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INNOVATION & EMPLOYMENT**
HĪKINA WHAKATUTUKI

Not in employment, education or training: the long-term NEET spells of young people in New Zealand

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Abstract

This paper uses longitudinal data from the Survey of Families, Incomes and Employment to examine the patterns and duration of NEET spells – episodes of being ‘Not in Employment, Education or Training’ – among young people in New Zealand. The data cover the period from 2002 to 2010. We find that that majority of young people were NEET for short periods while in their teens or early 20s and at least 25–30 percent experienced a long-term NEET spell (lasting for six months or longer). Long-term NEET spells were particularly common among early school leavers, those with low school qualifications and teenage parents, and were more frequent than average among those from lower socio-economic backgrounds. Conditional on having a long-term spell, total durations of inactivity were also higher among the higher-risk groups. During a 3–4 year follow-up period, average NEET rates declined sharply but the teenagers who had had a long-term NEET spell remained more likely than other teenagers to have further periods of inactivity.

Executive summary

This paper examines the patterns and durations of NEET among young people in New Zealand, using longitudinal data from the Survey of Incomes, Family and Employment (SoFIE) covering the period from late 2001 to 2010. Youth are considered to be 'NEET' or 'inactive' when they are not in employment and not in formal education or training.

Currently New Zealand's youth NEET rates are monitored using statistics from the quarterly Household Labour Force Survey (HLFS). These statistics measure the total percentage of young people who were NEET in a particular reference week, and make no distinction between short-term and long-term NEET spells. This is an important limitation because short periods of inactivity are relatively common and are not likely to be particularly harmful. Short periods of inactivity are often an unavoidable by-product of transitions between jobs, between courses, or between tertiary study and employment.

This research uses longitudinal data to examine young people's NEET patterns and durations over periods of up to six years. It analyses the proportion of young people who spend extended periods of time inactive, their characteristics and their post-NEET outcomes.

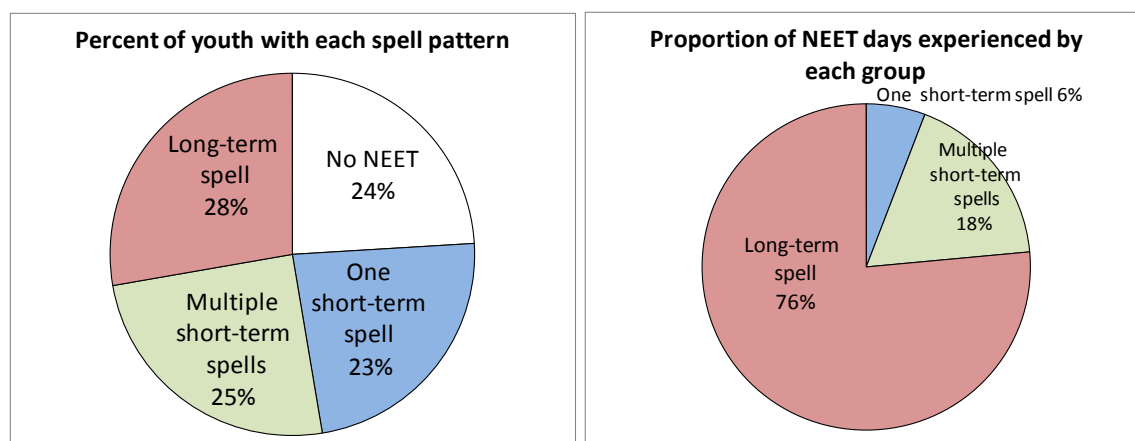
Long-term NEET rates and patterns

Using longitudinal data to track young people's activities it is possible to see that a much higher proportion of young people are NEET at some time during their late teens and early twenties, than are inactive in any given week.

The following results focus on the six-year period between the 16th and 22nd birthday. Results for other time periods and age groups are given in the paper. Long-term NEET spells are defined as those lasting for six months or longer.

- Approximately three-quarters of youth had at least one NEET spell, lasting for a week or longer, during the six years they were aged 16–21. Most of these spells were short in duration. This result suggests that the majority of young people are likely to be NEET at some time during their late teens or early 20s.
- Twenty-eight percent had at least one long-term NEET spell during the six years they were aged 16–21.
- The young people who experienced at least one long-term NEET spell while aged 16–21 years spent a total of 1.2 years inactive, at the median.
- While only around one quarter had a long-term NEET spell during the observation window, this group were responsible for around three-quarters of all NEET days experienced by young people at 16–21 years (see Figure 1). The concentration of the 'burden' of NEET highlights the value of focusing on the minority of young people who have long-term spells.

Figure S1: Longitudinal NEET patterns during the six-year period from the 16th to 22nd birthday



- Early school leavers, teenage parents, Māori and Pacific youth and those who lived in neighbourhoods of lower socio-economic status had higher than average rates of long-term NEET. If we consider the period from 16–21 years, for example:
 - about 60 percent of those who left school without any qualifications had a long-term NEET spell, compared with about 20 percent of those who left school with either level 2 or level 3 school qualifications
 - about 85 percent of all youth and 95 percent of females who had a child in this period had a long-term NEET spell, compared with about 25 percent of those who remained childless
 - about 40 percent of Māori youth had a long-term NEET spell, compared with about 25 percent of European youth.
- While there were large differences between educational and socio-demographic groups in the incidence of long-term NEET, a minority of young people in all groups and at all levels of school attainment experienced long-term NEET spells.
- Conditional on having a long-term NEET spell, young people from the higher-risk groups (such as early school leavers, young parents and those of Māori or Pacific ethnicity) also tended to spend significantly greater amounts of time inactive than young people from lower-risk groups.
- Around one-quarter of young people did not have any long-term NEET spells but had multiple short-term spells while they were aged 16–21 years. Very few of these individuals were inactive for long periods in total, however, suggesting that having multiple short-term spells is unlikely to pose the same risks as having one or more long-term spells.

Teenagers with long-term NEET spells

- The characteristics and outcomes of teenagers who had a long-term NEET spell before their 20th birthday were examined in more depth in the research. Approximately 20 percent of the young

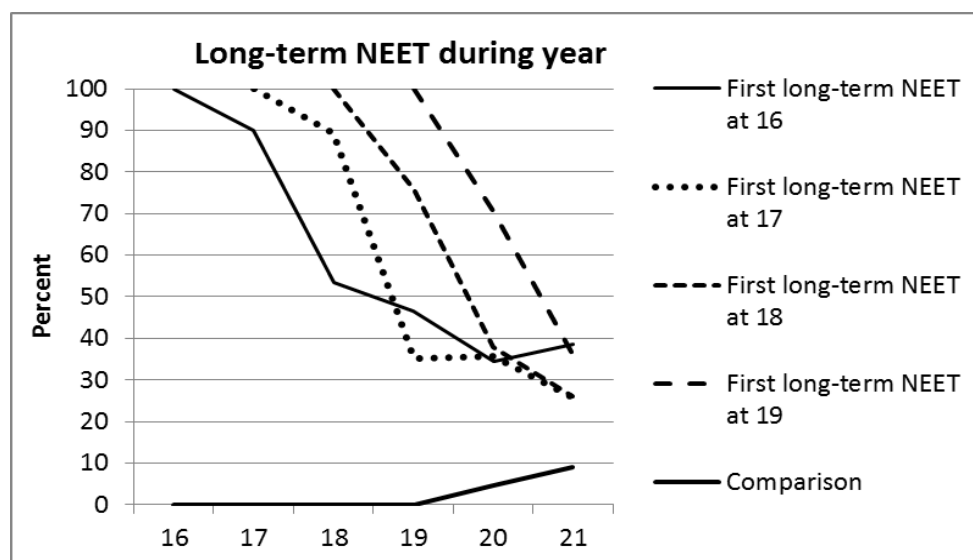
people who could be observed in SoFIE from their 16th to 20th birthday had a long-term NEET spell in this period.

- Several indicators of family and neighbourhood ‘disadvantage’ at 16 years were statistically associated with a higher likelihood of long-term NEET at 16–19 years, including living in a neighbourhood with a high NZ Deprivation Index score, living in a rental property, and living with a non-working parent. Māori youth also had a higher likelihood of long-term NEET at ages 16–19 than Europeans.
- Leaving school without completing any qualifications or with a level 1 qualification only and becoming a parent at ages 16–18 were also associated with a significantly higher likelihood of being long-term NEET at 19 years of age.
- About two-thirds of the young people who had long-term NEET spells as teenagers enrolled in post-school education or training before the age of 20, suggesting many wanted to improve their qualifications. About 80 percent undertook some paid employment, and half worked for a year or more in total before the age of 20.

Outcomes of teenagers with long-term NEET spells

- The teenagers who had a long-term NEET spell before their 20th birthday were increasingly likely to be engaged in work or education, and not inactive, during the following 3-4 years. In the second follow-up year less than half were long-term NEET. At the same time, a substantial minority did experience further NEET spells (see Figure 2).

Figure S2: Long-term NEET rates at each year of age



- Tracking the outcomes of teenagers whose first long-term NEET spell began at 15, 16 or 17 years, we found that, in the third follow-up year after the year the first spell began:

- 25–45 percent had a long-term NEET spell (either a new one or a continuation of the first)
- 25–50 percent participated in some form of study or training towards a qualification
- on average, these young people were employed for about 60 percent of the year.
- Despite substantial increases in activity rates, the young people who had been long-term NEET during their teens remained less likely to study or train, less likely to be employed, and more likely to have further periods of NEET, at 20 and 21 years of age, than the young people who avoided long-term NEET.
- The activity rates of the teenagers who began their first long-term NEET spell at 15, 16 or 17 years of age were somewhat slower to recover than the activity rates of those whose first long-term NEET spell began at 18 or 19 years. Early school leavers may have characteristics or circumstances that put them at greater risk of persistent inactivity.

Limitations of the research

This paper is intended to provide an exploratory analysis of individual characteristics that are statistically associated with long-term NEET spells, using the measures available in SoFIE. While some of those measured characteristics may operate as risk factors, increasing the likelihood of inactivity, others may be statistically correlated without being true causes. The findings should therefore be interpreted in the context of other New Zealand and international research evidence on young people's developmental outcomes and transitions from school to employment. For example, the literature suggests negative experiences at school and negative attitudes to school play an important role in decisions to leave secondary school at an early age, and are therefore among the potential causes of young people becoming NEET at 15–17 years.

Due to the small sample sizes that are available in the data source, the statistics given in this paper should be treated as indicative rather than precise and reliable.

Due to the biasing effects of attrition from the survey, the statistics given in this paper are likely to underestimate the true rates of long-term NEET among New Zealand's youth. The likely rate of underestimation is discussed in the paper.

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1. Introduction

Young people who are not employed or participating in formal education or training are classified in New Zealand as 'NEET' (short for not in employment, education or training). This paper makes use of a unique and relatively new data source to examine youth inactivity¹ patterns. Using data from the Survey of Incomes, Family and Employment (SoFIE), the paper investigates the incidence of youth inactivity, including age-specific rates, spell durations and patterns of repeat spells; characteristics that are associated with a higher likelihood of long-term NEET spells at ages 16–19; and the changes in activity and inactivity rates that follow a long-term NEET spell.

Previously published measures of young people's NEET rates in New Zealand have relied on cross-sectional survey data from the Household Labour Force Survey (HLFS). These statistics measure the proportion of youth who were not in employment, formal education or training in a particular week. They show that, between 2004 and 2012, 8–10 percent of 15–19 year olds and 14–18 percent of 20–24 year olds were NEET on average. These youth NEET rates rose by 3–4 percentage points after the start of the Global Financial Crisis and, in 2012–13, were still at higher levels than before the recession but were declining. International comparisons indicate that, in 2011, New Zealand had moderately high but not extremely high youth NEET rates.²

An important limitation of the official youth NEET statistics is that short spells of inactivity are likely to be fairly common but not particularly harmful. Policy concerns focus on the anticipated negative effects of long-term inactivity spells, such as the loss of opportunities to acquire work skills and work experience or the risk of psychological harm. The desire for better information on the incidence and duration of long-term NEET is the main motivator for this paper.

The paper begins by reviewing New Zealand and international literature on the topic. There is a useful body of recent British research on the characteristics, circumstances and aspirations of NEET teenagers and their barriers to further education or employment. The programme evaluation literature also provides some useful evidence on 'what works' for NEET youth. We reference and briefly summarise some of the most relevant studies.

The paper has two main sections of empirical results. The first provides an overview of the NEET patterns of all 16–24 year olds. The second looks at the incidence of long-term NEET at ages 16–19 and the subsequent outcomes of the teenagers who had long-term NEET spells.

The data analysis considers questions such as:

- How common are short-term and long-term NEET spells?
- Which individuals and groups have the highest incidence of NEET, when we track their experiences over several years?
- What are the characteristics of the young people who have long-term NEET spells at ages 16–19?

¹ 'NEET' and 'inactivity' are used as synonyms in this paper.

