MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

The drivers behind the higher NEET rate for Māori and Pacific youth

Insights from administrative data

Occasional Paper 19/02

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Abstract

Higher rates of Not in Employment, Education or Training (NEET) for Maori and Pacific youth is a persistent feature of New Zealand's labour market. This study uses individual-level administrative data to explore the relationship between individual, family, and area-level characteristics and NEET outcomes for different age, gender and ethnic groups. Specifically, a Blinder-Oaxaca decomposition is applied to assess the extent to which differences in the long-term (spells lasting 6 consecutive months or longer) NEET rate between groups are driven by differences in background characteristics, differences in the impacts of these characteristics, and/or their interaction. Across groups, factors such as highest qualification, having a driver licence, having children, having a parent receiving benefit income, and the level of area deprivation are found to be strong predictors of long-term NEET status. In addition, the results of the decomposition suggest that the majority of the difference in long-term NEET rates is explained by differences in background characteristics between groups. In particular, differences in education outcomes, having a driver licence, having children (for females), and area level deprivation explained a large fraction of the difference in NEET rates between groups.

JEL classification

J01; J15; J13; J22

Keywords

NEET; youth; Māori; Pacific; deprivation; education

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1 Introduction

In 2018, nearly 18% of all Māori and Pacific youth (between the ages of 15 and 24) were not in Employment, Education, or Training (NEET). This is nearly twice the rate recorded for European and Asian youth, and significantly greater than the national rate of 11.6%. Higher NEET rates for Māori and Pacific youth are a persistent feature of New Zealand's labour market (SNZ, 2018).

This study investigates the extent to which this "NEET rate gap" can be explained by differences in background characteristics (educational achievements, parenting, area level factors, etc.) between Māori and Pacific youth with other ethnicities. In addition, this study explores the extent to which differences within certain characteristics impact overall outcomes differently for youth from different ethnic groups.

It is important to untangle the drivers behind the overrepresentation of Māori and Pacific in the NEET population, since these youth have been found to be at a greater risk of experiencing adverse economic and social outcomes later in adulthood (Dixon, 2013; Earle, 2016; McLeod et al., 2015; McLeod & Tumen, 2017; Samoilenko & Carter, 2015), thereby incurring greater private and public costs (Pacheco & Dye, 2014).

The study applies Blinder-Oaxaca decomposition methods (Blinder, 1973; Oaxaca, 1973) to a sample of 585,555 New Zealanders who were between the ages of 15 and 24 in 2016. This study focuses on youth who are NEET for long periods of time (six consecutive months or more), referred to as 'Long-Term NEET' (LT-NEET), since this group is at greater risk of experiencing adverse long-term outcomes (Dixon, 2013; Earle, 2016; Samoilenko & Carter, 2015). The definition of LT-NEET largely follows McLeod & Tumen (2017), and utilises large sets of individual level administrative data from Stats NZ's Integrated Data Infrastructure (IDI).

This study has a number of key limitations. First, it relies on the availability and quality of administrative data, which is likely to exclude many contextual factors which are important for youth outcomes and for explaining the Māori and Pacific NEET rate gap. Second, many background factors are highly correlated and have complex non-linear relationships which this study tries to explain via linear approximations. This may result in variables showing inaccurately heightened or diminished importance. Finally, due to the non-random nature of being NEET, the results are best seen as associative, rather than causal.

Despite these limitations (and others), this study could still support policy work in this area[1] by highlighting factors with significant contributions to the gap, and thus help to identify potential risk groups. Well targeted interventions to reduce the Māori and Pacific NEET gap not only improves the outcomes for these youth, but also has broader,

[1] NEET-related initiatives include the Youth Service (NEET) programme, Skills for Industry, Flexi-Wage, Training for Work, Activity in the Community, Kiwi Can Do, and Project 1,000 (Ministry of Social Development); Sector Workforce Engagement Programme, He Poutama Rangatahi, and He Kai Kei Aku Ringa (Ministry of Business, Innovation and Employment); Māori and Pacific Trades Training (Ministry of Education).

positive, long-term implications for New Zealand due to the growing proportionate composition of Māori and Pacific in New Zealand's labour.[2]

The rest of the paper is organised as follows. Section 2 provides a brief background on NEET in New Zealand. Section 3 describes the study's data and sample. Section 4 provides a descriptive analysis for the sample population. Section 5 summarises the results of the decomposition. Finally, section 6 discusses the overall results and possible policy implications.

[2] The share of Māori and Pacific in the working-age population (aged 15-64) is projected to increase by almost one-third over the next two decades, with greater representation in younger age groups (SNZ, 2016b).

2 Background – NEET in New Zealand

2.1 NEET: Not in Employment, Education or Training

The youth NEET rate is the official measure used to capture the employment, educational and training statuses of New Zealanders aged 15 to 24. NEET is designed to complement other measures of labour market underutilisation, such as youth unemployment, and to assist in identifying youth groups at a greater risk of becoming disadvantaged or marginalised in the future (SNZ, 2011).

In 2018 (June year), 11.6% of the 15 to 24-year-old population were identified as NEET (SNZ, 2018). That amounts to 75,600 New Zealanders. This rate has gradually fallen from higher rates at the onset of the Global Financial Crisis (GFC) (e.g. 15.4% in 2010Q1). However, this rate is still above New Zealand's pre-GFC levels, which is a trend shared by many other OECD countries (SNZ, 2016b).[3]

NEET status is defined using answers from the Household Labour Force Survey (HLFS). The status is defined based on a number of education and employment questions. These are also used to split the NEET population into 'Unemployed', 'Not in the Labour Force' (NILF), and 'Caregiving' sub-categories. Prior to the GFC, the NEET population was distributed fairly evenly across these sub-categories. However since 2008-2009, the unemployed and NILF sub-categories have increased (to about 40% each), while caregiving has trended down (SNZ, 2018).

NEET is more common among youth aged 20 and older, and is especially common among females (nearly 40% of all NEET). Nearly half of all NEET are 22 years or older, while only 6% are aged between 16 and 17 (Pacheco & Westhuizen, 2016).[4] The prevalence of NEET amongst females aged 20-24 is a reflection of inequities in caregiving duties across age/gender groups, where 80% of all caregiving NEET are females aged 20-24. Since 2004, the share of females in the total NEET population has fallen by 13 percentage points (pp), reflecting the reduction in the caregiving sub-group of NEET. Excluding this sub-category, the NEET rate for females aged 20-24 would be about the same as males in the same age group.

Geographically, nearly 60% of the NEET population reside in the Auckland, Wellington, and Canterbury regions. This reflects the distribution of the general working age population. Clusters of higher NEET rates tend to appear in the Northern and Eastern parts of the North Island.

[3] Note that a methodological improvement for identifying educational status was introduced in 2016. Therefore, comparisons to before this time should be made with caution.

[4] Younger age groups are more likely to be in education (children are required by law to be in education until they are 15 years old), and are also less likely to be in caregiving roles (especially younger females) (Pacheco & Westhuizen, 2016; Potter & Macky, 2017).

Across all observable quarters (2004Q1-2018Q2) the NEET rate for Māori and Pacific has been significantly greater than other ethnicities.[5] Across the different age and sex sub-categories, the distribution of the type of Pacific NEET is fairly equal to that of the overall population. Māori have a disproportionally larger share of caregivers (40% of all Maori NEET, compared to 20-33% in other ethnicities). This is thought to be explained by Māori females performing more household responsibilities, including caring for children of others and dependent adults (Warburton & Morrison, 2008).

2.2 Long-term NEET (LT-NEET)

Recording at least one spell of NEET between the ages of 15 and 24 is fairly common. However, a sub-group of youth recording long-term spells (defined as six or more consecutive months) have been found in past studies to be at a greater risk of experiencing adverse outcomes in later years (Dixon, 2013; Earle, 2016; McLeod, et al., 2015; Samoilenko & Carter, 2015).

Dixon (2013) found that three years after an initial long spell of NEET, 25%-45% of the sample recorded another long spell (whether continued, or new). Youth who experience long spells between the ages of 15 and 19 were found to be at a particularly greater risk, with 20% recording an additional spell at age 21 (compared to 6% for youths who did not record an earlier long spell between the ages of 15-19). In addition, this group was also less likely to transition into education. Samoilenko & Carter (2015) found that people who recorded a long spell of NEET in their youth were less likely to be employed and more likely to be inactive and/or receiving a benefit two years following the spell.

Dixon (2013) examined youth over a period of six years (from age 16 to 22) and found that over 28% recorded at least one long-term spell (defined as six consecutive months or longer).[6] Other studies which examined youth over shorter periods (such as one year) estimate the rate to be between 10 and 13.5% (McLeod & Tumen, 2017; Potter & Macky, 2017; SNZ, 2017).

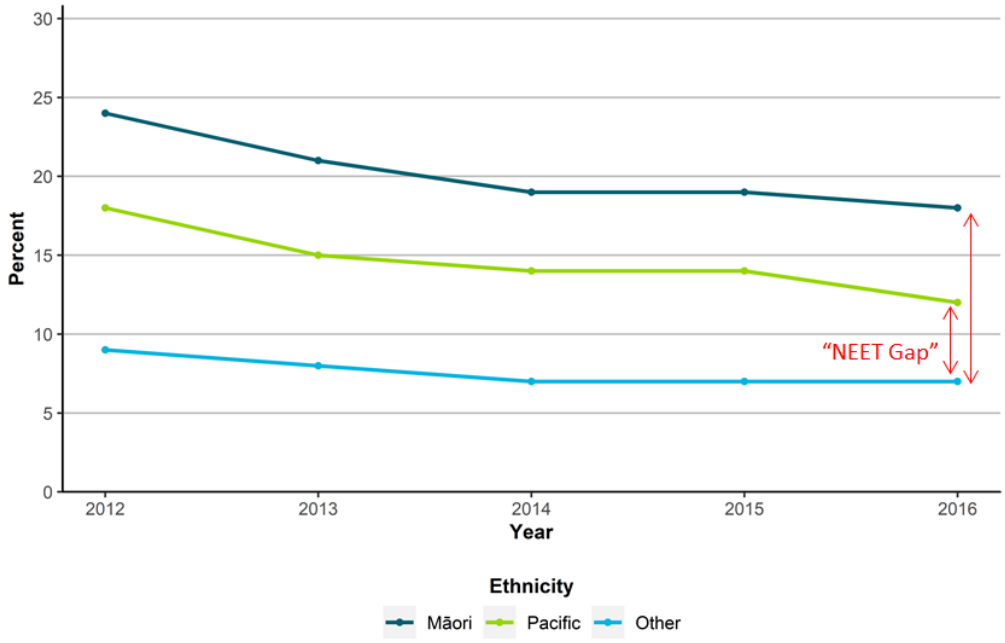
While the LT-NEET population is highly heterogeneous, studies have identified some characteristics that are more common among LT-NEET than in the overall population. The LT-NEET population includes greater shares of early school leavers, young parents, and residents of deprived neighbourhoods (Dixon, 2013; Samoilenko & Carter, 2015). In addition, some background characteristics for long-term NEET spells (and other adverse outcomes in adolescence and adulthood) can be traced to early childhood experiences and the family environment. They may include being abused as a child,[7] having a mother with no formal qualification, having a caregiver with a corrections sentencing

[5] The Māori NEET rate varies from 15.6% to 27.5%, and for Pacific it varies from 13.6% to 23.2%. This compares to ranges of 8.3% to 13.4% for Europeans, and 3.6% to 14.7% for Asians.
[6] This compares to 25% who recorded multiple short-term spells (1-5 months), 23% who recorded a single short-term spell, and 24% who recorded no spells.
[7] This was captured by whether the child recorded at least one abuse event with the Child, Youth, and Family (CYF) services by the age of 5.

history, growing up in a single-parent family, and/or in a family environment with heavy dependency on the benefit system (Ball, et al., 2016; Crichton, Templeton, & Tumen, 2015; McLeod, et al., 2015; McLeod & Tumen, 2017; Samoilenko & Carter, 2015). Over one-third of the LT-NEET population recorded at least one of these factors, compared with 13% of the non-LT-NEET population.

McLeod et al (2015) divided the New Zealand youth population into different risk groups (based on counting the number of background characteristics they have). The study found that Māori accounted for over 62% and 50% of the two groups most at risk, while constituting only 20% of the total sample. On the other hand, the share of Pacific peoples in these two groups was fairly proportional to their representation in the total. Samoilenko & Carter (2015) found that Māori make up over 27% of the LT-NEET population, compared to less than 16% of the non-NEET population, and Pacific account for 13.5% of LT-NEET, compared to 7.2% of non-NEET.

Figure 1: Māori and Pacific NEET gap



Source: IDI, SNZ (Author's analysis)

3 Data and Sample

The study population includes 585,555 New Zealanders aged 15 to 24 on the 31st December 2016. All data is based on administrative records from Stats NZ's IDI.[8] The 2016 calendar year was used because it was the most recent year with all the necessary data for constructing NEET status at the time the analysis was conducted.

All individuals in the sample have gender and ethnicity indicators, birth details, have had at least one recorded interaction with a government agency in the 12 months prior to the 31st December 2016, had resided in New Zealand for at least six months in 2016, were not on a temporary migrant visa (e.g. international students, working holiday visa holders), and are linked to the IDI's spine (i.e. have been confirmed as individuals). While the decomposition focuses on 2016, some analysis will use the outlined sample conditions to examine youth populations in earlier years.

This study's sample is equal to approximately 88% of the estimated 15 to 24-year-old working population (SNZ, 2018). Most of the gap is due to the exclusion of temporary migrants and individuals without a record of ethnicity. Note that the exclusion of temporary migrants is likely to affect the distribution of certain characteristics (e.g. age, ethnicity, location). For example, temporary migrants are more likely to be from the older age group (20-24), reside in Auckland, and are less likely to be NEET or from the Māori ethnic group.

3.1 Defining ethnicity

In the HLFS, ethnicity is defined using the individual's total response. That is, individuals are allocated into every ethnic group with which they self-identify (therefore, the total count of ethnic population exceeds the total HLFS population). For research purposes, individuals in this study are allocated into four, mutually exclusive, ethnic groups based on their self-reported ethnicities.[9] This provides a more nuanced analysis while ensuring sufficient counts in each group to allow for statistical inference. Individuals who identify solely as Māori (9.6% of the sample) are assigned to a 'Sole Māori' ethnic group. Individuals who identify as Māori and other ethnicities (14.2% of the sample) are assigned to a 'Māori+other' ethnic group. Individuals who identify as 'Pacific' (solely or in addition to other ethnicities apart from Māori) are assigned to a Pacific ethnic group (9.8% of the sample). Finally, all other observations with non-Māori/Pacific

[8] The IDI makes it possible to link individuals across different sources by using a unique identifier. Many of the sources used in this study link individual interactions with different government agencies, such as the Ministry of Education, Inland Revenue, Ministry of Social Development, Ministry of Business, Innovation and Employment, and the Department of Internal Affairs. (For more information about the IDI, see (SNZ, 2014)). Birth details are sourced from the IDI's personal details table. These include the year and month of birth but not the day of birth. Therefore, all individuals are assigned with the 15th as a day of birth.

[9] Ethnicity data is sourced from the source rank ethnicity tables, which ranks other administrative sources of ethnicity information by their consistency with the 2013 Census.

ethnicities (80% European, 16% Asian, and 4% other ethnicities) are defined as 'Other' (66% of the sample).

3.2 Defining NEET using administrative data

To define NEET, this study follows the approach used in McLeod & Tumen (2017). Activity indicators are assigned to each individual in each month. These activities are based on monthly income earned and the number of days within a month spent overseas, in custody, and/or enrolled in educational courses.[10]

In each month, overseas and/or in custody statuses are assigned to all individuals who recorded 15 days or more in such activities. The 'in education' status is assigned to all individuals who were enrolled for at least one day per month in a course with Equivalent Full Time Study points (EFTS) of at least 0.5 within secondary and tertiary institutions, including industry training. Finally, 'in employment' status is assigned to all individuals with monthly earnings of at least $10 (adjusted for inflation) from wages, salaries and/or self-employment.

A monthly NEET status is assigned to all individuals without one or more records of activity, thus making it a residual category. This differs from the official definition of NEET (used in the official measure) and therefore results in some individuals having different NEET statuses across studies. For example, individuals who are enrolled in educational courses but do not attend in practice are not defined as NEET in this study, but may be in the official measure. Conversely, students who are on a break but plan to return to study may be recorded as NEET in this study (for the duration of their break), but not in the HLFS. In addition, youth with an unknown educational status (i.e. in study or not in study) are not defined as NEET in the official measure, while in this study having no records of enrolment is used to establish NEET status. Mismatches between the time and payment of wages from employment, as well as current and expected employment, could also lead to differences in NEET statuses across definitions.

3.3 NEET: 2012-2016

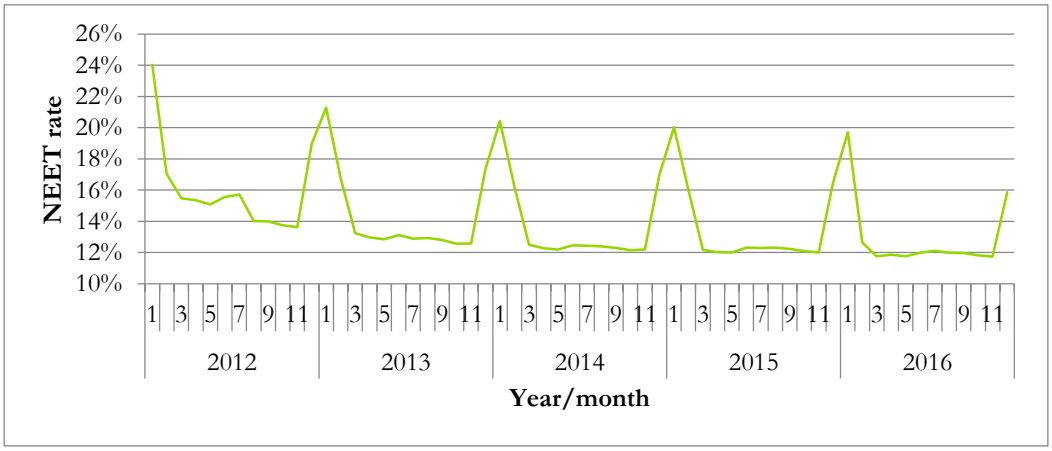
Figure 1 presents the monthly NEET rate between January 2012 and December 2016 (using this study's definition of NEET). The graph shows strong volatility during the summer months (Dec-Feb). This volatility is driven by low enrolment in educational courses during this period. 62% of January's NEET population transition into education or employment by April.

[10] Sources of income include wages and salaries, partner's income, company, or self-employment income. Non-wage and salary incomes are taken from the following tax year, as they include 9 months of the current year and are later distributed equally across all months (weighted by the number of days in each month). While this results in measuring income with an error, the overall effect is likely to be marginal due to the small portion of non-employee workers in this age group.

Between 2012 and 2016, the annual average NEET rate fell by 3 percentage points (pp) to 13%. Excluding the summer months (Dec-Feb), the 2016 NEET rate is 11.9%, just under the official rate of 12%. The share of youth who have not recorded a single NEET month in a given year has also fallen since 2012 (by 5.2pp) to 68.7% of all youth in 2016. In 2016, nearly 30% of youth who recorded NEET activity experienced a spell lasting a single month, while over 50% recorded up to three months. Generally, the number of youth in NEET falls with the increasing length of NEET spells.[11]

Table 1 shows the NEET rates of individuals identifying as Māori and Pacific youth between 2012 and 2016 as found in this study and in the official statistics. The table shows a 1-3pp difference between the sources over time. Some of this difference is due to differences in definitions of ethnicity.[12] For a more detailed comparison between the study's sample and the HLFS, see Appendix B.

Figure 2: Monthly NEET rate, 2012-2016



[11] The data shows an artificially large share of youth with 12 months of NEET (15%) because the period studied is censored at one year. When the period is extended to 22 months the share of population with 12 months of NEET falls to 2.2% (based on 2015 data).

[12] The study defines all observations with Māori ethnicity the same way as defined in the HLFS. However, the definition of Pacific in Table 1 refers to all observations identified as Pacific except Pacific-Māori. In the HLFS, Pacific-Māori would be captured as Pacific and as Māori.

