Characteristics of Adults undertaking Education and Training in New Zealand

Dean Hyslop, Trinh Le, Lynn Riggs

Document information

Author contact details

Dean Hyslop, Trinh Le, and Lynn Riggs
  Motu Economic and Public Policy Research,
  PO Box 24390,
  Wellington 6142, New Zealand.
  Email: dean.hyslop@motu.org.nz; trinh.le@motu.org.nz; lynn.riggs@motu.org.nz

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Abstract

In this paper we analyse the education and training and labour market outcomes of adults aged 25-64 in New Zealand, using data sources from Statistics New Zealand's Integrated Data Infrastructure as well as from publicly available data. Using the Household Labour Force Survey matched to administrative employment and earnings data, we estimate that about 7% of adults in this age group report studying over the period 2006–18, of which about two-thirds (5%) is considered 'formal' study. Both overall study rates and the fraction in formal study are positively correlated with existing education levels, ranging from 2% for those with no qualifications up to 9% for those with at least level 7 qualifications. We describe the trends in outcomes from five years before their reported study to five years after and find that the employment rates and average earnings of those studying generally increase over time relative to those not studying. Analysis of MOE data shows that these adult students who complete their qualification experience increases in employment rates and employment income after their study, especially for those who study for a level 7 qualification. We also use data from the Programme for International Assessment of Adult Competencies (PIAAC) survey in order to delve more into the nature of education and training that is not part of a qualification program and find that most of these activities are job-related. We find that participants in these activities are much more likely to be employed (90%) than non-participants (65%) and that 73% of participants report that all of their time spent in these activities is job-related. Moreover, 38% of respondents reported wanting more time for learning activities but did not participate, and the most frequently cited reason by these respondents for not participating is "too busy at work".

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1   Introduction

Education and training has long been considered the bedrock of a skilled workforce. There is also growing concern that technological changes are creating an increasing dynamic and fluid labour market, in which workers will need to continually study and retrain to stay actively productive. However, relatively little is known about the extent to which adult workers are undertaking study and training in New Zealand. Hence, the objective of this research note is to examine and document the characteristics of adults aged 25-64 who undertake education and training in New Zealand, which includes both formal and non-formal study leading towards a qualification as well as other lifelong learning activities that do not.

2   Data description

We use various sources of data contained in Statistics New Zealand's Integrated Data Infrastructure (IDI) alongside some publicly available data. In this section, we first provide a brief overview of the data sets used and then discuss each in more detail in the subsequent subsections.

We begin our analysis using data from the Household Labour Force Survey (HLFS) to identify all adults aged 25-64, including those who report study and training activity. The HLFS collects information on whether respondents undertook any study or training towards a (i.e., any study) qualification during the reference week and whether or not the study was 'formal' study, which HLFS defines as working towards a qualification that takes three or more months of full-time study (i.e., 20 hours or more per week) to complete.[1] Second, we match the HLFS samples to administrative data on wage and salary employment and earnings in Inland Revenue's (IR) Employer Monthly Schedule (EMS) tables in the IDI: this data provides detailed longitudinal monthly data primarily for individual employees over the time period 1999-2018.[2]

As an alternative source for study information, we use Ministry of Education (MOE) Tertiary Education data on course enrolments and completions since 2003[3] to find those adults aged 25-64 enrolling and completing tertiary education. The MOE data provides comprehensive population data for everyone enrolling in tertiary education which allows us to study recent patterns and to document the nature of study undertaken. We also merge the EMS data with the

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[1] The HLFS asks two questions about study. These are the questions from the 2007 HLFS: 1) "In the last week, have you studied or worked towards a qualification? Mark yes if you were on a term or semester break." and 2) "If you were studying full time (that is, 20 hours or more per week), would this qualification take three months or more to complete? Study includes classroom time, assignments and revision." This questionnaire can be found on the Statistics NZ website: https://cdm20045.contentdm.oclc.org/digital/collection/p20045coll2/id/439.

[2] The EMS data primarily contains income from wages and salary paid by employers to their employees. However, it can also include wage and salary information for working proprietors or contractors as well as income from government benefits.

[3] Even though MOE completion data are available from 2000, pre-2003 data had a poor matching rate into the IDI before the National Student Index (NSI) was used to allocate National Student Numbers to individual students. As a result, older cohorts of workers (i.e. those who completed their tertiary education before 2003) will tend to appear to have lower rates of qualifications in the data.

MOE data to examine labour market outcomes for these adults. While the MOE data covers the population enrolling in tertiary education, the HLFS is representative of the New Zealand population as whole and provides us with a natural comparison group of those adults in this age group who have not undertaken further study.

Finally, in order to delve more into the nature of education and training activities beyond those done towards a qualification, we use publicly available data from the Programme for International Assessment of Adult Competencies (PIAAC) survey for New Zealand.

2.1   The HLFS-based analysis

In this section, we describe the HLFS data used to identify study patterns among adults aged 25-64. We first discuss the cross-sectional survey data construction and describe the characteristics of the pooled sample. Second, we explain how we merge the HLFS data to the administrative employment and earnings data in the EMS tables. We then discuss the characteristics of this population and describe the trends in labour market outcomes over an extended period from five years before appearing in the HLFS survey to five years after the HLFS survey, stratified by reported study activity.

2.1.1   HLFS cross-sectional data

The HLFS is a large representative survey of the resident population, consisting of about 15,000 households each quarter. As well as labour market information, the HLFS collects information on the demographic characteristics of respondents, such as their age, sex, ethnicity, education qualifications, marital and family status. The IDI includes the HLFS quarterly samples since 2006 (4th quarter), and we include data from quarterly samples over the period 2006Q4–2018Q4.

The HLFS is primarily concerned about labour market activity but also asks all working age individuals two questions about study. First, there is a question asking the respondent whether they studied or worked towards a qualification during the reference week; and second, whether that study was 'formal' study which HLFS defines as working towards a qualification that takes three or more months of full-time study (i.e., 20 hours or more per week) to complete.[4] For these analyses, study not deemed as 'formal' we then characterise as 'non-formal' study.

Our analysis focuses on the study activity and labour market outcomes for adults returning to study. Hence, for this analysis, we select all individuals 25-64 years old who have a positive sampling weight in the HLFS during the sample period – this is our main sample. This gives a total pooled sample of nearly 940,000 quarterly HLFS observations (unweighted), representing a

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[4] The HLFS asks two questions about study. These are the questions from the 2007 HLFS: 1) "In the last week, have you studied or worked towards a qualification? Mark yes if you were on a term or semester break." and 2) "If you were studying full time (that is, 20 hours or more per week), would this qualification take three months or more to complete? Study includes classroom time, assignments and revision." This questionnaire can be found on the Statistics NZ website: https://cdm20045.contentdm.oclc.org/digital/collection/p20045coll2/id/439.

pooled population of nearly 113 million person-quarters over the period (weighted).[5] Since some of our analysis requires other data in the IDI, we also provide results for the subsample of individuals in our main sample who link to the IDI spline.[6]

To give a sense of the prevalence of study being undertaken at any point in time over the period 2006Q4–2018Q4, Figure 1 displays the trends in the quarterly rates of study (any study, formal study, and non-formal study) reported in the HLFS, including the moving averages (MA) of these series. We present the trends for any study, as well as for formal study and non-formal study. Over the period, 6-8% of 25-64 year olds report some study during the quarter, of which 4-6% is considered formal and typically up to 2% is non-formal. Figure 1 shows a declining rate of study (any study) reported between 2006 and 2016, before a substantial increase after 2016 which could be due to the 2016 survey redesign.[7] The declining study rate (any study) before 2016 is largely due to a decline in formal study rates, from about 6% in 2006 to below 5% by 2016. Around these trends (shown by the moving averages), there is substantial seasonal variation in formal (and any) study in line with the academic year, with these study rates up to 1% above trend during the 2nd and 3rd quarters, and 1% below trend during the 4th and 1st quarters of the year (corresponding to the summer period).

To better understand those adults 25-64 who report study relative to all adults in this age group, we present descriptive statistics in Table 1 for the pooled, cross-sectional HLFS samples.[8] The first column pertains to our main full HLFS pooled sample (everyone 25-64 including individuals not matched to the IDI), while the second column excludes those not matched to IDI records. The overall match rate to the IDI for the pooled sample is 96%, which suggests the average characteristics of the two samples will be very similar, as confirmed by comparing the two columns. The average age of these respondents is about 44 years, nearly 73% are partnered, and they have 0.44 dependent children on average. Also, just over half (51%) report no post-school qualifications,[9] while 29% report university qualifications. Approximately, 80% of these respondents are employed, of which nearly 14% are employed part-time and (independently) 14% are self-employed, 3% are unemployed, and nearly 17% are not in the labour force.[10] Over

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7% of respondents in our sample report studying, of which 5% report formal study and just over 2% report non-formal study. Hence, the IDI matched sample appears to be largely representative of the overall population of adults in this age-group. Henceforth, we will refer to these two samples collectively as 'the population'.

Next, we examine the characteristics of those adults in our IDI-matched sample reporting any study, formal study, and non-formal study with results shown in Columns 3-5, respectively, in Table 1. Those studying are, on average, five years younger than the full population, and about 6% more likely to be female; and those undertaking formal study are even younger and more predominantly female. Those in the overall study sample have about the same partner rate as the full matched sample, but those in formal study are less likely to be partnered and, conversely, those in non-formal study are more likely to be partnered. Those studying (either formal or non-formal study) are also less likely to be European or Pacifika, and more likely to be Maori, Asian or miscellaneous ethnicity than the wider population. Similarly, higher fractions of those studying have university or other post-school qualifications than the broader population.

Not surprisingly, those studying have a lower employment rate (72%) than the wider population of adults (80%), which is due to a lower employment rate for those in formal study (66%). However, those in non-formal study actually have a higher employment rate (85%) than the population overall. Furthermore, those studying are more likely to be employed part-time (17% overall) and less likely to be self-employed (7% overall), with those in formal study having even greater disparities with the wider population. These employment patterns are also broadly reflected in higher unemployment rates and not-in-the-labour-force (NILF) rates among those studying and among those in formal study. Moreover, those in non-formal study have a lower NILF rate (11%) compared to the overall population rate (17%) as well as to the study (24%) and the formal study (29%) groups. These patterns are consistent with a relatively simple story that formal study, which involves greater time commitment, is predominantly done while out of the labour force, while non-formal study is more likely to be undertaken while employed, perhaps partly as on-the-job-training.

To provide some comparison for those reporting study with other population groups, the final three Columns (6-8) in Table 1 present the characteristics for non-studying subsamples stratified by their labour force status (employed, unemployed, and NILF). The average characteristics vary across these groups, with some characteristics from each group appearing to be closer to those of the studying subgroup. For example, the study group's average partnership rate, number of dependent children, and distribution of highest qualification attained, correspond more closely to those employed. Yet, the study groups are closer in age to the unemployed; and their ethnic makeup appears closer to that of the NILF group.

Next, we examine respondents' reasons for leaving their last job, which is asked in the HLFS of those not employed if the respondent had worked within the previous five years. Unlike the

main activity question, this question was asked over the full 2006–2018 period. To present the results in the top panel of Table 2, we include those employed for comparison, and for those not employed, we have separated reasons for leaving their last job into three main categories: study, job-ended, and other.[11] For our IDI-matched sample shown in Column 1, 80% of the sample is employed. Of those <u>not employed</u> in this sample (20%), approximately 3% left their last job to study. By looking at these rates in our study subsamples, this characterisation shows among those not employed that a substantial fraction of respondents who study (particularly those in formal study), left their last job to study: i.e. more than 20% overall and nearly 25% of those in formal study did so. Conversely, only 7% of those not employed in our non-formal study sample left their last job to study. Also, the rate of job-ends is noticeably lower (11.6%) for those who are not studying and NILF than the rate of job-ends for our study groups. Finally, the fractions of those studying who left their last job for other reasons is close to the full sample rate (of 7%), and much lower than the rate of those not in the labour force (37%).[12]

We also describe the patterns of respondents' 'main activity' and how these differ by study behaviour for the sample period 2016Q2-2018Q4 as shown in the bottom panel in Table 2. We use this short, recent time period because respondents not in the labour force were only asked to report their 'main activity' – with one activity being 'study or training' – since the 2016 HLFS redevelopment.[13] The main activity reported has a range of options, which we have separated into study and other[14] in order to see if those in our study groups report 'study' as their main activity. For completeness of the sample, we have also included employed and unemployed separately.[15] As shown in column 2, 13.5% of those NILF and who report studying in the last week report study as their main activity in contrast to only 1.1% of in the full sample; and the rate is about 22% for those NILF in formal study, compared to only 3.3% for those in non-formal study.

In addition, in appendix Table A1 we have summarised the Occupation and Industry distributions of workers both studying and not. This shows there is some variation across both of these dimensions in terms of workers' propensity to undertake study. For example, those undertaking study are more likely to be in Professional, or Communications and Personal Services occupations, than all workers. Similarly, those studying are more likely to be in Education and Training, or in Health Care, industries than all workers; and are less likely to be in Agriculture, Fishing and Forestry or Manufacturing than all workers.

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[11] Job ended reasons for leaving the last job include end of temporary / seasonal / contract job, made redundant / laid off / business closed, and dissatisfied with job / conditions. Other reasons include retired, parental / family responsibilities, own sickness / illness / injury, moved location, other reason, and don't know or refused to answer.
[12] The NILF sample has 51% NA responses, largely reflecting the lack of a previous job in the last 5 years or non-response.
[13] We present these results to provide more context around these adults who study, even though the rate of study, and in particular, non-study seems to have changed due to the redesign.
[14] Other includes a variety of household, voluntary, and care work, as well as health and leisure related activities.
[15] Note that, because this question has only been asked recently, the reported employment and unemployment rates vary from those reported in Table 1.

2.1.2   HLFS panel merged with EMS data

We next merge the HLFS survey data with the longitudinal administrative employment and earnings data from the EMS tables. This will provide extensive information on the labour market outcomes for those in our HLFS samples over extended periods before and after the HLFS survey period and will facilitate analysis of the relationship between study and subsequent labour market outcomes. In doing this, we conduct two aggregation summaries of the data, mainly to reduce the size of the data needed for analysis, but also to synchronise the EMS data frequency with the HLFS quarterly survey period.

First, we have summarised individuals' HLFS survey information in our main sample,[16] and 'collapse' this down to one observation per individual to provide consistent characteristics for the individual, which can then be simply merged with their longitudinal EMS data. Second, we have also aggregated each individual's monthly employment and earnings receipt in the EMS to a calendar-quarter basis. In summarising individuals' HLFS panel information, we keep track of the period during which they are surveyed, the number of quarters they are surveyed, and other summary information (e.g., number of quarters they report study, number of quarters in each labour market status). For a person's highest qualification, we use each person's maximum reported during the quarters observed.[17] We also calculate a panel 'sample weight' as the average of their survey weights.