² Using OECD NEET statistics for 2011, New Zealand ranked at 22 out of 31 countries on the lowest NEET rate for 15–19 year olds and at 15 out of 32 on the lowest NEET rate for 20–24 year olds. The figures are from the OECD publication *Education at a Glance 2013*, Table C5.2d (OECD, 2013).

- What are the pathways from school to NEET to other activities for this group?
- How quickly do the activity rates of teenagers improve in the 3–4 years after a long-term NEET spell?

The findings of the paper could be used as background information for future monitoring of youth inactivity rates and future evaluations of youth-focused policy interventions.

Section 2 reviews the literature. Section 3 outlines the data and methods and gives information on data limitations. This is followed by the main results in sections 4 and 5. In the conclusion, we discuss the implications of the findings.

2. Literature on youth inactivity

Our literature scan focuses mainly on research undertaken in New Zealand and recently published British research. It is organised using the following themes:

- Evidence on the incidence and duration of youth NEET spells.
- Evidence on the causes or risk factors for inactivity spells.
- Evidence on the long-run impacts of youth inactivity.
- Evidence on policy interventions.

2.1 Evidence on the incidence and duration of youth NEET spells

New Zealand

Three longitudinal data sources have been used to study youth unemployment and youth inactivity in New Zealand during the past decade: the Christchurch Health and Development Study (CHDS), the Survey of Families, Incomes and Employment (SoFIE) and the Competent Learners study.

Hill (2003) and Maloney (2004) analysed data from the Christchurch Health and Development Study (CHDS), a birth-cohort study of approximately 1,200 children who were born in the Canterbury region in 1977. Hill's analysis identifies the proportion of CHDS sample members who were inactive for at least six months in total – cumulatively – during the five-year period from their survey interviews at 16 and 21 years of age. This measure of the incidence of long-term NEET differs from a spell-based measure by including people with multiple shorter spells that sum to six months or longer. She reports that 29 percent of youth were NEET for more than six months during this five-year period and 18 percent were NEET for more than 1 year. The incidence of long-term NEET was significantly higher for Māori and Pacific youth, for children living in single-parent families, for children with lower scholastic ability scores and for children who left school with no qualifications or school certificate only. Around 15 percent of those who completed upper secondary school qualifications were NEET for six months or more by their 21-year interview, compared with 78 percent of those who left school without qualifications.

Maloney (2004) uses CHDS to examine the extent to which economic inactivity at ages 16, 18 and 21 influences the probability of being economically inactive at age 25. Economic inactivity was measured at the time of each interview rather than longitudinally. Nearly four-fifths of the young people in the CHDS sample were never economically inactive at the time of their interviews at ages 16, 18, 21 and 25. However, those who were inactive at earlier ages were far more likely to be inactive at later ages, and this relationship was not eliminated by the inclusion of other explanatory variables, including detailed measures of personal and family background.

An analysis of youth NEET rates using data from the first three waves of SoFIE (2002–04) was included in the OECD report *Jobs for Youth: New Zealand* (2008), drawing on results provided by the Department of Labour. Of the 12.4 percent of 15–24 year olds who were NEET at their interview in 2003, about half were also NEET in 2004 and 30 percent were NEET at three consecutive interview dates (2003–2005). NEET status appeared to be more persistent among the 20–24 year olds than

among 15–19 year olds. A proportion of youth also experience a recurrence of NEET status. Among those who exited NEET in 2004, 17 percent had become NEET again by 2005.

Wylie and Hodgen (2011) report that 11 percent of the young people in the Competent Learners sample, a longitudinal study of young people in Wellington, had experienced unemployment (periods when they were neither working nor studying) between the ages of 16 and 20.³ Low family income and low maternal qualifications were the social characteristics most associated with unemployment between the ages of 16 and 20 in this sample (p103). Unemployment was more likely if the young person's family had low incomes when they were aged 5, 14 or 16. Eighteen percent of the unemployed had mothers with a senior school or tertiary qualification, compared with 43 percent of those who had not experienced a period of unemployment.

Australia

Hillman (2005) studied young people who were not in full-time education or the labour force for at least one month, using data from the Australian Longitudinal Youth Surveys. The study population was first interviewed at approximately 16 years of age in 1997, and re-interviewed each year for the following six years until 2003. Note that this study population is somewhat different from the group that is normally defined as NEET in New Zealand, because unemployed youth were excluded and those who were studying part-time but not working were included.

Even excluding summer breaks between two spells of education, close to two-thirds (over 64 percent) of these young Australians spent some time outside the labour force and full-time education in the period from 16–22 years. For the majority, the period of time outside the labour force and full-time education was quite short, around one month.

Young people who had not achieved highly at secondary school, did not have a Year 12 certificate, were female or had a health problem or disability were more likely to have extended periods of time (defined as longer than 12 months) outside the labour force and full-time education. Marital status (being married) and parental status (having a child) were also associated with spending extended periods of time outside the labour force and full-time education.

Britain

Crawford, Duckworth, Vignoles and Wyness (2011) analyse longitudinal data on youth transitions from three British surveys, focusing specifically on the period from 16/17 to 18/19 years. They find evidence of substantial persistence in NEET status from one year to the next, as well as substantial change. For example, 40 percent of young people surveyed in the Longitudinal Survey of Young People in England who were NEET when interviewed at 16/17 years of age were also NEET one year later, 44 percent were in work and 18 percent had returned to full-time study (p36). Almost half of those who were NEET when interviewed at 17/18 years were NEET one year later (ibid, p37).

³ The Competent Learners sample is not representative of the national population; it has higher proportions of young people from higher-income families with somewhat higher levels of maternal qualifications and lower proportions of Māori and Pasifika than the national picture (Wylie and Hodgen, 2011, p1). This helps to explain the relatively low proportion of the sample that had experienced unemployment by age 20.

2.2 Evidence on the risk factors for becoming and remaining NEET

New Zealand

Wylie and Hodgen (2011) report that the young people in the Competent Learners study who experienced periods of unemployment between the ages of 16 and 20 had lower average competency scores by age 8. This is true of both their composite levels of cognitive skills (literacy, vocabulary, writing, mathematics and logical problem solving) and their composite levels of attitudinal skills (perseverance, communication, social skills, curiosity and self-management). The gaps widened at ages 10, 12, 14 and 16. Experiencing unemployment was associated with lower levels of school engagement at 14 years (p106). At age 14, risky behaviour was more likely, as was parent-child friction. This group was more likely to have been involved in bullying. A similar pattern was apparent at age 16 (p106), with the group that experienced unemployment at a later age having lower scores on measures of school engagement, satisfaction with subject mix, absorption in learning and attitude to school work. Attendance rates were lower. Members of the group were much more likely than other young people to leave school before 17 and more likely to leave without completing a qualification.

Forty-four percent of those who experienced a period of unemployment had gained a post-school qualification by the age of 20; these were chiefly qualifications at NQF levels 1–3 (p108). A relatively high proportion (42 percent) had started but left a course without completing it. Their reasons included finding the course too difficult and not doing well in it, losing interest, not finding the content or teaching enjoyable and personal reasons (p108).

Britain

Recent British studies highlight the importance of young people's experiences at school, levels of achievement at school and attitudes to learning in influencing the likelihood of them becoming and remaining NEET (for example, Callanan and Morrell, 2012; Chowdry, Crawford and Goodman, 2009; Crawford et al, 2011; NIACE, 2013). Family circumstances, including parents' educational levels, incomes, employment situation and attitudes about work and education, have been found to influence young people's decisions on whether and how long to remain at school. In addition, one study offers evidence of neighbourhood effects on the likelihood of leaving school early and becoming NEET (Chowdry et al, 2009).

A separate line of research on 'vulnerable' or 'at risk' young people in Britain has explored the joint incidence of different kinds of disadvantage, and this literature offers insights into the co-related disadvantages – behavioural or emotional – that can also prevent some young people from sustaining jobs or post-school education.

Crawford et al (2011) is an example of the first type of study. Drawing on an analysis of data from the Longitudinal Survey of Young People in England, they find associations between scholastic test scores at 11 years and labour market outcomes at 18/19: those who were NEET at 18/19 years had lower test scores at 11 years of age than young people in any other education and employment situation. Young people who reported negative experiences at school and held negative attitudes about school or further education were also significantly less likely to continue on in full-time education at age 17/18 and 18/19. The researchers also identified associations between parents'

occupational status and educational attainment and aspirations and young people's early labour market transitions. For example, the children whose parents had undertaken vocational training were least likely to be in full-time education at 16/17 and at 18/19; rather, these young people tended to opt for earlier entry into the labour market (p7).

Chowdry et al (2009) analyse the determinants of educational success by age 17, using a comprehensive approach designed to measure the influences of schools and neighbourhoods, parental education, parents' attitudes and behaviours, educational resources at home and young people's own attitudes and behaviours. One of their outcome measures is whether the young person was NEET at 17 years. Neighbourhood deprivation and the young person's own educational values are found to be among the best predictors of being NEET at 17. Young people who lived in relatively deprived areas were more likely than those who lived in less-deprived areas to be NEET at 17, after accounting for differences in their own socio-economic position (p37). Young people who disliked school at 14 or stopped liking it by 16 years also tended to make less progress in their learning between 14 and 16 and were more likely to be NEET at 17 (p37).

Callanan and Morrell (2012) used qualitative research methods to capture young people's own accounts of the processes through which they became NEET. Key themes from these results are summarised in the paper as follows.

Young people who preferred to leave school and seek employment at age 16 gave a number of reasons for this. Negative school experiences (including bullying, poor relationships with teachers and peers and disengagement from the school curriculum) deterred them from remaining in education and influenced their decision to look for employment. In some cases, they believed work experience and getting on the career ladder early would result in faster career progression and that work experience was more valued by employers than qualifications... The financial benefits of paid employment were also a key motivator (p22-23).

However, while finding paid employment was the goal, young people also described a number of barriers both in terms of accessing and sustaining paid employment... Employment opportunities were limited in a competitive labour market... These wider structural barriers were in some cases compounded by the young person's low school qualifications, minimal work experience and lack of social networks through which to source job opportunities. Where young people had successfully found work, barriers to staying in employment included short-term temporary contracts and redundancy. In addition to these structural barriers, some participants described how poor motivation led to poor attendance and dismissal (p23).

The young people also described various barriers to taking up and sustaining education and training opportunities.

...poor school experiences led to low attainment at Key Stage 4. This in turn limited the options available both in terms of provider and type of course studied. Negative experiences of school also deterred young people from seeing further education and training in a positive light... Unclear plans and aspirations for the future and a lack of awareness of the options available and possible career pathways affected some participants' ability to access

appropriate education and training. Sustaining participation in education was a challenge for some young people who became NEET (p24).

Participants described dropping out of post-compulsory education because they struggled to keep up academically... A lack of support for special educational needs was also raised by some as a reason for failing to stay in post-16 education... Homelessness and family crises were also among the reasons why young people were unable to sustain education and training... Financial barriers were important in some cases. It was common for participants to describe multiple aborted attempts to find and sustain education and training opportunities. (p26).

Turning to the literature on vulnerable youth, Barnes, Green and Ross (2011) analyse the incidence patterns of various indicators of 'disadvantage' at 16/17 years of age to identify the overlapping patterns, using data from the Longitudinal Survey of Young People in England. Being NEET for at least six months of the year while aged 16/17 is one of several indicators of disadvantage they explore. Selecting this subgroup (representing 7.5 percent of all youth) and considering five other indicators of 'disadvantage', the researchers report the following patterns (p31):

- Teenage parenthood – 7 percent were also parents at 16/17 years.
- Emotional health concerns – 28 percent scored 4 or more on the GHQ-12 questionnaire and were therefore classified as having 'emotional health concerns'.
- Criminal activity – 19 percent had been involved in two or more acts of vandalism, graffiti, shoplifting, fighting or carrying a knife.
- Substance misuse – 33 percent regularly drank alcohol or regularly smoked cigarettes and cannabis.
- Low attainment – 56 percent did not gain any basic secondary school qualifications – GCSEs, GNVQs or equivalent qualifications at grades A–C.

On average, the young people who were long-term NEET at 16/17 had two of the above disadvantages.

Considering outcomes at 18/19 years, Barnes et al (2011) find that about 40 percent were also NEET at 18/19 years, around half were claiming benefits and about one in five had children (p64).

An implication of the research on multiple disadvantages is that a minority of teenagers who are NEET are likely to have multiple barriers to employment and further study, which may include behavioural and mental health issues.

2.3 Evidence on longer-run impacts of NEET spells

The youth unemployment literature identifies several reasons why early spells of inactivity might have long-run effects on employment outcomes (Gorlich et al, 2013):

- The loss of opportunities to build skills and work experience at a critical stage in the life cycle causes unemployed youth to fall behind their peers and so harms their future employment outcomes.
- Skills, motivation or confidence may decay during the period of inactivity.

- Employers may view NEET spells as evidence of lower motivation or productivity and be more reluctant to hire a young person who has been unemployed.