Table 1: Difference in NEET rates for Māori and Pacific Peoples

	Māori		Pacific Peoples	
Year	Sample	HLFS	Sample	HLFS
2012	26.5%	23.1%	21.0%	18.8%
2013	23.7%	22.9%	18.2%	21.1%
2014	22.5%	19.8%	17.4%	20.4%
2015	21.9%	20.8%	16.7%	18.2%
2016	21.3%	20.0%	15.4%	17.1%

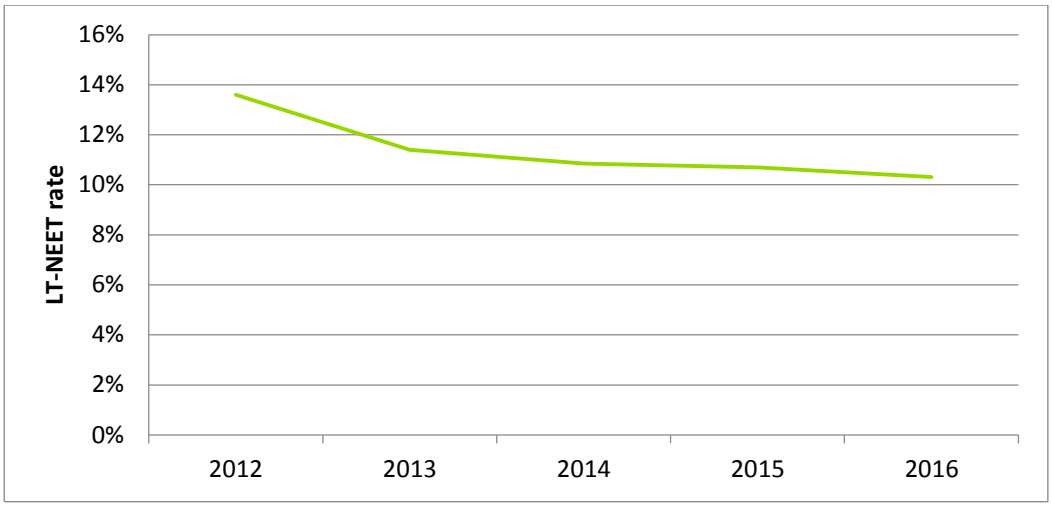
Note: *The definition of the Māori in the sample and LFS include all individuals identified as Māori. The definition of Pacific in the LFS includes all individuals identified as Pacific. The sample definition of Pacific includes all individuals identified as Pacific, aside from Māori-Pacific.*

3.4 Defining long-term NEET (LT-NEET) using administrative data

Long-term NEET status is defined using the same activity definitions used to define monthly NEET status. The number of consecutive NEET months is counted for all individuals. Then, a Long-Term NEET (LT-NEET) status is assigned to all youth who recorded spells of 6 consecutive months or longer. Youth who recorded more than six non-consecutive months are not defined as LT-NEET in this study (2% of all NEET). Furthermore, the study's NEET (and LT-NEET) definitions exclude youth with any in custody activity (less than 1% of the sample population). Figure 2 presents the annual LT-NEET rate between 2012 and 2016. It shows a 3.3pp decline over this period to a rate of 10.3% in 2016.

Since the period examined is limited to 12 months (i.e. a calendar year), youth experiencing spells that extend beyond 2016 are not captured. This leads to a lower than expected LT-NEET rate. Examining a 22-month period between 2012 and 2015 the LT-NEET rate rises by 5pp in 2012, and by 2pp in each year between 2013 and 2015. Unfortunately, it was not possible to capture long-term spells starting after December 2016 due to a lack of 2017 tertiary education data at the time this sample was constructed.

Figure 3: Long-term NEET rate, 2012-2016



3.5 Additional characteristics

Additional personal, family, and geographic data were included for the analysis. Sources and variables definitions are summarised in Table A1 of Appendix A. These were selected based on data availability, relevance to policy, and relevance to youth outcomes as found by past studies.

At the individual level, the variables include whether they were born in New Zealand, whether they hold a current driver licence (sourced from the Ministry of Transport), whether they have any recorded abuse event before the age of five (sourced from Oranga Tamariki records), and whether they have any children.[13]

Education variables are largely sourced from the Ministry of Education (MOE), and capture the number of (distinct) schools the individuals were enrolled in (as a measure of transition), school decile with most enrolment days, and whether any suspensions or warnings were recorded before the age of 16.[14] Education variables for youth aged 20 and above also include whether the last record of school enrolment was before the age

[13] Secondary parenting variables include the number of children they have, and the age difference between the individual and their oldest child.

[14] Note that the record of decile is from 2014 and may not reflect the decile of the school at the time of enrolment.

of 18, and the level of the highest qualification gained.[15] Family variables include the number of children associated with parents (averaged across parents), and the mother's highest educational qualification.[16] Parental earning information includes whether at least one parent received any benefit income in 2016, and whether benefit income accounted for three-quarters or more of the total parental income in the individuals' first 15 years.[17]

As individual outcomes may also be influenced by their wider environment, the latest (meshblock level) geographic locations for youth and their parents were also considered.[18] From these locations, the meshblock and area unit level deprivation scores were calculated for each individual as well as the average from their parents (Atkinson, Clare, & Peter, 2014).[19] In addition, the population density of the area unit and the job density of the territorial authority are calculated to account for potential urbanisation and job availability effects.[20]

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[15] The availability of educational data ranges from 89% (for Pacific) to 97% (for Māori). The availability of data tends to decrease with age (from 99% at age 15 to 87% by age 24). This is likely to reflect the improvements in collecting data and a greater participation in New Zealand's education system. The share of youth showing age leaving school reflects younger cohort still in education (e.g. from 1% at age 15 to 89% at age 22). Highest qualification levels are based on the New Zealand Qualification Framework (NZQF). Information is mainly sourced from MOE, complemented by records from the Ministry of Social Development (MSD) and the 2013 Census. About three-quarters of the individuals studied had qualification records (in total and by ethnicity). Almost all 15-year-olds (and only 28% of all 16-year-olds) have no records. Coverage significantly increases by the age of 18 (82-88%), with almost full coverage in subsequent ages.

[16] Matching observations to parents was done by linking personal ID's from their personal details with birth records from the Department of Internal Affairs (DIA). Over three-quarters of non-Māori were matched with at least one parent. For Pacific this rate was lower, at just over 70%. For Māori, there was a match for about 97% of observations. Note that parental match rates typically fall with age (e.g. match rate of 86% at age 15 compared with 75% at age 24). In addition, almost all other individuals that were matched had two parental links, compared to only three-quarters of Māori.

[17] Secondary variables include the age difference between the oldest parent and their first-born child, as well as parental income from different sources.

[18] Over 99.5% of individuals had a record of location, with most recording a change in address in 2016 (over 80%). A comparison of the location in the administrative-based table with the 2013 census showed a match rate of about 80% at the Meshblock level (with greater match rates at larger geographies). However, the match rate was especially low for individuals aged 15 to 24 (S. Gibb & Das, 2015).

[19] The overall score aggregates relative performance in a number of factors relating to communication, labour market, transport, and housing outcomes. Note that deprivation is based on results from the 2013 Census and may not reflect 2016 levels of deprivation. However, deprivation levels tend not to change much over small periods of time. In cases where Meshblock level deprivation statistics were not available, the surrounding Area Unit level deprivation was used instead.

[20] Jobs are based on employee (head) count from Stats NZ's Business Demography Statistics (SNZ, 2016a). Land size refers to the size of land mass, excluding oceans and large bodies of water (in km2). Population size and density, as well as job density are calculated at the Area Unit level. Secondary variables include population size.

4 Sample Characteristics

4.1 NEET and LT-NEET

Since 2012, all four ethnic groups recorded a reduction in their LT-NEET rates (Figure 3). LT-NEET rates for the Māori and Pacific ethnic groups have reduced at a faster rate, leading to a partial convergence with the LT-NEET rate of the Other ethnic group. In 2016, the LT-NEET rate for individuals identifying solely as Māori (sole Māori) was 22.1%, followed by 15.6% for individuals identifying as Māori as well as other ethnicities (Māori + other), 12.5% for individuals identifying as Pacific (exclusive of Māori-Pacific), and 7.1% for the Other ethnic group.

As in the official NEET statistics, females aged 20-24 are the gender/age group with the highest LT-NEET rates, followed by males aged 20-24 (Table 2). Combined, youth aged 20-24 accounts for over 70% of all LT-NEET.

Table 3 suggests that (at least part) of the overrepresentation of females (especially those aged 20-24) can be attributed to parental status. For females with one or more children, the LT-NEET rate is over 50% and includes over one-quarter of the LT-NEET study population. On the other hand, the LT-NEET rate for childless females and males is fairly similar. Males with children also record a relatively high NEET rate compared to non-parent males (20-25%), but account for a much smaller share (about 5%).

Figure 4: LT-NEET rate by ethnic group, 2012-2016

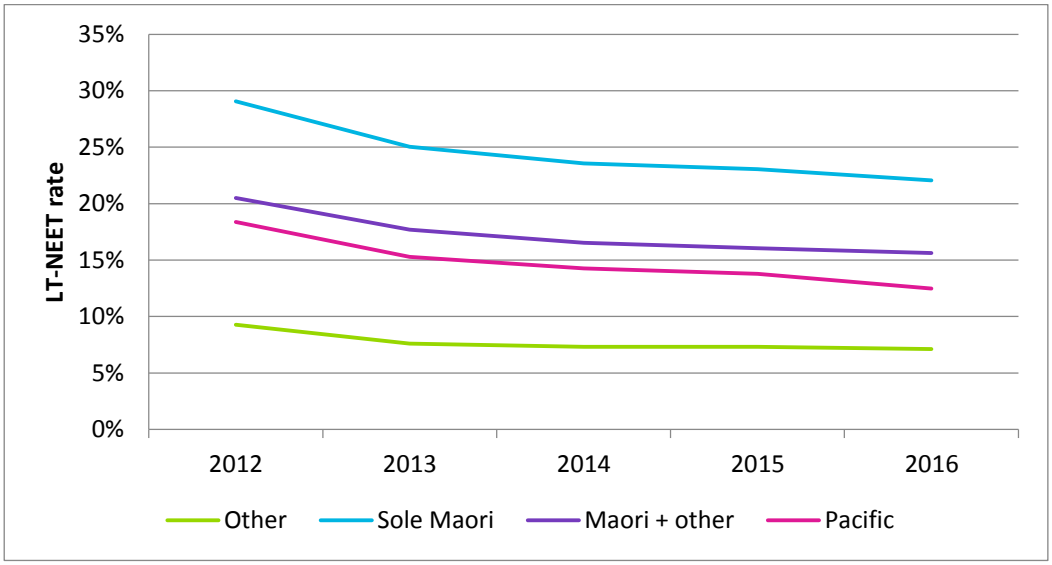


Table 2: LT-NEET rate by age, gender, and ethnicity (2016)

		LT-NEET rate					Share of all LT-NEET				
Gender	Age group	Other	Sole Māori	Māori +other	Pacific	Total	Other	Sole Māori	Māori +other	Pacific	Total
Male	15-19	4.0%	13.4%	8.6%	6.8%	5.9%	6.5%	3.4%	3.1%	1.6%	14.5%
	20-24	9.3%	22.2%	17.9%	12.6%	12%	15.7%	5.4%	6.1%	2.9%	30.1%
	Total	6.7%	17.7%	13.2%	9.7%	9%	22.2%	8.8%	9.1%	4.5%	44.6%
Female	15-19	3.4%	15.0%	9.1%	6.7%	5.7%	5.2%	3.6%	3.2%	1.6%	13.5%
	20-24	11.7%	39.4%	27.3%	23.7%	17.%	18.4%	8.6%	9.3%	5.5%	41.8%
	Total	7.6%	26.8%	18.15	15.2%	11.7%	23.6%	12.2%	12.4%	7.1%	55.5%
Total	15-19	3.7%	14.2%	8.9%	6.8%	5.8%	11.7%	7%	6.3%	3.2%	28.1%
	20-24	10.5%	30.4%	22.6%	18.2%	14.8%	34.2%	14%	15.3%	8.4%	71.9%
	Total	7.1%	22.1%	15.6%	12.5%	10.3%	45.8%	21%	21.6%	11.6%	100%

Note: *Table 2 presents the 2016 LT-NEET rate and share of all LT-NEET for different sub-groups*

Table 3: LT-NEET rates and population shares by gender, age group, and parenting status (2016)

	LT-NEET rate				Share of all LT-NEET			
	Male		Female		Male		Female	
Number of children	None	1 or more	None	1 or more	None	1 or more	None	1 or more
Age group: 15-19	5.7%	24.3%	4.7%	50.0%	13.9%	0.6%	10.9%	2.6%
Age group: 20-24	11.2%	19.1%	9.2%	56.2%	25.2%	4.9%	17.7%	24.1%

Note: *Table 3 presents the 2016 LT-NEET rates and shares of all LT-NEET by different groups and parental status. Parental status was determined based on whether the individual has been linked with one or more children.*

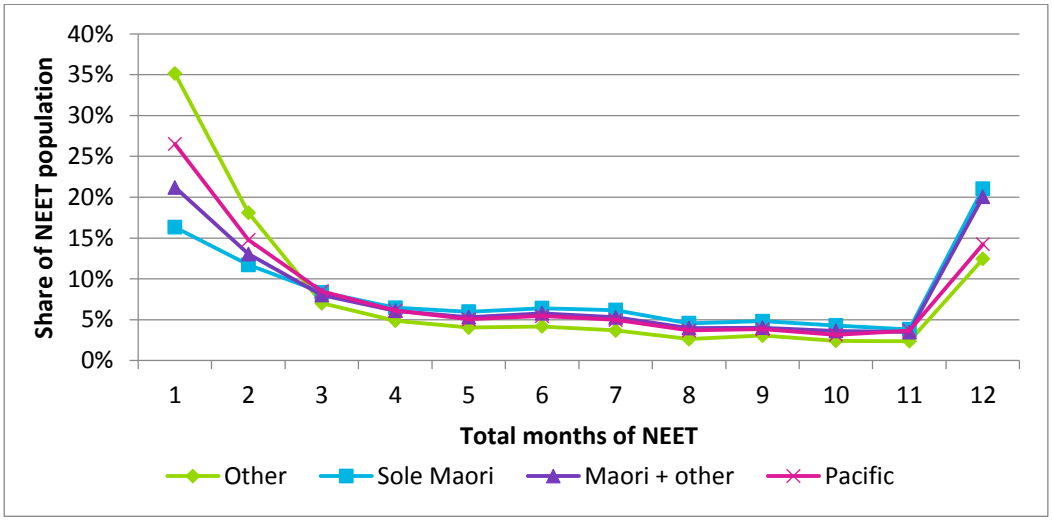
Most spells tend to be fairly short (1-3 months) with population shares falling with the total number of NEET months recorded (Figure 4).[21] Generally, youth identifying solely as Māori are the most likely to record longer spells of NEET. This pattern holds when examining previous years and when comparing youth by age and gender. The greatest variation of NEET length across ethnicities is at the 12-month mark. However, this difference overstates the true difference because the cut-off point for the statistics was one calendar year.[22]

[21] All ethnicities recorded an increase in the share of youth not recording a single NEET month within a year. In 2016, this included half of all Māori-only, almost three-quarters of all Other, and nearly two-thirds of all Māori and Pacific. Of those recording NEET activity, the average number of months has also fallen across all groups since 2012.

[22] Extending the period to 22 months for the 2012-2015 periods, the data shows that the trend of falling shares with the number of total months continues.

Finally, the geographic distribution of the LT-NEET population is similar to that of all NEET, and the distribution of the whole 15 to 24-year-old population. Greater LT-NEET rates were recorded in Northern and Eastern parts of the North Island (Figure A1-Figure A6 in Appendix A).

Figure 5: Share of NEET population by number of total months of NEET activity, 2016



4.2 Background characteristics and ethnicity

Table 4 presents a selection of background characteristics that correlate to higher LT-NEET rates, along with the shares of youth in each ethnic group who have these characteristics. Column (1) presents the LT-NEET rate for each background characteristic. For example, the total LT-NEET rate is 10.3% (first row), followed by the LT-NEET rate for 20 to 24 -year-olds (14.8%), and the female average (11.7%). Column (2) captures the share of the total population with each factor. For example, 8% of the sample has a record of one or more children, while 41% do not hold a current driver licence.

Columns (3)-(5) show the prevalence of each background characteristic within the respective ethnic groups. Overall, the table suggests that these background characteristics are far more prevalent across Māori and Pacific youth, with youths identifying solely as Māori generally recording the greatest shares. For example, 20% of youths identifying solely as Māori have a record of one or more children, compared to 13% of Pacific youths and youth identifying as Māori and other ethnicities, and 4% for

the Other ethnic group.[23] Similarly, over half of all individuals identifying solely as Māori and Pacific were enrolled in level 1-3 decile schools, compared to one-third of all other Māori, and 10% of the Other ethnic group.[24]

These results are in line with past studies, which found that a variety of personal, family, area, and transport related factors are more common for Māori and Pacific youth groups than others (Dixon, 2013; McLeod, et al., 2015; Samoilenko & Carter, 2015).

The data also capture differences in geographic distribution between the groups. Pacific are heavily concentrated in larger and more densely populated areas (e.g. Auckland). Conversely, Māori have greater concentrations in smaller (and less densely populated) areas. Individuals identifying solely as Māori are especially more likely to reside in rural areas.

[23] In addition, Māori and Pacific parents are more likely to have a greater number of children and have their first child before the age of 18. Amongst all parents, one-quarter of all Other have more than one child, compared with one-third of Māori+other and Pacific, and 36% of sole Māori. In addition, one-tenth of all parents that are from the Other group have less than 18 years difference between their oldest child (compared to 14% of Pacific, and about one-fifth of sole Māori).

[24] The biggest differences in educational qualifications across ethnicities were in the shares of youth with a level 3 qualification (by age 19), and a bachelor's degree or above (by age 24).

Table 4: LT-NEET rate and share of population with background characteristics by ethnic group

	LT-NEET	Population Share	Share within Ethnicity			
	Rate	All	Other	Sole Māori	Māori + other	Pacific
	(1)	(2)	(3)	(4)	(5)	(6)
Total	10.3%	100%	388,368	57,393	83,502	56,292
20 to 24-year-olds	14.8%	50%	51%	49%	49%	50%
Female	11.7%	49%	48%	48%	50%	50%
Background characteristic						
Record of one or more children	42.4%	8%	4%	20%	13%	13%
No current driver licence	12.9%	41%	36%	55%	46%	59%
Enrolled in three or more schools	12.1%	14%	11%	27%	21%	15%
Mostly enrolled in decile 1-3 schools	15.5%	22%	10%	55%	33%	52%
Left school before age 18	14%	33%	31%	41%	38%	29%
At least one warning/suspension	23.2%	13%	7%	31%	21%	16%
No official educational qualification	38.6%	6%	4%	13%	9%	6%
Record of abuse by age 5	22.8%	6%	4%	14%	11%	5%
Long-term parental benefit income	24.4%	10%	5%	30%	19%	12%
Mother without qualification	20.5%	13%	9%	22%	19%	23%
At least one parent currently on benefit	22.1%	18%	10%	48%	32%	20%
Area dep (top 20%)	16.9%	30%	18%	61%	40%	63%
Employee per Km2 (top 20%)	10.40%	27%	24%	21%	23%	61%
Parental area dep (top 20%)	17.50%	30%	15%	78%	51%	56%

Note: *Records of abuse are before the age of five. Long-term parent dependency refers to parents recording 75% or more of their total income sourced from a benefit before the individual reached the age of 15. Enrolment in four or more schools, decile 1-3, and receiving at least one warning or suspension are recorded until the age of 15. Area deprivation quintiles are at the Meshblock level, and higher numbers on the deprivation measure indicates more deprived areas. Parental area deprivation quintiles are at the Area Unit level. Employee per Km^2 quintiles are at the Territorial Authority level.*

4.3 Impacts of background characteristics on LT-NEET status

In this section, the association between background characteristics and the likelihood of being LT-NEET is tested. This relationship can be expressed as:

$$\boldsymbol{LTNEET_{ei} = \beta_{e0} + \sum_{k=1}^{K} X_{ik}\beta_{ek} + \epsilon_{ei}, \qquad e = O, SM, M + O, P} \tag{1}$$

Where $LTNEET_{ei}$ is a dummy variable equal to one if individual *i* from ethnic group *e* is LT-NEET. The likelihood of being LT-NEET is estimated as a (linear additive) function of a vector of an intercept, *K* background characteristics (X) and a noise term (ϵ_{ei}). Ethnic groups (*e*) are represented as above, (Other – O; Identifying solely as Māori – SM, Identifying as Māori and other ethnicities – M+O; Identifying as Pacific exclusive of Pacific-Māori – P). The strength of the relationship between having a specific background characteristic (e.g. leaving school before 18) and the likelihood of being LT-NEET is captured in β. The vector of background characteristics (*X*) includes those discussed in the previous section. This relationship is examined for each ethnicity, gender, and age group. The results of these estimations are presented in Table C1 and Table C2 (Appendix C).[25]

Table C1 summarises the results for youth aged 15-19. The relationships in the table are the percentage point change in the likelihood of being LT-NEET for a particular background characteristic. For example, the likelihood of Other and Pacific females being LT-NEET is 1.5-3pp higher if they are New Zealand born (rather than foreign born, holding all other observable factors constant).

Overall, factors that are associated with a higher likelihood of being LT-NEET tend to be consistent across ethnic groups, with variation in magnitude for some factors across genders and age groups. Factors such as having one or more children, not holding a current driver licence, being enrolled in multiple schools, recording at least one educational warning or suspension, and having at least one parent that is (currently or historically) receiving benefit income, are all significant factors with relatively similar effect on being LT-NEET across ethnic groups.

One of the strongest differences across groups was the impact that having children had on males as compared to females. For males aged 15-19, having one or more children increased the likelihood of being LT-NEET by 6-10pp. For males aged 20-24, the effect was negative, and far closer to zero. On the other hand, mothers were 30-40pp more likely to be LT-NEET compared to non-mothers.

For some groups, the link between LT-NEET status and background characteristics such as attending lower decile schools, having a mother without a qualification, meshblock deprivation, or recording an abuse event before the age of five, was stronger than for others. For example, for Māori aged 15-19, the likelihood of being LT-NEET falls by 5.8-8.9pp if they hold a current driver licence. For other ethnicities of the same age, the likelihood falls by only 2.3-2.8pp. For individuals identifying solely as Māori, doubling the meshblock deprivation score is associated with an 11.4-30.7pp increase in the likelihood of being LT-NEET, compared with a 9-10.8pp increase for other ethnicities. Although Pacific record large shares of youth residing in highly deprived areas, this factor does not correspond with a significantly higher likelihood of being LT-NEET.[26]

[25] The estimations in this section are repeated using a probabilistic (logit) model and presented in Table C3 and Table C4. While some differences exist, the overall patterns are repeated.
[26] For the Māori groups, doubling in the score is associated with an increase of 8-18pp in the likelihood of being LT-NEET, compared to 4pp for Other.