Table 3 contains descriptive statistics of the HLFS panel-level summary data for all individuals aged 25-64[18] observed in the HLFS survey over the period (Column 1), and samples of those matched to the IDI spine (Column 2), which are also stratified by highest qualification (Columns 3-6). There are nearly 217,000 distinct individuals surveyed, of which about 204,000 are matched to the IDI. About 60% of individuals are surveyed for at least four quarters. Those matched to the IDI spine appear in slightly more quarters (4.7 quarters on average) than the non-matched individuals (4.6 quarters on average in the full sample). More prominent differences in this regard are that those with higher education levels generally attrite less – e.g. those with at least level 4 qualifications appear in nearly five quarters, compared to less than four quarters for those with no qualifications and about 4.5 quarters for those with level 1-3 qualifications. These patterns suggest there is greater difficulty matching those who are more likely to attrite from the sample.

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[16] This includes everyone in our main HLFS sample, regardless of number of quarters, who is aged 25-64 at some point during their HLFS period. To collapse the information, we primarily keep demographic information that is generally fixed over survey period (e.g., gender, ethnicity). To the extent that this information changes, we generally take the modal value. For the highest qualification, we use the maximum highest qualification reported over the survey period. For other information that changes during the period, we summarise the information (e.g., the number of quarters the individual reports study).

[17] Variation in the reported highest qualification reflects both true increases in qualifications achieved over the period and reporting errors.

[18] This includes anyone who is aged 25-64 at some point during their HLFS period, and we use the entire HLFS period for all individuals regardless of whether they age in or out of the sample. We expect these are small numbers and will have little impact on the overall results.

In the bottom half of Table 3, we summarise individuals' study and labour market status for the subsample of individuals who are surveyed for 4-8 quarters. The study rates (any, formal and non-formal) for the full and IDI matched samples are broadly consistent with the cross-sectional statistics: the average any study rate for these individuals is 6.6% over the survey quarters, of which 4.6% is in formal study. The pattern of study rates across the highest qualification subsamples show that the study rate is quite strongly positively correlated with education level. In particular, the any study rate ranges from 2% for those with no qualifications up to over 9% for those with level 7 and above qualifications (level 7+); in addition, the fraction of any study that is formal study is also increasing with education, from roughly 60% for those with no qualifications to more than 70% for those with at least level 7 qualifications.[19]

The labour force status summary statistics also confirm that labour market activity is positively correlated with education levels. For example, average employment rates rise from about 60% for those with no qualifications to over 80% for those with at least level 7 qualifications, while the unemployment and NILF rates fall from about 4% and 32% respectively for those with no qualifications to 2% and 12% for those with level 7+ qualifications. The self-employment rate is highest for those with level 1-3 (14.5%) and level 4-6 (14.8%) qualifications.

To provide more information about employment and earnings for our main HLFS sample, we merge the HLFS individual-level data to the longitudinal quarterly EMS data, in order to obtain an overlapping panel. For this we have included EMS data over three window periods relative to an individual's HLFS survey period. First, the 5-year (20 quarter) period <u>before</u> they are first surveyed in the HLFS, which we refer to as the 'pre-HLFS' period. Second, all quarters <u>during</u> the period they are surveyed in the HLFS, referred to as the 'HLFS' period. Third, the 5-year (20 quarter) period <u>after</u> they are last surveyed in the HLFS, which we refer to as the 'post-HLFS' period.

Table 4 summarises the quarterly employment, benefit and miscellaneous income receipt in the EMS data for our HLFS samples, over these three periods. To ensure there is a five-year post-HLFS period for everyone, we have restricted our main HLFS sample to those individuals who are surveyed before the end of 2013 since the EMS data is only available through 2018. The first column in Table 4 is for the full IDI matched sample of individuals, the next three columns are for those reporting any study, any formal study and any non-formal study during their HLFS period,[20] and the final column is the sample of individuals who report no study during their HLFS period.

The first panel, relating to wage and salary employment, shows that the average individual in our sample has 11.9 quarters of employment in the five years before, 3.1 quarters during, and

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[19] These fractions are calculated as the rate of formal study in the total sample divided by the rate of study in the total sample. For example, for those with no qualifications, the rate of formal study is 0.012, and the rate of study is 0.020. Hence the fraction for this group is 0.012/0.020, which equals 0.60 or 60 percent.
[20] Note that, because it is possible to report formal study and non-formal study in different quarters, the 'any formal' and 'any non-formal' study samples of individuals are not mutually exclusive.

11.1 quarters of employment in the five years after, the HLFS period; and conditional on employment, the average quarterly earnings (in 2018 $-values) are $9,600, $9,100 and $9,900 respectively. This suggests there is some growth in earnings over the period but with variation. Those reporting study have higher average employment before, during and after, the HLFS period, than those with no study,[21] with the difference growing from 0.5 quarters over the five years before to 1.4 quarters over the five years after. The average earnings of those studying also increases more from the pre-HLFS to the post-HLFS period: in fact, relative to the non-studying sample, the difference increases by about $1,100 (or roughly 10%), from about -$500 (or -5%) over the five years before to about +$600 over the five years after the HLFS.

The second panel relates to working age tier-1 main government benefit receipt, which is measured in the EMS tables. Those studying also have a greater prevalence of government benefit receipt than those not studying, which is largely associated with those undertaking formal study. Furthermore, their conditional quarterly benefit (income) received is substantially higher on average than non-study benefit recipients.

The third panel summarises miscellaneous types of income receipt captured in the EMS.[22] Those studying again have greater incidence of miscellaneous income receipt than the non-study sample before (1.4 versus 1.1 quarters) and during (0.4 versus 0.2 quarters) the HLFS period, but lower receipt after (1.5 versus 2.1 quarters) the period. Although we have not reported the different types of income separately, these differences in the pre- and during-HLFS periods appear to be due to higher rates of student allowance receipt by those studying, and the difference in the post-HLFS period due to higher rates of NZ Superannuation receipt by those not studying, which is consistent with this group being older on average than those studying.

Figure 2 summarises the quarterly receipt and average income trends for our study and no-study groups, which provides a time profile for some of the differences and changes seen in Table 4. Panel (a) shows the trends in the quarterly wage and salary, government benefit, and miscellaneous income receipt, separately for those reporting any-study and no-study. Panel (b) displays the corresponding trends in average incomes conditional on receipt, for each of the EMS income types. The horizontal axis in each figure measures time (in quarters) relative to the HLFS period, so that each individual's HLFS period is compressed into time-0.

First, the top pair of lines in panel (a) show the trends in employment rates for the study group (solid line) and non-study group (dashed line). Both of these lines trend upwards before, and downwards after, the HLFS period, which could reflect the increased likelihood of life changes (e.g., migration or other absences from New Zealand) as time moves further away from the HLFS sample time period. More interesting for our purposes is that the employment rate of the study

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[21] The employment difference is stronger for those doing non-formal study, reflecting the greater incidence of employment while studying for that group seen in Table 1.
[22] This includes student allowances, paid parental leave, earnings related ACC payments, and NZ superannuation payments

group is lower over the periods before and during the HLFS,[23] and then higher after the HLFS sample period, than for the non-study group. This is consistent with the notion that those studying are less likely to be employed, and that they experience gains in labour market benefits in the form of higher employment following their period of study. The relatively stronger trends in average earnings seen in panel (b) for the study group is also consistent with this simple characterisation of study leading to improvements in employment and earnings. However, this interpretation should be treated with caution, as the differences and relative trends between the two groups' outcomes may be confounded by other factors, such as differences in life cycle experiences (e.g. child rearing). For this group, we only know that they are studying during the HLFS period and do not know the exact timing of when the study period began or ended, especially if it begins or ends after the HLFS period; however, the employment rate trends suggest the study was nearing completion during the HLFS survey period.[24]

We also present the trends in receipt of working age government benefits and other miscellaneous EMS income types. For our HLFS study group, the government benefits receipt rate in the pre-HLFS period is higher than the rate for the non-study group. Moreover, this rate shows an increase around the HLFS period for the study group relative to the non-study group rate, before converging to, and in fact dipping below that for the non-study group in the post-HLFS period. There is also a clear increase in miscellaneous income receipt over the 2-3 years prior to the HLFS period for those studying, which then falls over the 1-2 years after HLFS: although not shown, this is largely due to an increase in receipt of student allowances. This is consistent with the notion that some people will receive government benefits while studying, but that such study will subsequently result in lower levels of government benefit dependency. Finally there is a noticeable trend increase in miscellaneous receipt by those not studying over the entire five years following the HLFS period: (again not shown), this is mainly due to a trend increase in the rate of NZ Superannuation receipt by that group.

To summarise the relative trends in labour market outcomes, the patterns show relatively better outcomes in the post-HLFS period than in the pre-HLFS period for those studying compared to those not studying. These are suggestive of improvements in labour market outcomes associated with study activity. While age differences between the two groups could explain these differences in outcomes, age seems to be less likely to be a factor given the similarity in the average age in the study group, in the non-study employed group, and the overall sample. However, there are potentially confounding factors, including experience, that could be driving these patterns,

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[23] The discrete drop in the study group's employment rate during the HLFS period is consistent with their intensity of study being greater during the survey period; however, we don't have an explanation for why there is a similar, albeit smaller drop in the employment rate of the no-study group.

[24] This is also supported by analysis (not shown) that finds the rate of student allowance receipt is higher in the period before, than after, the HLFS period, and peaks at 6.2% in the quarter immediately prior to first appearing in the HLFS survey. If so, it suggests the timing of the survey is not random with respect to the timing of study, and/or that study is not reported accurately, as otherwise we would expect any extended study period to be symmetric around the HLFS survey period.

and further research is needed to better understand the role these other factors may play and to determine causality more generally.

2.2   The Ministry of Education analysis

This component of the study uses an administrative data source, namely MOE's Tertiary Education data on enrolments, courses and course completion at the tertiary level.[25] These data provide detailed information about enrolments (from 1994), courses (from 2000), and course completion (from 1994), such as EFT (equivalent full-time) loading, type of course (formal or non-formal), type of attendance (intramural or extramural), funding source, provider code, campus code, qualification level code, subject code, completion status, date of course start, date of course end, and date of qualification completion. Merging 'course' with 'completion' data enables us to see how long a qualification takes to complete and how much is studied in each year.

The MOE's data on enrolments and courses also contain basic personal demographics for students enrolled in courses, such as month/year of birth, sex, ethnicity, citizenship, and domestic student status. Immigrant status is inferred from citizenship, domestic student status and funding source.[26] Date of birth, sex and ethnicity are also available from one of the core IDI tables (the personal details table), which is Statistics NZ's best assessment of a person's characteristics and is derived from multiple sources available in the IDI.

Our main MOE sample includes all people who were aged 25-64 at the time of initial enrolment for a post-school, formal qualification between 2006 and 2017 and who completed the qualification by 2018.[27] Matching our main MOE sample to EMS data enables us to track their employment status, wages/salaries and benefit income in the periods before, during and after the study and matching to the personal details table in the IDI provides basic demographic information.[28] Thus, we use these matched data to further examine the characteristics of these adults who are undertaking further formal education and the relationship between this education and employment income. This provides a complementary view to that provided using the HLFS sample as the MOE data covers the full population of those undertaking tertiary education but is limited in providing a representative, comparison group of non-studiers.

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[25] MOE collects information on course enrolments and completions from all tertiary education organisations (TEOs) that receive government funding and provides this information to Statistics NZ to be made available in the IDI. The course enrolments data gives details of all courses associated with qualifications that students enrolled for with a TEO, including a code which distinguishes short courses (e.g., non-formal qualifications) from formal qualifications.

[26] We classify immigrants as those who ever appear in the MOE course data as a non-NZ citizen, a non-domestic student, a full fee paying foreign student, an 'English for Migrants' student, or a Ministry of Foreign Affairs and Trade sponsored student. These criteria are likely to understate immigrants, as people who became residents before entering tertiary education (and thus appear in MOE data as domestic students) are not distinguished from NZ born.

[27] For our analysis, we exclude enrolment in short courses (i.e., non-formal qualifications). It is worth noting that the MOE definition of a formal qualification appears to be slightly different than the HLFS definition. MOE defines a formal qualification as a formal programme of study of more than one week's full-time duration (i.e. an EFTS value greater than 0.03).

[28] A high proportion of MOE students aged 25-64 can be matched to the IDI spine (96%) and the IRD data (94%).

2.2.1 Number of people undertaking post-school education

Table 5 and Figure 3 show the number of people who were aged 25-64 at the time of initial enrolment for a post-school qualification between 2006 and 2017 and who completed the qualification by 2018. In each year, generally over 60,000 prime-aged people enrolled in a qualification and completed it by 2018, and of these, approximately 40% enrolled in a level 1-3 qualification, another 40% enrolled in a level 4-6 qualification, about 8% enrolled in a Bachelor's degree program (level 7), and about 12% enrolled in a post-graduate degree program (level 8-10). With these numbers, it is also important to note that the number of enrolees in later years are likely to be declining because not everyone who started a qualification in more recent years had completed it by 2018, especially for qualifications that generally take several years, such as a Bachelor's degree (level 7).

2.2.2 Characteristics of people undertaking post-school education

For this component of the analysis, we use our main MOE sample merged with the EMS data and the personal details table to examine the characteristics these adult students at enrolment. Also to parallel the analysis using the HLFS sample, this analysis will be restricted to those adults aged 25-64 enrolling in study in 2006 and in 2013. For this analysis, we add the requirement that the degree is completed by 2018. Table 6 describes the characteristics of this sample at the time of enrolment for two cohorts: for those starting a new tertiary qualification in 2006 and those starting one in 2013. As we saw in the HLFS sample, the majority (60%) of these adult students are female for both cohorts. Younger age groups are also more likely to study for higher qualifications. In the 2013 cohort, for example, 19% of the students studying for a level 1-3 qualification were aged 25-29 while 29% were aged 35-44. Among those studying for a level 7 qualification these age groups accounted for 37% and 25% respectively. Moreover, the mean age for those studying for a level 1-3 qualification in the 2006 cohort was almost 42 years of age, whereas for a level 7 qualification, the mean age was 35.

While many people study to upgrade their qualifications, some study for a lower qualification than their existing qualification. For example, 53% of those studying for a level 7 in the 2013 cohort had a level 1-6 qualification (i.e., a qualification less than the qualification for which they were studying). On the other hand, 56% of those in this cohort studying for a level 1-3 qualification already had at least a level 4-6 qualification, meaning they did not study to improve their qualification level.