Studies that track the experiences of youth with NEET spells, especially long-term NEET spells, generally find that current inactivity is associated with a higher likelihood of inactivity in the future. Typically, this association is reduced, but not eliminated entirely, when statistical adjustments are made for the effects of differences between youth with NEET spells and other youth in a variety of characteristics and prior experiences that are measured in surveys, such as demographic profile, family characteristics, socio-economic background, health or disability status and scholastic aptitude.

Crawford et al (2011) is an example of recent research on post-NEET outcomes. It uses data from the British Household Panel Survey covering the period from 1991 to 2008 and models the likelihood of unemployment. It finds evidence that young people who became NEET either immediately or soon after leaving school had a greater risk of being unemployed both five years and 10 years later (p 60). These young people also had lower wages five and ten years later than other youth (p63). The researchers note that, while there is strong associational evidence, it isn't possible to tell whether the experience of being NEET at an earlier age caused the poorer outcomes or if the youth who became NEET after leaving school simply had characteristics or aspirations that raised their likelihood of being NEET later in their lives.

There is a longer tradition of research on the long-term impacts of youth unemployment spells. The unemployment literature includes studies that have used more sophisticated research designs and methods to identify the causal impacts of unemployment spells. Skans (2004) reviews this literature and concludes that the long-run effects of unemployment spells appear to be smaller for younger adults than for mature adults and estimates of unemployment's scarring effects are upwardly biased whenever the covariate controls or distributional assumptions in the study design fail to control adequately for individual heterogeneity (p7). However, it does appear that scarring is a real phenomenon. Further evidence that youth unemployment can have long-run adverse effects on earnings is reported in Skans (2004), Mroz and Savage (2006) and Cockx and Picchio (2011).

2.4 Evidence on assistance needs and programme effectiveness

A number of recent British studies have explored the learning needs of young people who are NEET or at risk of becoming NEET at 16/17 years to assess their reasons for becoming disengaged in education and what would help them participate more successfully in post-school learning. Another branch of the literature reviews the effectiveness of past policies and programmes for young people who are at risk of sustained NEET.

NIACE (2013) explores the motivations for and barriers to learning in the NEET population, using interview data collected from 800 young people and adults in England who were either NEET or recently NEET. It identifies a range of different levels of motivation and openness to learning within this population, from actively looking for learning opportunities through to having no interest or desire to learn. Practical barriers to learning are also identified. The paper then discusses the different types and levels of assistance required by people with different attitudes and barriers to learning. Spielhofer et al (2009) also explores attitudes and barriers to learning among young people

who were NEET at 16/17 years, using a mix of quantitative and qualitative methods and discusses the implications for matching appropriate assistance.

There have been a broad range of interventions aimed at tackling the issue of youth unemployment and inactivity. Britton, Gregg, Macmillan and Mitchell (2011) and Nelson and O'Donnell (2012) provide reviews of the evidence on programme effectiveness.

Britton et al (2011) identify six broad categories of interventions for the prevention and treatment of youth inactivity: financial payments, vocational education and training, remedial classes, careers guidance and counselling, recovery training programmes and community programmes. The authors summarise their findings as follows:

- The financial payments schemes offer the most rigorous evaluations and therefore allow us to apply heavy weighting to their mostly positive results and state with relative confidence that programs of financial payments tied to participation, attendance and performance are an effective way of improving educational outcomes.
- The availability of rigorously analysed data is not as apparent for other interventions. In the case of vocational education and training, developments are often too recent for thorough analysis, particularly of long term impacts. One exception is the Career Academies program in the US which finds significant long-run effects on employment and earnings. The rationale behind these new training opportunities is persuasive and suggests long-term rigorous analysis of impacts is needed.
- The impact of remedial classes was poorly evaluated in many cases. The fact that these programs cater to students often with multiple social, behavioural and physiological problems, means that identifying and measuring outcomes for such an unconventional and varied pool of individuals can be difficult.
- Evidence from schemes focused on careers advice and counselling in general found weak and short-lived impacts, where available.
- The recovery training programs evidence was more positive, finding improved educational achievement and the higher attainment of qualifications. Furthermore this was found to translate into higher earnings in two of the surveys. It is, however, very expensive.
- Some of the most innovative and engaging interventions are those run by community organisations. Such organisations usually take a more holistic approach, trying numerous different initiatives to address the multidimensional causes of social problems in an area. The real effectiveness of these organisations is hard to gauge however since with just one exception, none of the examples included in this review have been evaluated. (pp3–4)

Britton et al (2011) conclude that financial incentives appear to be an effective way of engaging at-risk individuals. These can take the form of both participation incentives, increasing attendance rates, and outcome-based incentives, rewarding achievement (ibid p71). They also note evidence that any attachment to the labour market, both in the form of work experience but perhaps more importantly through part-time work whilst still at school, is strongly associated with the individual remaining attached to the labour market on completion of formal education. Help in creating this connection to employment while young people are still at school could be a useful form of assistance P71). Because the group who become NEET are often missing basic numeracy and literacy skills, classes that focus on getting the basics right first would provide those most at risk with the

necessary skills needed for future advancement (p71). Non-traditional learning options are likely to be important. Formal apprenticeships with on-the-job training and a direct connection to the world of work could play a useful role in increasing engagement for this group of people (ibid, p71).

2.5 Summary

Some key points from the literature include the following:

- Young people who have had NEET spells, and even those who are NEET for six months or longer, are diverse in their characteristics and needs. Not all of them face significant labour market or educational disadvantages: some are simply considering their options, waiting for a preferred course of study to begin or taking time out from work and study. At the other end of the spectrum, some are likely to have multiple barriers to employment and further education, both practical and behavioural.
- Overseas research points to the value of segmenting the population of youth who are NEET into subgroups to better characterise the different reasons for being NEET and the different skill levels, attitudes and aspirations that exist.
- Negative experiences at school and negative attitudes to school appear to be a common factor for the subgroup of youth who become NEET at 15, 16 and perhaps 17 years. This group is a subset of the wider population of young people who leave school early with limited qualifications. Although many early school leavers do make successful transitions from school to employment, many do not for a range of reasons identified in the literature, such as limited labour market demand, insufficient skills and experience, low motivation, the lack of a clear plan for employment and limited contacts for finding work.
- Studies that track the experiences of youth with NEET spells generally find that current inactivity is associated with a higher likelihood of inactivity in the future. Much of the persistence or recurrence of NEET over time is due to pre-existing characteristics that predispose some people to have poorer employment and educational outcomes. Nevertheless, there is evidence that persistent unemployment or inactivity can have scarring effects, leading to lower earnings in the longer run.
- Programmes for the prevention and treatment of youth inactivity include financial payments, vocational education and training, remedial classes, careers guidance and counselling, recovery training programmes and community programmes. The evidence on 'what works' is patchy but seems to offer some useful lessons for New Zealand.

3. Data and methods

3.1 Data source

The data source is SoFIE, a longitudinal household survey that was designed and administered by Statistics NZ from 2002–2010. SoFIE is currently the only data source in New Zealand that allows long-term NEET spells to be accurately identified. This is because SoFIE gathered data on whether the respondent was studying and whether they were employed in each month covered by the survey.⁴

In SoFIE, a representative sample of around 22,000 New Zealand residents (both adults and children) who lived in private dwellings was selected and interviewed for the first time during the year from 1 October 2002 to 30 September 2003. The response rate at wave 1 was 81 percent. Respondents were reinterviewed at approximately 12-month intervals over the next seven years. At each wave, including the first, data were collected on activities and events during the previous 12 months. As a result, the period covered by the data set begins on 1 October 2001 and ends on 30 September 2010.

Longitudinal data were gathered on demographic characteristics, family relationships, living standards, labour market activity, post-school study and qualifications gained, incomes, health and assets. Information on labour market activity and studying was recorded in longitudinal or spell form.

By wave 8, 74 percent of the wave 1 respondents had been retained in the survey and were still responding. The survey ended after eight waves.

3.2 Definition of ‘inactivity’ or ‘NEET’

We define ‘inactivity’ or ‘NEET’ to mean neither holding a paid job nor studying towards a qualification. This is consistent with the most commonly used international definition. It includes people who were unemployed and searching for work, discouraged job seekers who had given up searching for work and people who were not working or looking for work for other reasons, such as being ill or disabled, having children or other family members to look after, being on holiday or devoting their time to unpaid activities.

We define a short-term NEET spell as one that lasted for at least one week but for less than 26 weeks. A long-term NEET spell is defined as a continuous spell lasting for at least 26 weeks.

Measures of studying in SoFIE

Teenagers who have not left school yet are classified as studying and by definition can’t be inactive (even during the summer holidays). Although the official minimum school leaving age is 16 years, a small group of youth in the survey have school leaving dates that come before their 16th birthday,

⁴ Administrative data from the tertiary education sector record all student enrolments each year but do not record which students continued to study for the rest of the enrolment period and which dropped out. This is an important limitation because drop-out rates are often high.

and some members of this group had NEET spells while aged 15. There are a number of possible explanations. Some children may have moved from a conventional school to another form of education such as correspondence learning, which was classified (perhaps incorrectly) as 'post-school education' in the survey. Some data errors may have occurred through dates being wrongly recorded. Some children may have genuinely left school and stopped participating in any formal education at 15.

All respondents who had left school were asked if they had studied towards a qualification for five hours or more in each month covered by the survey. Specifically, they were asked:

- Between (date) and (date) have you been studying or working towards any qualification?
- Can you tell me in which months you would have spent a total of 5 days or more working towards your qualification?
- In which of those months were you a full-time student?

All episodes of post-school studying, measured in these monthly blocks of studying for five or more hours per month, are counted as educational activity in this paper. The actual start and finish dates within the month were not recorded, and therefore a person who studied for five hours or more is treated as 'active' for the entire month, even if they stopped studying during the month.

The monthly reference period might be expected to lead to higher recorded rates of studying being recorded in SoFIE than in the HLFS, which uses a weekly reference period. However, as shown in Appendix 1, this does not seem to be the case in practice. Studying rates in SoFIE for 20–24 year olds, measured at the time of the interview, are slightly lower than those recorded in the HLFS.

No information was gathered in SoFIE on the type of study or training that was undertaken, the type of tertiary institution attended or the level and subjects studied. However, any qualifications that were completed by respondents were recorded and roughly classified by level.

Measures of employment in SoFIE

Employment spells were measured in SoFIE using a timeline or calendar approach. People were asked a series of questions such as:

- I need to record what activities you have done since (date of last interview). Using this list (showcard), can you tell me what you have been doing?
- Last time we interviewed you, you were working as a paid employee. Are you still doing that? When did you stop doing that?

The actual start and end dates of each paid job were recorded.

In defining activity spells in this paper, no distinction is made between part-time and full-time jobs or between regular and casual jobs. People are treated as 'employed' and therefore economically active whenever they held a job, even if the hours were very low or the work was casual and irregular. While this is very similar to the approach used in the HLFS, a person who held a casual job but did not work in the week of the interview could potentially be classified as employed in SoFIE but non-employed in the HLFS. Employment rates measured in SoFIE are compared with employment rates measured in the HLFS later below and in Appendix 1.

Treatment of people who were overseas

Any periods of time that were spent overseas and recorded as such in SoFIE are as periods of activity and don't contribute to the NEET statistics in this paper.

Treatment of full-time carers

In our definition of NEET, time spent caring for children is counted as inactivity (consistent with the OECD definition).

There are no questions in SoFIE on whether or not a person was spending most of their time caring for their children. Therefore, we can't identify periods of time spent caring. The only way to exclude full-time carers from the analysis is to exclude everyone who was a parent at a given time. This runs the risk of creating significant selection biases if young people who become parents at a relatively young age were already at higher risk of long-term NEET before becoming parents, or were at higher risk regardless of whether or not they were primary caregivers after the birth of their children.

Survey questions on the reasons for leaving a job, for not searching for work and for ceasing to search for work included 'caring responsibilities' as one of the response options. The responses to these questions provide some indirect information on parents' activities. Of the youth who were parents at 20 years of age, 77 percent of the females gave 'caring responsibilities' as one of their reasons for leaving a job or not searching for one at least once, while only 11 percent of the males did so. This suggests there is a stronger case for excluding young mothers from the NEET statistics as a means to exclude full-time carers than young fathers.

3.3 Population of study and analytical sample

The population of study in the first part of the paper is 16–24 year olds. To calculate one-year NEET statistics (reported in Table 1), we use data on all the original sample members (that is, people who fully responded at wave 1 of the survey) who were observed for the full 365 days at each age. To calculate four-year or six-year NEET statistics (reported in Table 2), we use data on the original sample members who responded continuously at the relevant ages for either four or six years.

In the second part of the paper, we focus on 16–19 year olds. The analytical sample for the results in that section is all original sample members who responded continuously from their 16th to their 20th birthdays. Of this more restricted sample of 1,191 people, 273 had a long-term NEET spell at ages 16–19 and 918 did not.

We use the wave 1 weights, because these are the only weights that are available for everyone. A downside of using wave 1 weights is that there is no adjustment for the effects of sample attrition at each subsequent wave. See below for further discussion of attrition rates.