4.4 Heterogeneity in the effect of background characteristics on LT-NEET status

The model in section 4.3 is linear additive, meaning that the likelihood of being LT-NEET for a person that holds a number of certain background characteristics is equal to the sum of the likelihoods of the factors. For example, holding all other background characteristics equal, having one or more children increases the likelihood of a Māori female aged between 20 and 24 of being LT-NEET by 30.1pp (Table C2 in Appendix C). In addition, holding a current driver licence decreases the likelihood for youth from this group of being LT-NEET by 11.3pp. Therefore, the model suggests that the combined effect of being a mother and holding a current driver licence is (30.1-11.3=) 18.8pp. However, it is possible that the combined effect of these factors (or any other combination of factors) is not additive. To examine this possibility, interaction terms are added to the model. Using the example of having children and not holding a driver licence, the estimation can be written as:

$$\boldsymbol{LTNEET_{ie} = \beta_{e0} + \beta_1 Parent_{ie} + \beta_2 DL_{ie} + \beta_3 (Parent_{ie} * DL_{ie}) + \sum_{k=1}^{K-2} \beta_{ie} X_{ie} + \epsilon_{ie}} \quad (2)$$

Where in addition to additive effects, the likelihood of individual *i* from ethnic group *e* being LT-NEET ($LTNEET_{ie}$) also depends on the interaction between parental and driver licence status ($Parent_{ie} * DL_{ie}$).

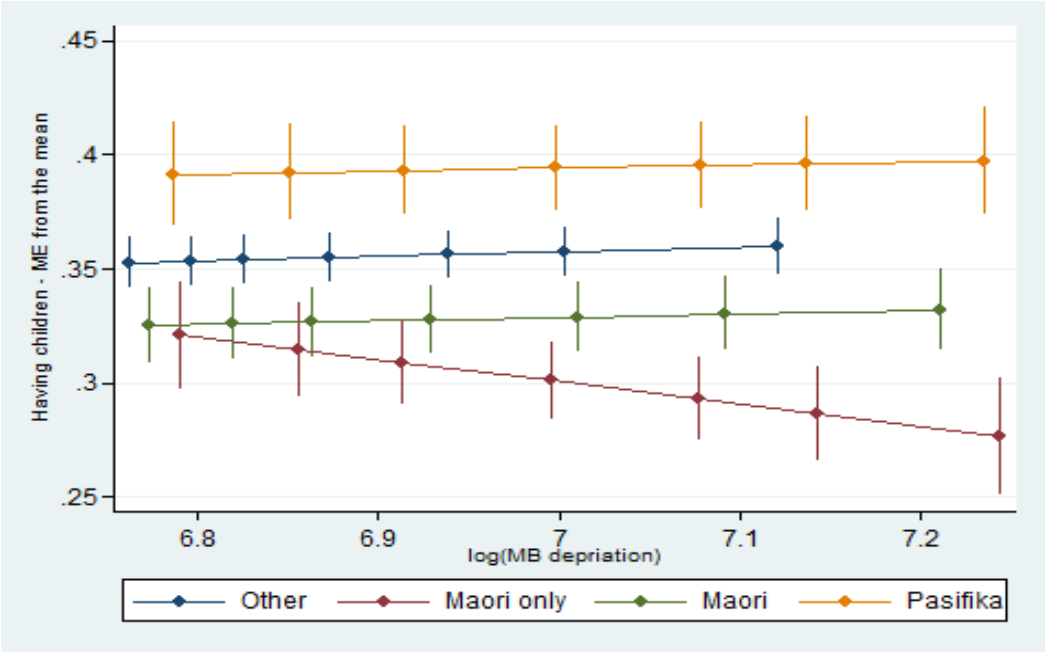
Table C11 in Appendix C presents the marginal likelihood of being LT-NEET for a number of background characteristic pairs. This includes the effect of having children, holding a current driver licence, receiving any educational suspensions or warnings, and educational qualification on LT-NEET rate for youth resided in meshblocks with different percentiles of socioeconomic deprivation.

The table shows that the marginal effect from certain background characteristics on being LT-NEET is different for different groups. For example, the difference in the likelihood of being LT-NEET between mothers and non-mothers is greatest for females identifying as Pacific, and lowest for females identifying solely as Māori (Figure 5). However, most factors showed a fairly constant effect within each group. For example, for Pacific, Other, and Māori females the likelihood of being LT-NEET is fairly stable at different levels of deprivation. For individuals identifying solely as Māori, the differences in likelihoods fall as the level of deprivation increases (i.e. the difference between mothers and non-mothers falls with the deprivation level); however these differences are not statistically significant. Similarly, the marginal effect of being a mother, having no qualifications, or not having a Bachelor's degree or above is similar across individuals with different levels of parental area deprivation (Table C12).

Table C13 finds that having a current driver licence and a Bachelor's degree or above has a relatively strong reductive effect on the likelihood of mothers being LT-NEET in some groups. For the 15-19 age group, the likelihood of non-mothers being LT-NEET

falls by 2-9pp if they hold a current driver licence. For mothers from that age group, the likelihood falls by 8-15pp. The largest difference is found for Pacific females, with likelihoods falling from 2.8 to 14pp. For Other ethnicities and Pacific mothers, the reduction is about twice as strong, at 13-15pp. Across all female ethnic groups (aged 20-24), holding a Bachelor's degree or above has a strong effect on the likelihood of being LT-NEET (reductions of 15-20pp), while the differences in the likelihood for non-mothers are small, and do not tend to be statistically significant.

Figure 6: Motherhood and & LT-NEET status at different meshblock deprivation scores (20 to 24-year-old females)



Note: *The Marginal Effect (ME) that motherhood has on being LT-NEET (measured in pp difference) by varying levels of Meshblock deprivation is presented. This is estimated from a sample of 20 to 24-year-old females. MEs are calculated for the 1st, 10th, 25th, 50th, 75th, 90th, and 99th percentiles. 95% confidence intervals are presented as vertical lines.*

4.5 The Contributions of Background Characteristics and their Impacts

Using the model in section 4.3, the likelihood (on average) of being LT-NEET can be estimated as a function of a) background characteristics, and b) effects of background characteristics on NEET status for each ethnic group (i.e. different coefficient vectors). This relationship can be expressed as:

$$\boldsymbol{LTNEET_{ei} = \beta_{e0} + \sum_{k=1}^{K} X_{ik}\beta_{ek} + \epsilon_{ei}, \qquad e = O, SM, M + O, P} \tag{3}$$

Post estimation, ethnicity specific returns (e.g. β^P, β^{SM}) are saved. Then, each model is used to predict the expected (average) LT-NEET rate for each of the other groups by using their average level of background characteristics (e.g. X^O, X^P). From this, inter-ethnic background characteristics and their impacts (e.g. $X^O\beta^{M+O}$, $X^{M+O}\beta^P$) are combined to get an understanding of the extent to which differences in LT-NEET rates between groups depend on a) background characteristics and b) the impact of these background characteristics.

Table 5 summarises the predicted LT-NEET rate for all groups, using all combinations. The first row of column 1 presents the LT-NEET rate for the Other ethnic group based on their own coefficient vector, and the prevalence of background characteristics, as measured from the sample population. Not surprisingly, the predicted rate in the first cell equals to the observed rate of 7% ($X^O\beta^0$). Similarly, the predicted rate for each ethnic group equals to the observed in all diagonal cells (in bold), since these combine each ethnic group's own background characteristics with own-group impacts of these background characteristics.

For the Other ethnic group, the LT-NEET rate is predicted to increase from 7% to as high as 20%, if they had the same background characteristics as the group identifying solely as Māori. More generally, all predicted rates are very close to the observed rates across all groups (within 1-3pp difference). This suggests that differences in LT-NEET rates largely reflect differences in background characteristics between ethnicities. The lower panel shows the predicted LT-NEET rates when holding background characteristics constant, but using the impacts of other groups. The lower panel shows relatively small variations in rates, confirming the results from the upper panel that much of the differences are due to differences in background characteristics. The coefficients for the Pacific group are more favourable, in the sense that given their background characteristics, their youth LT-NEET rate is lower compared to the Other ethnic group.

Table 5: Predicted LT-NEET rate by group background characteristics and impacts of background characteristics by ethnicity

		Other	Sole Māori	Māori+other	Pacific
Prevalence of background characteristics of:		(1) X^O	(2) X^{SM}	(3) X^{M+O}	(4) X^P
Holding impacts unchanged	Other: β^O	7%	20%	14%	15%
	Sole Māori: β^{SM}	9%	22%	16%	20%
	Māori+Other: β^{M+O}	9%	22%	16%	18%
	Pacific: β^P	6%	18%	13%	12%
		Other	Sole Māori	Māori+other	Pacific
Impacts from background characteristics for each ethnicity:		(1) β^O	(2) β^{SM}	(3) β^{M+O}	(4) β^P
Holding prevalence of background characteristics unchanged	Other: X^O	7%	9%	9%	6%
	Sole Māori: X^{SM}	20%	22%	22%	18%
	Māori: X^{M+O}	14%	16%	16%	13%
	Pacific: X^P	15%	20%	18%	12%

Note: *LT-NEET rates are estimated for ethnic groups separately. Predicted rates combine the returns (slopes) from different regressions with the mean share across all estimated characteristics. The values in cells in one panel are then transposed to the cells in the other.*

5 Decomposition

5.1 Approach

To examine more directly the extent to which the LT-NEET rate gap is explained by a) differences in observable background characteristics between groups, b) differences in the impacts of those background characteristics between groups, and c) their interaction, this study applies a Blinder-Oaxaca (BO) decomposition approach (Blinder, 1973; Oaxaca, 1973).[27]

As discussed in the previous section, the relationship between individual background characteristics and the likelihood of being LT-NEET can be expressed as:

$$\boldsymbol{LTNEET_{ei} = \beta_{e0} + \sum_{k=1}^{K} X_{ik}\beta_{ek} + \epsilon_{ei}, \qquad e = O, SM, M+O, P} \tag{4}$$

LT-NEET status ($LTNEET_{ei}$) for person *i* from ethnic group *e* is estimated as a (linear additive) function of a vector of characteristics (X) and a noise term (ϵ).[28] Using the Other ethnic group and individuals identifying solely as Māori as examples, the overall difference in the average likelihood of being LT-NEET between the two groups can be written as:

$$\boldsymbol{\overline{\Delta LTNEET_{O,SM}} = \overline{LTNEET_O} - \overline{LTNEET_{SM}}} \tag{5}$$

This difference can be re-arranged into three components:

$$\begin{aligned}\boldsymbol{\overline{\Delta LTNEE_{O,SM}}} = &\left[\sum_k (\overline{X_{SMk}} - \overline{X_{Ok}})\beta_{SMk}\right] \\ &+ \left[(\beta_{SM0} - \beta_{O0}) + \sum_k \overline{X_{Ok}}(\beta_{SMk} - \beta_{Ok})\right] \\ &+ \left[\sum_k (\overline{X_{SMk}} - \overline{X_{Ok}})(\beta_{SMk} - \beta_{Ok})\right] = C + R + I\end{aligned} \tag{6}$$

The first component in the equation (*C*) measures the portion of the gap that is attributable to differences in the levels of prevalence of background characteristics between groups. For example, differences in the proportion of youth from each group who hold a current driver licence. This component (*C*) is often termed the endowment, or explained component. The second component (*R*) measures the portion of the gap that is attributable to inter-group differences in the impacts of background

[27] For a technical introduction to this technique, as well as implementation in Stata, see (Jann, 2008).

[28] Assumed to be conditionally independent of $E(\epsilon_{ei}|X_i) = 0$.

characteristics on outcomes. For example, youth identifying solely as Māori without a current driver licence are more likely to be LT-NEET compared to youth from Other ethnic groups without a driver licence (as discussed in section 4.3). This component is also termed the coefficient, or unexplained component. The third component (*I*) measures the extent to which the gap can be explained by the interaction between the background characteristics and their impacts. For example, whether background characteristics that are more common for a group, also have larger impacts on outcomes.

Initially used to study gender wage gaps, the BO decomposition approach has since been used extensively to explore a range of labour market topics.[29] The BO decomposition was originally designed to decompose differences for continuous outcomes (e.g. hourly wage). In this study however, the dependent variable is binary (LT-NEET status). This means that since the relationship is non-linear, the results may be biased due to functional form misspecification.

Rather than using alternative non-linear extensions (e.g. logit, Fairlie, 2005), the BO decomposition is applied since the focus of the study is to estimate the marginal probability (from the mean). Linear regressions such as Ordinary Least Square (OLS) estimate the best linear approximation for non-linear relationships and in practice result in highly similar results to many non-linear models.[30] In addition, non-linear alternatives rely on correctly capturing the true functional form, which is not known. Importantly, all models applied will possibly be biased due to the non-experimental nature of the study and there is very limited information available to assess which model is least biased.

The models used in this decomposition include a large number of non-continuous explanatory variables (categorical and non-negative). Jones (1983) argues that the contribution of these variables will depend on which comparison group is used and this will affect how the overall contribution of the unexplained component (coefficients/impacts) is distributed between the coefficients and the intercept (this could also affect the overall contribution of this component, but not the background characteristics or interactions).

This study uses 'Other' (all non- Māori or Pacific) as the comparison group. Therefore, the results for categorical explanatory variables may be sensitive to the comparison group used. To explore this possibility, two alternative comparison groups are tested. Both alternatives are based on two-fold BO decompositions (i.e. without an interaction component). In each alternative, the outcomes from each group are compared with that of a pooled group consisting of the relevant group and other. For example, if examining outcomes for those solely identifying as Māori, the comparison group will combine observations from this, and the Other ethnic group. In the first alternative, the

[29] Examples of New Zealand-based studies using this (or a similar approach) include Dixon (1997, 2000), Gibb et al. (2009), Maré & Stillman (2010), Meehan et al. (2017), Pacheco et al. (2017), and Treasury (2018).

[30] Results using estimaes from a Logit model are effectively the same (Table C1-Table C4).

comparison is based on a pooled regression (Neumark, 1988).[31] In the second alternative, the comparison is the unweighted average of each group pair (Reimers, 1983). For example, outcomes of the group identifying solely as Māori are compared to the Other ethnic group, showing the average (unweighted) coefficients and characteristics between the two groups.[32]

The decomposition is conducted separately by gender and age groups (15-19 and 20-24) in order to account for differences in gender and age trajectories. For the same reason, each specification includes age dummies as additional controls.

As mentioned above, note that any of the results presented and discussed may be (partly or fully) driven by unobserved factors. Therefore, they are best interpreted as associative, rather than causal. For example, assume that the study finds a link between LT-NEET status and high levels of local deprivation. Local deprivation may drive LT-NEET status because such areas have few suitable employment and study opportunities, or due to other neighbourhood effects (or both). On the other hand, LT-NEET itself may be driving this link, for example if LT-NEET youth relocate (or remain) in highly deprived areas due to factors such as lower rents. Finally, it is possible that the level of deprivation and the likelihood of being LT-NEET are both driven by other (unobserved) factors.

5.2 Overall contributions by component

Table 6 summarises the overall contributions from different components for youth aged 15-19.[33] Each set of columns shows the decomposition results for a different group (e.g. sole Māori, Pacific), and separated by gender (M – males and F - females). The first three rows show the LT-NEET rate for the Other ethnic group, followed by that for the remaining groups, and their difference in terms of percentage points (pp). The lower panel shows how this difference is distributed between the three components – differences in background characteristics, differences in the impacts of background characteristics, and their interaction.

Differences in background characteristics explain between 77% and 93% of the NEET gap for the Māori groups. For Pacific, differences in background characteristics account for more than the entire gap (121-126%), meaning that Pacific are predicted to have a lower LT-NEET rate than that of Other, if both groups had the same distribution of background characteristics. This coincides with the findings from section 4.5, where differences in prevalence of background characteristics explained most of the variation in LT-NEET rates between ethnic groups.

[31] Note that here, a membership dummy is not included; hence the allocation problem between the coefficients and intercept is not resolved. However, testing with and without a membership dummy showed similar results.

[32] In all specifications, categorical variables are normalised in order that any differences will not rely on the choice of base group (Yun, 2005).

[33] For the full results, see Table C5 and Table C6 in Appendix C.

In terms of impacts of background characteristics, the table suggests that this component is contributing to the gap for all groups. However, the proportion is relatively small and affects different ethnicities differently. For the Māori ethnic groups, the gap is expected to fall by 23-30% if they had the same impacts from background characteristics as other ethnicities. That is, the gap is not only driven by Māori having a greater share of their population with certain background characteristics, but also by the impacts from those background characteristics being stronger. In contrast, while Pacific also have greater share of youth with these background characteristics, the table suggests that Pacific youth (with the same background characteristics as other ethnicities) are on average less likely to be LT-NEET. That is, if the Pacific group had the same returns as the Other ethnic group, the decomposition suggests that the gap would increase by about 1-1.4pp (25-50%) in the opposite direction.

Finally, the contributions of the interaction components are small and only statistically significant for youth identifying solely as Māori. These suggest that for both males and females, the background characteristics that are more prevalent among youth identifying solely as Māori (relative to Other) have a smaller effect on the likelihood of being LT-NEET.

Table 6: Decomposition, contributions by source, age group 15-19

	Sole Māori		Māori + other		Pacific	
LT-NEET	M	F	M	F	M	F
Other	0.04	0.034	0.04	0.034	0.04	0.034
Study group	0.135	0.151	0.086	0.091	0.068	0.068
Difference	-0.095	-0.117	-0.047	-0.057	-0.028	-0.034
Contribution by component						
Background characteristics	-0.088***	-0.096***	-0.036***	-0.049***	-0.034***	-0.043***
	(93%)	(82%)	(77%)	(86%)	(121%)	(126%)
Returns	-0.029***	-0.038***	-0.011***	-0.014***	0.014***	0.009***
	(31%)	(32%)	(23%)	(25%)	(-50%)	(-26%)
Interaction	0.022***	0.018**	0.001	0.005*	-0.008*	-0.001
	(-23%)	(-15%)	(-2%)	(-9%)	(29%)	(3%)

Note: *Table 6 presents the results of the three-fold Blinder-Oaxaca decomposition for youth aged 15-19 by ethnicity and gender. Treatment groups (sole Māori, Māori + other, and Pacific) are compared to Other. The contributions attributed to differences in background characteristics, returns from background characteristics, and interactions are presented. Stars represent statistical significance level (* - 10%, ** - 5%, *** - 1%). Contributions to the gap are expressed as a percentage of the total difference in brackets.*

Table 7 presents the decomposition results for the 20 to 24-year-old age group. The table repeats the structure of the previous table. The ethnic LT-NEET rate gap is much larger compared to the younger age group. Once again, the decompositions find that most of the gap is attributable to differences in background characteristics. This explains between 80% and 95% of the gap for the Māori groups. For Pacific, differences

in observable characteristics once again account for more than the entire gap (107-112%). Therefore, as found for the younger age group, most of the gap for Māori is estimated to be eliminated (and more than the entire gap for Pacific) if these groups had the same distribution of background characteristics as youth from the Other ethnic group.

For this age group (20-24), the contributions from the impacts are not as strong as found previously, and are statistically significant only for half of the groups. For Māori females, the gap is expected to fall by about one-tenth if the characteristics had the same impacts as females from other ethnicities. For Pacific males, the gap is expected to more than double if the characteristics had the impacts of males from other ethnicities (increasing by 3.4 to 4.1pp).

Finally, only two of the decompositions (Pacific and Māori males) attributed a significant portion to the interaction component. For both groups, the interaction component suggests that the characteristics that are more prevalent in these groups also have a greater adverse effect. For Māori males, this component explains about one-tenth of the gap, while for Pacific it explains more than half.

Table 7: Decomposition, contributions by source, age group 20-24

	Sole Māori		Māori + other		Pacific	
LT-NEET	M	F	M	F	M	F
Other	0.093	0.117	0.093	0.117	0.093	0.117
Study group	0.222	0.394	0.179	0.274	0.127	0.237
Difference	-0.129	-0.277	-0.086	-0.157	-0.034	-0.12
Contributions by component						
Background characteristics	-0.122***	-0.264***	-0.069***	-0.144***	-0.038***	-0.128***
	(95%)	(95%)	(80%)	(92%)	(112%)	(107%)
Returns	0	-0.027***	-0.006	-0.015***	0.045***	0.008*
	(0%)	(10%)	(7%)	(10%)	(-132%)	(-7%)
Interaction	-0.007	0.014	-0.011**	0.003	-0.041***	0
	(5%)	(-5%)	(13%)	(-2%)	(121%)	(0%)

Note: *Table 7 presents the results of the three-fold Blinder-Oaxaca decomposition for youth aged 20-24 by ethnicity and gender. Treatment groups (sole Māori, Māori+other, and Pacific) are compared to Other. The contributions attributed to differences in background characteristics, returns from background characteristics, and interactions are presented. Stars represent statistical significance level (* - 10%, ** - 5%, *** - 1%). Contributions are expressed as a percentage of the total difference in brackets.*

Table 8 summarises the decomposition results using the two alternative models discussed in section 5.1 (equal coefficients and pooled). The results presented are in line with those discussed above.[34] Both models show that across all groups the

[34] Full results are presented in Table C7 to Table C10 in Appendix C.

majority of the gap is explained by differences in background characteristics across ethnic groups (explained component). For Māori youth, this accounts for between 77% and 99% of the gap. For Pacific, differences in characteristics once again explain more than the entire gap.