As Table 6 also shows most students in both cohorts undertake study concurrently with work. Indeed, roughly 60-70% of students across all samples – in both cohorts – have EMS positive wage and salary income reported in EMS in every quarter during study ('always employed').[29] For those studying for a level 7 qualification in both cohorts, approximately one-

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[29] The EMS data primarily contains income from wages and salary paid by employers to their employees. However, it can also include wage and salary information for working proprietors or contractors. The EMS data also contains

quarter have EMS employment in at least one year (i.e., 'sometimes employed') during study.[30] Generally speaking, EMS employment rates for adult students during study are very similar to those in the year before study (shown in Table 7) for both cohorts, except for those who study for a level 7 qualification – for these students, EMS employment rates during study are much lower than in the year before study.

Comparing the characteristics of students who first enrolled in study in 2006 to those who enrolled in 2013, we see a few notable changes. First, the shares of immigrants among these adult students increased over the period overall (from 29% in the 2006 cohort to 31% in the 2013 cohort), but especially for those studying for higher level qualifications. In particular, 46% of the 2013 cohort studying for level 8+ qualifications were immigrants, compared with 39% in the 2006 cohort. Second, the share of students of European ethnicity decreased (from 48% of the 2006 cohort to 40% of the 2013 cohort) with an increase in the shares of most other ethnicities in the 2013 cohort.

2.2.3   Adult post-school education and labour market outcomes

Table 7 summarises EMS employment rates[31] post-study for our main MOE sample for these same two cohorts of students: those starting a new tertiary qualification in 2006 and those starting one in 2013. Most of these adult students have wage and salary employment reported in the EMS data in the year before undertaking further study, and this pre-study employment rate is higher among people undertaking higher qualifications. For example, 68% of people studying for a level 7 qualification in the 2013 cohort had EMS employment in the year before their enrolment, compared with 57% of those undertaking a level 1-3 qualification. Compared to the year prior to study, all groups experience increased EMS employment rates in the year immediately after study (in both cohorts), with the lowest increase in the level 1-3 qualification and the highest increase in the level 7 qualification. The EMS employment rate for the 2013 cohort studying for a level 1-3 qualification increased by 6 percentage points (from 56.8% pre-study to 62.8% immediately following study). By contrast, in the 2013 cohort studying for a level 7 qualification, the EMS employment rate jumped from 68.3% immediately before study to 81.7% immediately after study. EMS employment rates are higher when we use either of the two years after study, and conversely non-employment rates are lower. Nevertheless, 10-16% of the 2013 cohort subsamples are not observed in the EMS data in any of the two years after study. This may be because they are self-employed, not in paid employment, or overseas. Comparing the two cohorts,

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income from other sources (e.g., government benefits), so some individuals in the EMS data can have wages/salaries reported as zero.

[30] Individuals categorised as 'sometimes employed' have positive wages and salaries reported in some periods combined with zero wages and salaries reported in other periods. Moreover, EMS records are available for them in all periods.

[31]'EMS employment' is defined as having positive wage and salary income in the EMS in the time period. 'No EMS employment' is defined as receiving other income reported in the EMS data but no wage/salary income during the time period. 'Not in EMS' is defined as having neither wage/salary income nor other income reported in the EMS data during the time period. Someone not in EMS could be overseas, self-employed, or not in paid employment.

the share of students in our sample who did not have EMS employment earnings (non-employed) in the year before study was higher for the 2013 cohort than for the 2006 cohort – for example, only 8.9% of those studying for a level 7 qualification in the 2006 cohort had no EMS employment just before study, but in the 2013 cohort, this share was 13% (and the share not in EMS remained relatively stable).

Table 8 contains the 1-, 3-, and 5-year average income (in 2018 dollars) before study and after completion as well as the overall average income during study for our 2006 and 2013 cohorts as reported in the EMS data.[32] Non-employment income sources in the EMS include government benefits, student allowance, paid parental leave, superannuation and claimants' compensation, and we combine all these into one measure. Several patterns are apparent for EMS employment income (i.e., wages and salaries) and EMS non-employment income.

First, average non-employment income is generally higher pre-study than post-completion, in particular for those studying for higher level qualifications. For example, the 5-year pre-study average, annual non-employment income (in 2018 dollars) for the 2006 cohort studying for a level 7 qualification is approximately $3,349, the 3-year average is $3,281, and the 1-year average is $3,685. During study, this average is $5,434. Post-completion of the level 7 qualification for this cohort, the 1-year, 3-year, and 5-averages are $1,807, $1,550, and $1,603, respectively.

By contrast, wages and salaries tend to be lower during study than before study, but increase markedly after study especially for those studying for higher level qualifications. For example, for the 2006 cohort studying for a level 4-6 qualification, the 1-year pre-study average annual EMS employment income is $35,612. During study, average annual EMS employment income is $25,083. Post-study, the 1-, 3-, and 5-year averages are $40,998, $44,799, and $45,228, respectively. Similarly, the 5-, 3-, and 1-year pre-study averages for the 2006 cohort completing a level 7 qualification are all around $28,000. Post-study, the 1-, 3-, and 5-year averages are $42,279, $50,246, and $54,419. Part of the increase in post-study wages and salaries might only reflect returns to experience or general gains in productivity over time. However, the fact that stronger employment and income are observed after completion of more advanced qualifications suggests that these increases could be, in part, due to human capital accumulation. Further research is needed to better understand the factors driving these increases.

2.3   The PIAAC sample

We use publicly available PIAAC survey data to examine various forms of organised learning activities which are not towards a qualification (e.g., a degree or certificate) and are distinctly different than the non-formal study in HLFS which still applies to study or work towards a

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[32] For the purpose of analysing income, we exclude people who enrol in study for a new qualification from 2014 onwards. This is to avoid treating this period as post-study while it is actually during (another) study for those people. Furthermore, for each person we only consider the highest qualification studied. In addition, the 5-year averages for the 2013 cohort should be treated with caution given that the EMS data ends in 2018. This is particularly true for those studying for a level 7 qualification as the duration of study is generally three years.

qualification. These are meant to understand the lifelong learning activities undertaken outside of a qualification program. We refer to these organised learning activities as non-qualification training, and they include both work and non-work related activities, which are *not* part of a program of study to obtain a formal qualification. These non-qualification training activities in PIAAC include open or distance learning, on-the-job training, seminars or workshops, and other courses or private lessons.

The PIAAC survey was conducted in 2014/2015[33] in New Zealand and includes 6,177[34] respondents for New Zealand (OECD 2016). The target population is 'the non-institutionalised population, aged 16-65 years, residing in the country at the time of data collection, irrespective of nationality, citizenship or language status', and the sampling frame is Statistics New Zealand's Household Survey Frame, 2013 (using meshblocks for sampling) (OECD 2016). We use the public-use PIAAC data for New Zealand available from OECD.[35] We drop any observations for respondents who did not complete the main questionnaire, leaving us with 5,981 respondents. Our main PIAAC sample is the adult working age population aged 25-65[36], which leaves us with 4,720 respondents. For our analysis, we use the Stata module, REPEST, which was designed by OECD to be used with the PIAAC data to account for the complex survey design in the estimation of sampling variances.

2.3.1 *Identifying non-qualification training using PIAAC*

We examine the characteristics of people who participate in the various organised learning activities that are we describe as non-qualification training activities using our main PIAAC sample which we will hereafter refer to as the 'PIAAC sample'. We further sub-divide the PIAAC sample into two main sub-samples:

- respondents reporting participation in some form of non-qualification training in the past 12 months ('participants'), and
- respondents not reporting participation in any form of non-qualification training in the past 12 months ('non-participants').

The PIAAC survey asks respondents whether or not they have participated in each of the following four types of non-qualification training activities: 1) courses conducted through open or distance education ('open/distance training'), 2) organised sessions for on-the-job training or training by supervisors or co-workers ('on-the-job training'), 3) seminars or workshops ('seminars/workshops'), and 4) other courses or private lessons ('other course/private lesson'). PIAAC respondents are also asked to quantify the number of these training activities in which they

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[33] The data in New Zealand were collected between 12 April 2014 and 23 February 2015 OECD (2016).
[34] OECD (2016), *The Survey of Adult Skills: Reader's Companion, Second Edition*, OECD Skills Studies, OECD Publishing, Paris. *http://dx.doi.org/10.1787/9789264258075-en*
[35] http://www.oecd.org/skills/piaac/data/
[36] The PIAAC public-use file does not have the age of the respondent, instead 5-year or 10-year age groups are available. We use the 5-year age groups to drop those aged 16-24. The oldest age group is 60-65, so we cannot analyse only those aged 25-64.

participated in the last 12 months for each type of training as well as the total time spent in all four types of activities combined.

Table 9 provides descriptive statistics about our main PIAAC sample as well as for the two subsamples, 'participants' and 'non-participants' in non-qualification training. These results show that 63.4% of the PIAAC sample is estimated to have participated in non-qualification training during this time period and that, on average, those participating attended 7.09 events for 113.25 total hours over the course of the 12-month period. Female participants spent more hours in non-qualification training (126 hours) than male participants (100 hours), with the difference being statistically significant at the 95% confidence level. However, both groups participate in approximately the same number of events – 7.4 events for females and 6.8 for males with the difference not being statistically significant.

2.3.2   The relationship between non-qualification training and employment

An estimated 73% of participants reported that all of the time they spent in non-qualification training activities was job-related as shown in Figure 4. Another 12% of participants reported that more than half of the time spent in these activities was job-related. The remaining 15% were split fairly evenly (approximately 5% each) between those reporting that none of the time, up to a quarter of the time, and up to half the time was job-related training. Hence, most non-qualification training appears to be job-related training.

As Table 9 shows, there are generally slight differences between non-qualification training participants and our overall PIAAC sample. Some exceptions to this include employment status – participants are much more likely to be employed and are also much less likely to be self-employed[37] or out of the labour force than the average respondent in the PIAAC sample. The differences between participants and non-participants is much more striking. For example, 90% of participants were employed, whereas only 65% of non-participants were employed (the average for the PIAAC sample is 81%). Similarly, 26.8% of non-participants were not in the labour force, whereas the same is true for only 6% of participants (with an overall average of 13.6% for the PIAAC sample).

Figure 5 further highlights the differences between the PIAAC sample and the two sub-samples using respondents' self-reported current status (using the status that best describes their current situation). Participants are much more likely to identify their current situation as 'full-time' employed[38] (almost 70% of participants) compared to non-participants (approximately 42% of non-participants). On the other hand, the percentages of participants and non-

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[37] For determining employment, we use questions that are similar to those used for national employment numbers, using employment in the previous week (i.e., doing paid work, being away from work that you plan to return to, or doing unpaid work for a family business). However for part-time employment, we use respondents' self-reported status of part-time employment (either as an employee or as self-employed) based on the status that best describes their current situation. In this question, respondents who see themselves primarily as retired, for example, but who also work part-time may be inclined to describe themselves as retired rather than as working part-time.
[38] The full-time employed category includes both employees and the self-employed.

participants identifying as 'part-time' employed[39] are fairly similar in magnitude – 17.5% of participants and 18.4% of non-participants identify as part-time workers – and the difference is not statistically significant. Non-participants are also more likely to identify as unemployed or out of the labour force than participants in general. For example, almost 17% of non-participants report their current situation as 'fulfilling domestic tasks or looking after children/family', whereas only 5% of participants report this as their current situation. Similar patterns are seen for the unemployed, students, retirees, and the permanently disabled.

These results should not be surprising given that the most frequently reported type of non-qualification training is on-the-job training – 68.7% of participants report participating in 'on-the-job training' as shown in Table 10. The next most frequently reported type of non-qualification training, 'seminars/workshops', had only slightly less participation with 65.6% of participants reporting this type of training. The average number of events reported for these two training types is also similar – 3.57 events in the last 12 months for on-the-job training and 3.61 on-the-job training events – for those reporting participation in this type of event. The type of training with the most number of events reported by participants is the 'other course or private lesson category' at 5.23 events in the last 12 months. Of the four types, female participants are overrepresented in 'open or distance courses' and in 'seminars or workshops', with the share of females being 58.4% and 60.35% respectively as reported in Table 10. When examining the age of participants in each of the four types of non-qualification training shown in Figure 6, the distribution by training type is fairly similar to the age distribution of participants overall.

2.3.3   Characteristics of participants' last non-qualification training activity

Non-qualification training participants were also asked a number of more in-depth questions about their last non-qualification training activity, which was 'seminars or workshops' for 45.6% of participants, 'on-the-job training' for 38%, 'other course/private lesson' for 12.2%, and 'open/distance course' for 4.1% as shown in Table 11. The age distribution for the last activity type (shown in Figure 7) is not as evenly distributed as the age distribution for participants indicating any training in that type in the previous 12 months (shown in Figure 6). This could indicate that the information about the last training activity is not necessarily representative of all training activities undertaken in the previous 12 months.

Most participants were employed while they participated in their last training activity as shown in Table 11 – 90% attending seminars/workshops, 85% taking other courses/private lessons, and 76% taking an open/distance course. A similar percentage of participants reported that the last activity was job-related, except for those taking other courses/private lessons (only 46% of participants report that this last activity was job-related). Of those participants reporting an open/distance course as their last activity, almost 60% reported that the majority or all the

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[39] The part-time employed category also includes both employees and the self-employed.

activity was conducted outside of working hours. Similarly, for those reporting other courses/private lessons as their last activity, 62% reported that the majority or all the activity was conducted outside of working hours (shown in Table 12). In contrast, on-job-training and seminar/workshop participants reported that the activity primarily took place during working hours, with almost 88 and 78% of participants, respectively, reporting that this last activity took place mostly or only during working hours.

For their last non-qualification training activity, participants were asked the main reason they participated in the activity. These results are shown in Figure 8. The most frequently cited reason for each of the four types is 'to do my job better and/or improve career prospects', with on-the-job training having the most participants citing this as their main reason (approximately 58% of on-the-job training participants). The next most frequently cited reason across all four activity types is 'to increase my knowledge or skills on a subject that interests me'. For open/distance courses and for other courses/private lessons, the third most frequently cited reason was 'to increase my possibilities of getting a job, or changing a job or profession', with approximately 16 and 12% of participants respectively. A fair percentage of participants in each category also indicated that they were obliged to participate (ranging from 8% to 16% of participants). The least cited reason, however, is 'to be less likely to lose my job', with less than one percent of participants in each category citing this as their main reason.

Moreover, most participants rated their last training activity as 'very useful' for their job or business, both overall and within each category, as shown in Figure 9. Almost 65% of participants rated their last on-the-job training activity as 'very useful' for their job or business. The course type with the lowest percentage of participants (48.3%) rating their last training as 'very useful' is 'other course/private lesson'. This category also had the largest proportion of participants (24%) rating their last training as 'not useful at all' for their job or business.