3.4 Sample sizes for longitudinal analysis

A limitation of the data source is that the sample sizes available for longitudinal analysis are relatively low. The number of sample members who provided data for the full year while they were at the target age was 2,563 for 16 year olds, 2,368 for 17 year olds, 2,161 for 18 year olds and 2,036 for 19 year olds. While these are fairly good base samples, the proportion of these teenagers who

were also observed for the whole of the following year is well below 100 percent, and it declines very rapidly with each successive year. This is mainly due to the fact that the survey was only in the field for eight years, and few people were in the age groups of interest for all eight. Attrition from the survey also reduced the length of the longitudinal observation window for many people. Only 363 people supplied data for eight continuous years while they were between their 15th and 25th birthdays, and 556 supplied data for seven continuous years.

Due to the low sample sizes for longitudinal analysis, we pool the data from all waves of the survey in order to obtain the maximum number of individuals at each year of age. We are not able to consider the way in which youth inactivity patterns changed between 2002 and 2010 in any depth (but see Appendix 1 for a rough indication). We examine employment and educational outcomes over relatively short follow-up periods.

Due to the low sample sizes, the statistics given in this paper are not very precisely measured and are subject to relatively large sampling errors. Interpretation should focus on the overall patterns and not the precise numbers.

3.5 Comparing NEET rates in SoFIE with those measured in the HLFS

To assess how accurately NEET spells are measured in SoFIE, we calculate measures of the point-in-time NEET rate for 16–19 and 20–24 year olds using both SoFIE and the HLFS and compare the results. The HLFS is the source of New Zealand’s regularly published youth NEET rates. Details of the comparison and results are given in Appendix 1.

The HLFS and SoFIE estimates of the point-in-time NEET rate for 16–19 year olds are within about 1 percentage point of each other (with the size of the gap varying over time). There is a much bigger difference for 20–24 year olds, however. Compared with the HLFS, SoFIE underestimates the 20–24 year old NEET rate by around 4–5 percentage points.

The main reason for this difference is that the estimated employment rate of 20–24 year olds was several percentage points higher in SoFIE than in the HLFS. Studying rates are broadly similar in the two surveys but slightly lower in SoFIE.

Because we used data supplied at the time of the interview for this comparison, recall biases are probably not playing a significant role. It is more likely that people responded differently because of the different questions in the two surveys or that the higher employment rate in SoFIE is due to different survey response biases. For example, SoFIE may have been less likely to obtain responses from non-employed youth.

3.6 Survey attrition patterns and their impacts on long-term NEET statistics

Longitudinal surveys like SoFIE are affected by sample attrition, when people who responded at the beginning of the survey can’t be recontacted or stop responding before the end. Attrition can be problematic because the likelihood of leaving the survey may vary across a range of unmeasured

(and therefore unknown) characteristics. Attrition can distort the results obtained from analyses of longitudinal survey data but is difficult to fully correct for.

To assess the size and significance of attrition, we selected everyone who was a respondent at wave 1 or the child of a respondent, who should have been surveyed for the entire period when they were aged 16–19 years, if there was no attrition. We analysed their actual response patterns at 16 years and 19 years. The methods and results are set out in Appendix 2.

We find evidence that attrition is more likely for people with characteristics that are also associated with a higher likelihood of long-term NEET. For example, rates of attrition were:

- substantially higher for young people of Māori and Pacific ethnicity than for Europeans
- higher for the younger individuals in our sample, who needed to stay in the survey for longer before reaching their 16th birthday
- substantially higher for children who were living in a rented house at wave 1 (55 percent rather than 27 percent)
- substantially higher for children living in neighbourhoods that were ranked at the top three deciles of the New Zealand Deprivation Index⁵ than for children whose neighbourhoods were ranked at the opposite end of the index
- higher for children who lived in single-parent families at the wave 1 interview date or were not living with a parent at wave 1 than for children in two-parent families
- higher for children whose parent or parents weren't employed at the wave 1 interview date than for children with one or two employed parents in co-residence.

Due to attrition biases, the results reported in this paper are likely to systematically underestimate the true rate of long-term NEET among New Zealand youth in the period of study. The extent of underestimation is not known. Using assumptions and methods that are set out in Appendix 2, we tentatively estimate that the average rate of underestimation (which varies across time) could be 10–15 percent. This implies that, if a long-term NEET rate is reported to be 10 percentage points, for example, the true rate could have been 11.0–11.5 percentage points (10 x 1.10–1.15).

⁵ The New Zealand Deprivation Index 2001 is an index that is constructed at meshblock level, using population census data on the following area indicators: 1) the proportion of people aged 18–59 receiving a means-tested benefit; 2) the proportion of people aged 18–59 who were unemployed; 3) the proportion of people living in equivalised households with income below a certain income threshold; 4) the proportion of people with no access to a telephone; 5) the proportion of people with no access to a car; 6) the proportion of people aged less than 60 living in a single-parent family; 7) the proportion of people aged 18–59 without any qualifications; 8) the proportion of people not living in their own home; 9) the proportion of people living in equivalised households below a certain bedroom occupancy threshold. The index is an ordinal scale ranging from 1 to 10, where 1 represents the areas with the least deprived scores and 10 the areas with the most. See Salmond and Crampton (2002).

4. Youth inactivity rates and spell patterns

We describe the incidence, duration and recurrence of youth NEET spells in this section of the paper. We identify how inactivity patterns change with age and vary across demographic and educational subgroups.

The key questions include:

- How common are short-term and long-term NEET spells?
- Which individuals and groups have the highest incidence of long-term NEET spells and/or spend the greatest amount of time inactive when we track their experiences longitudinally?

We begin by calculating ‘annual’ NEET rates at each year of age, using data on the full 365 days from one birthday to the next. These annual measures of NEET are useful for identifying the age profile of inactivity. Being aware of the age profile may be useful when designing policy interventions. The annual NEET statistics are also fairly reliable because they are based on large samples.

We then adopt a longer timeframe and analyse inactivity patterns over several four-year and six-year observation periods. We calculate the proportion of youth who ‘ever’ had a long-term spell within these longer observation periods. A lengthier observation window clearly provides greater information on inactivity patterns, but it comes at a cost – people who weren’t observed or didn’t respond for the whole period are dropped from the analysis.

4.1 Annual NEET rates by year of age

We calculate the following measures of NEET at each year of age:

1. The proportion who were inactive at the time of their interview (counting all NEET spells lasting at least 7 days).
2. The proportion who were experiencing a long-term NEET spell at the time of their interview.
3. The proportion with any period of inactivity recorded during the year (counting all NEET spells lasting at least 7 days).
4. The proportion who started a new long-term NEET spell at any time during the year, between each birthday.
5. The proportion who started, continued or ended a long-term NEET spell at any time during the year.
6. The proportion who, cumulatively during the year, spent at least 182 days in NEET spells.
7. The median number of days of inactivity during the year for those with at least one NEET spell.

These seven alternative measures are shown in the first panel of Table 1. A selection is plotted in Figure 1a. To ensure they are not distorted by the censoring of any long-term spells that were in operation at the start or end of the observation period for each person, we don’t use the first or last six months of data for each person.

Figure 1: NEET rates by year of age

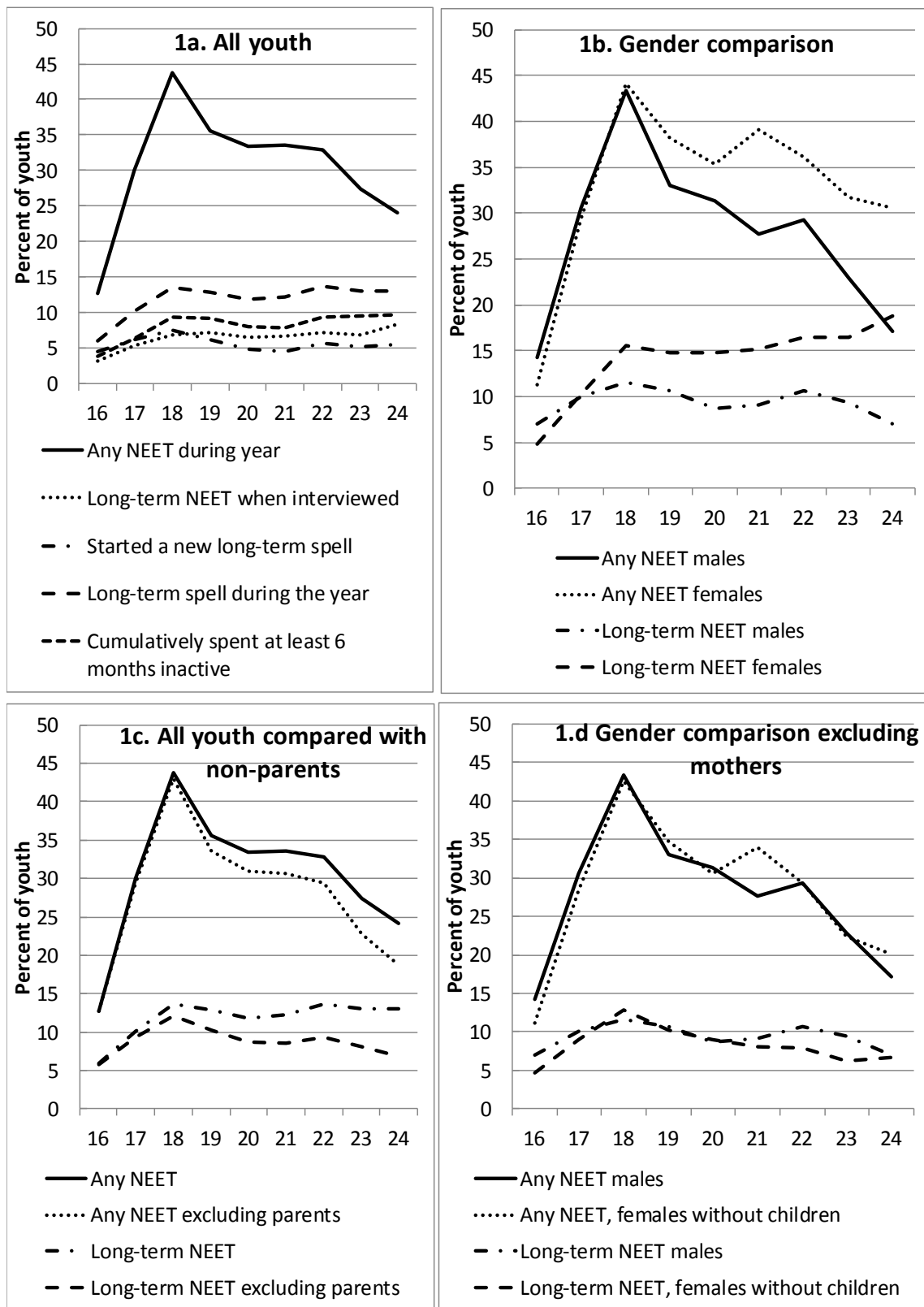
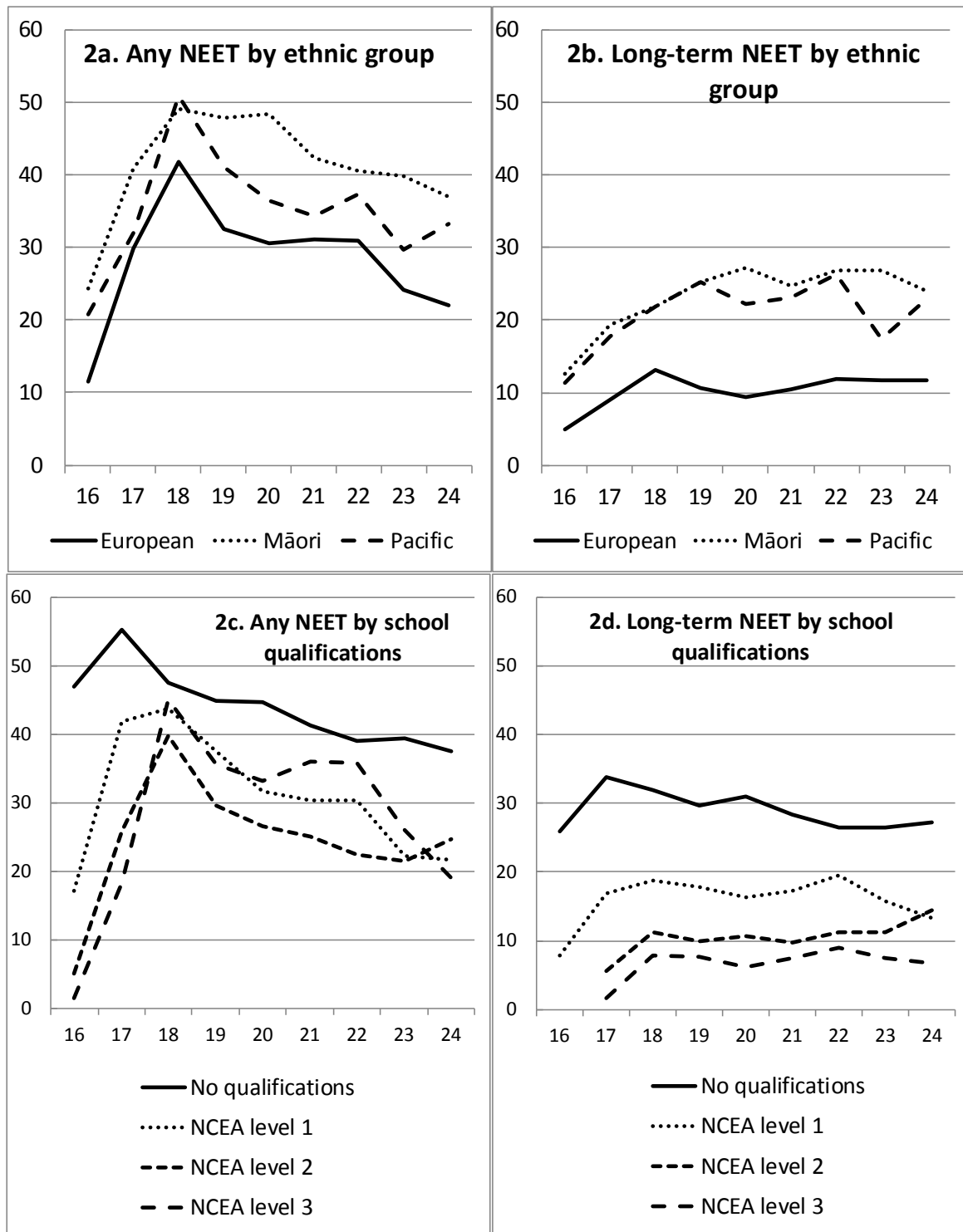