Table 8: Decomposition results from equal coefficients and pooled regression models, % of total difference

	15-19 age group						20-24 age group					
	Sole Māori		Māori + other		Pacific		Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F	M	F	M	F	M	F
Equal weight coefficients												
Explained	81%	75%	77%	81%	136%	126%	98%	93%	87%	91%	171%	107%
Unexplained	19%	26%	23%	19%	-36%	-26%	-	7%	13%	9%	-71%	-
Pooled regressions												
Explained	83%	81%	81%	84%	132%	121%	99%	94%	93%	94%	179%	105%
Unexplained	17%	19%	17%	16%	-32%	-18%	-	6%	-	6%	-79%	-

Note: *Table 8 presents the contribution of the explained and unexplained components of the LT-NEET rate gap. Contributions are expressed as a percentage of the total gap. Results that are statistically significant (5% or greater) are included. Full tables are available in Appendix C.*

5.3 Contributions of specific background characteristics

Table 9 presents the contributions (to the gap) of a selection of factors for the 15 to 19-year-old age group. The factors included are those that show a large contribution and are statistically significant. The first row in the table is the same as the third row from Table 6, showing the percentage point (pp) difference between the LT-NEET rates for each group and for the comparison group.

The next set of rows shows the contribution of different factors, expressed as a percentage of the total observed gap. For example, the model estimates that the gap for males identifying solely as Māori would fall by about 2% if the share of males identifying solely as Māori with children was the same as that of males from the comparison group. The table shows that having a child has a far stronger effect for females than for males (15-24% of the gap for females, compared to 2-4% for males). Across all groups, holding a current driver licence is a statistically significant characteristic. For Māori, this explains 7-11% of the gap. For Pacific, the effect is stronger, with 18-21%.

All groups show that differences in educational experiences are also contributing to the observed gaps. Between 6% and 19% of the gap is associated with the larger shares of Pacific and Māori youth who received one or more school warnings or suspensions before the age of 16. A slightly smaller contribution was attributable to the greater share of Māori and Pacific youth who attended four or more schools (3-6%). For males

identifying solely as Māori and Pacific, 11-21% of the gap was attributed to differences in the decile levels of the schools they attended before the age of 16. These relatively large contributions are in line with the fact that youth identifying solely as Māori and Pacific are more heavily represented in lower decile schools (compared to other ethnicities).

In terms of parental influences, the characteristic that is consistently associated with LT-NEET rates is having one or more parent currently (i.e. in 2016) receiving benefit income. Parental benefit receipt accounts for 9-15% of the gap across groups. For males (and females Identifying solely as Māori), historical parental benefit dependency was also a contributing factor (5-9%). These family background characteristics highlight the potential for intergenerational benefit dependency explaining youth outcomes.

For Māori, differences in local deprivation show strong contributions to the LT-NEET rate gap. For males identifying solely as Māori, this factor contributes more than any other, explaining one-fifth of the gap and reflecting the greater concentration of youth in highly deprived areas. In addition, the association between area deprivation and LT-NEET status (i.e. impact of deprivation) is far stronger for Māori. For example, the likelihood of males from the other group being LT-NEET increases by 4pp when the deprivation score doubles. For Māori, doubling the deprivation score increases their likelihood of being LT-NEET by 8-18pp.[35]

On the other hand, the contribution of meshblock deprivation was smaller and not statistically significant for the Pacific groups. This does not necessarily mean that this factor is not important. It is possible that the contribution of this factor can be explained by different factors in the model which are correlated with area deprivation. It could also be that there wasn't sufficient variation in the deprivation scores of Pacific youth due to their large concentration in the Auckland region.

[35] See Table C1 for the full results.

Table 9: LT-NEET rate gap and differences in statistically significant background characteristics, age group 15-19

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
Difference	-0.095	-0.117	-0.047	-0.057	-0.028	-0.034
Parent	2%	15%	2%	21%	4%	24%
Driver licence	11%	10%	11%	7%	18%	21%
Enrolled to four or more schools	5%	3%	6%	4%	4%	3%
Decile with most enrolment days	15%	-	-	-	11%	21%
Suspensions/warnings	14%	11%	19%	11%	18%	6%
Parent on benefit (current)	15%	12%	15%	14%	11%	9%
Parent on benefit (historical)	6%	5%	9%	-	7%	-
Mother without a qualification	-	3%	4%	4%	-	-
More than three siblings	-	-	-	4%	-	-
CYF notification by age 5	-	-	-	4%	-	-
Area level deprivation score	22%	11%	13%	11%	-	-

Note: *Table 9 presents the results of the three-fold Blinder-Oaxaca decomposition for youth aged 15 to 19. Results show the contribution attributable to each background characteristic, presented as a percentage of the observed gap. Only results that were statistically significant (5% or higher) are included. Area deprivation is at the meshblock level.*

Table 10 presents the contributions to the gap attributable to a selection of background characteristics for the 20 to 24-year-old age group. As before, the first row captures the percentage point (pp) difference in LT-NEET rates between Māori /Pacific and others, followed by the contribution of specific background characteristics expressed as a percentage of the total observed gap.[36]

As found for the younger age group, having a child is a stronger factor for females and explains between 36% and 48% of the female LT-NEET gaps. For both males and females, holding a driver licence was once again a significant contributing factor. For Māori, the greater share of females without a driver licence accounted for about one-tenth of the gap, and one-fifth for males. For Pacific, this accounted for about one-fifth of the female gap, and nearly half of the male gap. Furthermore, the impacts and interactions from driver licence status indicate that Pacific males who do not hold a driver licence are at heightened risk of being LT-NEET than other groups.

Of the various educational factors, the highest qualification gained was the strongest contributing factor. For Pacific males, the magnitude was especially large, explaining over 60% of the gap. For all other groups, the effect was (relatively) smaller with 20-25%. The qualifications factor contributed more than other educational variables that would, in theory, be expected to be related to level of qualification gained (e.g. decile,

[36] With respect to returns and interactions, most background characteristics were statistically insignificant. A selection of those with a strong (statistically significant) effect will be discussed.

number of schools, warnings/suspensions). It is possible that regardless of school experience, the effect of the highest qualification gained on labour market outcomes is strong. The relatively large contribution also reflects the vast difference in highest qualification gained across groups, especially in the share of youth without a qualification, and with Bachelor's degree and above (two factors that have strong correlations with LT-NEET status).

As found for the younger age group, family background factors also contribute to the gap. Of these, the strongest contributor was having one or more parent (currently) receiving benefit income. The effect was stronger for Māori youth (6-17%, compared to 3-9% for Pacific).[37] In terms of geographical factors, the decompositions once again found strong contributions from the deprivation measures.[38] The contribution of deprivation factors is stronger for males, varying from 23% for Māori males to as high as 35% for Pacific males. For females the contribution of geographical factors is less significant, varying from 5% (for Māori) to 14% (for Pacific). As found for the younger age group, Māori youth are more likely to be LT-NEET if residing in deprived areas.

For the female Māori group, parental deprivation is a major contributing factor. Holding all other observable factors equal, the LT-NEET rate for Māori females is estimated to be 26% less than that of females from the Other group if the two groups had the same distribution of parental deprivation. This result repeats when using the alternative model.

[37] However, this may not necessarily suggest stronger path dependencies for Māori, as it may be a reflection of greater parental information availability for Māori groups, and a lower individual-parent match rate for Pacific youth (which leads to lower data variability).

[38] For all groups except Māori females, the deprivation score is at the meshblock level. For Māori females, deprivation is presented at the Area Unit level.

Table 10: LT-NEET rate gap and differences in statistically significant background characteristics, age group 20-24

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
Difference	-0.129	-0.277	-0.086	-0.157	-0.034	-0.12
Parent	-	36%	-	39%	-	48%
Driver licence	19%	9%	19%	8%	47%	21%
More than 3 schools	-	-	-	1%	-	-
Decile	-	-	-	-	-	9%
Suspensions/warnings	9%	3%	10%	4%	9%	-
Left school before age 18	-	1%	1%	1%	-	-
Highest qualification	25%	23%	24%	20%	62%	21%
Parent on benefit (current)	17%	6%	14%	6%	9%	3%
Parent on benefit (historical)	5%	3%	5%	3%	6%	-
CYF notification by age 5	-	1%	2%	1%	-	-
Mother without a qualification	4%	3%	-	3%	-	-
Area level deprivation score	25%	8%	23%	5%	35%	14%
Parental area deprivation score	-	-	-	126%	-	-

Note: *Table 10 presents the results of the three-fold Blinder-Oaxaca decomposition for youth aged 20 to 24. Results show the contribution attributable to each background characteristic, presented as a percentage of the observed gap. Only results that were statistically significant (5% or higher) are included. Aside from Māori females, area deprivation is at the meshblock level. For Māori female, area deprivation is at the Area Unit level.*

Overall, the results for both age groups suggest that differences in background characteristics explain most of the differences in LT-NEET rates across ethnicities. Although they focus on different outcomes, the extent to which these background characteristics can account for the LT-NEET rate gap is far greater than the extent to which other studies found that particular factors could account for wages gaps, both between gender (17-36%), ethnicities (40-77%), or performance in tertiary education (18%) (Pacheco, et al., 2017; Meehan, et al., 2017; Treasury, 2018).

6 Summary and Discussion

This study explored the potential drivers behind the higher Māori and Pacific youth NEET rates. The study focused on youth recording six or more consecutive months of NEET (i.e. long-term NEET or LT-NEET), as past studies found this group to be at a heightened risk of experiencing long-term adverse economic and social outcomes.

In the year of the study (2016), 10.3% of all 15 to 24-year-old New Zealanders were identified as LT-NEET. Since 2012 the LT-NEET rate has fallen across all ethnic groups and although the reduction was stronger for Māori and Pacific youth, their rate was still greater than that of non-Māori/Pacific. Across sub-groups, the gap varied from as low as 3 percentage points (pp) for Pacific males aged 15-19, to as high as 28pp for females aged 20-24 identifying solely as Māori.

The LT-NEET population is similar to that of the overall NEET population (as captured in official statistics). This includes a greater rate for 20 to 24-year-olds (about 70% of all LT-NEET), and greater rates for 20 to 24-year-old females, due to greater caregiving/parenting responsibilities. In addition, the geographic distribution is fairly similar, with the larger urban centres holding most of the LT-NEET population, and the eastern and northern regions of the North Island recording greater LT-NEET rates.

Overall, the decomposition applied to assess the nature of the LT-NEET rate gap has found that most of the gap is explained by differences in (largely socioeconomic related) observable background characteristics. This is similar to Maani (2004), who found that differences in background factors (e.g. share of population with different educational qualifications) explained most of the earning gap between Europeans and Māori.

The decomposition suggests that policies that target improving school engagement, as well as providing driver licences could potentially reduce the Māori and Pacific LT-NEET rate gap. Holding a bachelor's degree or above and having a driver licence are two factors that were found to have an especially strong association on reducing the likelihood of mothers being LT-NEET. This coincides with Potter & Macky (2017), who found that (regardless of the local deprivation levels) mothers who have a driver licence are more likely to be in employment or education.

In all but one of the female LT-NEET decompositions, the greater share of Māori and Pacific mothers (but not fathers) was the strongest factor associated with the gap (explaining as much as half of the gap). Furthermore, Māori and Pacific females are more likely that non-Māori /Pacific to be out of the labour force because they are caring for other dependent family/household members (Warburton & Morrison, 2008).

While some other background characteristics showed significant contributions to the gap, they did not have clear policy implications. For example, the greater share of parents currently receiving benefit income explained as much as 17% of the gap. In addition, the (geographic) deprivation of the individual's parent had an extremely strong effect on the LT-NEET status for Māori females aged 20-24. These results are areas that could be more closely examined in future research.

Of the different geographic factors measured, area deprivation showed the strongest contribution. Future studies could use this result to more closely look at the effects of the wider environmental factors on youth outcomes. For example, was deprivation found to be a significant factor due to poor local labour market opportunities, housing conditions, and/or transport related issues? What are the challenges and opportunities for LT-NEET residing in highly deprived areas? In what regards are these different from the challenges and opportunities for LT-NEET residing in less deprived areas, and could these inform the creation of better targeted interventions? Similarly, what are some of the differences between LT-NEET and non-LT-NEET youth who reside in highly deprived areas? In addition, future studies could focus on outcomes for Māori since this youth group is not only more likely to reside in highly deprived areas, but also more likely to become LT-NEET when residing in highly deprived areas (compared to non-Māori residents).

To conclude, this study found that the LT-NEET rate gap for Māori and Pacific youth is linked to socioeconomic factors and that targeting a small number of those factors has the potential to improve outcomes for all disengaged youth, but especially for Māori and Pacific youth.

References

Atkinson, J., Clare, S., & Peter, C. (2014). NZDep2013 index of deprivation. In M. o. Health (Ed.). Wellington.

Ball, C., Crichton, S., Templeton, R., Tumen, S., Ota, R., & MacCormick, C. (2016). Characteristics of Children at Greater Risk of Poor Outcomes as Adults *Analytical Paper 16/01*. Wellington: New Zealand Treasury and the Ministry of Social Development.

Blinder, A. S. (1973). Wage discrimination: reduced form and structural estimates. *Journal of Human Resources*, 436-455.

Crichton, S., Templeton, R., & Tumen, S. (2015). Using Integrated Administrative Data to Understand Children at Risk of Poor Outcomes as Young Adults (Vol. Analysitcal Paper 15/01). Wellington: New Zealand Treasury.

Dixon, S. (1997). *The distribution of earnings in New Zealand 1984-1995*. Paper presented at the In Proceedings of the Seventh Labour, Employment and Work Conference, 28-29 November 1996, Wellington.

Dixon, S. (2000). Pay inequality between men and women in New Zealand. *Occasional Paper 2000/1*. Wellington: Department of Labour.

Dixon, S. (2013). Not in Employment, Education or Training: the long-term NEET spells of young people in New Zealand: Wellington: Ministry of Business, Innovation and Employment.

Dixon, S., Crichton, S., and McLeod, K. (2016). Evaluation of the impact of the Youth Service: NEET programme. Working Paper 16/08. Wellington: New Zealand Treasury.

Earle, D. (2016). School to Work: What Matters? Education and Employment of Young People Born in 1991 *Beyond Tertiary Study Series*. Wellington: Ministry of Education.

Fabling, R. (2018). Entrepreneurial beginnings: Transitions to self-employment and the creation of jobs. Motu Working Paper 18-12. Motu Economic and Public Policy Research..

Fairlie, R. W. (2005). An extension of the Blinder-Oaxaca decomposition technique to logit and probit models. *Journal of Economic and Social Measurement, 30*(4), 305-316.

Gibb, S., & Das, S. (2015). Quality of geographic information in the Integrated Data Infrastructure. Wellington: Stats NZ.

Gibb, S. J., Fergusson, D. M., & Horwood, L. J. (2009). Sources of the gender wage gap in a New Zealand birth cohort. *Australian Journal of Labour Economics, 12*(3), 281.

Jann, B. (2008). A Stata implementation of the Blinder-Oaxaca decomposition. *Stat Journal, 8*(4), 453-479.

Jones, F.L. 1983. “On Decomposing the Wage Gap: A Critical Comment on Blinder’s Method.” Journal of Human Resources 18:126-30.

Maani, S. 2004. “Why have Māori Relative Income Levels Deteriorated Over Time?” The Economic Records 80(248): 101-124.

Maré, D., & Stillman, S. (2010). Passing it on: the intergenerational transmission of human capital in new zealand families (Vol. Report No 3/10). Wellington: Families Commission.

Molloy, S and Potter, D. 2015. "NEET by choice? Investigating the links between motherhood and NEET status." Article in Labour, Employment and Work in New Zealand

McLeod, K., Templeton, R., Ball, C., Tumen, S., Crichton, S., & Dixon, S. (2015). Using Integrated Administrative Data to Identify Youth Who Are at Risk of Poor Outcomes as Adults, *Analytical Paper 15/02*. Wellington: New Zealand Treasury.

McLeod, K., & Tumen, S. (2017). Insights – Informing policies and services for at-risk children and youth *Analytical Paper 17/02*. Wellington: New Zealand Treasury.

Meehan, L., Pacheco, G., & Pushon, Z. (2017). Explaining ethnic disparities in bachelor's qualification: participation, retention and completion in NZ. Wellington: New Zealand Productivity Commission and New Zealand Work Research Institute - Auckland University and Technology.

Neumark, D. 1988. "Employers' Discriminatory Behavior and the Estimation of Wage Discrimination." Journal of Human Resources 23(3): 279–95.

Oaxaca, R. (1973). Male-female wage differentials in urban labour markets. *International Economic Review, 14*(3), 693-709.

Pacheco, G., Chao, L., & Cochrane, B. (2017). Empirical evidence of the gender pay gap in New Zealand. Wellington: Ministry for Women.

Pacheco, G., & Dye, J. (2014). Estimating the cost of youth disengagement in New Zealand. *New Zealand Journal of Employment Relations (Online), 38*(2), 47.

Pacheco, G., & Westhuizen, D. W. v. d. (2016). Y-NEET: Empirical Evidence for New Zealand *Research prepared for the Vodafone New Zealand Foundation*. Auckland: New Zealand Work Research Institute, Auckland Institute of Technology.

Potter, D., & Macky, R. (2017). Mostly-NEET throguh 2015, IDI insights by gender and other important policy groupings. Wellington: Ministry for Women.

Reimers, C. W. 1983. "Labor Market Discrimination against Hispanic and Black Men." Review of Economics and Statistics 65(4): 570–79.

Samoilenko, A., & Carter, K. (2015). Economic outcomes of youth not in education, employment or training (NEET): New Zealand Treasury.

SNZ. (2014). Linking methodology used by Stats NZ in the Integrated Data Infrastructure project. Wellington: Stats NZ.

SNZ. (2016a). New Zealand Business Demography Statistics: At February 2016. Wellington: Stats NZ.

SNZ. (2016b). Subnational Ethnic Population Projections: 2013(base) – 2038. Wellington: Stats NZ.

SNZ. (2017). Otago youth not in employment, education, or training (NEET): Collaborative reserach between Stats NZ and Methodist Mission Southern using integrated data. Wellington: Methodist Mission Southern, Stats NZ, and the Ministry for Women.

SNZ. (2018). Household Labour Force Survey: March 2018 quarter - Zipped CSV Tables. In S. N. Zealand (Ed.). Wellington.

Treasury. (2018). Analytical Paper 18/03: Statistical analysis of ethnic wage gaps in New Zealand. Wellington: Analytical and Insights team. The Treasury.

Tumen, S., Crichton, S., & Dixon, S. (2015). The Impact of Tertiary Study on the Labour Market Outcomes of Low-qualified School Leavers. In N. Z. T. W. P. 15/07 (Ed.). Wellington: New Zealand Treasury.

Warburton, D., & Morrison, P. (2008). Domestic responsibilities and the employment of young Māori women. *Kōtuitui: New Zealand Journal of Social Sciences Online, 3*, 149-167.

Yun, M.-S. (2005). Hypothesis tests when decomposing differences in the first moment. *Journal of Economic and Social Measurement, 30*, 295-304.