Participants were also asked about if an employer or prospective employer paid the costs[40] of their last training activity. The results of this analysis are provided in Figure 10. Overall, 55.4% of participants reported that their employer paid the total costs of the training activity and 18.8% reported that there were no costs for the activity. Only 17% report that their employer or prospective paid none of the costs. Employers appear to be much less likely to pay for open/distance courses or for other courses/private lessons, with 39.8% and 47.1% of participants in these types of courses reporting that this is the case. Participants in these two types of courses were also more likely to report that they had no employer or prospective employer when they participated.

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[40] These costs could include tuition or registration, exam fees, books, or other costs resulting from participation in the activity.

Relationship between participants' learning strategies and non-qualification training

We also examine non-qualification training participants' descriptions of themselves as to how they deal with problems and tasks in relation to their participation in training. The results of this analysis are shown in Table 13. These results indicate that participants that like learning new things generally participate in more events and spend more hours in non-qualification training. For example, participants stating that they do not like learning new things, on average, participated in 3 non-qualification training events, for 40 hours, in the previous 12 months. However, participants that reported that they like learning new things to a very high extent participated in 8.2 events, for 152 hours. Similar patterns were seen when people were asked if they relate new ideas to learning new things, if they like figuring out how ideas fit together, and if they look for additional information if they do not understand something. These patterns were less likely to hold true when participants were asked if they relate a new idea to what they already know and if they like getting to the bottom of things, in particular for those responding 'not at all' to these questions. In general, however, the standard error for these two groups is substantially higher than for the other groups, indicating that the reliability for these estimates is low. Further investigation of this issue is needed.

2.3.5 Reasons for not participating in more non-qualification training activities

The PIAAC survey also asks respondents if they wanted to participate in more learning activities in the last 12 months but did not. Approximately 38% of the PIAAC sample reported that they wanted to participate more but did not. Figure 11 shows the most important reason respondents gave for not being able to participate. The most frequently cited reason is "too busy at work", with approximately 30% indicating this as their main reason. The second most frequently cited reason is 'no time due to child care' (18.9%), and the third most frequently cited reason is that the course was 'too expensive' (14.2%).

3   Concluding discussion

This study has examined the characteristics of those prime-aged adults (aged 25-64) undertaking education and training, this includes both formal and non-qualification study leading towards a qualification as well as other lifelong learning activities that do not. In this study, we also examine the relationship between studying for tertiary qualifications (both formal and non-formal) and labour market outcomes. Using the Household Labour Force Survey (HLFS) data, we estimate that about 7% of adults report studying over the period 2006–18, of which about two-thirds (5%) is considered 'formal' study. Both the any study rate, and the fraction in formal study, are positively correlated with education levels: the any study rate ranges from 2% for those with no qualifications up to 9% for those with at least level 7 qualifications; while the fraction doing

formal study increases from under 60% for those with no qualifications to over 70% for those with level 7+ qualifications.

Our results also indicate that women comprise a larger portion of those who undertake formal and non-formal tertiary study. We estimate that 58% of those in the HLFS study group were female and 59.2% of the formal study group were female. Using MOE tertiary education data produces similar results – female students comprised approximately 60% of the total population undertaking formal tertiary education. We also find patterns that are consistent with the relatively simple story that formal study, which involves greater time commitment, is predominantly done while out of the labour force, while non-formal study is more likely to be undertaken while employed, perhaps partly as on-the-job-training.

By examining the trends in labour market outcomes from five years before a person's reported study to five years after, we show that the employment rates and average earnings of those reported as studying in HLFS both increase over time relative to those not studying. We see the patterns show relatively better outcomes in the post-HLFS period than in the pre-HLFS period for those studying compared to those not studying. Analysis of MOE data also shows that people experience increases in employment rates and employment income after their study, especially for those who study for a Bachelor's degree (Level 7). These are suggestive of improvements in labour market outcomes associated with study activity. However, these trend analyses do not control for other factors, and there are potentially confounding factors driving these patterns and further research is needed to determine causality.

Using PIAAC data we show that non-qualification education and training activities – those lifelong learning activities people undertake that are not towards a qualification – are strongly related to employment, with participants being much more likely to be employed (90%) than non-participants (65%) in these activities. Moreover, 73% of participants in these activities report that all of the time they spent participating is job-related.

References

OECD. 2016. *The Survey of Adult Skills: Reader's Companion, Second Edition*. OECD Skills Studies. OECD Publishing.

Figure 1: HLFS Study rate trends, 2006–2018 – IDI matched sample, aged 25-64
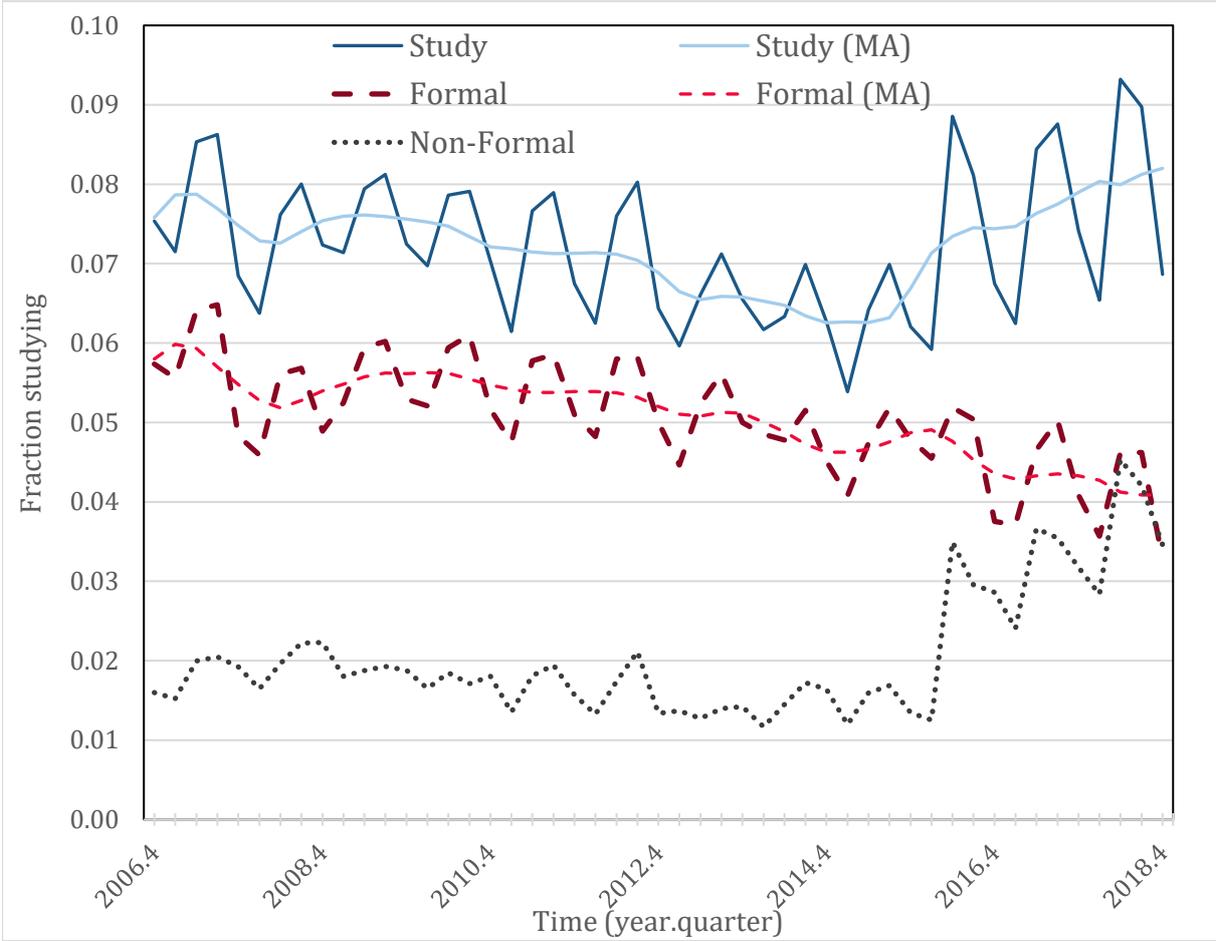
Source: Statistics New Zealand IDI: HLFS matched to the IDI spine
Notes: The increase in study rates (any study) after 2016 is entirely from an increase in non-formal study rates. Given a comparable relative drop in non-study rates over the same period (not shown), this increase appears to be due to changes in the HLFS survey following the 2016 redevelopment, which implies a break in the comparability of the survey at that point. Our main analyses focuses on the period prior to 2016; hence, this should not be problematic for our results.

Figure 2: Trends in EMS income receipt for HLFS study and non-study respondents

(a) Receipt rates

(b) Conditional average incomes
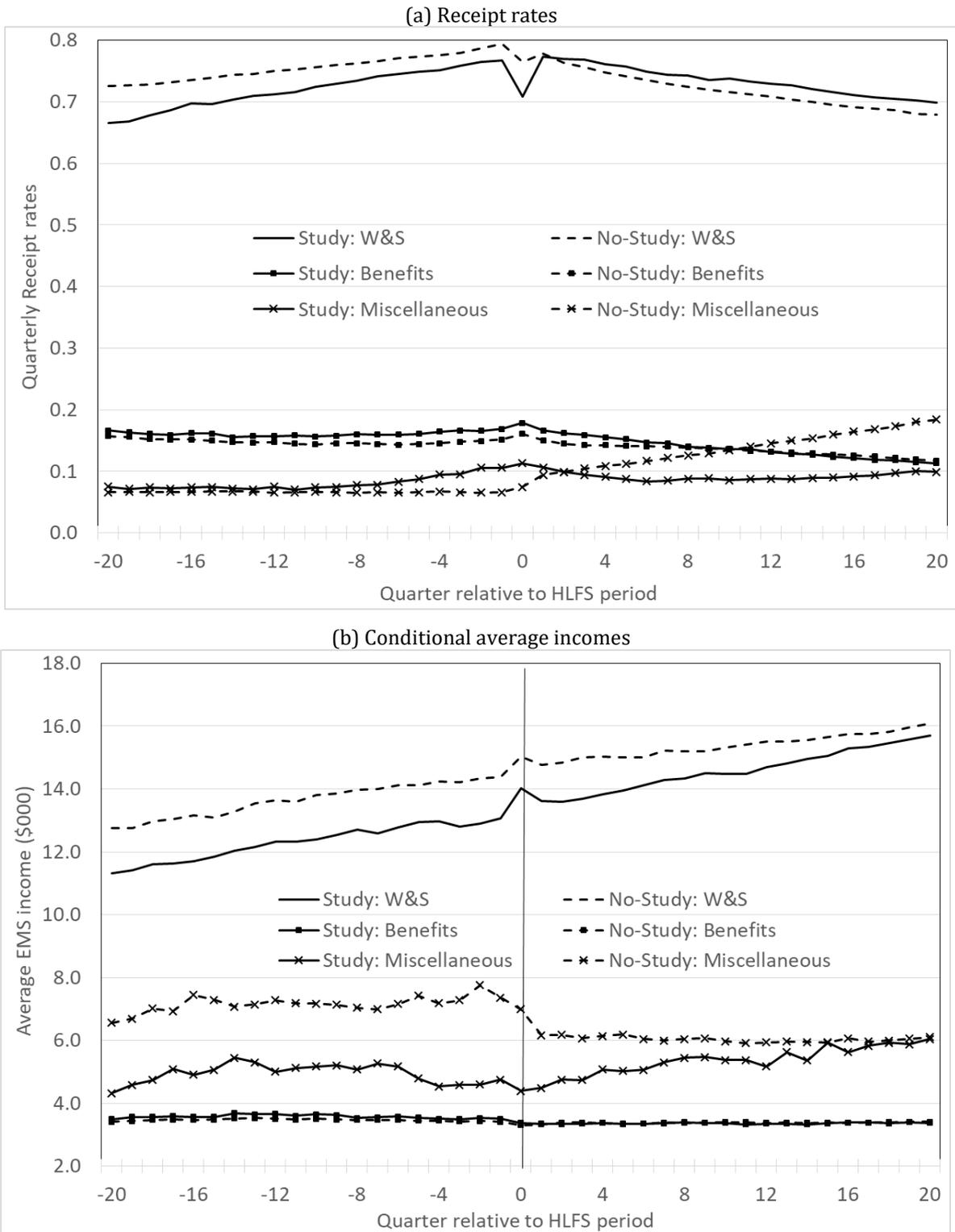
Source: Statistics New Zealand IDI: HLFS matched to EMS
Notes: The pre-HLFS period covers the 20 quarters (5 years) before the individual is observed in the HLFS (between 2006Q4 and 2013Q4), and the post-HLFS period covers the 20 quarters after they leave the sample. The HLFS-period covers the quarters they are in the HLFS sample (collapsed to 0). All income is expressed in December 2018 dollar values. EMS income sources have been categorised as wages and salaries (W&S), government benefits (Benefits), and Miscellaneous. In panel (b), average incomes were calculated conditional on having positive income from that income source in the relevant quarter. To align the timing for all respondents, the HLFS survey period has been collapsed into period 0. It should be noted that these patterns are descriptive and that there are potentially confounding factors driving these patterns. Further research is needed to determine causality.