Figure 2: NEET rates by year of age and ethnic group or highest qualification



NEET rates assessed at a particular point in time

The first two rows in Table 1 give the proportions of youth that were (a) NEET and (b) long-term NEET at the time of their interview, at each year of age. The first measure is similar to the 'official' NEET rate that is regularly obtained from the HLFs. By calculating it at each year of age, we provide an age profile of the incidence. The proportion of young people who were NEET at the time of their interview was 4.4 percent at 16 years, rising to 11.6 percent at 18 years and stabilising at around 10 percent over the 20–24 year age range.

The proportion who were experiencing a long-term NEET spell at the time of their interview was 3 percent at 16 years, rising to 7 percent at 19 years and then remaining fairly constant over the 20–24 year age range.

A comparison of these two cross-sectional NEET rates indicates that about two-thirds of the people who were NEET at a given point in time (their interview date) were experiencing a long-term NEET spell. The long-term:total ratio is fairly high because long-term spells are more likely to be in operation on a random day of the year than short-term spells, even though short-term spells are more common.

Annual NEET rates using data for the full year between birthdays

The remaining measures in Table 1 use a one-year reference period, where the year is defined by the date of the birthdays of each person.

If we consider the year as a whole, a far higher proportion of young people experienced a NEET spell than were inactive at a particular point in time. The fraction with any NEET during the year was 13 percent at 16 years, rising to 44 percent at 18 years. At 19–22 years, about one-third of youth experienced a NEET spell during the year. By 24 years, the rate is down to about one-quarter.

Four different 'annual' measures of long-term NEET are given in the fourth to seventh rows of the table. These alternative measures of long-term inactivity give a reasonably wide spread of results, as illustrated in Figure 1a, but they move in the same direction with increasing years of age.

We use the proportion that started, continued or ended a long-term NEET spell at any time during the year as our preferred measure of long-term NEET for the rest of the discussion in this section. This captures the most commonly-used concept of long-term NEET – having a continuous spell lasting at least six months. It is the highest of the four annual measures of long-term NEET.

Using this measure, the percentage of youth who had a long-term inactivity spell falling into the interval between their birthdays rises from 6 percent at 16 years to 14 percent at 18 years and then remains fairly flat at around 12–14 percent from 19 through to 24 years.

Groups with higher long-term NEET rates

Gender differences in both total and long-term NEET rates start to emerge at 18 years and increase in size with increasing age. At 24 years of age, for example, 19 percent of females had a long-term NEET spell, compared with 7 percent of males. The male and female rates are shown in Figure 1b.

Long-term NEET rates calculated before and after excluding parents are shown in Figure 1c and 1d. The impact of excluding parents is minor at younger ages when very few people had children, but it becomes increasingly important when we consider people in their 20s.

Figure 1d shows that the male and female rates calculated after excluding parents are much closer together than the long-term NEET rates for all males and females. There is little doubt that the direct impact of children on the employment and studying rates of young mothers is likely to be a major driver of the total male-female difference in NEET rates. However, we caution that excluding young mothers from the sample could also exclude many individuals who were at risk of NEET for other reasons. There is some very sketchy evidence suggesting that the young women in the SoFIE sample who became teenage parents had higher risks of NEET beforehand. Considering those who had their first child at 18 years of age, we find that 55 percent had some inactivity at 17 years. Considering those who became parents at 19 years of age, we see that 43 percent were inactive at 17 and 47 percent at 18.

In Table 1 and Figure 2, we compare the total NEET and long-term NEET rates of different ethnic groups (2a and 2b) and young people with different levels of completed school qualifications (2c and 2d). Both total and long-term NEET rates are substantially higher for the Māori and Pacific ethnic groups than for Europeans. At 19 years, for example, about 25 percent of Māori youth and 25 percent of Pacific youth had a long-term episode, compared with 11 percent of European youth.

While the total NEET rate for Māori youth is generally about 1.5 times the European rate, the long-term NEET rate for Māori youth is 2–2.5 times the European rate. The same pattern of greater ethnic disparity in long-term NEET is found if we compare the rates for Pacific and European youth.

Youth are grouped by the highest school qualification completed at the time of leaving school in Figure 2c and 2d. Those with no qualifications have the highest total NEET rates, with those who completed NCEA level 3 coming second. The relatively high total NEET rates of this latter group may be due to higher tertiary study participation rates, which may influence the likelihood of short-term spells being experienced at various points of transition between study and employment.

In contrast, there is a simple and strong negative relationship between school qualifications and long-term NEET rates – individuals with the highest school qualifications have the lowest rates of long-term NEET. At 19 years, for example, the long-term NEET rate was 30 percent for youth with no school qualifications and 8 percent for youth with NCEA level 3.

Time spent inactive per year

Median days of inactivity over the whole year, for those with at least one spell of NEET, were typically around 60–90 days (shown in the bottom panel of Table 1). These durations rise over time for females (but not childless females).

Women with children spent far more time inactive than other young people. Three other groups that stand out as having higher than average NEET durations are Māori, those with no school qualifications and those whose highest school qualification was level 1 NCEA. At 19–23 years of age, the youth in these groups that had at least one NEET spell were inactive for more than 100 days of the year, at the median.

4.2 Patterns of inactivity measured over four or six years

To measure patterns of inactivity over longer periods of time, we consider four subsamples of youth:

- Those who responded for four continuous years while they were aged 16–19.
- Those who responded for four years while aged 18–21.
- Those who responded for four years while aged 20–23.
- Those who responded for six years while aged 16–21.

These samples are overlapping. For example, the members of the fourth sample are also members of the first and second samples, along with other people who were observed for the four years of interest, but not the full six. The number of people in each subsample is shown in Table 2.

We divide each of these subsamples into four subgroups based on the following inactivity patterns:

- No NEET spells during the entire period.
- One short-term spell only (where ‘short-term’ means at least 7 days but less than six months).
- Multiple short-term spells (none lasting for six months or longer).
- One or more long-term spells.⁶

Table 2 presents summary measures of the NEET patterns of the young people in each age group. More detailed results, broken down by various demographic and educational characteristics, are given in Tables A3.1–A3.4 in Appendix 3.

How common are long-term NEET spells?

In each age range, a clear majority of young people experienced at least one NEET spell during the period considered. Considering 16–19 years of age, for example, around one-third (37 percent) had no NEET spells, while the other 63 percent had at least one spell. Twenty-eight percent had just one NEET spell lasting for less than 6 months, and the rest either had multiple short-term spells (17 percent) or at least one long-term spell (19 percent).⁷

In each of the four-year periods considered, about 20 percent of the youth had at least one long-term NEET spell.

During the six-year period when young people were aged from 16–21 years, 76 percent had at least one NEET spell and 28 percent had at least one long-term spell.

How long are young people inactive for?

There is great diversity in the amount of time that different groups of youth spent inactive during a four-year or six-year period. This is illustrated in both Table 2 and Table 3.

At 16–19 years, for example, the median number of days of NEET for everyone – including those with no spells – is 40. Therefore, a ‘typical’ teenager spent about 40 days in total not working or

⁶ There were relatively few youth with two or more long-term spells over a four-year period, and therefore we do not separate them from individuals with just one long-term spell.

⁷ Note that most teenagers were still at school at the beginning of this period, preventing them from having NEET spells at that time.

studying, during the period between leaving school and reaching their 20th birthday. The time spent inactive varied extensively by spell pattern, however. Youth with just one short-term spell were inactive for 45 days at the median. Those with several short-term spells were typically inactive for around 125 days in total. Those with at least one long-term spell typically spent more than 400 days without paid work or tertiary study or more than one year out of four. In fact, about 60 percent of the youth in this group were inactive for more than a year in total out of the four years considered.

The NEET duration patterns shown in Table 2 are broadly similar when the periods from 18–21 years and 20–23 years are considered rather than 16–19 years.

If we consider the six-year period when youth were aged from 16–21 years, we can see that those with at least one long-term spell (28 percent of the total) experienced 76 percent of the NEET days recorded for all youth during this period.

Summarising, the majority of young people appear have at least one spell of inactivity while in their late teens or early 20s, but there is great diversity in the times involved. A minority of young people – the results here suggest around 25–30 percent – have at least one spell of six months or longer. Regardless of the exact time period considered, the young people who had at least one long-term spell were responsible for more than 70 percent of all NEET days experienced by all youth in that age interval.

Multiple short-term spells

Depending on the age range considered, about 15–25 percent of young people had several short-term spells without any long-term spells. For this group, the median number of spells during a four-year period was two, and the median number during a six-year period was three.

Very few of the youth with multiple shorter-term spells (all of them under six months) were NEET for a year or longer out of any four-year observation period. The proportion was well under 5 percent. This suggests that having repeated short-term NEET spells doesn't add up to long-term NEET and is unlikely to pose the same risks as having a long-term spell.

Groups with higher rates of long-term inactivity

Table 3 illustrates the variations that were found across demographic groups in the incidence of long-term NEET, using the data covering 16–21 years of age. Alternative results for different age ranges are given in tables A3.1–A3.3 in Appendix 3.

Over this six-year period, the incidence of long-term NEET was higher for females than for males and higher than average for the Māori and Pacific ethnic groups, those who lived in relatively deprived neighbourhoods at 16 years of age, early school leavers, youth with no or low school qualifications when they left school and youth who became parents at an early age. The classification of youth by the deprivation index of their neighbourhood can be regarded as a proxy measure of their family's likely socio-economic status.

The results show, for example, that 50 percent of the youth who left school at 15 or 16, but only 18 percent for those who left school at 18 or 19, had at least one long-term spell between their 16th and 22nd birthdays. Sixty percent of school leavers who left without qualifications, compared with 19 percent of school leavers with NCEA level 3, had a long-term NEET spell. The vast majority – 86

percent – of those who became parents had a long-term NEET spell while in this age group. The socio-economic variations are less pronounced – 35 percent of those who lived in neighbourhoods in the highest three deciles of the NZ Deprivation Index were long-term NEET, compared with 22 percent of those in the least deprived neighbourhoods.

Early school leavers clearly had more time available in which to be NEET than the later school leavers, but the data on NEET spells at ages 20–23 years (Table A3.3) shows that the relationship between school qualifications and long-term NEET continues to hold at these higher ages.

Long-term NEET spells, while not common among young people who did relatively well at school, were still experienced by a minority of those young people. About 20 percent of school leavers with NCEA level 3 and about 20 percent of those who studied at tertiary level for at least 3 years had a long-term NEET spell while aged from 16–21 years.

Figures on the total amount of NEET time experienced by the young people who had at least one long-term spell (adding all their NEET spells together) are shown in the right-hand column of Table 3. Conditional on having a long-term spell, there are very large variations in the amount of time that was spent inactive, with the groups that have higher long-term NEET rates also tending to have longer durations when long-term. For example, the teenagers who left school at 15 or 16 years and became long-term NEET spent about two years inactive during this six-year observation period (using the median figure for the group). The equivalent result for the teenagers who left school at 18 or 19 years and experienced a long-term NEET spell is about 1 year. At higher post-school ages (20–23 years), these disparities in durations continue to exist (Table A3.3).