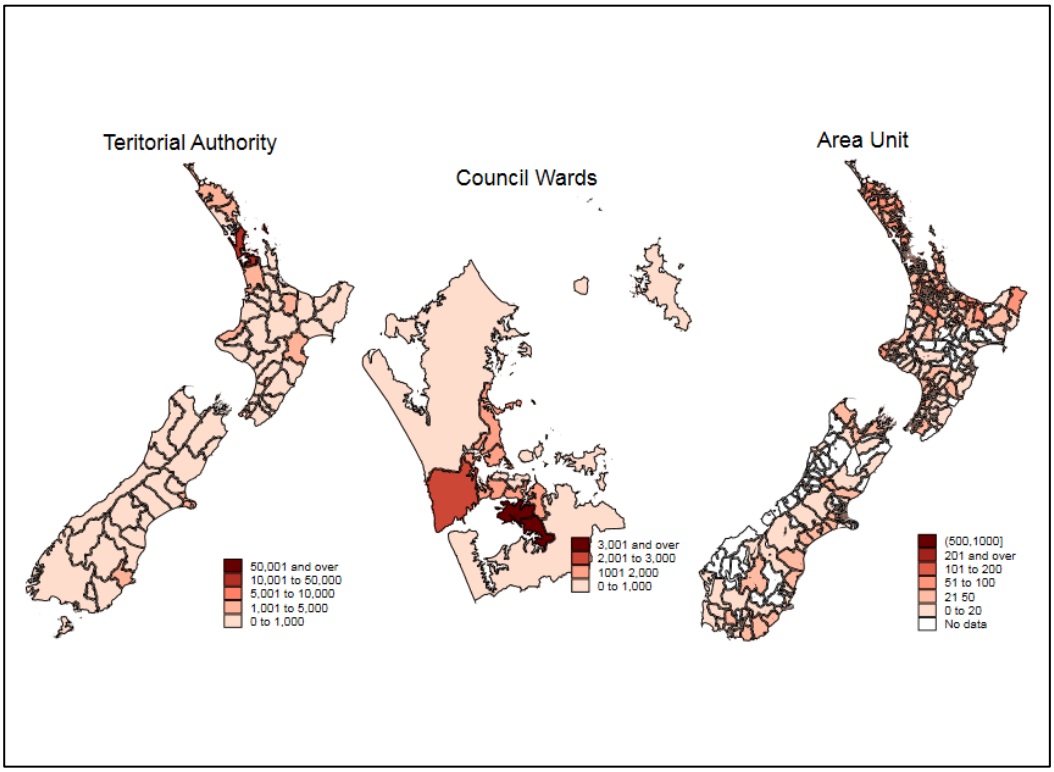
Appendix: A

Table A1: Variables used in the analysis

Variable	Description	Source	Notes
New Zealand born	Dummy equal to unity if there is a record of being born in New Zealand	Department of Internal Affairs (DIA)	Based on birth records
Parent	Link for at least one child		
Driver licence	Holds a current driver licence	New Zealand Transport Agency (NZTA)	All types (e.g. learner, full)
CYF	Interaction with Oranga Tamariki	Oranga Tamariki/ MSD	Records of Reports of Concern
Enrolment in more than three schools	Enrolled for one day or longer to more than three distinct primary and secondary providers	Ministry of Education (MOE)	All enrolments until age 15. This includes a dummy equal to one if enrolment records are missing. 6% of the observation has no records. One fifth of the observations are aged 24, and two thirds are 19 or older. By ethnicity, this share varies from 3% for Māori to 10% for Pacific
School decile	Decile of school spent most enrolment days by age 15		Dummies grouped to 1-3, 4-7, 8-10, and missing categories. 7% of the observation do not have decile information, with similar distribution to that of enrolments data (mostly the same observations)
Suspension/warning	Dummy equals one if received at least one (usually behavioural related) suspension or warning		By age 15
Left school before 18	A dummy equal to one if student left school before 18		Estimated for the 20-24 age group
Qualification	A categorical variable indicating highest qualification gained by 31st December 2016	MOE, MSD, and 2013 Census	Estimated for the 20-24 age group
More than three siblings	Parents are linked with more than three other children	DIA	Average across parents (if applicable). 20% of the sample does not have parental link. The distribution slightly increases with age. The rate is greater for Other and Pacific (24-29%) compared with Māori (3%).
Mother without a qualification	Dummy equals one if mother has no record of educational qualification	MOE, Ministry of Social Development (MSD), 2013 Census	As in (McLeod & Tumen, 2017)
Abuse event before age 5	A dummy equals to one if there is a record of being victim in an abuse event by the age of 5	Child, Youth, and Family (CYF)	As in (McLeod & Tumen, 2017)
Parents receiving benefit	A dummy equals to one if at least one parent received for one month or longer, any positive income from transfer	Inland Revenue (IR)	For 2016. Excluding student allowance and pensions.
Long-term parental benefit dependency	A dummy equals to one if the total parental income from benefit was 75% or more than total parental income in the first 15 years of the observation	IR, MSD	As in (McLeod & Tumen, 2017)

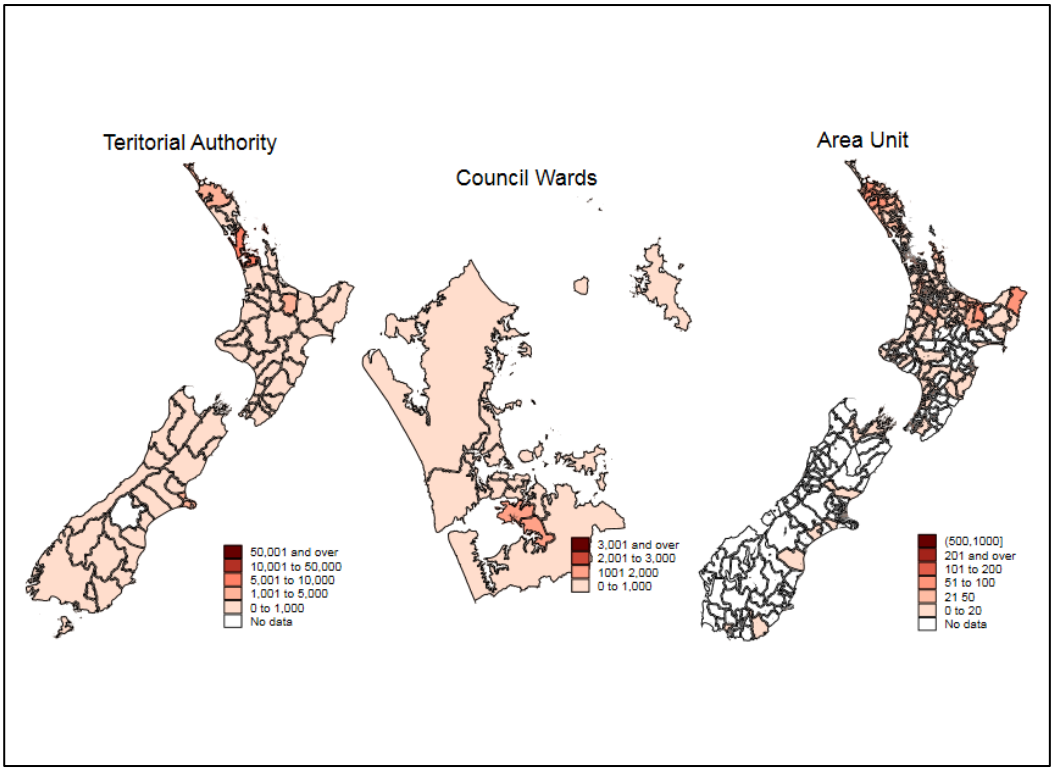
Meshblock deprivation score	Deprivation score for the Meshblock of residence	Socioeconomic Deprivation Index 2013 (NZDep2013), Various sources	Score in logs. Deprivation score is for 2013. Results are aggregated from Meshblock to Area Unit level using resident population as weight. Location is based on latest location in 31st December 2016. A missing location dummy is included in the estimation. Over 99% of the observation had a location
Area Unit deprivation score	Deprivation score for the Area Unit of residence		Score is in log. Same source as for the Meshblock deprivation, and is used when observation have no Meshblock level score (but do at the AU level).
Parental deprivation score	Deprivation score of parents (Area Unit)		Score in log. Score is averaged across parents
Population density	Population per Km2	Statistics New Zealand (SNZ)	At Area Unit level. Using land area, and excluding oceans and large bodies of water
Job density			Jobs are measured as employee count (i.e. head count) from the Business Demographic Statistics for February 2016. Count at the Area Unit level. Land area in Km2, and excludes oceans and large bodies of water.

Figure A1: LT-NEET distribution at different geographical levels (2016), all ethnic groups.



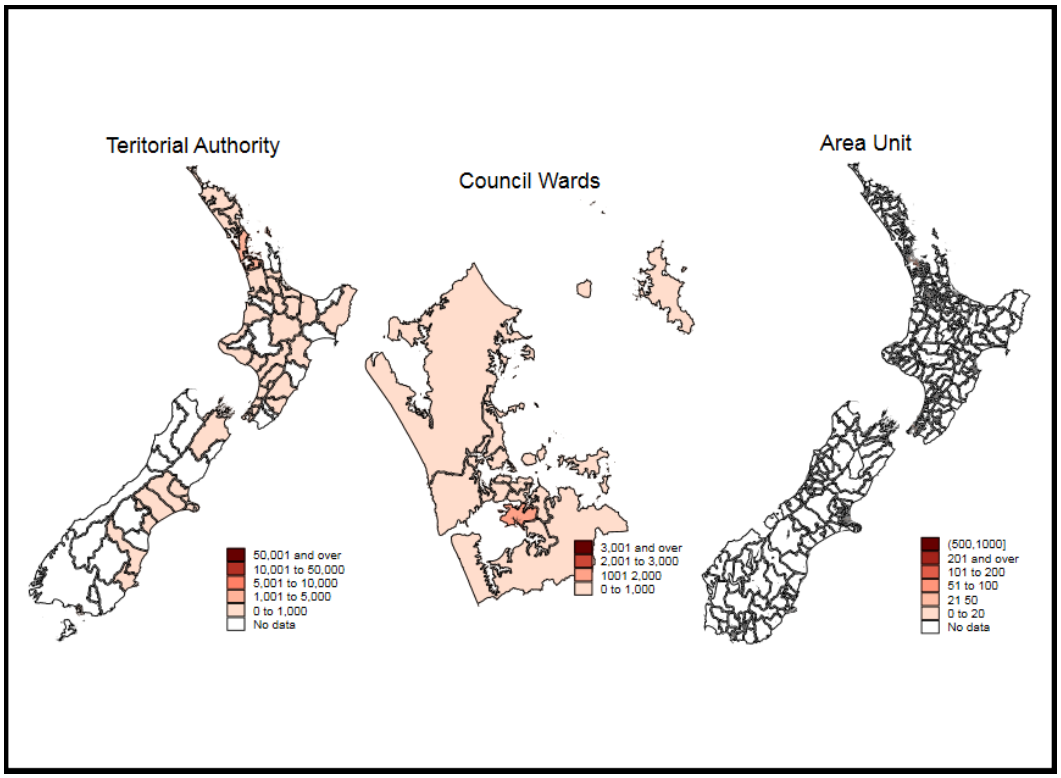
***Note:** Observations were randomly rounded to the base of 3. Observations with fewer than six observations have been removed.*

Figure A2: LT-NEET distribution at different geographical levels (2016), Māori.



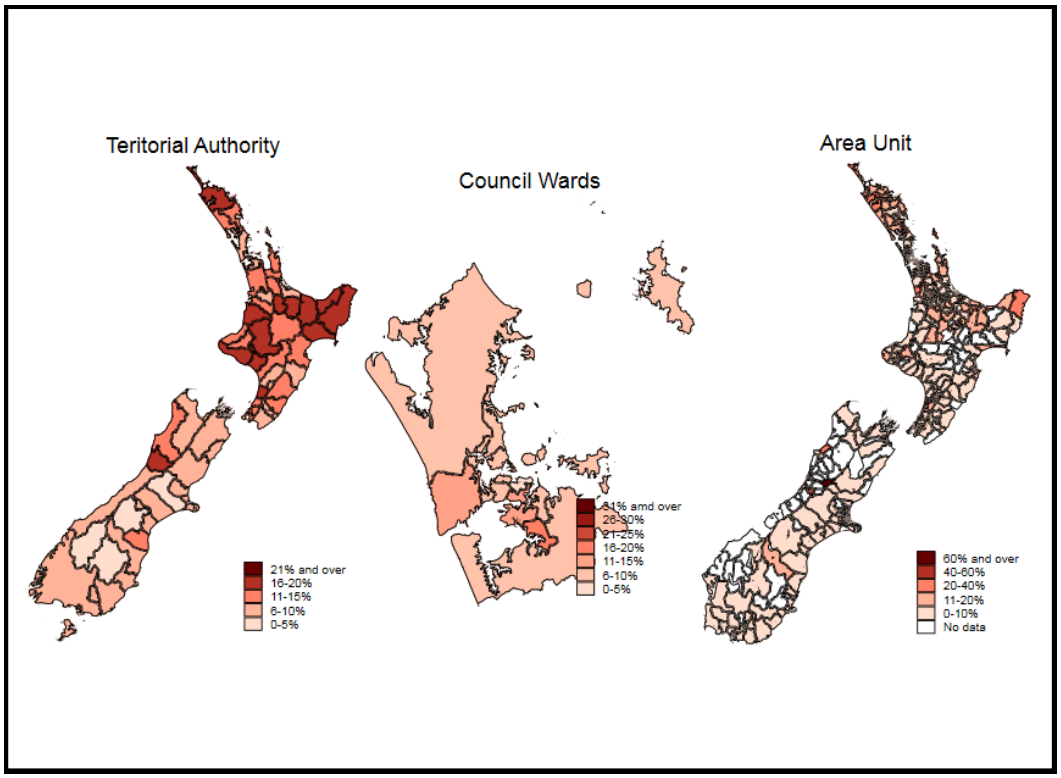
Note: *Observations were randomly rounded to the base of 3. Observations with fewer than six observations have been removed.*

Figure A3: LT-NEET distribution at different geographical levels (2016), Pacific.



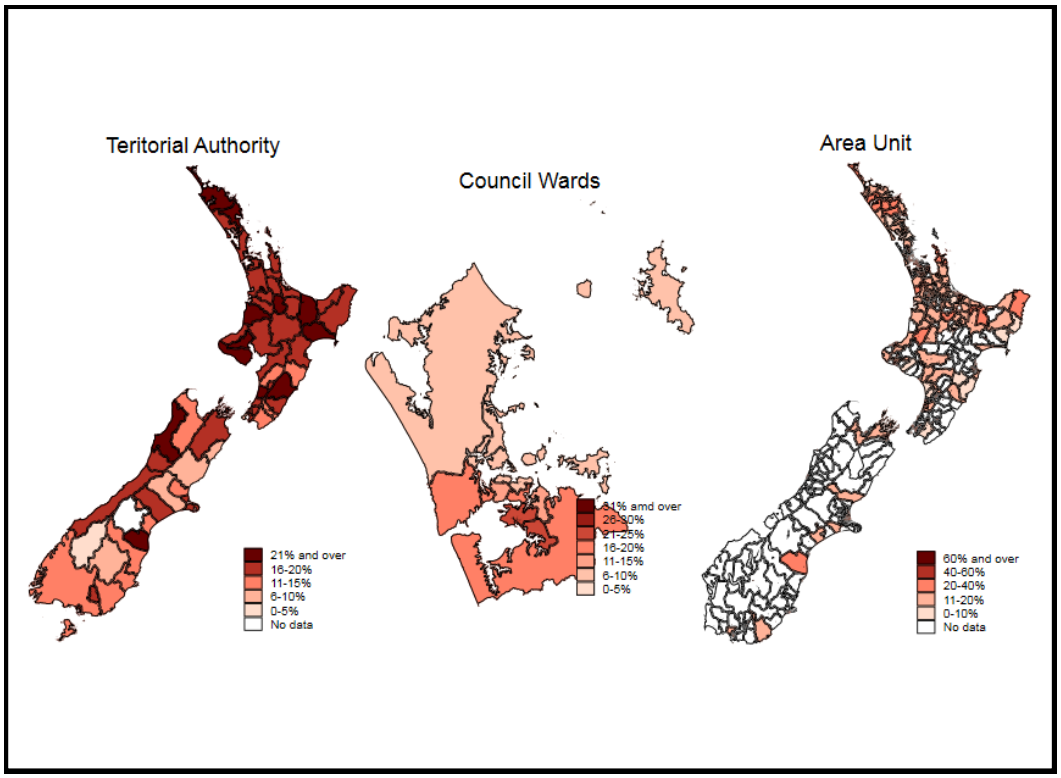
Note: *Observations were randomly rounded to the base of 3. Observations with fewer than six observations have been removed.*

Figure A4: LT-NEET rates at different geographical levels (2016), all ethnic groups.



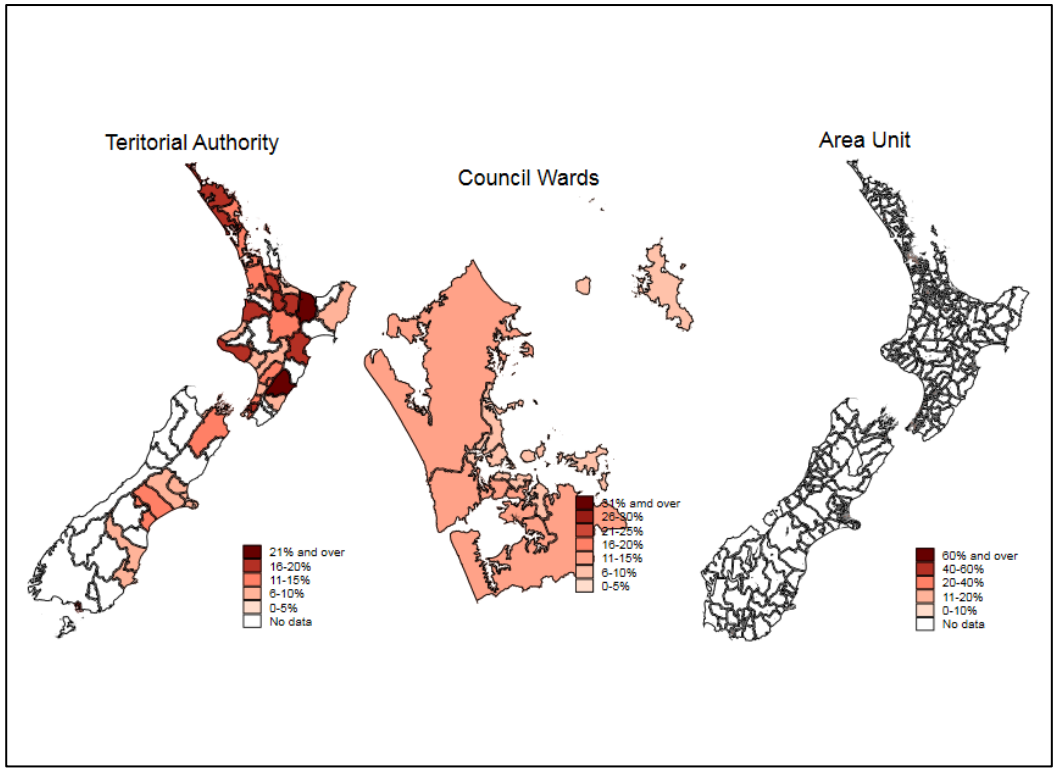
Note: *Observations were randomly rounded to the base of 3. Observations with fewer than six observations have been removed.*

Figure A5: LT-NEET rates at different geographical levels (2016), Māori.



Note: *Observations were randomly rounded to the base of 3. Observations with fewer than six observations have been removed.*

Figure A6: LT-NEET rates at different geographical levels (2016), Pacific.



Note: *Observations were randomly rounded to the base of 3. Observations with fewer than six observations have been removed.*

Appendix: B

Table B1 present the number of individuals in the sample population between 2012 and 2016, as well as the Household Labour Force Survey's estimated population of the 15 to 24-year-old age group. In all years, the sample population is smaller, with the gap from the estimated population growing over time (from 95% in 2012 to 88% in 2016). The bottom row of table B1 shows the share of migrants that have been excluded from the sample, suggesting that this exclusion accounts for almost the entire difference between sources.

Table B2 presents the official and sample population's share of the population and the NEET rate across a number of characteristics. The shows small differences (if any) in the distribution of the population between sources, and in line with the expected outcomes excluding temporary migrants would have over the population distribution in the sample. For example, the sample population includes greater shares of individuals from the 15 to 19-year-old age group, females, Māori and Pacific, and from the upper and eastern parts of the North Island. On the other hand, the sample has a smaller share of observations from the Auckland and Canterbury regional councils. In terms of NEET rates, most are within (or close to) the range estimated in the LFS. The greatest difference in rates is found for the Manawatu-Wanganui (MW) regional area, with an annual NEET rate 2 percentage points above the LFS' upper limit.

Table B3 compares a number of labour force statuses for individuals from the sample population between 2012 and 2016 who also responded to the Household Labour Force Survey (HLFS) in these years (and relevant quarters). During this period, the HLFS included nearly 91,000 responses from individuals aged 15-24. Of those, about 70% were in the IDI spine (i.e. linkable across sources). Of those, 90% were also in the sample population.

On average (i.e. across all quarters) 95% of observations that were in education or employment in the HLFS were also identified as such in the sample population. On the other hand, only 68% of NEET in the HLFS were also NEET in the sample. This match rate varied from just over 60% for Unemployed and Not in the Labour Force (NILF) NEET to 87% of Caregiver NEET. Overall, the first and fourth quarters have slightly lower match rates, driven by differences in approaches capturing study status over the New Zealand summer months.

Table B1: 15 to 24-year-old population in the sample and the LFS, 2012-2016

Year	2012	2013	2014	2015	2016
Sample	589,068	586,815	587,931	590,082	588,612
LFS	620,000	624,100	635,900	650,700	665,300
Share of LFS	95%	94%	92%	91%	88%
Share of Migrants	5.9%	6.1%	6.6%	7.8%	8.7%

Source: Author's calculations and (SNZ, 2018). Temporary migrants are presented as a share of the sample population (before exclusion).