Figure 3: Enrolment by year of initial enrolment, students aged 25-64 at enrolment (completing by 2018)
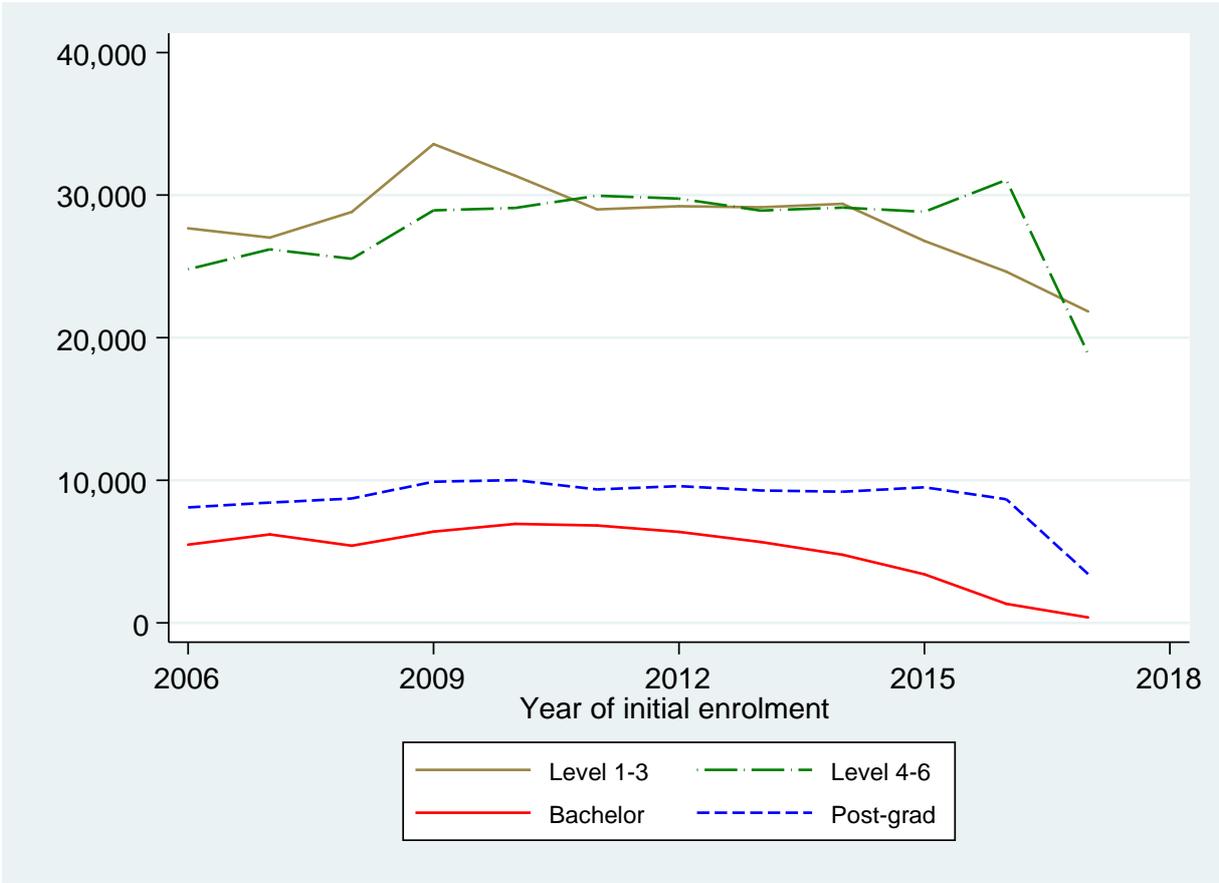
Notes: This figure shows the number of students (aged 25-64 at enrolment) who enrol in a qualification in each year given that the qualification is completed by 2018. A Bachelor's degree is a level 7 qualification, and post-grad degrees are level 8+ qualifications. The decline in numbers at the end of each series reflects a decline in the number of people able to complete the qualification by 2018 and does not necessarily reflect a decline in enrolment.

Figure 4: Proportion of PIAAC non-qualification training hours that were job-related
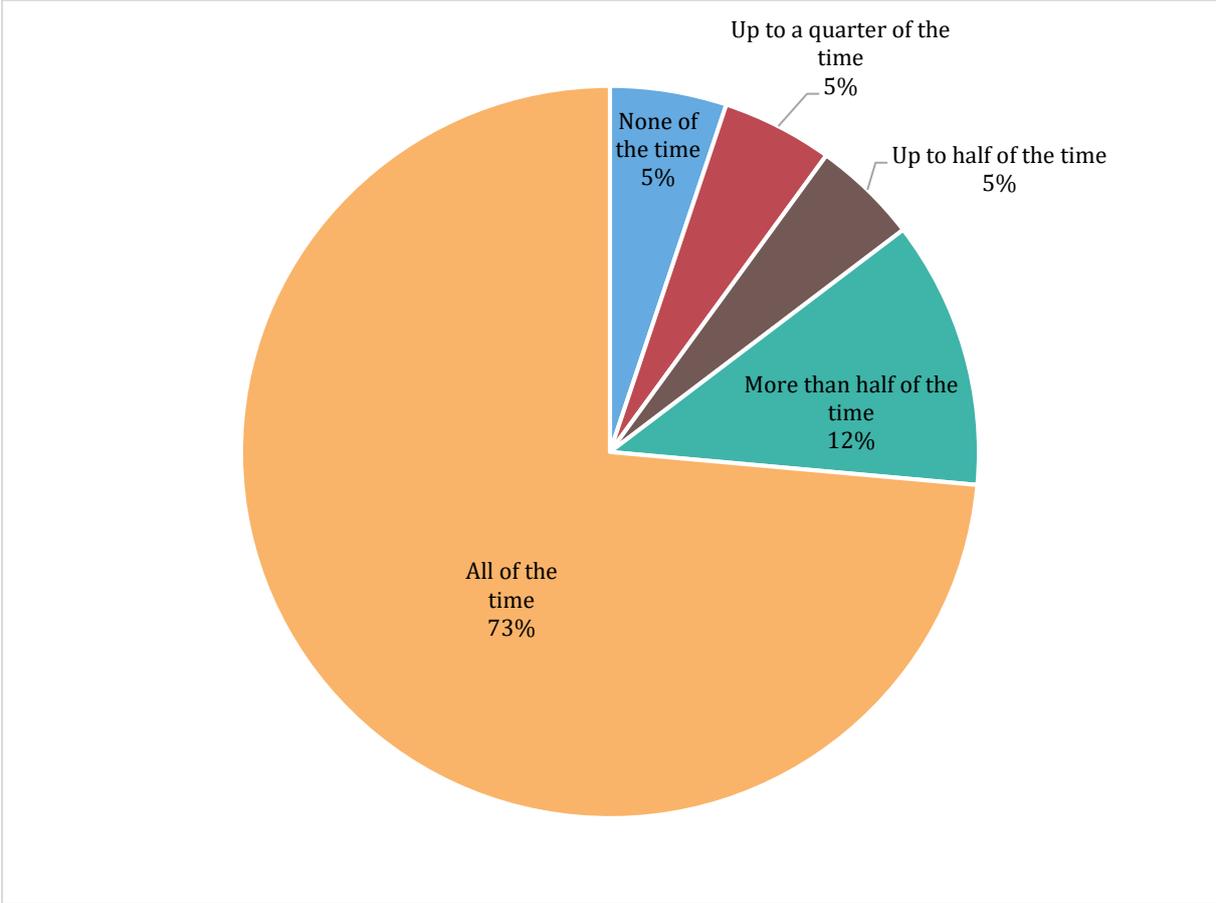
Source: Publicly available PIAAC data for New Zealand, 2014/2015

Figure 5: Current employment status, self-reported by PIAAC respondents
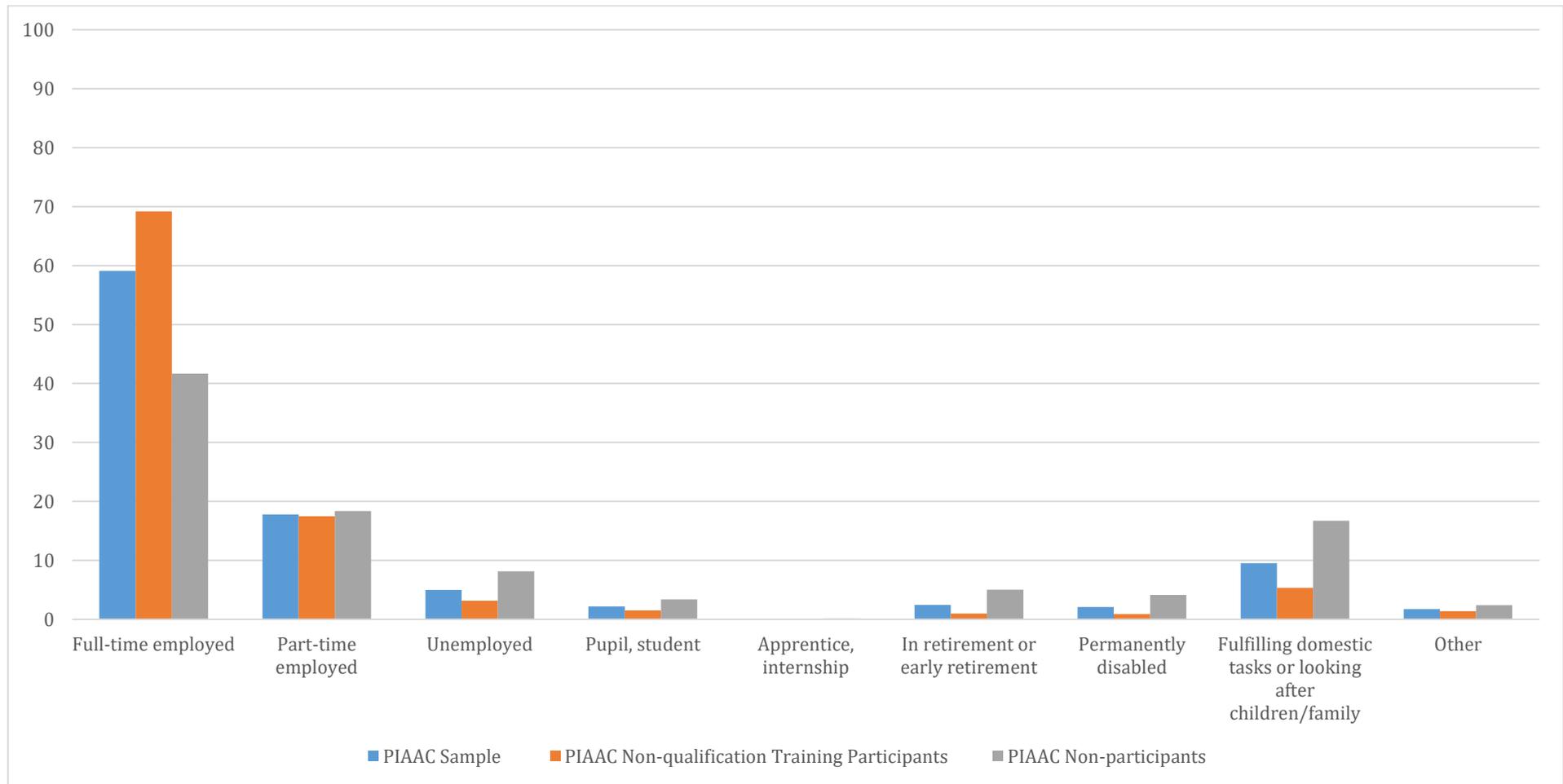
Source: Publicly available PIAAC data for New Zealand, 2014/2015

Figure 6: Age of PIAAC participants by non-qualification training type
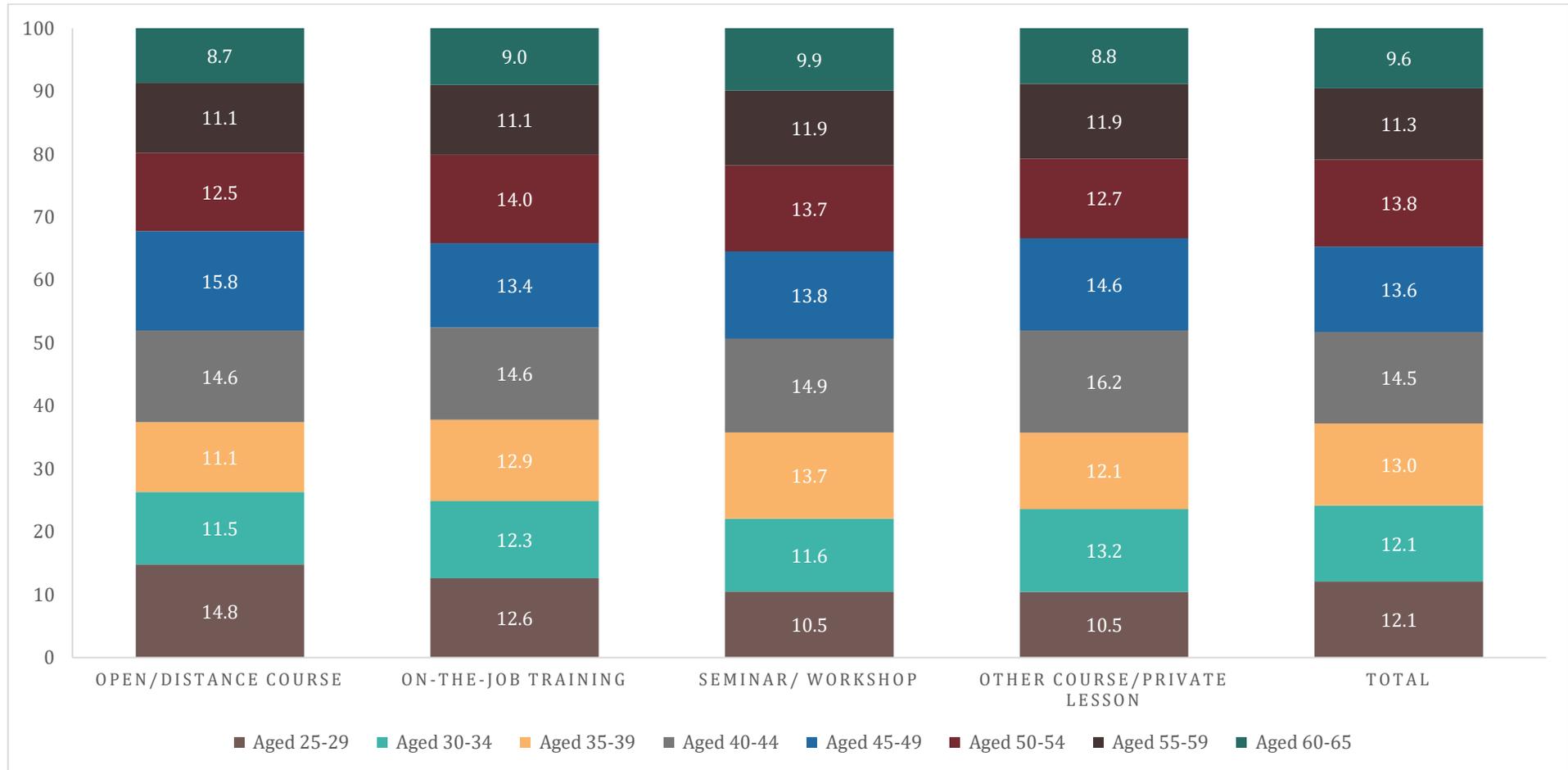
Source: Publicly available PIAAC data for New Zealand, 2014/2015

Figure 7: Age of PIAAC participants by non-qualification training type of last training activity

	OPEN/DISTANCE COURSE	ON-THE-JOB TRAINING	SEMINAR/ WORKSHOP	OTHER COURSE/PRIVATE LESSON	TOTAL
Aged 60-65	6.8	8.6	9.7	6.2	11.6
Aged 55-59	7.9	9.9	11.9	13.6	11.7
Aged 50-54	17.2	14.8	14.1	13.2	13.6
Aged 45-49	19.8	12.7	14.8	13.5	13.6
Aged 40-44	12.9	15.0	15.2	15.9	13.6
Aged 35-39	14.6	12.3	12.8	12.1	12.4
Aged 30-34	11.2	12.1	10.9	14.6	11.5
Aged 25-29	9.7	14.6	10.5	10.8	11.9