Effects of enrolment in tertiary education on NEET patterns

The data for NEET spells at 20–23 years of age show a positive association between tertiary study and the likelihood of short-term NEET spells. Young people who didn't study at all in this age range were most likely to avoid NEET altogether – 55 percent had no NEET spells. In contrast, two-thirds of the youth who reported undertaking some tertiary study had one or more NEET spells, generally for less than six months. Short-term NEET spells may be caused by seasonal transitions between full-time study and summer employment. If so, rising rates of participation in tertiary education could have the indirect effect of raising total NEET rates.

Effects of early parenthood on long-term NEET

The majority of the young women who became parents in their teens or early 20s had long-term NEET spells. For example, 86 percent of the women who had a child by 22 years had long-term NEET spells while aged 18–21 years. These young mothers also spent significantly longer periods of time away from work and education than most other youth with long-term NEET spells.

4.3 Summary

Longitudinal data indicate that NEET spells are reasonably common among teenagers and young adults, with more than 30 percent of 17–22 year olds experiencing at least one NEET spell (of any duration) during any given year and 12–14 percent experiencing a long-term spell during any given year.

The following results represent average patterns calculated using data for the full period from 2002 to 2010.

Annual measures of NEET based on the interval between birthdays

- Total annual NEET rates peak at 18 years and fall gradually at higher ages. The proportion of young people who were inactive for at least one week during the year was 44 percent at 18 years, 33 percent at 20 years and 24 percent at 24 years.
- From 18–24 years of age, around 12–14 percent of young people experienced a long-term NEET spell in any given year.
- Excluding those who have become parents, young people’s annual rates of long-term NEET tend to decline with rising age after 18 years, suggesting that increasing proportions of youth have made successful transitions to employment or tertiary study.

NEET rates measured within four-year or six-year intervals

- Using longitudinal data to track young people’s activities over several years, it is possible to see that much higher proportions of young people experience inactivity at some time during their teens or early 20s than are inactive at a moment in time.
- Most young people – at least 75 percent – had a period of inactivity at least once during their late teens and early 20s. The majority of these NEET spells were short, lasting for less than 3 months.
- About 20 percent had a long-term NEET spell in any given four-year period between the ages of 16 and 23.
- In the six-year period when they were aged 16–21 years, 28 percent of youth had at least one long-term spell.
- Those who had at least one long-term NEET spell while in the 16–23 year age group typically spent lengthy periods of time inactive. At the median, they spent around one year out of four inactive.
- The youth that had at least one long-term NEET spell collectively experienced more than 70 percent of all NEET days associated with their age group. In other words, they experienced most of the ‘burden’ of youth inactivity.

Groups with higher long-term NEET rates

- Young people with no school qualifications or low school qualifications, those who became parents at an early age and those of Māori or Pacific ethnicity had relatively high rates of long-term NEET.
- Conditional on having at least one long-term NEET spell, people belonging to groups with higher rates of long-term NEET also tended to spend substantially greater amounts of time inactive.

Multiple short-term spells

- About one-quarter of youth had more than one short-term spell, without having any long-term spells, during any given four-year or six-year period. But very few people in this situation had a high total duration of inactivity as a result.
- This suggests that a strategy of selecting youth with a least one long-term spell is likely to capture the majority of people who are at risk of adverse effects from prolonged inactivity.

Tertiary students

- Young people who attended tertiary education for three or four years out of any four or six tended to have higher than average rates of short-term NEET spells but relatively low rates of long-term NEET.
- Short-term NEET may be caused by seasonal transitions between full-time study and summer employment. If so, increases in New Zealand's aggregate rates of participation in tertiary education may tend to raise total NEET rates within this age group.

The analysis of survey attrition patterns in section 3 identified higher attrition among youth with higher risks of long-term spells. Wave 1 sampling weights were applied throughout this analysis, and these don't include any adjustment for the effects of non-response and attrition from the survey after wave 1. This means our estimates of the proportion of youth with long-term NEET spells are likely to be downwardly biased, perhaps by 10–15 percent on average. For example, if the reported rate was 9.0 percentage points, the true rate may have been 9.9–10.4 percentage points.

5. Long-term NEET at 16–19 years: characteristics, activities and outcomes

This section of the paper describes the characteristics, activities and short-run outcome of the young people who experienced a long-term NEET spell while they were still in their teens. This is a critical age for learning, regardless of whether the learning is through formal education or employment, which suggests the costs of long-term inactivity will be particularly high. A practical reason for focusing on 16–19 year olds is that we have complete data on the period from leaving school to the start of the first long-term NEET spell. We can accurately identify the first and first long-term NEET spells.

The questions considered in this section include:

- What are the characteristics of the young people who have long-term NEET spells at ages 16–19?
- What are the pathways from school to NEET to other activities for this group?
- How quickly do the activity rates of teenagers improve in the three or four years after a long-term NEET spell?

The analytical sample for this section of the paper is everyone whose observation period in SoFIE covered the four years when they were aged 16–19 years. We divide this population into a long-term NEET group and a comparison group, depending on whether or not an individual had a long-term NEET spell that fell within the period from their 16th to 20th birthdays. Approximately 20 percent did so. We further divide the long-term NEET group by their age at the start of their first long-term spell.

Information on the profile of the teenagers who had long-term NEET spells is given in section 5.1. Information on the duration of NEET spells, transition patterns and time spent on various activities is given in section 5.2. In section 5.3, we track NEET, employment and studying rates in the three or four years following the first long-term NEET spell. Section 5.4 summarises the findings.

5.1 Characteristics of young people who had long-term NEET spells before the age of 20

Descriptive statistics

Descriptive statistics on the characteristics of the young people who were observed in SoFIE continuously from their 16th to their 20th birthdays are set out in Table 4. The first three columns give results for the youth whose first long-term NEET spell began at 15/16 years, 17 years or 18/19 years, respectively. Results for the entire long-term NEET group are shown in the fourth column.⁸

⁸ About 4.5 percent of the sample of teenagers who were surveyed continuously from their 16th to their 20th birthdays left school before 16. We include those whose first long-term spell began at 15 years in our study sample if the spell continued into their 16th year.

We also provide comparative data for the teenagers who didn't have a long-term NEET spell before the age of 20, and all teenagers, in the right-hand columns.

Residential location and family characteristics are measured at 16 years of age for everyone. We treat these characteristics as initial conditions. We also show data on school attainment and selected health outcomes that were recorded between the ages of 16 and 20.

The statistics show that teenagers whose first long-term spell began at 15 or 16 years of age were more likely to be male than female, but the opposite is true of those whose first long-term spell began at 18 or 19. Māori and Pacific youth make up a disproportionate share of the teenagers with long-term NEET spells, regardless of age at the start. For example, Māori youth comprised 15 percent of all youth in the sample but 36 percent of the group with long-term NEET spells at 15/16, 24 percent of the NEET at 17 subgroup and 21 percent of the NEET at 18/19 subgroup.

Young people with long-term NEET spells were somewhat more likely to be living in the three main urban centres or in secondary urban areas and small towns, and less likely to be living in rural areas, than other teenagers.

There is a strong association between lower socio-economic status at the neighbourhood level, as measured by the New Zealand Deprivation Index 2001, and long-term NEET. Forty-four percent of the teenagers with long-term NEET spells starting at 15 or 16 years lived in neighbourhoods in the highest three deprivation deciles, compared with 17 percent of the comparison group teenagers.

At 16 years, the youth who went on to have long-term NEET spells were much more likely than other teenagers to live in a rented dwelling, more likely to live in a single-parent family and more likely to be living with parents who were not currently employed.

Completed school qualifications were particularly low among those who left school very early and began their first long-term NEET spell at 15 or 16 – the majority left school without qualifications. Teenagers whose first long-term NEET spell began at 18 or 19 were much more likely to have upper school qualifications by the time they left school – 67 percent had completed either NCEA level 2 or 3. Although this is lower than the level 2 or 3 attainment rate in the comparison group (78 percent), it indicates a reasonably high level of school achievement.

Fifteen percent of the teenagers with long-term NEET spells had a child of their own by the age of 20, compared with just 1 percent of the comparison group teens.

Only two of the health conditions that were recorded in SoFIE were reported by an appreciable number of teenagers. About 9 percent of those with long-term NEET spells said they had been diagnosed as having a psychological illness, slightly higher than the 5 percent of the comparison group giving this response. Twenty-seven percent said they had asthma, but this was the same as the reported level of asthma in the comparison group.

Regression results on the likelihood of having a long-term NEET spell

Regression models can be used to better identify the pattern and strength of association between particular characteristics and the likelihood of experiencing a long-term NEET spell. Understanding these associations is useful for predicting which individuals and groups are most likely to have long-

term NEET spells while aged 16–19. This is different, of course, from understanding the underlying causes of NEET.

Evidence from other research suggests negative experiences at school, the development of negative attitudes to school and a young person's aspirations concerning employment and formal education are key drivers of decisions to leave school early and help explain the phenomenon of young people becoming NEET at 15–16 years. SoFIE does not include information on these drivers, which means an analysis of the associations between a (limited) set of measured characteristics and the likelihood of long-term NEET using regressions can only provide partial insights.

The regression analysis is set out in Appendix 4. Two outcomes are modelled: the likelihood of having a long-term NEET spell between the 16th and 20th birthdays and the likelihood of having a long-term NEET spell at 19 years – the age when almost everyone has completed their secondary schooling.

Summarising the results, we found that several indicators of family and neighbourhood disadvantage measured at 16 years are statistically associated with a higher likelihood of long-term NEET at ages 16–19: living in a neighbourhood with a high NZ Deprivation Index score, living in a rental property and living with a non-working parent. Māori youth also had a higher likelihood of having a long-term NEET episode at ages 16–19, compared with Europeans.

These patterns are consistent with British evidence showing that children from families of lower socio-economic status, based on parental occupation and educational levels (Crawford et al, 2011) and children who live in more deprived neighbourhoods (Chowdry et al, 2009) have a higher risk of becoming NEET at around 17 years. In their New Zealand research, Wylie and Hodgen (2011) also found associations between both low family income during childhood and low maternal education levels and a young person's likelihood of experiencing unemployment between age 16 and age 20.

When we modelled the likelihood of long-term NEET at 19 years, adding measures of the completed school qualification attainment level and parenthood by 18 years as additional explanatory variables, we found that these two sets of variables (low attainment of school qualifications and early parenthood) had large and significant effects on the likelihood of long-term NEET at 19 for both males and females. Pacific ethnicity and psychological ill health (for females) and selected indicators of family or neighbourhood disadvantage at 16 (for males) were also statistically associated with a higher likelihood of a long-term NEET spell at 19 years.

5.2 Activities at 16–19 years

Information on the activities that were undertaken before and after the first and second NEET spells and the time young people spent inactive, searching for work, employed and undertaking post-school education or training between leaving school and their 20th birthdays is set out in Table 5.

The mean duration of the first long-term NEET spell was about 470 days or 1.3 years. The majority (82 percent) of teenagers whose first long-term NEET spell started at ages 15–16 went straight from school to inactivity. In contrast, about half the teenagers whose first NEET spell started at 18 or 19 years had done something else after leaving school – either post-school study or work (without study).

About half of these first NEET spells were ended by the start of a job, and in about 40 percent of cases, they were ended by enrolment in tertiary study. Teenagers whose first NEET spell began at 15 or 16 years were most likely to move into work (60 percent), while those whose first NEET spell began at 18 or 19 were more evenly divided between transitions to work and to post-school study.

About 70 percent of the group had a second NEET spell during the period of observation. The data on pre and post destinations for the second spell also suggest that teenagers whose first NEET spell began at 15 or 16 years were somewhat more likely to move in and out of work, while teenagers whose first NEET spell began at 18 or 19 were somewhat more likely to move in and out of post-school study. This is not surprising given their higher school qualifications.

We analysed the proportion of time that was spent NEET, unemployed and searching for work, employed and undertaking post-school study between the date of leaving school and the 20th birthday. On average, the young people who had long-term NEET spells as teenagers spent 40–50 percent of this period inactive. Only about one-third of this NEET time was classified in SoFIE as unemployment with job search. It's possible that job search activity was under-recorded in SoFIE as a result of the survey's method of gathering information on labour market activities.⁹

On average, the young people who had long-term NEET spells as teenagers were employed for about 40 percent of the period between leaving school and their 20th birthday. Looking at the absolute amount of time they were employed, we find that 40–65 percent worked for 12 months or more, and only about 20 percent had no paid work. In other words, the majority – about 80 percent – gained work experience after leaving school, before the age of 20, and 40–65 percent gained at least 12 months of work experience.

On average the young people with long-term NEET spells undertook post-school education or training for 15–25 percent of the time period between leaving school and their 20th birthday. Interestingly, only 35 percent did not report any post-school education or training, but the majority were studying or training for less than a year. In contrast, the young people who avoided any long-term NEET spell between school and the age of 20 were much more likely to have studied for a year or longer. This implies that many of the long-term NEET youth either enrolled for relatively short courses or started longer courses but then failed to complete.