Table B2: Population share and NEET rate by source, 2016

	Share of 15-24 population		NEET Rate	
Group	LFS	Sample	LFS	Sample
All	665,300	588,612	10.8% - 13.1%	12.9%
Male	51.7%	51.3%	9.4% - 12.3%	11.8%
15-19	24.5%	25.5%	6.8% - 10.5%	8.0%
20-24	27.2%	25.8%	10.6% - 15%	15.4%
Female	48.3%	48.7%	11.6% - 14.8%	14.1%
15-19	23.2%	24.4%	5.9% - 9.1%	7.6%
20-24	25.0%	24.3%	15.7% - 21.2%	20.6%
Ethnicity				
Māori	20%	24.1%	20.0%	21.3%
15-19	10.8%	12.3%	13.7%	13.9%
20-24	9.2%	11.7%	27.4%	29.1%
Male	10.3%	12.3%	16.0%	18.5%
Female	9.7%	11.8%	24.4%	24.2%
Pacific	10.1%	12.4%	17.2%	16.6%
15-19	5.4%	6.3%	12.4%	10.2%
20-24	4.8%	6.1%	22.6%	23.2%
Male	5.0%	6.2%	15.7%	13.9%
Female	5.2%	6.2%	18.7%	19.3%
Regional council				
Northland	2.2% - 2.9%	3.4%	12.2% - 23%	18.8%
Auckland	35.1% - 40%	34.7%	9.4% - 12.1%	12.1%
Waikato	9.2% - 9.4%	10%	11.8% - 16.5%	15.3%
Bay of Plenty	5% - 5.5%	6.1%	9.7% - 17.3%	15.6%
GHB	4% - 4.4%	4.5%	13.5% - 19.2%	16.2%
Taranaki	1.8% - 2.5%	2.3%	8.5% - 18.4%	15.1%
MW	5.4% - 5.8%	5.2%	7.9% - 13.5%	15.5%
Wellington	11.2% - 11.3%	11.2%	9.8% - 15%	11.5%
TNMW	2.8% - 3.3%	3.2%	8.4% - 17.5%	12.1%
Canterbury	12.9% - 13.2%	12.6%	6.9% - 10.5%	10.3%
Otago	4.1% - 5.1%	4.8%	7% - 12.8%	10.1%
Southland	1.1% - 1.7%	2.0%	7% - 19.7%	12.4%

Source: *Author's calculations and SNZ (2018). Notes: Māori and Pacific are captured using the total response approach. NEET rates are calculated as a ratio of the lower and upper NEET and Youth Working Age Population (15-24). HLFS statistics include error bands when available. Otherwise, only point estimates are presented.*

Table B3: Labour force status and main activity, 2016 December year

Status (LFS)/ Main activity (sample)	Study	Employment	NEET	Overseas	Custody
Study	84%	10%	5%	1%	0%
Employment	9%	84%	6%	1%	0%
Unemployed NEET	14%	25%	61%	0%	0%
NILF NEET	22%	13%	63%	2%	0%
Caregiving NEET	7%	5%	87%	0%	0%
All NEET	15%	16%	68%	1%	0%

Source: Author's calculations and SNZ (2018).

Appendix: C

Table C1: Estimation results of LT-NEET rate (OLS) for youth aged 15 to 19 by ethnicity and gender

	Male				Female			
	Other	Sole Māori	Māori + other	Pacific	Other	Sole Māori	Māori + other	Pacific
New Zealand born	0.012*	0.017	-0.013	0.021	0.015**	-0.008	-0.012	0.033**
	[0.007]	[0.025]	[0.020]	[0.015]	[0.007]	[0.025]	[0.018]	[0.015]
Parent	0.101***	0.065***	0.062***	0.061**	0.362***	0.283***	0.341***	0.390***
	[0.024]	[0.020]	[0.022]	[0.024]	[0.017]	[0.016]	[0.016]	[0.025]
Driver licence	-0.028***	-0.075***	-0.066***	-0.026***	-0.023***	-0.089***	-0.058***	-0.033***
	[0.002]	[0.006]	[0.005]	[0.005]	[0.002]	[0.007]	[0.005]	[0.005]
Enrolment in more than 3 schools	0.017***	0.031***	0.025***	0.029***	0.017***	0.023***	0.021***	0.023***
	[0.003]	[0.007]	[0.006]	[0.008]	[0.003]	[0.007]	[0.006]	[0.007]
Decile: 4-7	-0.010***	-0.014**	-0.004	-0.003	-0.004	-0.002	-0.004	-0.006
	[0.002]	[0.006]	[0.005]	[0.005]	[0.002]	[0.006]	[0.005]	[0.005]
Decile: 8-10	-0.011***	-0.030***	-0.011**	-0.006	-0.007***	-0.010	-0.005	-0.017***
	[0.003]	[0.008]	[0.005]	[0.006]	[0.002]	[0.009]	[0.005]	[0.005]
Suspension/warning	0.052***	0.053***	0.062***	0.052***	0.064***	0.068***	0.061***	0.032***
	[0.003]	[0.006]	[0.005]	[0.006]	[0.005]	[0.008]	[0.007]	[0.008]
More than three siblings	-0.001	0.014*	0.012*	0.020**	0.009**	0.018**	0.030***	0.014*
	[0.004]	[0.008]	[0.007]	[0.008]	[0.004]	[0.008]	[0.008]	[0.007]
Mother without a qualification	0.021***	0.012	0.026***	0.011*	0.024***	0.034***	0.024***	0.013**
	[0.003]	[0.008]	[0.006]	[0.006]	[0.003]	[0.008]	[0.006]	[0.005]
Abuse event before age 5	0.036***	0.017**	0.007	0.018*	0.039***	-0.004	0.020***	0.017*
	[0.005]	[0.008]	[0.007]	[0.010]	[0.005]	[0.008]	[0.007]	[0.009]
Parents receiving benefit	0.034***	0.034***	0.030***	0.022***	0.029***	0.035***	0.038***	0.023***
	[0.003]	[0.006]	[0.005]	[0.006]	[0.003]	[0.006]	[0.005]	[0.006]
Long-term parental benefit dependency	0.019***	0.026***	0.028***	0.023***	0.016***	0.026***	0.015**	0.016**
	[0.005]	[0.007]	[0.007]	[0.008]	[0.005]	[0.007]	[0.007]	[0.008]
Meshblock deprivation score	0.040***	0.179***	0.084***	0.049	0.009	0.114***	0.094***	0.032
	[0.012]	[0.038]	[0.030]	[0.031]	[0.012]	[0.039]	[0.030]	[0.026]
Area Unit deprivation score	-0.012	0.008	-0.003	0.067	0.001	0.095	0.091**	0.040*
	[0.018]	[0.057]	[0.049]	[0.044]	[0.017]	[0.058]	[0.046]	[0.024]

Parental deprivation score	0.047***	-0.067	0.044	-0.048	0.066***	0.038	-0.010	-0.026
	[0.017]	[0.048]	[0.042]	[0.040]	[0.017]	[0.051]	[0.041]	[0.034]
Population density	-0.000	0.002	-0.001	-0.002	-0.001***	-0.002	-0.002*	-0.003
	[0.000]	[0.001]	[0.001]	[0.002]	[0.000]	[0.001]	[0.001]	[0.002]
Job density	-0.001	0.001	0.000	-0.001	0.000	0.003**	0.001	0.001
	[0.000]	[0.001]	[0.001]	[0.001]	[0.000]	[0.001]	[0.001]	[0.001]
Missing enrolment dummy	0.363***	0.461***	0.478***	0.310***	0.358***	0.516***	0.497***	0.294***
	[0.011]	[0.045]	[0.028]	[0.031]	[0.012]	[0.044]	[0.028]	[0.032]
Missing decile dummy	0.008	0.033	0.008	-0.009	0.008	0.021	-0.006	0.001
	[0.006]	[0.040]	[0.017]	[0.024]	[0.005]	[0.038]	[0.016]	[0.026]
Missing parental benefit dummy	-0.000	0.031**	-0.009	0.006	-0.001	0.025**	0.007	-0.008
	[0.002]	[0.013]	[0.007]	[0.009]	[0.002]	[0.013]	[0.007]	[0.008]
Missing Meshblock dummy	0.276***	1.172***	0.525**	0.274	0.053	0.687**	0.606***	0.258
	[0.085]	[0.271]	[0.210]	[0.221]	[0.083]	[0.272]	[0.207]	[0.185]
Missing Area Unit dummy	-0.086	0.222	0.047	0.516	0.007	0.791*	0.662**	0.348**
	[0.123]	[0.404]	[0.338]	[0.318]	[0.121]	[0.418]	[0.320]	[0.176]
Missing parental deprivation dummy	0.324***	-0.478	0.315	-0.337	0.465***	0.249	-0.079	-0.159
	[0.117]	[0.337]	[0.291]	[0.278]	[0.118]	[0.354]	[0.282]	[0.240]
Adjusted R-squared	14.6%	15.8%	16.2%	11.2%	18.7%	22.3%	23.6%	19.0%
Observations	98,187	15,300	21,480	14,205	93,261	14,298	21,117	14,115
LT-NEET	3,900	2,061	1,854	963	3,144	2,154	1,923	963
LT-NEET Rate	4.0%	13.5%	8.6%	6.8%	3.4%	15.1%	9.1%	6.8%

Note: *Regression estimates using Ordinary Least Squares OLS for youth aged 15-19 over the likelihood of being LT-NEET. Regressions include age dummies (in years) and an intercept. Decile reference group is attending decile 1-3 schools. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C2: Estimation results of LT-NEET rate (OLS) for youth aged 20 to 24 by ethnicity and gender

	Male				Female			
	Other	Sole Māori	Māori + other	Pacific	Other	Sole Māori	Māori + other	Pacific
New Zealand born	-0.004	0.040	0.016	0.019	-0.005	0.036	-0.028	0.037*
	[0.012]	[0.033]	[0.030]	[0.018]	[0.012]	[0.037]	[0.031]	[0.020]
One or more children	-0.013**	-0.015*	-0.020**	-0.017**	0.356***	0.301***	0.328***	0.394***
	[0.005]	[0.008]	[0.008]	[0.008]	[0.005]	[0.009]	[0.008]	[0.009]
Driver licence	-0.106***	-0.101***	-0.114***	-0.070***	-0.082***	-0.113***	-0.114***	-0.086***
	[0.003]	[0.007]	[0.007]	[0.006]	[0.003]	[0.008]	[0.007]	[0.007]

Enrolment in more than 3 schools	0.043***	0.030	0.040**	0.043	0.055***	0.019	0.057***	-0.003
	[0.017]	[0.021]	[0.020]	[0.035]	[0.015]	[0.020]	[0.018]	[0.035]
Decile: 4-7	-0.014***	0.003	0.002	0.003	-0.010**	-0.005	-0.002	-0.021***
	[0.004]	[0.008]	[0.007]	[0.007]	[0.004]	[0.009]	[0.007]	[0.008]
Decile: 8-10	-0.013***	0.010	0.003	0.008	-0.013***	-0.019	-0.010	-0.030***
	[0.004]	[0.012]	[0.008]	[0.009]	[0.004]	[0.014]	[0.008]	[0.010]
Suspension/warning	0.039***	0.042***	0.049***	0.026***	0.043***	0.035***	0.055***	0.010
	[0.004]	[0.008]	[0.007]	[0.008]	[0.006]	[0.009]	[0.008]	[0.011]
Left school before aged 18	0.001	0.006	0.014***	0.014**	0.003*	0.027***	0.016***	0.017**
	[0.002]	[0.007]	[0.005]	[0.006]	[0.002]	[0.008]	[0.005]	[0.007]
Qualification L.1	-0.097***	-0.073***	-0.062***	-0.090***	-0.093***	-0.090***	-0.110***	-0.101***
	[0.008]	[0.015]	[0.014]	[0.016]	[0.011]	[0.016]	[0.016]	[0.024]
Qualification L.2	-0.171***	-0.127***	-0.125***	-0.113***	-0.187***	-0.168***	-0.184***	-0.159***
	[0.007]	[0.012]	[0.011]	[0.014]	[0.009]	[0.014]	[0.013]	[0.020]
Qualification L.3	-0.199***	-0.133***	-0.159***	-0.155***	-0.252***	-0.201***	-0.243***	-0.218***
	[0.007]	[0.012]	[0.011]	[0.014]	[0.009]	[0.014]	[0.013]	[0.019]
Qualification L.4	-0.214***	-0.144***	-0.177***	-0.159***	-0.257***	-0.256***	-0.298***	-0.256***
	[0.007]	[0.013]	[0.012]	[0.014]	[0.009]	[0.015]	[0.013]	[0.019]
Qualification L.5	-0.205***	-0.186***	-0.150***	-0.150***	-0.266***	-0.324***	-0.275***	-0.251***
	[0.008]	[0.019]	[0.017]	[0.019]	[0.009]	[0.019]	[0.016]	[0.022]
Qualification L.6	-0.206***	-0.183***	-0.167***	-0.162***	-0.258***	-0.319***	-0.294***	-0.268***
	[0.008]	[0.028]	[0.020]	[0.025]	[0.011]	[0.032]	[0.023]	[0.031]
Qualification L.7 and above	-0.218***	-0.209***	-0.187***	-0.175***	-0.281***	-0.338***	-0.313***	-0.284***
	[0.007]	[0.016]	[0.013]	[0.017]	[0.009]	[0.017]	[0.013]	[0.020]
More than three siblings	-0.003	0.004	-0.011	-0.009	0.004	0.015	0.007	0.014
	[0.005]	[0.010]	[0.009]	[0.010]	[0.005]	[0.010]	[0.010]	[0.011]
Mother without a qualification	0.012***	0.025***	0.006	-0.003	0.008*	0.040***	0.026***	0.009
	[0.004]	[0.008]	[0.007]	[0.007]	[0.004]	[0.009]	[0.007]	[0.008]
Abuse event before age 5	0.055***	0.010	0.032***	0.041**	0.036***	0.044***	0.038***	-0.011
	[0.008]	[0.012]	[0.011]	[0.019]	[0.008]	[0.013]	[0.011]	[0.021]
Parents receiving benefit	0.056***	0.061***	0.054***	0.036***	0.047***	0.048***	0.043***	0.052***
	[0.005]	[0.008]	[0.007]	[0.009]	[0.005]	[0.009]	[0.007]	[0.010]
Long-term parental benefit dependency	0.050***	0.025***	0.027***	0.032***	0.041***	0.032***	0.034***	0.020*
	[0.006]	[0.008]	[0.008]	[0.011]	[0.006]	[0.009]	[0.008]	[0.012]
Meshblock deprivation score	0.088***	0.307***	0.330***	0.111***	0.108***	0.177***	0.071	0.150***
	[0.018]	[0.040]	[0.044]	[0.043]	[0.019]	[0.053]	[0.044]	[0.047]
Area Unit deprivation score	0.016	0.007	-0.030	-0.007	0.020	0.039	0.166***	-0.052
	[0.022]	[0.032]	[0.056]	[0.054]	[0.022]	[0.070]	[0.056]	[0.060]

Parental deprivation score	0.087***	0.000	-0.041	-0.026	0.043**	0.079	0.132***	0.011
	[0.021]	[0.050]	[0.044]	[0.049]	[0.019]	[0.058]	[0.045]	[0.056]
Population density	-0.002***	-0.006***	-0.004***	-0.006*	-0.006***	-0.011***	-0.009***	-0.005
	[0.001]	[0.002]	[0.002]	[0.003]	[0.001]	[0.002]	[0.002]	[0.004]
Job density	0.002***	0.004**	0.001	0.002	0.003***	0.006***	0.004**	-0.003
	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]
Missing enrolment dummy	0.015	0.043	0.012	0.027	0.043***	0.073**	0.046*	0.017
	[0.010]	[0.034]	[0.028]	[0.046]	[0.010]	[0.036]	[0.028]	[0.038]
Missing decile dummy	-0.001	0.042	0.055**	-0.019	-0.002	0.025	0.031	-0.037
	[0.009]	[0.030]	[0.023]	[0.046]	[0.010]	[0.031]	[0.023]	[0.037]
Missing highest qualification dummy	-0.120***	0.003	-0.025	-0.111***	-0.132***	-0.006	-0.018	-0.062***
	[0.010]	[0.023]	[0.021]	[0.017]	[0.012]	[0.026]	[0.023]	[0.024]
Missing parental benefit data	0.015***	0.030**	-0.018**	0.014	0.011***	0.021	0.021**	0.001
	[0.003]	[0.013]	[0.009]	[0.011]	[0.003]	[0.015]	[0.010]	[0.012]
Missing Meshblock	0.578***	2.133***	2.283***	0.635**	0.720***	1.168***	0.430	0.910***
	[0.122]	[0.278]	[0.311]	[0.299]	[0.129]	[0.397]	[0.312]	[0.341]
Missing Area Unit	0.143	0.014	-0.239	0.202	0.138	0.356	1.187***	-0.239
	[0.151]	[0.229]	[0.399]	[0.396]	[0.158]	[0.532]	[0.410]	[0.443]
Missing parental deprivation	0.576***	0.024	-0.218	-0.197	0.278**	0.582	0.893***	0.101
	[0.141]	[0.354]	[0.306]	[0.341]	[0.128]	[0.403]	[0.311]	[0.393]
Adjusted R-squared	10.3%	8.6%	11.0%	4.9%	27.8%	24.4%	30.7%	26.8%
Observations	102,018	14,559	20,490	13,950	94,902	13,236	20,415	14,022
LT-NEET	9,498	3,237	3,672	1,770	11,133	5,217	5,589	3,327
LT-NEET Rate	9.3%	22.2%	17.9%	12.7%	11.7%	39.4%	27.4%	23.7%

Note: *Regression estimates using Ordinary Least Squares OLS for youth aged 20-24 over the likelihood of being LT-NEET. Regressions include age dummies (in years) and an intercept. Decile reference group is attending decile 1-3 schools. Highest qualification reference group is having no qualification. Level 1 qualification includes overseas secondary qualifications. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C3: Logit estimation, marginal effect from the mean by gender and ethnicity (age group 15-19)

	Male				Female			
	Other	Sole Māori	Māori + other	Pacific	Other	Sole Māori	Māori + other	Pacific
New Zealand born	0.018***	0.028	-0.001	0.022	0.018***	0.005	0.003	0.032**
	[0.00]	[0.03]	[0.02]	[0.01]	[0.00]	[0.02]	[0.02]	[0.01]
One or more children	0.014*	0.028*	0.012	0.02	0.055***	0.138***	0.108***	0.116***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]

Driver licence	-0.020***	-0.064***	-0.049***	-0.021***	-0.018***	-0.073***	-0.044***	-0.028***
	[0.00]	[0.01]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]
Enrolment in more than 3 schools	0.013***	0.029***	0.022***	0.024***	0.014***	0.025***	0.020***	0.022***
	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]
Decile: 4-7	-0.007***	-0.017**	-0.006	-0.007	-0.002	-0.004	-0.005	-0.009
	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]
Decile: 8-10	-0.012***	-0.049***	-0.024***	-0.020*	-0.010***	-0.026*	-0.018**	-0.033***
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Suspension/warning	0.031***	0.051***	0.050***	0.046***	0.025***	0.056***	0.039***	0.025***
	[0.00]	[0.01]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.01]
More than three siblings	-0.002	0.01	0.008	0.016**	0.005*	0.015*	0.018***	0.012*
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Parents receiving benefit	0.022***	0.040***	0.030***	0.021***	0.020***	0.040***	0.038***	0.023***
	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]
Abuse event before age 5	0.014***	0.016*	0.006	0.014*	0.014***	-0.003	0.016***	0.015*
	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]
Long-term parental benefit dependency	0.007**	0.023***	0.020***	0.017**	0.006**	0.024***	0.011**	0.014*
	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]
Mother without a qualification	0.011***	0.009	0.018***	0.010*	0.013***	0.026***	0.017***	0.011*
	[0.00]	[0.01]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]
Meshblock deprivation score	0.032**	0.169***	0.073**	0.056	0.014	0.123***	0.087***	0.038
	[0.01]	[0.03]	[0.03]	[0.03]	[0.01]	[0.04]	[0.02]	[0.02]
Area Unit deprivation score	-0.006	-0.003	-0.001	0.057	0.016	0.072	0.074*	0.027
	[0.01]	[0.05]	[0.04]	[0.04]	[0.01]	[0.05]	[0.04]	[0.02]
Parental deprivation score	0.052***	-0.032	0.057	-0.045	0.044***	0.069	0.03	-0.01
	[0.01]	[0.04]	[0.03]	[0.04]	[0.01]	[0.05]	[0.03]	[0.03]
Population density	0	0.003	-0.001	-0.002	-0.001***	-0.002	-0.002	-0.003
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Job density	-0.001	0.001	0	-0.001	0	0.003*	0.001	0.001
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Missing enrolment dummy	0.228***	0.410***	0.393***	0.328**	0.214***	0.481***	0.448***	0.252*
	[0.02]	[0.07]	[0.06]	[0.12]	[0.02]	[0.09]	[0.07]	[0.10]

Missing decile dummy	0.013*	0.027	0.009	-0.013	0.012*	0.018	-0.013	-0.004
	[0.01]	[0.04]	[0.02]	[0.03]	[0.01]	[0.05]	[0.02]	[0.03]
Missing parental benefit dummy	-0.001	0.035**	-0.009	0.007	-0.002	0.031*	0.01	-0.009
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Missing Meshblock dummy	0.216**	1.049***	-0.335	-0.327	0.092	0.686*	0.530**	0.321*
	[0.07]	[0.27]	[0.18]	[0.20]	[0.07]	[0.28]	[0.19]	[0.16]
Missing Area Unit dummy	-0.04	0.187	0.844**	1.106***	0.105	0.707	0.571*	0.204
	[0.10]	[0.37]	[0.27]	[0.28]	[0.09]	[0.40]	[0.27]	[0.11]
Missing parental deprivation dummy	0.366***	-0.232	0.417	-0.313	0.314***	0.475	0.209	-0.045
	[0.09]	[0.31]	[0.23]	[0.27]	[0.08]	[0.32]	[0.22]	[0.23]
Observations	98,187	15,300	21,480	14,205	93,261	14,298	21,117	14,115
Pseudo R2	24%	17.7%	21.9%	17.1%	29.1%	23%	28.3%	24.9%

Note: *Marginal effects from the mean following Logit estimation for youth aged 15-19 over the likelihood of being LT-NEET. Regressions include age dummies (in years) and an intercept. Decile reference group is attending decile 1-3 schools. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C4: Logit estimation, marginal effect from the mean by gender and ethnicity (age group 20-24)

