,391 | 53,750 | 68,834 | 63,613 |
| 2022 | 71,347 | 61,198 | 85,619 | 74,179 |
| Mean number of employers per year | | | | |
| 2014 | 1.3 | 1.4 | 1.4 | 1.5 |
| 2017 | 1.3 | 1.4 | 1.3 | 1.4 |
| 2022 | 1.3 | 1.4 | 1.3 | 1.3 |
| 2) Income from self-employment (according to IR3 records) | | | | |
| Self-employment | | | | |
| 2014 | 6.8% | 9.8% | 10.7% | 12.3% |
| 2017 | 9.5% | 11.6% | 13.2% | 15.4% |
| 2022 | 10.1% | 13.4% | 14.7% | 18.2% |
| Sum of employment and self-employment | | | | |
| 2014 | 79.7% | 83.2% | 82.8% | 90.3% |
| 2017 | 82.7% | 84.5% | 86.3% | 90.8% |
| 2022 | 80.2% | 84.7% | 88.9% | 89.3% |
| Mean annual income from W&S and self-employment | | | | |
| 2014 | 55,196 | 49,643 | 58,050 | 52,329 |
| 2017 | 61,824 | 55,496 | 72,931 | 66,016 |
| 2022 | 72,140 | 63,049 | 89,094 | 77,764 |
| 3) Income from benefits | | | | |
| Benefit recipiency | | | | |
| 2014 | 24.9% | 27.8% | 15.9% | 13.6% |
| 2017 | 19.4% | 21.2% | 9.3% | 9.8% |
| 2022 | 22.4% | 21.6% | 9.7% | 9.0% |
| Benefit intensity | | | | |
| 2014 | 8.5 | 8.6 | 6.9 | 7.3 |
| 2017 | 9.1 | 8.8 | 8.1 | 7.6 |
| 2022 | 9.9 | 9.6 | 8.6 | 9.0 |

Source: Authors' compilation from Stats NZ IDI and WDCs.

Notes: The sample consists of WAR Services learners between 18 and 54 (inclusive) years old in 2012, according to their education records. All income variables are deflated to March 2022 dollars.



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