A minority of the long-term NEET teenagers in SoFIE gave responses to survey questions that throw some additional light on their reasons for being NEET. We summarise all responses that were given before the age of 20 to questions on the reasons for leaving a job or not searching for a job that referred either to childcare or the person's own health or disability. About 14 percent of the teenagers who had long-term NEET spells gave caring responsibilities as a reason at least once, and 13 percent mentioned their own ill health or disability at least once. These are much higher proportions than was recorded for the comparison group teenagers – those who didn't have a long-term NEET spell. We can conclude that caring responsibilities and ill health were likely causes of inactivity for a minority of the long-term NEET teenagers.

⁹ A calendar or timeline was used to identify activities during the reference year. If a person searched for a job at the same time as holding a job, this probably wouldn't have been recorded. Some periods of job search may have been omitted because the respondent wasn't asked direct questions that might have prompted them to report the job search.

5.3 Employment, studying and NEET rates after the first long-term spell

Our final set of results describe the NEET, employment and studying rates of our sample of long-term NEET teenagers in the three to four years after their first long-term spell.

Ideally, we would examine outcomes in detail and use regression methods to model the factors associated with persistent NEET after the first long-term spell. Unfortunately, the available samples of teenagers who had long-term NEET spells and also provided data covering the third or fourth year after the start of their first long-term spell are too small to support detailed analysis of this kind. Another constraint is that, due to the structure of the data in SoFIE (providing short periods of observation for most people in the target age groups), we are also not able to look into the future for as many years as we would like.

Table 6 contains a number of descriptive outcome measures calculated by year of age:

- The proportion who experienced any NEET during the year.
- The proportion who experienced a long-term NEET spell during the year.
- The proportion who studied at school or tertiary level during the year.
- The average number of days of study or training towards a qualification.
- The average number of days of employment.
- The average number of days of NEET.

These results are also plotted in Figures 3 and 4 for easier interpretation.

The teenagers who had long-term NEET spells are divided into four subgroups, based on their age at the start of their first long-term spell. We also show results for a comparison group, comprising all other young people who did not experience a long-term NEET spell while in their teens. Only people who were observed for the full year at the specified year of age are included in the results. Note that, from 20 years of age, the number of people contributing to each result declines (as shown in the sample sizes at the bottom of Table 6).

Looking at the data for the percentage of teenagers who had long-term NEET spells (in the top panel of Table 6 and Figure 3a), it appears that the total incidence of NEET (counting any duration during the year) fell from 100 percent in the year of the first long-term spell to about 50–60 percent three years later. The incidence of long-term NEET (Figure 3b) declined from 100 percent in the year of the first long-term spell to 30–40 percent three years later. Teenagers whose first spell began at 18 or 19 show faster rates of decline in the first two follow-up years than those whose first spell began at 15–17.

Figure 3: NEET rates and study rates after the first long-term NEET spell

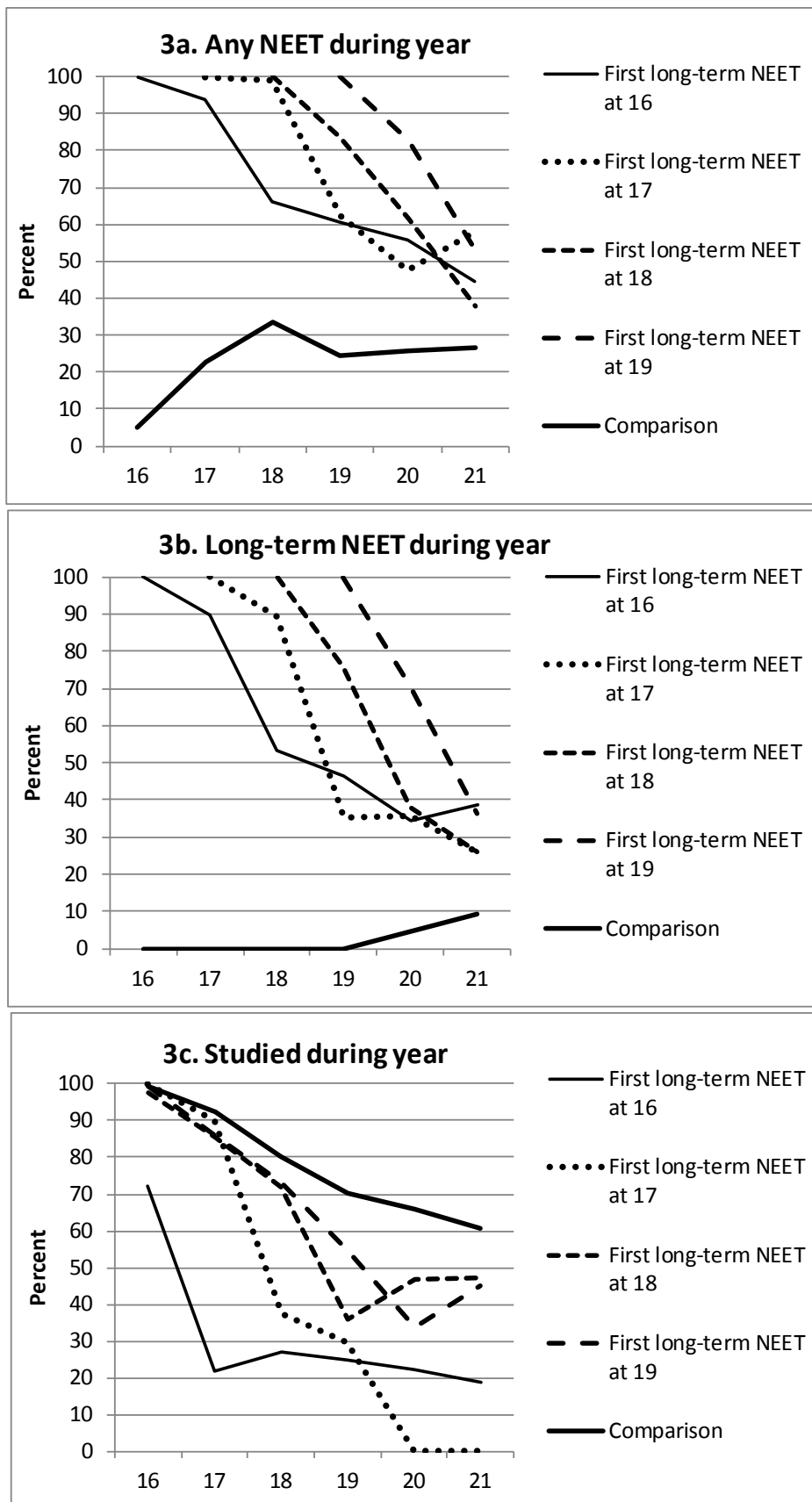
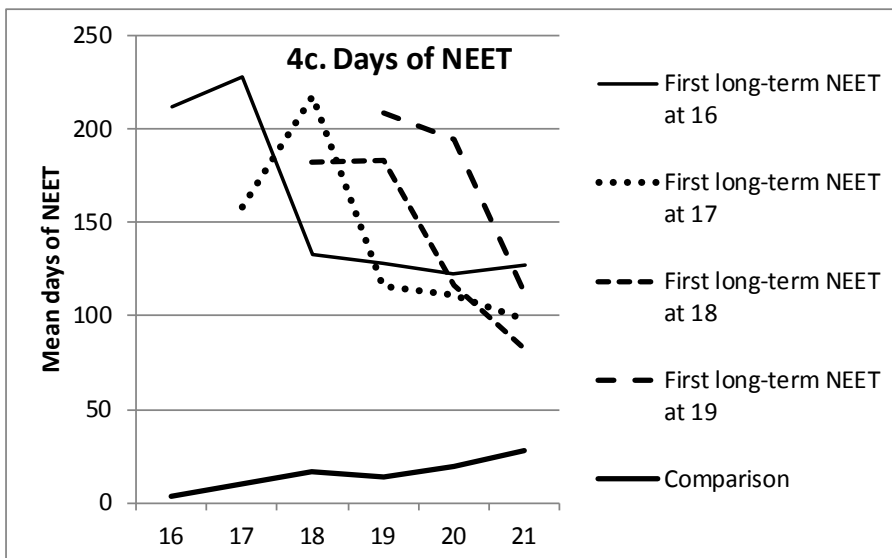
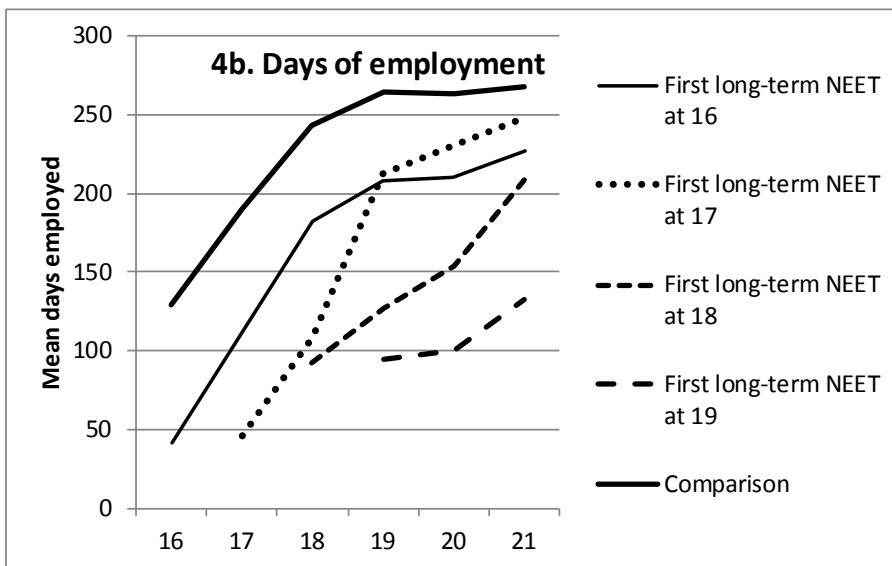
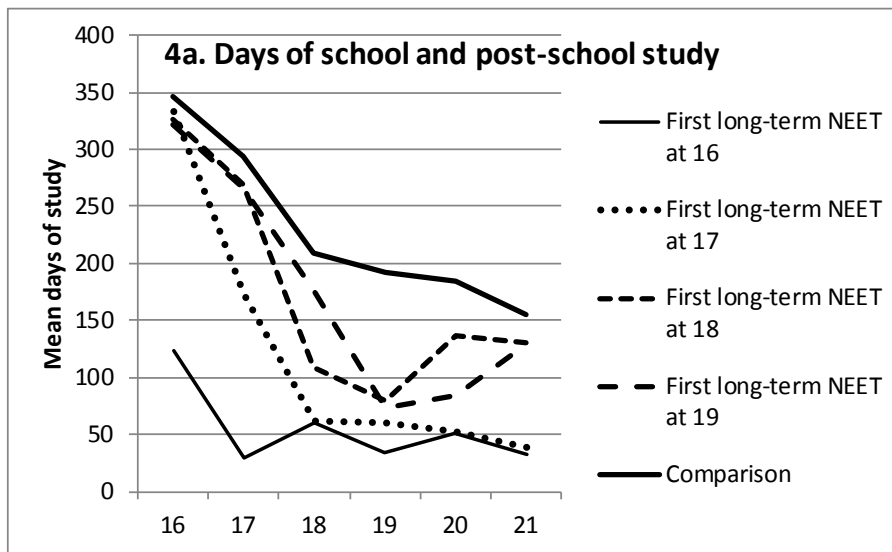


Figure 4: Time spent studying, in employment and NEET after the first long-term NEET spell



Rates of progression to further education were relatively low among the teenagers with long-term NEET spells beginning at 16 or 17 (Figure 3c): 20–40 percent of these youth undertook post-school study in the years immediately after the year when their first long-term spell began. Teenagers whose first long-term NEET spells began at 18 or 19 were more likely to study in those follow-up years, with participation rates at 30–50 percent. These proportions are well below the age-equivalent study participation rates of other teenagers, however.

Figure 4a, on mean days of studying at each year of age, shows that the difference between the NEET and comparison group teenagers in the time spent studying diminishes with time but does not disappear during the period of observation. At 21 years, the group with long-term NEET spells at 16 and 17 years undertook far less study, on average, than those whose first long-term NEET spell began at 18 or 19: about 30–40 days on average, compared with about 130 days on average for the latter group.

Figure 4b, on mean days of paid employment (defined as holding a paid job of any kind), shows large increases in the number of days of employment in the year immediately following the year of the first long-term NEET spell. This is true for all subgroups of long-term NEET teenagers. Although there is considerable convergence between the mean employment days of the formerly-NEET and comparison group teenagers, at all ages shown, the formerly inactive teenagers continue to be employed for fewer days per year. Because the formerly-NEET teenagers were less likely to be studying at 21 years than young people in the comparison group, one might expect their average number of days in employment to be higher, but this is not the case.

Figure 4c, on average NEET days per year, shows large reductions in the average number of days of NEET in the years following the year when the teenagers' first NEET spell began. By the second and third follow-up years, the average number of days of inactivity is much closer to that of the comparison group teenagers, but continues to be higher.