	Male				Female			
	Other	Sole Māori	Māori + other	Pacific	Other	Sole Māori	Māori + other	Pacific
New Zealand born	-0.003	0.037	0.011	0.022	0	0.033	-0.032	0.038*
	[0.01]	[0.03]	[0.02]	[0.02]	[0.01]	[0.04]	[0.03]	[0.02]
One or more children	-0.010**	-0.014	-0.016*	-0.015*	0.155***	0.264***	0.238***	0.272***
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]
Driver licence	-0.073***	-0.095***	-0.096***	-0.067***	-0.062***	-0.106***	-0.098***	-0.085***
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Enrolment in more than 3 schools	0.020*	0.022	0.028	0.028	0.031**	0.018	0.044**	-0.006
	[0.01]	[0.02]	[0.02]	[0.03]	[0.01]	[0.02]	[0.01]	[0.03]
Decile: 4-7	-0.009**	0.002	0.001	0.004	-0.006*	-0.006	0	-0.020*
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Decile: 8-10	-0.012***	0.002	-0.003	0.008	-0.016***	-0.03	-0.021*	-0.041***
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.02]	[0.01]	[0.01]
Suspension/warning	0.027***	0.043***	0.044***	0.023***	0.022***	0.033***	0.041***	0.008
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Left school before 18	0.003	0.007	0.017**	0.015*	0.007**	0.028***	0.018***	0.017*
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]

Qualification L.1	-0.060***	-0.061***	-0.044***	-0.076***	-0.056***	-0.089***	-0.095***	-0.085***
	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]	[0.02]	[0.02]	[0.02]
Qualification L.2	-0.118***	-0.113***	-0.100***	-0.095***	-0.111***	-0.156***	-0.150***	-0.128***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]
Qualification L.3	-0.150***	-0.121***	-0.140***	-0.139***	-0.171***	-0.189***	-0.209***	-0.185***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]
Qualification L.4	-0.162***	-0.133***	-0.156***	-0.142***	-0.170***	-0.245***	-0.259***	-0.221***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]	[0.02]
Qualification L.5	-0.153***	-0.184***	-0.128***	-0.133***	-0.182***	-0.324***	-0.240***	-0.217***
	[0.01]	[0.02]	[0.02]	[0.02]	[0.01]	[0.02]	[0.02]	[0.02]
Qualification L.6	-0.156***	-0.184***	-0.149***	-0.148***	-0.177***	-0.333***	-0.270***	-0.247***
	[0.01]	[0.03]	[0.02]	[0.03]	[0.01]	[0.04]	[0.03]	[0.04]
Qualification L.7 and above	-0.173***	-0.246***	-0.192***	-0.163***	-0.222***	-0.409***	-0.367***	-0.302***
	[0.01]	[0.02]	[0.01]	[0.02]	[0.01]	[0.02]	[0.01]	[0.02]
More than three siblings	-0.004	0.003	-0.012	-0.009	0.001	0.013	0.005	0.012
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Parents receiving benefit	0.038***	0.063***	0.050***	0.030***	0.030***	0.047***	0.041***	0.049***
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Abuse event before age 5	0.023***	0.009	0.023**	0.028*	0.014***	0.039**	0.028***	-0.01
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.02]
Long-term parental benefit dependency	0.024***	0.023**	0.022***	0.024**	0.021***	0.030***	0.027***	0.015
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Mother without a qualification	0.008**	0.024***	0.006	-0.003	0.004	0.039***	0.023***	0.008
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Meshblock deprivation score	0.074***	0.291***	0.293***	0.109**	0.097***	0.176***	0.068	0.145**
	[0.02]	[0.04]	[0.04]	[0.04]	[0.02]	[0.05]	[0.04]	[0.04]
Area Unit deprivation score	0.022	0.016	-0.018	0	0.013	0.037	0.158**	-0.04
	[0.02]	[0.04]	[0.05]	[0.05]	[0.02]	[0.07]	[0.05]	[0.06]
Parental deprivation score	0.086***	0.009	-0.015	-0.03	0.057**	0.09	0.149***	0.014
	[0.02]	[0.05]	[0.04]	[0.05]	[0.02]	[0.06]	[0.04]	[0.06]
Population density	-0.002***	-0.006**	-0.004**	-0.006	-0.006***	-0.011***	-0.009***	-0.005
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Job density	0.002***	0.004*	0	0.002	0.002***	0.006**	0.003*	-0.003
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Missing enrolment dummy	0.016*	0.047	0.017	0.04	0.036***	0.078*	0.04	0.025
	[0.01]	[0.03]	[0.02]	[0.05]	[0.01]	[0.04]	[0.02]	[0.04]
Missing decile dummy	0.005	0.036	0.047*	-0.023	0.006	0.02	0.03	-0.038
	[0.01]	[0.03]	[0.02]	[0.04]	[0.01]	[0.03]	[0.02]	[0.04]

Missing highest qualification dummy	-0.094***	0	-0.022	-0.094***	-0.102***	-0.009	-0.017	-0.041
	[0.01]	[0.02]	[0.02]	[0.02]	[0.01]	[0.03]	[0.02]	[0.02]
Missing parental benefit dummy	0.015***	0.036**	-0.017	0.013	0.013***	0.021	0.026*	0.004
	[0.00]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.01]
Missing Meshblock dummy	0.475***	2.025***	2.039***	-0.707*	0.643***	1.140**	0.415	0.870*
	[0.11]	[0.29]	[0.28]	[0.28]	[0.11]	[0.39]	[0.29]	[0.34]
Missing Area Unit dummy	0.192	0.075	-0.165	1.536***	0.092	0.379	1.140**	-0.157
	[0.14]	[0.31]	[0.37]	[0.37]	[0.14]	[0.53]	[0.39]	[0.43]
Missing parental deprivation dummy	0.570***	0.085	-0.041	-0.225	0.375**	0.659	1.015***	0.119
	[0.13]	[0.36]	[0.30]	[0.34]	[0.13]	[0.40]	[0.30]	[0.40]
Observations	102,018	14,559	20,490	13,950	94,902	13,236	20,415	14,022
Pseudo R2	13%	8.5%	11.5%	6.3%	29.1%	20.3%	27.7%	24.2%

Note: *Marginal effects from the mean following Logit estimation for youth aged 20-24 over the likelihood of being LT-NEET. Regressions include age dummies (in years) and an intercept. Decile reference group is attending decile 1-3 schools. Highest qualification reference group is having no qualification. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C5: Base decomposition results, age group 15-19

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
LT-NEET rate: Other	0.04	0.034	0.04	0.034	0.04	0.034
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
LT-NEET rate: Treatment group	0.135	0.151	0.086	0.091	0.068	0.068
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Difference	-0.095	-0.117	-0.047	-0.057	-0.028	-0.034
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Endowments	-0.088	-0.096	-0.036	-0.049	-0.034	-0.043
	[0.00]***	[0.01]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Coefficients	-0.029	-0.038	-0.011	-0.014	0.014	0.009
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Interaction	0.022	0.018	0.001	0.005	-0.008	-0.001
	[0.01]***	[0.01]**	[0.00]	[0.00]*	[0.00]*	[0.00]
Endowments						
One of more children	-0.002	-0.017	-0.001	-0.012	-0.001	-0.008
	[0.00]**	[0.00]***	[0.00]**	[0.00]***	[0.00]*	[0.00]***
Driver licence	-0.01	-0.012	-0.005	-0.004	-0.005	-0.007
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Enrolment in more than 3 schools	-0.005	-0.004	-0.003	-0.002	-0.001	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]**

Decile	-0.014	-0.005	-0.003	-0.001	-0.003	-0.007
	[0.00]***	[0.00]	[0.00]*	[0.00]	[0.00]	[0.00]**
Suspension/warning	-0.013	-0.013	-0.009	-0.006	-0.005	-0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
More than three siblings	-0.002	-0.002	-0.001	-0.002	-0.001	-0.001
	[0.00]	[0.00]*	[0.00]	[0.00]***	[0.00]*	[0.00]
Parent receiving benefit	-0.014	-0.014	-0.007	-0.008	-0.003	-0.003
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Abuse event before the age of 5	-0.002	0.001	-0.001	-0.002	-0.001	0
	[0.00]*	[0.00]	[0.00]	[0.00]**	[0.00]	[0.00]
Long-term parental benefit dependency	-0.006	-0.006	-0.004	-0.002	-0.002	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]*	[0.00]**	[0.00]
Mother without a qualification	-0.001	-0.003	-0.002	-0.002	-0.001	-0.001
	[0.00]	[0.00]***	[0.00]***	[0.00]***	[0.00]	[0.00]*
Meshblock deprivation score	-0.021	-0.013	-0.006	-0.006	-0.007	-0.004
	[0.00]***	[0.00]**	[0.00]**	[0.00]**	[0.00]	[0.00]
Parental deprivation score	0.09	-0.049	-0.056	0.012	-0.009	-0.006
	[0.06]	[0.07]	[0.05]	[0.05]	[0.01]	[0.01]
Missing categories	-0.087	0.044	0.055	-0.011	0.006	0
	[0.06]	[0.06]	[0.05]	[0.05]	[0.01]	[0.01]
All other endowments	-0.001	-0.003	0.004	-0.003	-0.002	0
Coefficients						
One or more children	-0.017	-0.034	-0.019	-0.01	-0.019	0.013
	[0.01]	[0.01]***	[0.02]	[0.01]	[0.02]	[0.01]
Driver licence	-0.009	-0.012	-0.005	-0.004	0.001	-0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]	[0.00]
Abuse event before the age of 5	-0.006	-0.014	-0.011	-0.007	-0.008	-0.009
	[0.00]*	[0.00]***	[0.00]**	[0.00]*	[0.00]	[0.00]*
Meshblock	-0.97	-0.728	-0.303	-0.592	-0.063	-0.16
	[0.28]***	[0.28]**	[0.23]	[0.22]**	[0.23]	[0.20]
Parental deprivation score	0.758	0.188	0.02	0.494	0.485	0.47
	[0.34]*	[0.35]	[0.30]	[0.29]	[0.22]*	[0.20]*
Missing categories	0.229	0.604	0.185	0.362	0.152	0.139
	[0.14]	[0.15]***	[0.11]	[0.11]***	[0.11]	[0.10]
Constant	0.153	0.597	0.161	0.346	-0.002	-0.155
	[0.15]	[0.16]***	[0.12]	[0.12]**	[0.13]	[0.12]
All other coefficients	-0.166	-0.638	-0.04	-0.605	-0.531	-0.287
Interaction						

One or more children	-0.001	-0.005	-0.001	-0.001	-0.001	0.001
	[0.00]	[0.00]***	[0.00]	[0.00]	[0.00]	[0.00]
Driver licence	0.006	0.009	0.003	0.002	0	0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]	[0.00]
Suspension/Warning	0	0.001	0.001	0	0	-0.002
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]**
Abuse event before the age of 5	-0.003	-0.006	-0.002	-0.001	-0.001	-0.001
	[0.00]*	[0.00]***	[0.00]**	[0.00]*	[0.00]	[0.00]*
Meshblock deprivation score	0.016	0.012	0.003	0.006	0.001	0.003
	[0.00]***	[0.00]**	[0.00]	[0.00]**	[0.00]	[0.00]
All other interactions	0.003	0.006	-0.003	0	-0.007	-0.004
Observations	113,487	107,562	119,667	114,378	112,395	107,376

Note: *The table summarises the results of a three-fold Blinder-Oaxaca decomposition, using Other as a control group, and for youth aged between 15 and 19. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C6: Base decomposition results, age group 20-24

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
LT-NEET rate: Other	0.093	0.117	0.093	0.117	0.093	0.117
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
LT-NEET rate: Treatment group	0.222	0.394	0.179	0.274	0.127	0.237
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Difference	-0.129	-0.277	-0.086	-0.157	-0.034	-0.12
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Endowments	-0.122	-0.264	-0.069	-0.144	-0.038	-0.128
	[0.01]***	[0.01]***	[0.00]***	[0.00]***	[0.00]***	[0.01]***
Coefficients	0	-0.027	-0.006	-0.015	0.045	0.008
	[0.00]	[0.01]***	[0.00]	[0.00]***	[0.00]***	[0.00]*
Interaction	-0.007	0.014	-0.011	0.003	-0.041	0
	[0.01]	[0.01]	[0.00]**	[0.00]	[0.00]***	[0.01]
Endowments						
One or more children	0.004	-0.1	0.002	-0.062	0.002	-0.057
	[0.00]	[0.00]***	[0.00]*	[0.00]***	[0.00]*	[0.00]***
Driver licence	-0.024	-0.025	-0.016	-0.012	-0.016	-0.025
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Enrolment in more than 3 schools	-0.001	-0.001	-0.001	-0.002	0	0
	[0.00]	[0.00]	[0.00]*	[0.00]**	[0.00]	[0.00]
Decile	0.003	-0.007	0	-0.003	0.003	-0.011

	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]**
Suspension/warning	-0.012	-0.008	-0.009	-0.007	-0.003	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]**	[0.00]
Left school before 18	-0.001	-0.003	-0.001	-0.001	0.001	0
	[0.00]	[0.00]***	[0.00]**	[0.00]**	[0.00]*	[0.00]*
Highest qualification	-0.032	-0.063	-0.021	-0.031	-0.021	-0.025
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
More than three siblings	0	-0.002	0.001	0	0.001	-0.001
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Parent receiving benefit	-0.022	-0.018	-0.012	-0.01	-0.003	-0.004
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Abuse event before age 5	-0.001	-0.003	-0.002	-0.002	0	0
	[0.00]	[0.00]***	[0.00]**	[0.00]***	[0.00]	[0.00]
Long-term Parental benefit dependency	-0.006	-0.009	-0.004	-0.005	-0.002	-0.001
	[0.00]**	[0.00]***	[0.00]***	[0.00]***	[0.00]**	[0.00]
Mother without a qualification	-0.005	-0.008	-0.001	-0.004	0.001	-0.001
	[0.00]**	[0.00]***	[0.00]	[0.00]***	[0.00]	[0.00]
Meshblock deprivation score	-0.032	-0.021	-0.02	-0.004	-0.012	-0.017
	[0.00]***	[0.01]***	[0.00]***	[0.00]	[0.00]**	[0.01]**
Parental deprivation score	0.003	-0.123	0.074	-0.198	-0.015	0.008
	[0.08]	[0.09]	[0.07]	[0.07]**	[0.03]	[0.04]
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Missing categories	0.013	0.134	-0.057	0.197	0.023	-0.008
	[0.08]	[0.09]	[0.07]	[0.07]**	[0.03]	[0.04]
All other endowments	-0.008	-0.007	-0.002	-0.002	0.004	0.016
Coefficients						
One or more children	-0.001	-0.003	-0.003	-0.006	-0.001	0.009
	[0.00]	[0.00]***	[0.00]	[0.00]**	[0.00]	[0.00]***
Driver licence	0	0.004	0.001	0.007	-0.003	0
	[0.00]	[0.00]***	[0.00]	[0.00]***	[0.00]***	[0.00]
Abuse event before age 5	-0.017	0.003	-0.009	0.001	-0.006	-0.022
	[0.01]**	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]*
Meshblock deprivation score	-1.517	-0.479	-1.672	0.269	-0.158	-0.296
	[0.31]***	[0.40]	[0.33]***	[0.33]	[0.32]	[0.35]
Parental deprivation score	0.597	-0.228	0.889	-0.56	0.504	0.14
	[0.36]	[0.40]	[0.32]**	[0.32]	[0.24]*	[0.26]
Mother without a qualification	0.003	0.007	-0.002	0.005	-0.003	0
	[0.00]	[0.00]***	[0.00]	[0.00]*	[0.00]	[0.00]

Highest qualification	-0.009	-0.025	0.001	-0.007	0	-0.009
	[0.00]*	[0.00]***	[0.00]	[0.00]*	[0.00]	[0.00]*
Missing categories	0.434	0.456	0.268	0.634	-0.049	-0.105
	[0.19]*	[0.22]*	[0.16]	[0.17]***	[0.15]	[0.16]
Constant	0.447	0.382	0.186	0.613	-0.406	-0.194
	[0.20]*	[0.23]	[0.18]	[0.18]***	[0.19]*	[0.20]
All other coefficients	0.062	-0.144	0.334	-0.97	0.168	0.485
Interaction						
One or more children	-0.001	-0.018	-0.001	-0.005	-0.001	0.006
	[0.00]	[0.00]***	[0.00]	[0.00]**	[0.00]	[0.00]***
Driver licence	-0.001	0.007	0.001	0.003	-0.008	0.001
	[0.00]	[0.00]***	[0.00]	[0.00]***	[0.00]***	[0.00]
Left school before age 18	0	0.002	0.001	0.001	-0.001	0
	[0.00]	[0.00]**	[0.00]*	[0.00]*	[0.00]	[0.00]
Highest qualification	-0.001	0.014	-0.002	0.003	-0.004	0.002
	[0.00]	[0.00]***	[0.00]	[0.00]*	[0.00]*	[0.00]
Abuse event before age 5	-0.004	0.001	-0.001	0	0	0
	[0.00]**	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Mother without a qualification	0.003	0.006	-0.001	0.003	-0.002	0
	[0.00]	[0.00]***	[0.00]	[0.00]*	[0.00]	[0.00]
Meshblock deprivation score	0.023	0.008	0.015	-0.002	0.002	0.005
	[0.00]***	[0.01]	[0.00]***	[0.00]	[0.01]	[0.01]
Parental deprivation score	-0.144	0.054	-0.21	0.131	0.065	0.02
	[0.09]	[0.10]	[0.08]**	[0.07]	[0.03]*	[0.04]
All other interactions	0.118	-0.061	0.19	-0.13	-0.091	-0.033
Observations	116,580	108,141	122,508	115,317	115,971	108,927

Note: *The table summarises the results of a three-fold Blinder-Oaxaca decomposition, using Other as a control group, and for youth aged between 20 and 24. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C7: Equal weight decomposition results, age group 15-19

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
LT-NEET rate: Other	0.04	0.034	0.04	0.034	0.04	0.034
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
LT-NEET rate: Treatment group	0.135	0.151	0.086	0.091	0.068	0.068
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Difference	-0.095	-0.117	-0.047	-0.057	-0.028	-0.034
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***

Explained	-0.077	-0.088	-0.036	-0.046	-0.038	-0.043
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Unexplained	-0.018	-0.03	-0.011	-0.011	0.01	0.009
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Explained						
One or more children	-0.003	-0.019	-0.001	-0.012	-0.001	-0.008
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Driver licence	-0.007	-0.007	-0.004	-0.003	-0.005	-0.006
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Enrolment in more than 3 schools	-0.004	-0.004	-0.002	-0.002	-0.001	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Decile	-0.01	-0.004	-0.003	-0.002	-0.004	-0.006
	[0.00]***	[0.00]*	[0.00]***	[0.00]*	[0.00]**	[0.00]***
Suspension/Warning	-0.013	-0.012	-0.008	-0.006	-0.005	-0.003
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
More than three siblings	-0.001	-0.002	0	-0.001	-0.001	-0.001
	[0.00]	[0.00]**	[0.00]	[0.00]***	[0.00]*	[0.00]**
Parent receiving benefit	-0.013	-0.013	-0.007	-0.007	-0.003	-0.003
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Abuse event before the age of 5	-0.004	-0.002	-0.002	-0.002	-0.001	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Long-term Parental benefit dependency	-0.005	-0.005	-0.003	-0.002	-0.002	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Mother without a qualification	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Meshblock Deprivation Score	-0.013	-0.007	-0.004	-0.003	-0.006	-0.003
	[0.00]***	[0.00]**	[0.00]***	[0.00]**	[0.00]**	[0.00]
Missing categories	-0.016	0.061	0.057	0.034	-0.008	-0.015
	[0.03]	[0.03]	[0.03]*	[0.03]	[0.01]	[0.01]*
All other	0.012	-0.071	-0.057	-0.038	0	0.005
Unexplained						
One or more children	-0.017	-0.037	-0.019	-0.01	-0.02	0.013
	[0.01]	[0.01]***	[0.02]	[0.01]	[0.02]	[0.01]
Driver licence	-0.006	-0.007	-0.003	-0.003	0	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]	[0.00]
Abuse event before the age of 5	-0.007	-0.017	-0.012	-0.007	-0.008	-0.01
	[0.00]*	[0.00]***	[0.00]**	[0.00]*	[0.00]	[0.00]*
Meshblock deprivation score	-0.962	-0.722	-0.302	-0.589	-0.063	-0.159

	[0.28]***	[0.28]**	[0.22]	[0.22]**	[0.23]	[0.20]
Missing categories	0.3	0.621	0.187	0.407	0.139	0.124
	[0.13]*	[0.15]***	[0.11]	[0.10]***	[0.11]	[0.10]
Constant	0.153	0.597	0.161	0.346	-0.002	-0.155
	[0.15]	[0.16]***	[0.12]	[0.12]**	[0.13]	[0.12]
All other coefficients	0.522	-0.464	-0.024	-0.156	-0.039	0.197
Observations	113,487	107,562	119,667	114,378	112,395	107,376

Note: *The table summarises the results of a two-fold Blinder-Oaxaca decomposition, using equal weights for each group. Results are for youth age 15-19. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C8: Equal weight decomposition results, age group 20-24