Legend: ■ Aged 25-29 ■ Aged 30-34 ■ Aged 35-39 ■ Aged 40-44 ■ Aged 45-49 ■ Aged 50-54 ■ Aged 55-59 ■ Aged 60-65
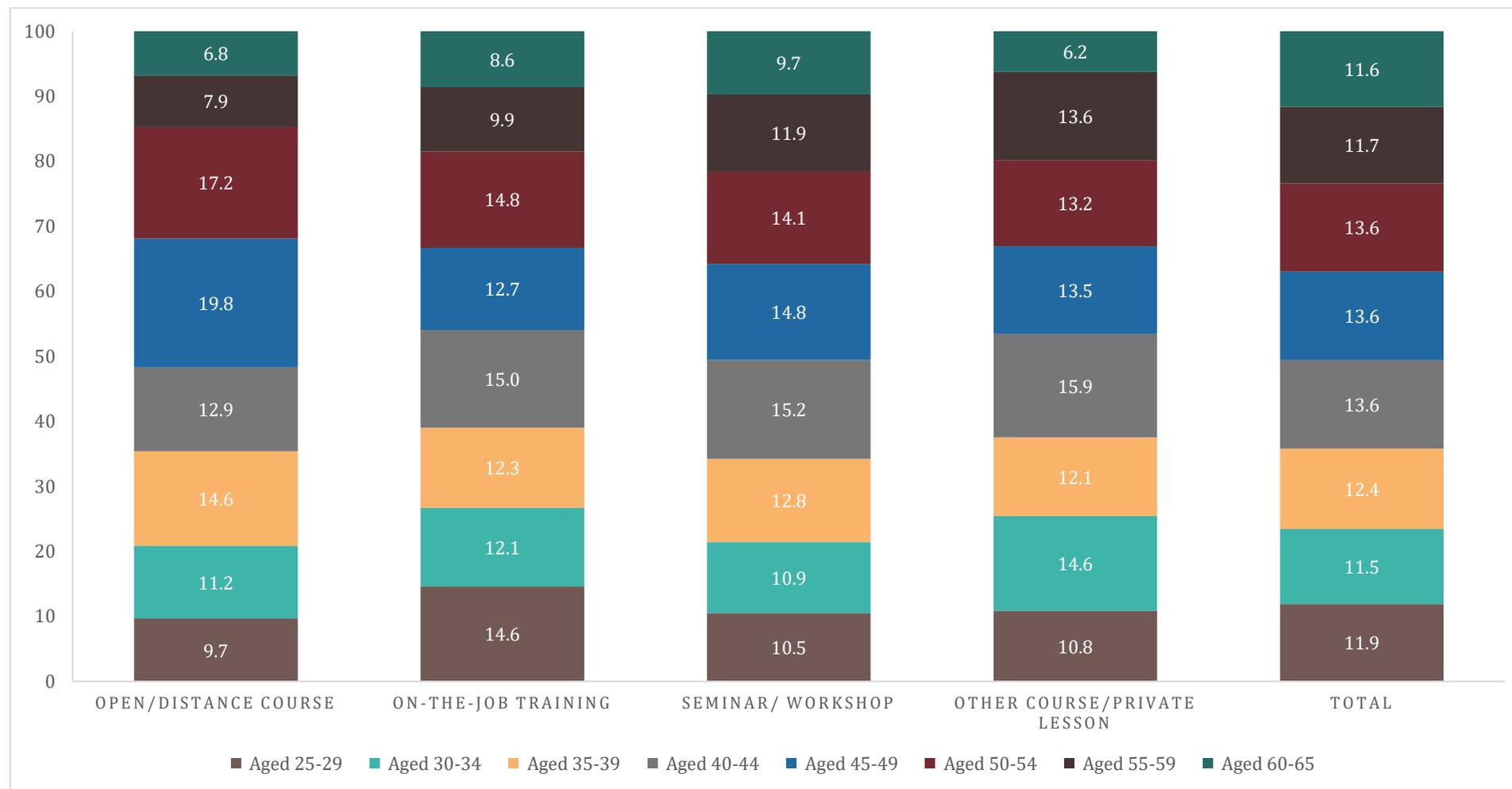
Source: Publicly available PIAAC data for New Zealand, 2014/2015

Figure 8: Main reason for participating in last non-qualification training activity by training activity type

	Open/distance course	On-the-job training	Seminar/ workshop	Other course/private lesson	Total
Obtain a certificate	7.6	3.2	2.9	6.6	4.4
Increase knowledge/skills on a subject that interests me	18.4	18.5	33.6	28.4	24.4
Obliged to participate	9.9	15.6	11.2	10.0	13.8
Increase chance of getting job or change job/profession	13.4		2.2	9.7	4.0
Do job better and/or improve career prospects	46.8	57.9	44.3	33.8	48.1

Legend:
- Do job better and/or improve career prospects
- Less likely to lose job
- Increase chance of getting job or change job/profession
- Start own business
- Obliged to participate
- Increase knowledge/skills on a subject that interests me
- Obtain a certificate
- Other

Source: Publicly available PIAAC data for New Zealand, 2014/2015

Figure 9: Usefulness of last non-qualification training activity for job or business by training activity type

	Very useful	Moderately useful	Somewhat useful	Not useful at all
OPEN/DISTANCE COURSE	55.7	14.8	18.2	11.2
ON-THE-JOB TRAINING	64.7	22.4	11.3	1.7
SEMINAR/WORKSHOP	58.0	27.0	10.6	4.4
OTHER COURSE/PRIVATE LESSON	48.3	13.5	14.1	24.1
TOTAL	59.7	22.3	11.8	6.2
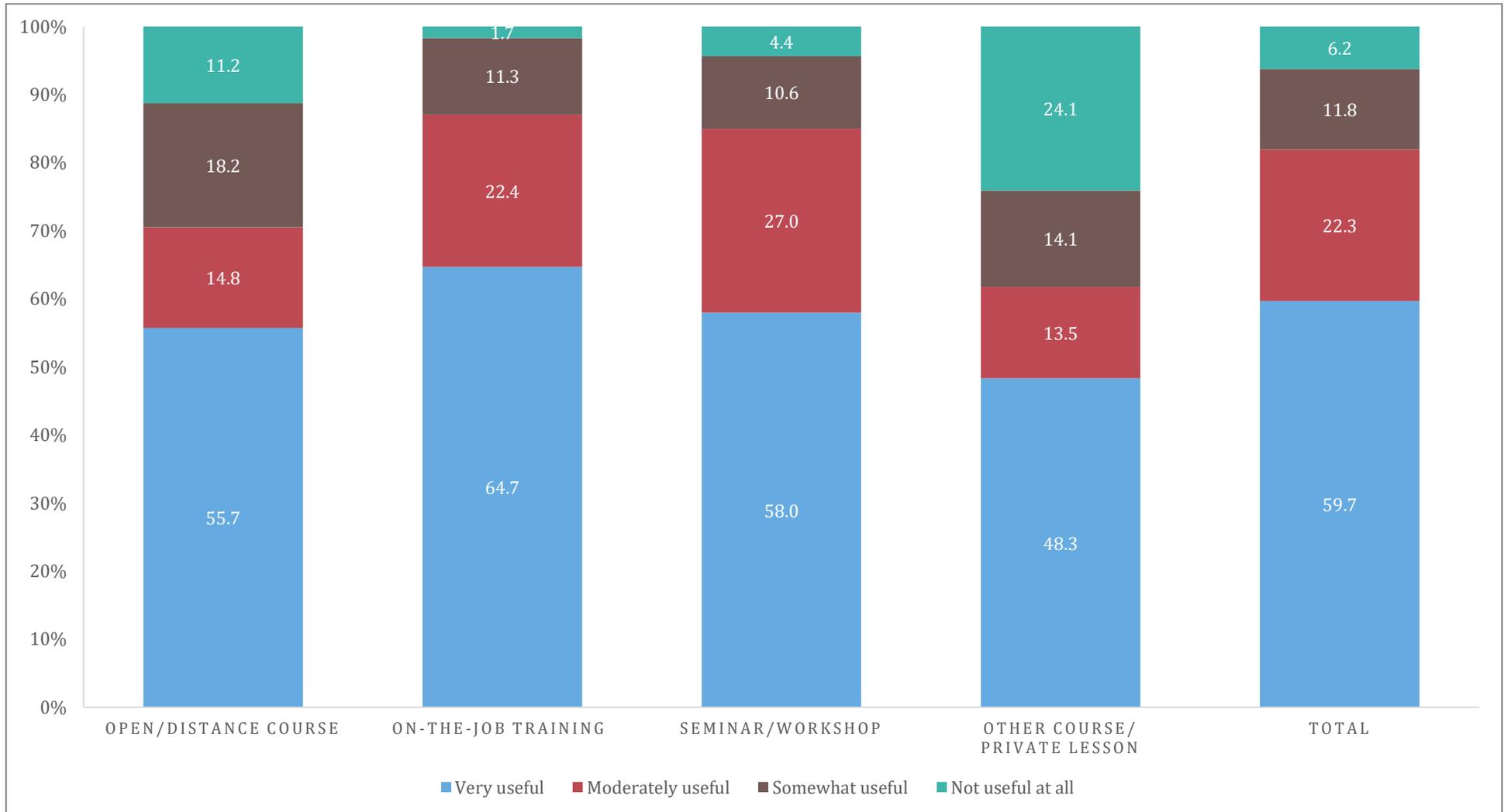
Source: Publicly available PIAAC data for New Zealand, 2014/2015

Figure 10: Employer payment for participants' last non-qualification training activity by training activity type

	Open/distance course	On-the-job training	Seminar/workshop	Other course/private lesson	Total
No employer or prospective employer	15.2		4.3	8.9	4.9
There were no such costs	8.4	23.0	17.9	10.7	18.8
No, not at all	39.8	6.1	12.9	47.1	17.0
Yes, partly	10.1	3.5	5.0	2.9	4.0
Yes, totally	26.5	66.9	60.0	30.3	55.4

Legend: ■ Yes, totally ■ Yes, partly ■ No, not at all ■ There were no such costs ■ No employer or prospective employer
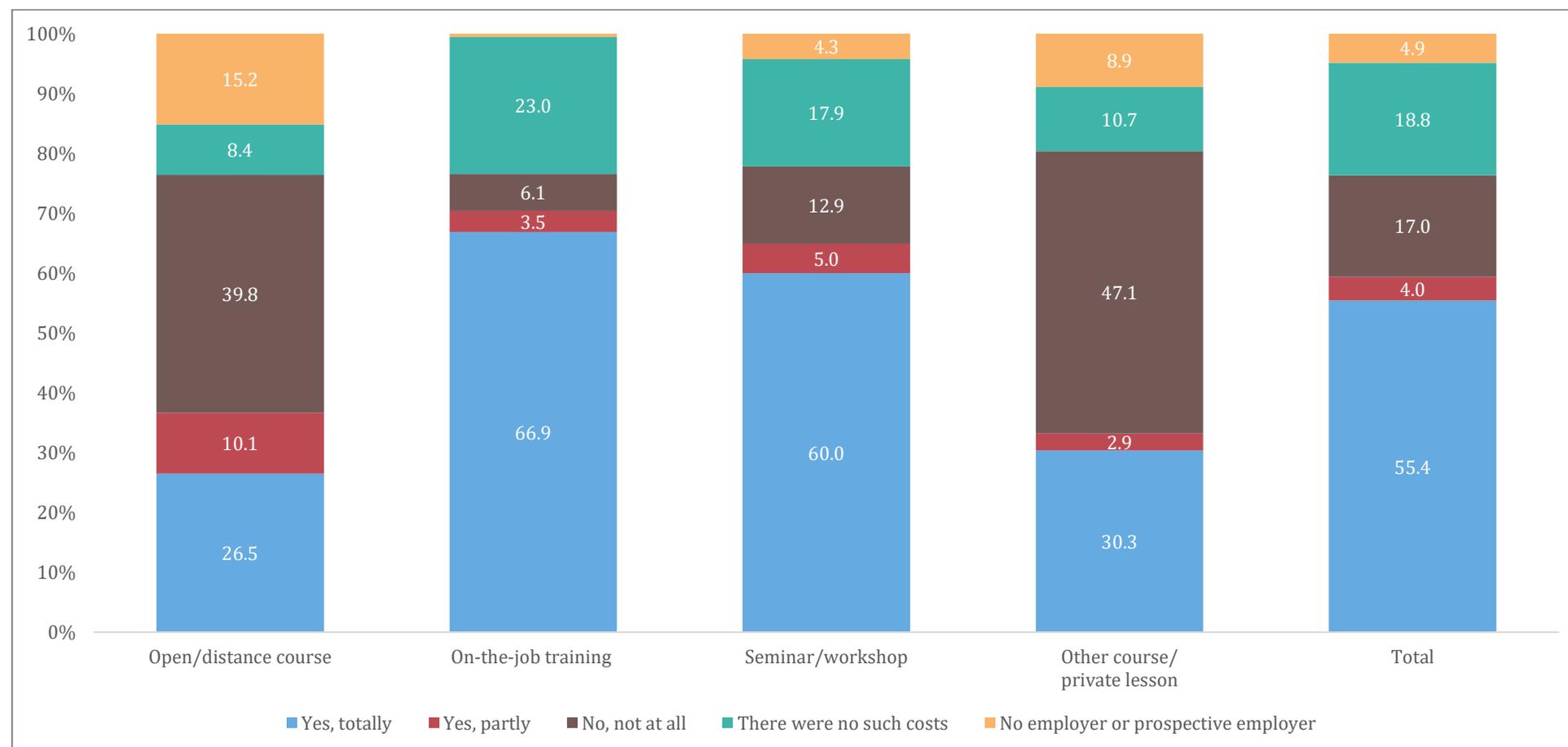
Source: Publicly available PIAAC data for New Zealand, 2014/2015