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
LT-NEET rate: Other	0.093	0.117	0.093	0.117	0.093	0.117
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
LT-NEET rate: Treatment group	0.222	0.394	0.179	0.274	0.127	0.237
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Difference	-0.129	-0.277	-0.086	-0.157	-0.034	-0.12
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Explained	-0.126	-0.257	-0.075	-0.143	-0.058	-0.128
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Unexplained	-0.004	-0.02	-0.011	-0.014	0.024	0.008
	[0.00]	[0.01]***	[0.00]***	[0.00]***	[0.00]***	[0.00]*
Explained						
One or more children	0.003	-0.109	0.002	-0.064	0.002	-0.055
	[0.00]**	[0.00]***	[0.00]***	[0.00]***	[0.00]**	[0.00]***
Driver licence	-0.025	-0.021	-0.015	-0.01	-0.021	-0.024
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Enrolment in more than 3 schools	-0.001	-0.002	-0.001	-0.002	0	0
	[0.00]**	[0.00]**	[0.00]**	[0.00]***	[0.00]*	[0.00]
Decile	-0.001	-0.006	-0.001	-0.002	-0.001	-0.008
	[0.00]	[0.00]*	[0.00]	[0.00]**	[0.00]	[0.00]***
Suspension/warning	-0.012	-0.009	-0.008	-0.006	-0.003	-0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Left school before age 18	0	-0.001	-0.001	-0.001	0	0
	[0.00]	[0.00]***	[0.00]**	[0.00]**	[0.00]*	[0.00]*
Highest qualification	-0.033	-0.056	-0.022	-0.03	-0.023	-0.024
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***

Parent receiving benefit	-0.022	-0.017	-0.013	-0.01	-0.004	-0.004
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Abuse event before age of 5	-0.003	-0.003	-0.003	-0.002	0	0
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]*	[0.00]
Long-term Parental benefit dependency	-0.01	-0.01	-0.006	-0.006	-0.003	-0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Mother without a qualification	-0.004	-0.005	-0.001	-0.002	-0.001	-0.001
	[0.00]***	[0.00]***	[0.00]*	[0.00]***	[0.00]	[0.00]
Meshblock deprivation score	-0.021	-0.017	-0.013	-0.005	-0.011	-0.015
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Parental Deprivation	-0.069	-0.096	-0.031	-0.133	0.018	0.018
	[0.04]	[0.05]*	[0.04]	[0.04]***	[0.02]	[0.02]
Missing categories	0.073	0.1	0.037	0.131	-0.013	-0.017
	[0.04]	[0.05]*	[0.04]	[0.04]***	[0.02]	[0.02]
All other	-0.003	-0.006	0.001	0	0.002	0.006
Unexplained						
One or more children	-0.001	-0.012	-0.003	-0.008	-0.001	0.012
	[0.00]	[0.00]***	[0.00]	[0.00]**	[0.00]	[0.00]***
Driver licence	-0.001	0.007	0.002	0.009	-0.008	0.001
	[0.00]	[0.00]***	[0.00]	[0.00]***	[0.00]***	[0.00]
Left school before age 18	0	0.002	0.001	0.001	0.002	0.002
	[0.00]	[0.00]**	[0.00]*	[0.00]*	[0.00]	[0.00]
Highest qualification	-0.01	-0.018	0	-0.005	-0.002	-0.007
	[0.00]**	[0.00]***	[0.00]	[0.00]	[0.00]	[0.00]*
Abuse event before age 5	-0.019	0.003	-0.01	0.001	-0.006	-0.022
	[0.01]**	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]*
Meshblock deprivation score	-1.506	-0.475	-1.664	0.268	-0.157	-0.293
	[0.30]***	[0.39]	[0.32]***	[0.33]	[0.32]	[0.35]
Parental deprivation score	0.525	-0.201	0.784	-0.494	0.536	0.15
	[0.32]	[0.35]	[0.28]**	[0.28]	[0.25]*	[0.28]
Missing categories	0.495	0.422	0.362	0.567	-0.085	-0.115
	[0.17]**	[0.20]*	[0.15]*	[0.16]***	[0.15]	[0.16]
Constant	0.447	0.382	0.186	0.613	-0.406	-0.194
	[0.20]*	[0.23]	[0.18]	[0.18]***	[0.19]*	[0.20]
All other coefficients	0.067	-0.132	0.331	-0.964	0.151	0.477
Observations	116,577	108,141	122,508	115,317	115,971	108,927

Note: *The table summarises the results of a two-fold Blinder-Oaxaca decomposition, using equal weights for each group. Results are for youth age 20-24. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C9: Pooled decomposition results, age group 15-19

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
LT-NEET rate: Other	0.04	0.034	0.04	0.034	0.04	0.034
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
LT-NEET rate: Treatment group	0.135	0.151	0.086	0.091	0.068	0.068
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Difference	-0.095	-0.117	-0.047	-0.057	-0.028	-0.034
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Explained	-0.079	-0.095	-0.038	-0.048	-0.037	-0.041
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Unexplained	-0.016	-0.022	-0.008	-0.009	0.009	0.006
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Explained						
Born in New Zealand	-0.004	-0.004	-0.003	-0.003	0	0.001
	[0.00]**	[0.00]***	[0.00]*	[0.00]*	[0.00]	[0.00]**
One or more children	-0.004	-0.021	-0.002	-0.013	-0.001	-0.008
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Driver licence	-0.005	-0.005	-0.003	-0.002	-0.005	-0.005
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Enrolment in more than 3 schools	-0.004	-0.003	-0.002	-0.002	-0.001	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Decile	-0.007	-0.005	-0.003	-0.002	-0.004	-0.004
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Suspension/warning	-0.014	-0.014	-0.008	-0.006	-0.005	-0.003
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
More than three siblings	-0.001	-0.002	0	-0.001	0	-0.001
	[0.00]*	[0.00]***	[0.00]	[0.00]***	[0.00]	[0.00]**
Parent receiving Benefit	-0.014	-0.013	-0.007	-0.007	-0.004	-0.003
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Abuse event before age 5	-0.004	-0.003	-0.002	-0.003	-0.001	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Long-term Parental Benefit	-0.006	-0.006	-0.003	-0.002	-0.002	-0.001
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Mother without a qualification	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Meshblock deprivation score	-0.011	-0.007	-0.004	-0.003	-0.004	0
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]**	[0.00]

Parental deprivation score	-0.069	-0.13	-0.074	-0.085	0.005	0.009
	[0.02]**	[0.02]***	[0.02]***	[0.02]***	[0.00]*	[0.00]*
Missing categories	0.062	0.12	0.072	0.083	-0.017	-0.021
	[0.02]**	[0.02]***	[0.02]***	[0.02]***	[0.00]***	[0.00]***
All other endowments	0.003	-0.001	0.002	-0.001	0.004	0
Unexplained						
One or more children	-0.017	-0.035	-0.019	-0.009	-0.02	0.013
	[0.02]	[0.01]**	[0.02]	[0.01]	[0.02]	[0.01]
Driver licence	-0.008	-0.01	-0.004	-0.003	0	-0.002
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]	[0.00]
Abuse event before age 5	-0.007	-0.016	-0.012	-0.007	-0.008	-0.009
	[0.00]*	[0.00]***	[0.00]**	[0.00]*	[0.00]	[0.00]*
Meshblock deprivation score	-0.964	-0.723	-0.302	-0.59	-0.065	-0.161
	[0.28]***	[0.28]**	[0.23]	[0.22]**	[0.23]	[0.20]
Missing categories	0.222	0.562	0.172	0.359	0.147	0.13
	[0.14]	[0.15]***	[0.11]	[0.10]***	[0.11]	[0.10]
Constant	0.153	0.597	0.161	0.346	-0.002	-0.155
	[0.15]	[0.16]***	[0.12]	[0.12]**	[0.13]	[0.12]
All other unexplained	0.606	-0.394	-0.005	-0.105	-0.044	0.191
Observations	113,487	107,562	119,667	114,378	112,395	107,376

Note: *The table summarises the results of a pooled two-fold Blinder-Oaxaca decomposition (no group membership dummy). Results are for youth age 15-19. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C10: Pooled decomposition results, age group 20-24

	Sole Māori		Māori + other		Pacific	
	M	F	M	F	M	F
LT-NEET rate: Other	0.093	0.117	0.093	0.117	0.093	0.117
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
LT-NEET rate: Treatment group	0.222	0.394	0.179	0.274	0.127	0.237
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Difference	-0.129	-0.277	-0.086	-0.157	-0.034	-0.12
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Explained	-0.128	-0.26	-0.08	-0.147	-0.061	-0.126
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Unexplained	-0.002	-0.017	-0.006	-0.009	0.027	0.006
	[0.00]	[0.00]***	[0.00]*	[0.00]***	[0.00]***	[0.00]*
Explained						
One or more children	0.003	-0.114	0.002	-0.065	0.003	-0.053

	[0.00]**	[0.00]***	[0.00]**	[0.00]***	[0.00]***	[0.00]***
Driver licence	-0.025	-0.019	-0.015	-0.01	-0.023	-0.024
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Enrolment in more than 3 schools	-0.001	-0.002	-0.001	-0.002	0	0
	[0.00]**	[0.00]***	[0.00]**	[0.00]***	[0.00]*	[0.00]**
Decile	-0.003	-0.005	-0.002	-0.002	-0.002	-0.006
	[0.00]*	[0.00]***	[0.00]**	[0.00]***	[0.00]	[0.00]***
Suspension/warning	-0.011	-0.01	-0.008	-0.007	-0.004	-0.003
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Left school before age 18	0	-0.001	0	0	0	0
	[0.00]	[0.00]***	[0.00]	[0.00]**	[0.00]	[0.00]*
Highest qualification	-0.032	-0.048	-0.022	-0.028	-0.025	-0.022
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Parent receiving benefit	-0.021	-0.018	-0.013	-0.011	-0.005	-0.004
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Abuse event before age 5	-0.003	-0.003	-0.003	-0.002	0	0
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]*	[0.00]
Long-term Parental Benefit Dependency	-0.011	-0.011	-0.006	-0.006	-0.003	-0.003
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Mother without a qualification	-0.003	-0.003	-0.002	-0.002	-0.001	-0.001
	[0.00]***	[0.00]***	[0.00]**	[0.00]***	[0.00]	[0.00]*
Meshblock deprivation score	-0.014	-0.017	-0.009	-0.006	-0.008	-0.013
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
Parental deprivation score	-0.124	-0.122	-0.096	-0.125	0.032	0.021
	[0.03]***	[0.03]***	[0.03]**	[0.03]***	[0.01]**	[0.01]*
Missing categories	0.122	0.122	0.097	0.122	-0.028	-0.021
	[0.03]***	[0.03]***	[0.03]***	[0.03]***	[0.01]*	[0.01]
All other endowments	-0.005	-0.009	-0.003	-0.003	0.003	0.003
Unexplained						
One or more children	-0.001	-0.007	-0.003	-0.007	-0.002	0.011
	[0.00]	[0.00]***	[0.00]	[0.00]**	[0.00]	[0.00]***
Driver licence	0	0.005	0.002	0.008	-0.006	0
	[0.00]	[0.00]***	[0.00]	[0.00]***	[0.00]***	[0.00]
Left school before age 18	0	0.002	0.001	0.001	0.002	0.002
	[0.00]	[0.00]**	[0.00]*	[0.00]*	[0.00]	[0.00]
Highest qualification	-0.011	-0.026	0.001	-0.006	0	-0.009
	[0.00]**	[0.00]***	[0.00]	[0.00]*	[0.00]	[0.00]*
Abuse event before age 5	-0.018	0.003	-0.01	0.001	-0.006	-0.022

	[0.01]**	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]*
Meshblock deprivation score	-1.512	-0.475	-1.668	0.269	-0.16	-0.295
	[0.30]***	[0.39]	[0.33]***	[0.33]	[0.32]	[0.35]
Missing categories	0.445	0.4	0.302	0.576	-0.07	-0.111
	[0.18]*	[0.21]	[0.15]*	[0.17]***	[0.15]	[0.16]
Constant	0.447	0.382	0.186	0.613	-0.406	-0.194
	[0.20]*	[0.23]	[0.18]	[0.18]***	[0.19]*	[0.20]
All other unexplained	0.649	-0.301	1.185	-1.463	0.676	0.625
Observations	116,577	108,141	122,508	115,317	115,971	108,927

Note: *The table summarises the results of a pooled two-fold Blinder-Oaxaca decomposition (no group membership dummy). Results are for youth aged 20-24. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C11: Marginal effects at different percentiles of Meshblock deprivation scores

	15-19 females				20-24 females			
Parent	Other	Sole Maori	Maori + other	Pacific	Other	Sole Maori	Maori + other	Pacific
P25	0.371	0.278	0.353	0.387	0.354	0.309	0.327	0.393
	[0.338,0.403]***	[0.242,0.314]***	[0.302,0.404]***	[0.315,0.459]***	[0.343,0.365]***	[0.291,0.327]***	[0.311,0.342]***	[0.374,0.412]***
P50	0.367	0.282	0.347	0.389	0.355	0.301	0.328	0.394
	[0.334,0.400]***	[0.249,0.314]***	[0.309,0.385]***	[0.338,0.439]***	[0.345,0.365]***	[0.284,0.318]***	[0.313,0.343]***	[0.376,0.413]***
P75	0.362	0.285	0.339	0.391	0.356	0.293	0.329	0.395
	[0.329,0.395]***	[0.252,0.319]***	[0.307,0.372]***	[0.338,0.443]***	[0.346,0.367]***	[0.275,0.311]***	[0.314,0.344]***	[0.376,0.414]***
Driver licence	15-19 males				15-19 females			
	Other	Sole Maori	Maori + other	Pacific	Other	Sole Maori	Maori + other	Pacific
P25	-0.028	-0.076	-0.065	-0.019	-0.023	-0.089	-0.058	-0.032
	[-0.031,-0.025]***	[-0.089,-0.063]***	[-0.074,-0.056]***	[-0.030,-0.007]**	[-0.026,-0.020]***	[-0.102,-0.075]***	[-0.067,-0.049]***	[-0.042,-0.021]***
P50	-0.028	-0.075	-0.066	-0.027	-0.023	-0.089	-0.058	-0.033
	[-0.032,-0.025]***	[-0.088,-0.062]***	[-0.075,-0.057]***	[-0.037,-0.016]***	[-0.026,-0.020]***	[-0.102,-0.075]***	[-0.067,-0.049]***	[-0.044,-0.023]***
P75	-0.029	-0.074	-0.067	-0.034	-0.024	-0.089	-0.059	-0.035
	[-0.032,-0.025]***	[-0.087,-0.061]***	[-0.076,-0.057]***	[-0.048,-0.021]***	[-0.027,-0.021]***	[-0.103,-0.075]***	[-0.068,-0.049]***	[-0.046,-0.023]***
Suspension/Warning	15-19 males				15-19 females			
	Other	Sole Maori	Maori + other	Pacific	Other	Sole Maori	Maori + other	Pacific
P25	0.051	0.053	0.062	0.051	0.062	0.068	0.061	0.03
	[0.045,0.057]***	[0.041,0.065]***	[0.052,0.073]***	[0.039,0.063]***	[0.051,0.072]***	[0.053,0.084]***	[0.047,0.076]***	[0.014,0.046]***
P50	0.051	0.053	0.062	0.052	0.063	0.068	0.061	0.032
	[0.045,0.057]***	[0.041,0.064]***	[0.052,0.072]***	[0.040,0.063]***	[0.052,0.073]***	[0.053,0.083]***	[0.047,0.075]***	[0.016,0.048]***
P75	0.052	0.053	0.061	0.052	0.064	0.067	0.061	0.033
	[0.046,0.058]***	[0.041,0.065]***	[0.051,0.072]***	[0.040,0.064]***	[0.053,0.075]***	[0.052,0.083]***	[0.047,0.076]***	[0.017,0.050]***
No qualification	20-24 males				20-24 females			
	Other	Sole Maori	Maori + other	Pacific	Other	Sole Maori	Maori + other	Pacific

P25	0.218	0.211	0.184	0.176	0.278	0.338	0.309	0.283
	[0.205,0.232]***	[0.179,0.243]***	[0.160,0.209]***	[0.143,0.209]***	[0.261,0.296]***	[0.305,0.371]***	[0.282,0.335]***	[0.245,0.322]***
P50	0.218	0.209	0.186	0.175	0.28	0.338	0.311	0.284
	[0.205,0.232]***	[0.178,0.241]***	[0.162,0.211]***	[0.142,0.207]***	[0.263,0.297]***	[0.305,0.370]***	[0.286,0.337]***	[0.246,0.323]***
P75	0.218	0.208	0.188	0.174	0.282	0.337	0.315	0.285
	[0.205,0.232]***	[0.176,0.240]***	[0.164,0.213]***	[0.141,0.207]***	[0.265,0.299]***	[0.304,0.370]***	[0.290,0.341]***	[0.247,0.324]***
Bachelor's degree and above	20-24 males				20-24 females			
	Other	Sole Maori	Maori + other	Pacific	Other	Sole Maori	Maori + other	Pacific
P25	-0.012	-0.026	-0.011	-0.009	-0.022	-0.009	-0.019	-0.016
	[-0.022,-0.002]*	[-0.081,0.030]	[-0.048,0.026]	[-0.055,0.038]	[-0.035,-0.009]***	[-0.071,0.052]	[-0.058,0.021]	[-0.066,0.034]
P50	-0.012	-0.028	-0.027	-0.018	-0.023	-0.034	-0.021	-0.018
	[-0.022,-0.002]*	[-0.083,0.028]	[-0.064,0.010]	[-0.064,0.028]	[-0.036,-0.010]***	[-0.098,0.030]	[-0.061,0.018]	[-0.068,0.033]
P75	-0.013	-0.03	-0.047	-0.027	-0.024	-0.059	-0.024	-0.019
	[-0.023,-0.003]*	[-0.086,0.026]	[-0.089,-0.005]*	[-0.079,0.025]	[-0.037,-0.011]***	[-0.129,0.012]	[-0.064,0.016]	[-0.070,0.031]

Note: *This table presents the marginal effect of selected variables has over the likelihood of being LT-NEET at different Meshblock percentiles of socioeconomic deprivation score. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C12: Marginal effects at different percentiles of parental Area Unit deprivation scores

	20-24 females			
Parent	Other	Sole Maori	Maori + other	Pacific
P25	0.353	0.303	0.329	0.376
	[0.341,0.364]***	[0.286,0.320]***	[0.314,0.344]***	[0.353,0.399]***
P50	0.352	0.304	0.329	0.376
	[0.341,0.364]***	[0.287,0.321]***	[0.314,0.345]***	[0.353,0.399]***
P75	0.352	0.304	0.33	0.375
	[0.341,0.364]***	[0.287,0.322]***	[0.314,0.345]***	[0.352,0.398]***
No qualification	20-24 females			
P25	0.295	0.338	0.312	0.314
	[0.277,0.313]***	[0.306,0.371]***	[0.286,0.337]***	[0.271,0.356]***
P50	0.296	0.339	0.312	0.314
	[0.277,0.314]***	[0.306,0.371]***	[0.286,0.337]***	[0.272,0.357]***
P75	0.297	0.339	0.311	0.315
	[0.278,0.315]***	[0.306,0.372]***	[0.285,0.337]***	[0.272,0.358]***
Bachelor's degree and above				
P25	-0.027	-0.018	-0.018	-0.027
	[-0.040,-0.014]***	[-0.080,0.044]	[-0.058,0.021]	[-0.078,0.024]
P50	-0.027	-0.018	-0.018	-0.028

	[-0.040,-0.014]***	[-0.080,0.044]	[-0.058,0.021]	[-0.079,0.023]
P75	-0.027	-0.018	-0.018	-0.028
	[-0.040,-0.014]***	[-0.080,0.044]	[-0.057,0.022]	[-0.079,0.023]

Note: *This table presents the marginal effect that selected variables have over the likelihood of being LT-NEET at different parental Area Until percentiles of socioeconomic deprivation score. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

Table C13: Marginal effects of holding a driving licence and qualifications for mothers and non-mothers

	15-19 females				20-24 females			
Driver licence	Other	Sole Maori	Maori + other	Pacific	Other	Sole Maori	Maori + other	Pacific
Non-mothers	-0.023	-0.09	-0.052	-0.028	-0.075	-0.135	-0.119	-0.063
	[-0.026,-0.020]***	[-0.103,-0.076]***	[-0.061,-0.043]***	[-0.038,-0.019]***	[-0.081,-0.069]***	[-0.155,-0.114]***	[-0.134,-0.103]***	[-0.077,-0.050]***
Mothers	-0.082	-0.081	-0.155	-0.14	-0.13	-0.088	-0.104	-0.15
	[-0.148,-0.017]*	[-0.143,-0.019]*	[-0.218,-0.093]***	[-0.241,-0.040]**	[-0.151,-0.108]***	[-0.113,-0.064]***	[-0.129,-0.079]***	[-0.182,-0.118]***
	20-24 females							
Driver licence	No educational qualification				Bachelor's degree and above			
	Other	Sole Maori	Maori + other	Pacific	Other	Sole Maori	Maori + other	Pacific
Non-mothers	0.279	0.357	0.341	0.279	-0.02	0.012	-0.008	-0.003
	[0.259,0.300]***	[0.315,0.400]***	[0.308,0.375]***	[0.233,0.325]***	[-0.032,-0.007]**	[-0.049,0.073]	[-0.047,0.032]	[-0.053,0.047]
Mothers	0.284	0.323	0.284	0.291	-0.157	-0.152	-0.202	-0.203
	[0.260,0.308]***	[0.287,0.360]***	[0.253,0.315]***	[0.245,0.337]***	[-0.199,-0.115]***	[-0.247,-0.057]**	[-0.280,-0.124]***	[-0.310,-0.095]***

Note: *This table presents the marginal effect of selected variables over the likelihood of being LT-NEET for mothers and non-mothers. Robust Standard errors are used (WH). Robust standard errors are in brackets (*** p<0.01, ** p<0.05, * p<0.1).*

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