Figure 11: Most important reason for not participating in additional learning activities
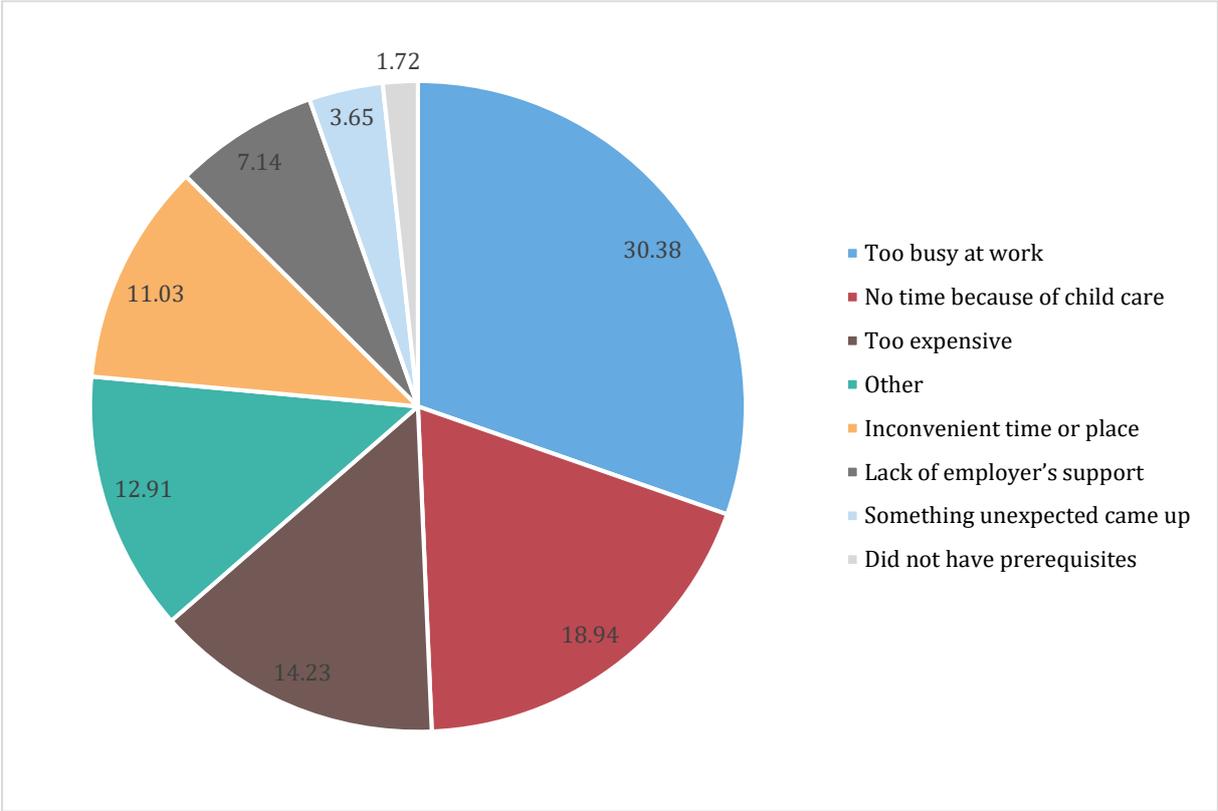
Source: Publicly available PIAAC data for New Zealand, 2014/2015

Table 1: HLFS sample descriptive statistics for individuals aged 25-64 – 2006–2018

	Full	IDI	Study			Non-study, Labour force status:		
	HLFS	matched	Study	Formal	Non-Formal	Employed	Unemployed	NiLF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	0.517	0.517	0.580	0.592	0.551	0.470	0.521	0.722
Age	44.0	44.1	39.2	37.7	42.7	44.3	42.0	46.3
Partnered	.732	.734	.67	.635	.715	.762	.509	.651
No. children	.441	.441	.449	.468	.423	.442	.435	.434
European	0.670	0.674	0.581	0.553	0.650	0.708	0.491	0.580
Maori	0.073	0.072	0.099	0.105	0.083	0.060	0.171	0.107
Euro/Maori	0.046	0.046	0.060	0.062	0.055	0.043	0.066	0.050
Pacifika	0.043	0.043	0.041	0.045	0.033	0.036	0.081	0.068
Asian	0.114	0.113	0.141	0.153	0.114	0.105	0.128	0.134
Misc ethnicity	0.053	0.053	0.077	0.082	0.065	0.048	0.064	0.062
Highest Qualification								
NS	0.016	0.015	0.010	0.008	0.013	0.015	0.016	0.180
No quals	0.174	0.173	0.079	0.077	0.082	0.149	0.249	0.143
School quals	0.339	0.339	0.309	0.312	0.300	0.343	0.338	0.333
Post-school	0.183	0.183	0.212	0.208	0.223	0.188	0.189	0.326
University	0.290	0.290	0.390	0.395	0.382	0.306	0.208	0.018
Employment Status								
Employed	0.801	0.803	0.721	0.664	0.854	1	s	s
Part-time	0.138	0.139	0.171	0.184	0.144	0.168	s	s
Self-employed	0.138	0.139	0.073	0.055	0.117	0.178	s	s
Unemployed	0.031	0.030	0.042	0.044	0.036	s	1	s
Not in LF	0.168	0.166	0.237	0.292	0.110	s	s	1
Study								
Any Study	0.073	0.072	1	1	1	s	s	s
Formal	0.051	0.050	0.697	1	s	s	s	s
Non-formal	0.021	0.021	0.287	s	1	s	s	s
No. Observations	938,898	903,225	64,212	44,556	18,651	668,712	26,334	144,393
Population count	112,795,500	108,422,100	7,843,500	5,466,100	2,254,600	81,451,200	2,958,300	16,169,100

Notes: Sample includes all HLFS individuals aged 25-64 and in-scope (i.e. with final-weight>0). All statistics are weighted by individuals' HLFS final-weight. Sample sizes are randomly rounded to base-3; population counts are rounded to nearest-100.

Table 2: HLFS sample statistics – Why left last job and Main activity

	IDI	Study			Non-study & Not in LF
	matched	Any	Formal	Non-Formal	
2006Q4–2018Q4					
Employed	0.803	0.721	0.664	0.854	
Not Employed Why left last job:					
Study	0.030	0.211	0.241	0.068	0.006
Job ended[1]	0.168	0.168	0.161	0.205	0.116
Other[2]	0.355	0.272	0.256	0.356	0.371
NA	0.447	0.348	0.342	0.363	0.507
2016Q2–2018Q4					
Employed	0.828	0.775	0.686	0.885	
Unemployed	0.028	0.037	0.039	0.034	
NILF Main activity:					
Study	0.011	0.135	0.217	0.033	0.002
Other[3]	0.132	0.053	0.057	0.048	0.994
NA	0.001	s	s	s	0.004

Notes: The question about why the respondent left their last job is only asked of those who are currently not employed and have been so for less than 5 years. Hence, we present these percentages as the share of those in each category out of the not employed population. Respondent's 'main activity' question has only been asked since the 2016 HLFS redevelopment, covering the sample period 2016Q2–2018Q4. This question is only asked of those who are not in the labour force, and the percentages presented are the share of those in each category out of the NILF population.

[1] Job ended includes end of temporary / seasonal / contract job, made redundant / laid off / business closed, and dissatisfied with job / conditions.

[2] Other includes retired, parental / family responsibilities, own sickness / illness / injury, moved location, other reason, and don't know or refused to answer.

[3] Other includes looking after a child or an adult, doing household work for own household or someone else, voluntary work, free-time activities, own care due to sickness / injury / disability, other activity, and don't know or refused to answer.

Table 3: HLFS Panel-level statistics – 2006–2018

	Full	IDI	Highest qualification			
	HLFS	matched	No Quals	Level 1-3	Level 4-6	Level 7+
No. quarters observed:						
1	0.152	0.141	0.227	0.161	0.110	0.112
2	0.138	0.133	0.173	0.148	0.115	0.118
3	0.115	0.114	0.128	0.119	0.108	0.110
4	0.098	0.098	0.094	0.096	0.101	0.101
5	0.087	0.089	0.081	0.085	0.091	0.094
6	0.089	0.092	0.073	0.088	0.097	0.098
7	0.121	0.125	0.088	0.116	0.136	0.139
8	0.200	0.208	0.135	0.187	0.240	0.229
Fraction (4-8 quarters):						
Any Study	0.067	0.066	0.020	0.041	0.068	0.092
Formal	0.046	0.046	0.012	0.026	0.046	0.066
Non-formal	0.020	0.020	0.008	0.014	0.021	0.025
Employed	0.778	0.780	0.606	0.758	0.791	0.825
Self-employed	0.137	0.138	0.094	0.145	0.148	0.136
Unemployed	0.027	0.027	0.039	0.027	0.032	0.021
Not in LF	0.158	0.157	0.316	0.178	0.145	0.117
No. Individuals (4-8 Qtrs)	129,141	124,905	12,567	32,922	34,113	45,030
Population count (4-8 Qtrs)	14,656,900	14,195,300	1,230,400	3,654,300	3,709,600	5,573,600
No. Individuals	216,885	203,610	26,649	57,111	50,895	67,434
Population count	24,599,500	23,166,200	2,610,500	6,385,200	5,566,600	8,448,200

Notes: The distribution of number of quarters observed in the HLFS is based on all in-scope individuals aged 25-64 over the period. The fractions of the time in various states is based on the subsample of individuals who are observed for at least 4 quarters. Sample sizes are randomly rounded to base-3; population counts are rounded to nearest-100 (based on individuals' average final-weight over the quarters they appear in the HLFS).

Table 4: EMS Panel-level statistics – matched to HLFS individuals over period 2006Q4--2013Q4

	IDI matched	Study Any	Study Formal	Study Non-formal	No Study
EMS wage & salary (W&S) earnings					
No. quarters pre-HLFS:	11.9	12.3	12.1	13.2	11.8
Average earnings	9,589	9,137	8,614	10,456	9,676
No. quarters HLFS:	3.1	3.6	3.5	4.2	3.0
Average earnings	9,127	8,960	8,502	10,501	9,159
No. quarters post-HLFS:	11.1	12.3	12.4	12.6	10.9
Average earnings	9,941	10,470	10,278	11,379	9,840
EMS working-age gov't benefit income					
No. quarters pre-HLFS:	2.4	2.7	2.9	2.2	2.3
Average income	661	789	847	657	636
No. quarters HLFS:	0.5	0.7	0.8	0.6	0.5
Average income	450	557	613	430	429
No. quarters post-HLFS:	2.1	2.3	2.5	1.8	2.0
Average income	551	633	687	493	535
EMS miscellaneous income					
No. quarters pre-HLFS:	1.1	1.4	1.5	1.2	1.1
Average income	1,010	998	1,018	994	1,012
No. quarters HLFS:	0.3	0.4	0.5	0.3	0.2
Average income	542	614	634	584	528
No. quarters post-HLFS:	2.1	1.5	1.5	1.6	2.1
Average income	1,301	1,104	1,074	1,208	1,339
No. individuals	115,749	18,591	13,932	7,437	97,161
Population counts	12,810,400	2,067,900	1,553,100	829,300	10,742,600

Notes: The pre-HLFS period covers the 20 quarters (5 years) before the individual is observed in the HLFS (between 2006Q4 and 2013Q4); the HLFS-period covers the quarters during which they are in the HLFS sample; and the post-HLFS period covers the 20 quarters after they leave the HLFS sample. All earnings and incomes are expressed in December 2018 dollar values. It should be noted that these patterns are descriptive and that there are potentially confounding factors driving these patterns. Further research is needed to determine causality.

Table 5: Number of people aged 25-64 studying for a qualification, completed by 2018

Year of initial enrolment	All Levels	Level 1-3	Level 4-6	Level 7	Level 8+
2006	66,057	27,675	24,798	5,487	8,097
2007	67,851	27,015	26,199	6,201	8,436
2008	68,496	28,824	25,533	5,415	8,724
2009	78,804	33,579	28,929	6,396	9,900
2010	77,412	31,359	29,103	6,939	10,011
2011	75,153	29,001	29,961	6,831	9,360
2012	74,940	29,217	29,754	6,381	9,588
2013	73,023	29,148	28,920	5,670	9,285
2014	72,480	29,388	29,124	4,770	9,198
2015	68,529	26,781	28,833	3,405	9,510
2016	65,709	24,633	31,068	1,338	8,670
2017	44,526	21,846	18,867	387	3,426

Source: Statistics New Zealand's Integrated Data Infrastructure, Ministry of Education Tertiary Education data

Note: Year is calendar year. Counts are randomly rounded to base 3 to protect confidentiality.

Table 6: MOE and EMS – Characteristics of students aged 25-64 at enrolment in 2006 and in 2013

	2006					2013				
	All Levels	Level 1-3	Level 4-6	Level 7	Level 8+	All Levels	Level 1-3	Level 4-6	Level 7	Level 8+
Female	0.606	0.569	0.634	0.673	0.605	0.627	0.618	0.622	0.678	0.636
Migrant	0.286	0.267	0.27	0.296	0.391	0.313	0.252	0.327	0.319	0.455
Age group										
25-29	0.210	0.139	0.218	0.354	0.327	0.258	0.191	0.275	0.374	0.346
30-34	0.163	0.146	0.17	0.181	0.19	0.167	0.151	0.169	0.192	0.192
35-44	0.311	0.324	0.32	0.291	0.255	0.270	0.285	0.266	0.252	0.247
45-54	0.226	0.263	0.215	0.145	0.185	0.211	0.244	0.206	0.146	0.163
55+	0.090	0.128	0.076	0.03	0.043	0.094	0.128	0.085	0.037	0.052
Ethnicity										
European	0.475	0.434	0.471	0.53	0.587	0.401	0.341	0.408	0.477	0.523
Maori	0.139	0.168	0.154	0.074	0.034	0.166	0.229	0.16	0.1	0.031
Euro-Maori	0.073	0.076	0.08	0.066	0.042	0.092	0.112	0.087	0.087	0.047
Pacifika	0.041	0.044	0.042	0.043	0.029	0.066	0.088	0.056	0.069	0.029
Asian	0.202	0.216	0.182	0.201	0.216	0.200	0.165	0.214	0.177	0.277
Misc ethnicity	0.069	0.062	0.069	0.084	0.086	0.074	0.066	0.074	0.088	0.090
Highest existing qualification[1]										
No post-school qual.	0.587	0.665	0.573	0.551	0.386	0.449	0.523	0.424	0.374	0.338
Level 1-3	0.130	0.168	0.132	0.095	0.019	0.158	0.212	0.16	0.1	0.017
Level 4-6	0.145	0.116	0.17	0.274	0.077	0.219	0.187	0.254	0.432	0.078
Level 7	0.089	0.034	0.091	0.059	0.288	0.111	0.055	0.116	0.069	0.298
Level 8+	0.050	0.017	0.034	0.021	0.229	0.064	0.023	0.046	0.025	0.270
EMS Employment during study[2]										
Always employed	0.661	0.606	0.721	0.592	0.716	0.624	0.572	0.652	0.577	0.726
Sometimes employed	0.087	0.053	0.069	0.263	0.136	0.073	0.039	0.056	0.243	0.126
Always not emp	0.096	0.129	0.092	0.056	0.026	0.160	0.231	0.151	0.072	0.015
Not emp/not in EMS	0.006	0.005	0.004	0.016	0.005	0.005	0.005	0.003	0.019	0.005
Never in EMS	0.150	0.207	0.114	0.073	0.116	0.139	0.152	0.138	0.089	0.129
Sector[3]										
A, B	0.036	0.066	0.018	0.007	0.005	0.033	0.052	0.026	0.008	0.007
C	0.060	0.077	0.058	0.034	0.028	0.077	0.107	0.068	0.044	0.031
D, E	0.035	0.042	0.039	0.019	0.013	0.051	0.066	0.052	0.026	0.015
F, G, H	0.107	0.125	0.111	0.081	0.054	0.146	0.169	0.153	0.104	0.076
I, J, K, L	0.063	0.061	0.069	0.056	0.054	0.069	0.067	0.077	0.057	0.054
M, N	0.080	0.071	0.079	0.091	0.106	0.096	0.09	0.099	0.1	0.104
O	0.063	0.048	0.07	0.073	0.089	0.060	0.047	0.067	0.067	0.078
P	0.147	0.089	0.173	0.21	0.219	0.145	0.106	0.15	0.199	0.218
Q	0.148	0.101	0.151	0.248	0.229	0.162	0.114	0.153	0.265	0.276
R, S	0.044	0.04	0.056	0.036	0.025	0.045	0.045	0.051	0.047	0.028
Missing sector	0.059	0.058	0.062	0.059	0.054	0.012	0.006	0.012	0.02	0.028
No EMS employment	0.048	0.069	0.039	0.03	0.012	0.034	0.054	0.027	0.012	0.003
Not in EMS	0.112	0.155	0.075	0.057	0.112	0.071	0.077	0.065	0.051	0.082
Age										
Mean	39.438	41.66	38.88	35.35	36.32	38.775	40.82	38.29	35.18	36.06
Median	38.351	41	38	33	34	37.378	40	37	33	33
Total count	66,057	27,675	24,798	5,487	8,097	73,023	29,148	28,920	5,670	9,285

Source: Statistics New Zealand's Integrated Data Infrastructure: MOE Tertiary Education, EMS, and Personal Details data

Notes: Year is calendar year. Each column should be treated as a separate sample, and categories (e.g., highest existing qualification) should total to 100% within columns. Counts are randomly rounded to base 3 to protect confidentiality.

[1]This is based on the highest qualification found for an individual in the MOE Tertiary Education completion data. No post-school qualification means there was no record of completion of a qualification in the MOE Tertiary Education completion data. This category could include those who received qualifications overseas or older adults with qualifications that precede the beginning of the data.

[2]'Always employed' defined as having positive wage/salary income in EMS for entire study duration. 'Sometimes employed' defined as periods of positive wage/salary income reported in EMS combined with periods where wage/salary is zero in EMS and EMS records cover entire study duration. 'Always not emp' defined as having wage/salary income that is always zero in EMS and EMS records cover entire study duration. 'Not emp/not in EMS' defined as having periods of zero wage/salary income reported in EMS combined with periods with no EMS records. 'Never in EMS' defined as having no EMS records for the entire study duration.

[3]1-digit industry in the nearest year before study that industry of employment is available, see Table A1 for industry names.

Table 7: EMS employment rates, people aged 25-64, by level of new qualification and enrolment year

		Level 1-3	Level 4-6	Level 7	Level 8+
2006	**1 year before study**				
	EMS employment	0.604	0.717	0.727	0.731
	No EMS employment	0.131	0.096	0.089	0.041
	Not in EMS	0.264	0.186	0.183	0.228
	1 year after study				
	EMS employment	0.636	0.769	0.797	0.751
	No EMS employment	0.135	0.084	0.060	0.023
	Not in EMS	0.229	0.147	0.143	0.226
	2 years after study				
	EMS employment in at least 1 year	0.680	0.807	0.835	0.772
	No EMS employment in both years	0.123	0.070	0.044	0.021
	Not in EMS	0.197	0.123	0.121	0.207
2013	**1 year before study**				
	EMS employment	0.568	0.625	0.683	0.684
	No EMS employment	0.241	0.154	0.13	0.037
	Not in EMS	0.191	0.221	0.187	0.279
	1 year after study				
	EMS employment	0.628	0.728	0.817	0.795
	No EMS employment	0.208	0.118	0.053	0.015
	Not in EMS	0.164	0.154	0.130	0.190
	2 years after study				
	EMS employment in at least 1 year	0.695	0.778	0.860	0.829
	No EMS employment in both years	0.170	0.095	0.036	0.012
	Not in EMS	0.135	0.127	0.104	0.159

Source: Statistics New Zealand's Integrated Data Infrastructure: MOE Tertiary Education matched to EMS data.
Notes: The EMS data primarily contains income from wages and salary paid by employers to their employees. However, it can also include wage and salary information for working proprietors or contractors. The EMS data also contains income from other sources (e.g., government benefits). Hence, individuals are deemed to have 'EMS employment' when they have positive wage and salary income in the EMS in the time period. Individuals are deemed as having 'no EMS employment' when they receive other income reported in the EMS data but no wage/salary income during the time period. Individuals are deemed to be 'not in EMS' when they neither have wage/salary income nor other income reported in the EMS data during the time period. Individuals not in EMS may be overseas, self-employed, or not in paid employment.

Table 8: Annual income for students aged 25-64, by level of new qualification completed

		Level 1-3	Level 4-6	Level 7	Level 8+
2006	**Wages and salaries**				
	5-yr average pre-study	30,462	30,921	27,704	42,470
	3-yr average pre-study	32,056	33,612	28,344	44,469
	1-yr average pre-study	33,806	35,052	28,114	50,313
	During study	32,940	32,122	22,072	48,830
	1-yr average post-completion	36,123	40,998	42,279	65,529
	3-yr average post-completion	36,958	44,799	50,246	73,515
	5-yr average post-completion	36,414	45,228	54,419	77,568
	Non-employment income				
	5-yr average pre-study	4,460	3,770	3,349	2,016
	3-yr average pre-study	4,311	3,450	3,281	2,307
	1-yr average pre-study	3,980	3,382	3,685	1,837
	During study	4,259	3,944	5,434	1,644
	1-yr average post-completion	3,722	2,398	1,807	824
	3-yr average post-completion	4,064	2,525	1,550	1,024
	5-yr average post-completion	4,518	2,773	1,603	1,253
2013	**Wages and salaries**				
	5-yr average pre-study	29,992	30,891	31,050	41,996
	3-yr average pre-study	27,996	29,682	30,644	45,379
	1-yr average pre-study	27,796	28,568	29,673	54,976
	During study	26,368	25,083	30,986	54,264
	1-yr average post-completion	30,915	33,971	42,569	59,726
	3-yr average post-completion	35,160	41,821	49,867	69,357
	5-yr average post-completion[1]	37,068	44,309	52,540	74,563
	Non-employment income				
	5-yr average pre-study	4,683	3,804	2,839	1,796
	3-yr average pre-study	5,599	4,505	3,984	2,422
	1-yr average pre-study	5,855	5,007	5,227	2,116
	During study	6,274	5,537	4,477	1,223
	1-yr average post-completion	4,945	3,704	2,106	743
	3-yr average post-completion	4,765	3,572	1,790	954
	5-yr average post-completion[1]	5,107	3,979	2,038	1,433

Source: Statistics New Zealand's Integrated Data Infrastructure

Notes: See notes to Table 5. Income is in December 2018 dollars.

[1]Given that the EMS data ends in 2018, this 5-year average primarily pertains to those who began and completed a qualification in 2013. This may be especially problematic for longer qualifications such as level 7 qualifications. These numbers should be treated with caution.

Table 9: PIAAC sample descriptive statistics

	PIAAC Sample	PIAAC Non-formal Training Participants	PIAAC Non-participants
Female	0.524	0.518	0.534
Partnered	0.733	0.759	0.690
No. Children	2.584	2.509	2.709
Employed	0.810	0.900	0.653
Part-time	0.178	0.175	0.184
Self-employed	0.193	0.153	0.294
Unemployed	0.054	0.039	0.079
Not in LF	0.136	0.060	0.268
Studying	0.102	0.120	0.070
Non-formal Training	0.634	1	0

Source: PIAAC public-use file for New Zealand.

Notes: The PIAAC sample includes all individuals aged 25-64. The sub-sample, PIAAC non-formal training participants, includes all individuals aged 25-64 who reported taking at least one type of non-formal training in the previous 12 months. The sub-sample, PIAAC non-participants, includes all individuals aged 25-64 who did not report participation in any type of non-formal training in the previous 12 months. All statistics are weighted by individuals' replicate sampling weights and calculated using the REPEST module for Stata.

Table 10: PIAAC respondents reporting participation in non-formal training by activity type

Non-formal Training Type	% Respondents	% Female	Average # of Events
Open/distance course	17.54	58.40	2.92
On-the-job training	68.70	52.12	3.57
Seminar/workshop	65.56	60.35	3.61
Other course/private lesson	17.55	51.61	5.23

Source: PIAAC public-use file for New Zealand.

Notes: These results are for the PIAAC non-formal training participants sub-sample, which includes all individuals aged 25-64 who reported taking at least one type of non-formal training in the previous 12 months. All statistics are weighted by individuals' replicate sampling weights and calculated using the REPEST module for Stata.

Table 11: Descriptive statistics for last non-formal training activity reported

	Last Activity Reported (%)	Female Participant (%)	Employed while participating (%)	Job-related Activity (%)
Open/distance course	4.11	53.71	76.08	76.56
On-the-job training	38.11	50.81	-	-
Seminar/workshop	45.60	51.75	90.67	90.28
Other course/private lesson	12.18	56.16	85.26	46.43
Overall			83.96	78.35

Source: PIAAC public-use file for New Zealand.

Notes: These results are for the PIAAC non-formal training participants sub-sample, which includes all individuals aged 25-64 who reported taking at least one type of non-formal training in the previous 12 months. All statistics are weighted by individuals' replicate sampling weights and calculated using the REPEST module for Stata.

Table 12: Timing for last non-formal training activity reported

	Open or distance course	On-the-job training	Seminar or workshop	Other course or private lesson
Only during working hours	28.20	72.05	57.85	29.55
Mostly during working hours	11.99	15.88	19.75	8.81
Mostly outside working hours	19.39	3.81	7.74	5.50
Only outside working hours	40.43	8.26	14.66	56.15

Source: PIAAC public-use file for New Zealand.
Notes: These results are for the PIAAC non-formal training participants sub-sample, which includes all individuals aged 25-64 who reported taking at least one type of non-formal training in the previous 12 months. All statistics are weighted by individuals' replicate sampling weights and calculated using the REPEST module for Stata.

Table 13: Average number of non-formal training events and hours in previous 12 months by PIAAC participants' self-reported learning strategies

	Relate new idea to real life situations		Like learning new things		Relate new idea to what I already know		Like getting to bottom of difficult things		Like figuring out how ideas fit together		Look for additional information if I don't understand	
	Events	*Hours*	*Events*	*Hours*	*Events*	*Hours*	*Events*	*Hours*	*Events*	*Hours*	*Events*	*Hours*
Not at all	4.92	81.10	3.00	40.00	8.52	124.37	5.43	118.21	3.32	79.17	2.60	55.86
Very little	4.99	98.91	11.15	82.92	5.21	75.56	4.18	69.65	4.82	96.33	3.09	53.62
To some extent	6.23	92.66	5.50	66.25	5.95	95.58	6.27	96.97	6.14	102.52	6.47	89.70
To a high extent	8.00	122.42	6.70	101.12	7.16	98.49	7.34	108.53	7.89	97.97	6.56	100.74
To a very high extent	8.34	153.05	8.19	152.05	8.43	161.65	7.70	136.19	7.51	157.71	8.16	141.45

Source: PIAAC public-use file for New Zealand.

Notes: These results are for the PIAAC non-formal training participants sub-sample, which includes all individuals aged 25-64 who reported taking at least one type of non-formal training in the previous 12 months. All statistics are weighted by individuals' replicate sampling weights and calculated using the REPEST module for Stata.

Table A1: HLFS sample statistics – Occupation & Industry

	IDI	Study			Non-study, Labour force status		
	matched	Any	Formal	Non-Formal	Employed	Unemployed	Not in LF
Occupation							
1. Managers	0.185	0.133	0.122	0.158	0.197	0.110	0.110
2. Professionals	0.247	0.342	0.336	0.355	0.248	0.135	0.169
3. Tech&Trades	0.123	0.107	0.108	0.102	0.125	0.127	0.103
4. Comm&Personal	0.085	0.142	0.147	0.131	0.077	0.102	0.127
5. Cler&Admin	0.127	0.106	0.112	0.094	0.128	0.114	0.142
6. SalesWork	0.073	0.064	0.067	0.057	0.071	0.095	0.100
7. MachOps&Drivers	0.056	0.028	0.026	0.033	0.058	0.079	0.054
8. Labourers	0.099	0.074	0.078	0.064	0.092	0.230	0.179
9. Other	0.005	0.006	0.006	0.005	0.004	0.008	0.015
Industry:							
A.Agriculture, Forestry and Fishing	0.061	0.037	0.035	0.039	0.062	0.078	0.064
B.Mining	0.003	0.003	0.002	0.004	0.003	0.003	0.002
C.Manufacturing	0.111	0.069	0.067	0.071	0.114	0.136	0.105
D.Electricity, Gas, Water and Waste Services	0.009	0.010	0.010	0.009	0.009	0.009	0.007
E.Construction	0.085	0.075	0.075	0.076	0.087	0.089	0.057
F.Wholesale Trade	0.045	0.026	0.026	0.027	0.048	0.038	0.032
G.Retail Trade	0.081	0.063	0.064	0.060	0.080	0.095	0.106
H.Accommodation and Food Services	0.045	0.045	0.053	0.030	0.041	0.079	0.085
I.Transport, Postal and Warehousing	0.044	0.026	0.023	0.031	0.046	0.044	0.038
J.Information Media and Telecommunications	0.018	0.016	0.015	0.018	0.019	0.022	0.017
K.Financial and Insurance Services	0.032	0.029	0.028	0.030	0.032	0.020	0.027
L.Rental, Hiring and Real Estate Services	0.018	0.013	0.011	0.018	0.018	0.016	0.017
M.Professional, Scientific and Technical Services	0.086	0.079	0.072	0.096	0.090	0.054	0.056
N.Administrative and Support Services	0.035	0.033	0.035	0.027	0.033	0.064	0.055
O.Public Administration and Safety	0.059	0.076	0.073	0.082	0.059	0.035	0.039
P.Education and Training	0.094	0.151	0.166	0.120	0.090	0.062	0.094
Q.Health Care and Social Assistance	0.111	0.184	0.176	0.198	0.106	0.075	0.106
R.Arts and Recreation Services	0.016	0.019	0.019	0.019	0.016	0.018	0.018
S.Other Services	0.041	0.039	0.041	0.036	0.041	0.039	0.045
T.Not Elsewhere Included	0.008	0.007	0.008	0.007	0.005	0.021	0.030

Notes: Occupation and Industry pertain to current main job, if employed; or last job, if not employed.