These patterns suggest that at least some of the teenagers who had experienced long-term NEET spells continued to have poorer educational and labour market outcomes up to three or four years later. Generally speaking, the young people who had NEET spells at 16 or 17 years studied less but worked more than those whose first long-term spell was at 18 or 19 years. This is consistent with the finding from other research that, among NEET youth, early school leavers tend to be more focused on work and to have less interest in undertaking post-school study.

5.4 Summary

Approximately 20 percent of young people who could be observed from their 16th to 20th birthdays had a long-term NEET spell starting before their 20th birthday.

Several indicators of family and neighbourhood 'disadvantage' at 16 years were statistically associated with a higher likelihood of long-term NEET at 16–19 years: living in a neighbourhood with a high NZ Deprivation Index score, living in a rental property and living with a non-working parent. At 16 years, the youth who went on to have long-term NEET spells were more likely to live in a neighbourhood of low socio-economic status, much more likely to live in a rented dwelling, more likely to live in a single-parent family and more likely to be living with parents who were not

currently employed. Māori youth also had a higher likelihood of long-term NEET at ages 16–19 than Europeans.

Leaving school without completing any qualifications or with a level 1 qualification only and becoming a parent at ages 16–18 were also associated with a substantially higher likelihood of being long-term NEET at 19 years of age. Completed school qualifications were particularly low among those who left school very early and began their first long-term NEET spell at 15 or 16 – the majority left school without qualifications. Teenagers whose first long-term NEET spell began at 18 or 19 were much more likely to have upper school qualifications by the time they left school – 67 percent had attained either NCEA level 2 or 3. Fifteen percent of the teenagers with long-term NEET spells had a child of their own by the age of 20, compared with just 1 percent of the comparison group teens.

Turning to NEET spell patterns, we find that the first long-term NEET spell lasted for about 1.3 years, on average. About half the time, teenagers' first NEET spell was ended by the start of a job and, in about 40 percent of cases, by enrolment in tertiary study. There was a higher rate of transition to post-school study (rather than work) among the teenagers who first became NEET at older ages, who were much more likely to have achieved an upper secondary qualification.

On average, the young people with long-term NEET spells were employed for about 40 percent of the period between leaving school and their 20th birthday. The majority – about 80 percent – gained some paid work experience after leaving school and before the age of 20, and 40–65 percent were in paid work for at least 12 months in total. Only 20 percent appear to have done no paid work at all.

There was also a reasonably high rate of participation in post-school education and training, with two-thirds of the teenagers who had long-term NEET spells reporting some participation, suggesting many people in this group (including the very early school leavers) wanted to improve their qualifications. Most of this education and training was short-term in nature, however – only about 25–30 percent of the long-term NEET teenagers studied or trained for 12 months or more before their 20th birthday.

In the years following the first long-term spell, the inactivity rates of the long-term NEET group declined and employment and studying rates increased. Tracking the outcomes of teenagers whose first long-term spell began at 15, 16 or 17 years, we found that, in the third follow-up year after the year when the first spell began:

- 25–45 percent had a long-term NEET spell (either a new one or a continuation of the first)
- 25–50 percent participated in some form of study or training towards a qualification
- on average, these teenagers were employed for about 60 percent of the year.

Despite these large improvements in subsequent NEET, employment and studying rates, those with a long-term NEET spell in their teens were less likely to be studying or training, less likely to be employed and more likely to be inactive at 20 and 21 years of age than those who didn't have a period of long-term NEET before the age of 20. At 21 years:

- about 30 percent of the formerly long-term NEET teenagers had a long-term NEET spell, compared with 9 percent of other teenagers

- about 35 percent of the formerly long-term NEET teenagers participated in study or training towards a qualification, compared with 61 percent of other teenagers.

The evidence on outcomes is not very robust due to low sample numbers. However, rough patterns in the data suggest that the activity rates of teenagers with long-term NEET spells beginning at 15, 16 or 17 years were slower to recover than the activity rates of those who did not have a long-term NEET spell until 18 or 19 years.

6. Conclusion

This paper has used data from SoFIE to examine the rates and patterns of NEET among young people in New Zealand. Its main purpose was to provide measures of the incidence and duration of long-term NEET spells among 16–24 year olds and information on the characteristics and outcomes of long-term NEET teenagers.

The findings indicate that at least three-quarters of young people had at least one NEET spell while aged 16–21 years, and more than one quarter experienced at least one long-term NEET spell, lasting for six months or longer. The median duration of the long-term NEET spells that began before a young person's 20th birthday was about one year.

Both the incidence statistics and the measures of the amount of time that was spent inactive show large disparities in the distribution of long-term NEET by socio-economic status and level of achievement at secondary school. Young people who lived in the most 'deprived' 30 percent of neighbourhoods at 16 years were about 1.5 times more likely than those in the least 'deprived' 30 percent to have a long-term NEET spell while aged 16–21 years. Young people who left school without qualifications were about three times more likely to do so than those who achieved NCEA level 3 qualifications. At the same time, NEET was not rare in any group considered – about 20 percent of those who completed NCEA level 2 or 3 qualifications had a long-term NEET spell while aged 16–21 years.

The latter finding could be partly explained by young people voluntarily choosing 'time out' or taking the opportunity to pursue various unpaid activities. Seventeen percent of the young New Zealanders in the Competent Learners study said they had taken time out and 24 percent had travelled between the age of 16 and 20 (Wylie and Hodgen, 2011, p65). At times when labour demand is weak and short-term jobs are hard to find, long-term NEET spells may also arise out of transitions between jobs and tertiary study or between different study courses: for example, if someone decides to change programmes but has to wait until the following academic year for their preferred course to begin.

The literature reviewed in this paper provides rich insights into the characteristics of those who leave school and become NEET at around 16/17 years and the processes through which this happens. This body of evidence suggests that early school leavers with few qualifications are the subgroup of NEET youth that pose the greatest cause for concern, because the members of this group tend to have lower levels of foundation skills and are less likely to be motivated and independent learners, meaning they will have greater difficulty starting and successfully completing post-school education or training programmes. They are also more likely to leave school without a clear plan of how to get meaningful and satisfying work and less likely to find and sustain jobs that offer training. In this study, about 60 percent of the group who left school without any qualifications, and about 40 percent of the group who left school with NCEA level 1 experienced a long-term NEET spell while aged 16–21 years.

The literature is less clear about the risks associated with long-term NEET spells for young people who have completed NCEA level 2 or 3 qualifications. The longer-term outcomes of the group that achieve upper secondary qualifications but then experience long-term NEET have not been singled

out in any study we are aware of. Although these young people have higher cognitive and attitudinal skills on average, (as shown in Wylie and Hodgen, 2011), the group may include a minority who do not have the skills needed for successful transitions.

An important message from international research on the youth NEET issue is that the young people who experience long-term NEET spells are diverse in their characteristics, skills, openness and readiness for learning, and barriers to employment or further education. This implies considerable diversity in assistance needs.

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Tables

Table 1: Inactivity rates by year of age (continued on next page)

	16	17	18	19	20	21	22	23	24
<i>Alternative measures of NEET</i>									
NEET when interviewed (%)	4.4	9.2	11.6	11.2	10.1	10.9	11.2	9.4	10.3
Long-term NEET when interviewed (%)	3.2	5.3	6.8	7.1	6.4	6.7	7.2	6.9	8.3
Any NEET during the year (%)	12.8	30.0	43.7	35.6	33.4	33.5	32.8	27.4	24.1
Started a new long-term spell (%)	4.5	6.2	7.5	6.1	4.9	4.5	5.7	5.2	5.5
Any long-term NEET spell during the year (%)	5.9	10.1	13.6	12.8	11.9	12.2	13.7	13.1	13.1
NEET for at least 182 days during the year (%)	3.8	6.3	9.4	9.1	8.0	7.9	9.3	9.6	9.6
Median days of NEET if some NEET experienced	90	62	62	76	76	78	90	92	127
<i>Any NEET during year (%)</i>									
Male	14.2	30.6	43.4	33.0	31.3	27.7	29.3	22.9	17.2
Female	11.2	29.4	44.1	38.1	35.3	39.0	36.2	31.7	30.6
All excluding parents	12.7	29.3	43.0	33.6	30.9	30.6	29.4	22.7	18.7
Males excluding parents	14.2	30.3	43.4	32.6	31.4	27.5	29.4	23.1	17.6
Females excluding parents	11.1	28.4	42.6	34.7	30.5	33.9	29.3	22.3	20.0
Mothers	S	73.4	75.5	82.1	80.2	77.2	69.1	65.3	61.2
European	11.5	29.8	41.8	32.4	30.5	31.2	30.9	24.2	22.1
Māori	24.3	40.9	49.0	47.8	48.4	42.3	40.6	39.7	37.0
Pacific	20.8	32.0	50.9	41.1	36.4	34.3	37.2	29.7	33.2
No qualifications	46.9	55.3	47.4	44.8	44.7	41.2	39.0	39.4	37.4
NCEA level 1	17.1	41.8	43.7	37.5	31.6	30.4	30.3	22.3	21.6
NCEA level 2	5.0	25.8	39.7	29.5	26.5	24.9	22.4	21.4	24.5
NCEA level 3	1.5	18.2	45.1	35.6	33.0	35.9	35.7	26.0	18.9
<i>Any long-term NEET spell during the year (%)</i>									
Males	7.0	10.0	11.6	10.7	8.7	9.2	10.7	9.4	7.0
Females	4.8	10.2	15.5	14.8	14.8	15.1	16.4	16.5	18.8
All excluding parents	5.9	9.4	12.1	10.3	8.8	8.6	9.4	8.1	6.9
Males excluding parents	7.0	9.8	11.4	10.4	8.6	9.1	10.7	9.9	7.1
Females excluding parents	4.7	9.0	12.9	10.2	8.9	8.0	7.9	6.2	6.7
Mothers	S	63.7	71.3	73.5	68.7	67.6	57.3	53.5	53.5
European	4.9	9.0	13.1	10.6	9.4	10.5	11.9	11.7	11.7
Māori	12.6	19.4	21.9	25.2	27.2	24.7	26.8	26.9	23.9
Pacific	11.3	17.7	21.8	25.2	22.2	23.0	26.4	17.4	22.9
No qualifications	25.9	33.8	31.8	29.6	31.0	28.3	26.5	26.5	27.2
NCEA level 1	7.8	16.9	18.8	17.8	16.3	17.2	19.5	15.8	13.2
NCEA level 2	S	5.6	11.3	9.9	10.6	9.8	11.3	11.2	14.5
NCEA level 3	S	1.6	7.9	7.7	6.2	7.6	9.0	7.4	6.8

Table 1: Inactivity rates by year of age (continued from previous page)

	15	16	17	18	19	20	21	22	23	24
	<i>Median days if some NEET experienced</i>									
Male	61	105	61	62	74	70	74	78	90	77
Female	45	77	62	62	76	77	90	92	102	167
All excluding parents	60	90	61	62	62	62	73	74	67	71
Males excluding parents	61	105	61	62	68	68	74	65	90	77
Females excluding parents	45	77	61	62	62	62	64	74	50	68
Mothers	S	S	365	311	358	304	322	208	258	274
European	46	77	59	62	63	63	75	83	91	125
Maori	196	133	92	90	112	126	168	166	169	199
Pacific	105	135	105	74	111	199	143	211	105	179
No qualifications	61	135	151	179	175	194	214	199	184	230
NCEA level 1	S	78	77	91	121	108	147	141	172	169
NCEA level 2	S	36	46	59	62	63	63	76	92	169
NCEA level 3	S	31	31	59	62	62	64	63	62	61
Sample sizes	1398	2563	2368	2161	2036	1865	1748	1586	1492	1412

Notes: S = suppressed for confidentiality reasons.

Table 2: Inactivity patterns during alternative four-year or six-year observation periods

	Spell pattern				
	All	None	One spell, < 6 months	Multiple spells, < 6 months	One or more long spells
NEET patterns at age 16 to 19					
Percent with each spell pattern	100.0	37.0	28.0	16.5	18.5
Median days over four years	40	0	45	124	411
NEET for at least 365 days in total (%)	11.3	0.0	0.0	5	59.9
Median number spells	1	0	1	2	2
Median spell duration (days)	62	0	45	53	219
Sub-group share of all NEET days (%)	100.0	0.0	11.6	17.0	71.3
N	1191	443	313	190	245
NEET patterns at age 18 to 21					
Percent with each spell pattern	100.0	31.1	25.1	22.8	21.0
Median days over four years	62	0	56	123	449
NEET for at least 365 days in total (%)	14.5	0.0	0.0	5	64.7
Median number spells	1	0	1	2	2
Median spell duration (days)	62	0	56	48	227
Sub-group share of all NEET days (%)	100.0	0.0	8.4	20.2	71.4
N	917	294	221	185	217
NEET patterns at age 20 to 23					
Percent with each spell pattern	100.0	41.6	19.5	20.0	18.9
Median days over four years	31	0	42	122	431
NEET for at least 365 days in total (%)	12.8	0.0	0.0	5	63.5
Median number spells	1	0	1	2	2
Median spell duration (days)	72	0	42	52	273
Sub-group share of all NEET days (%)	100.0	0.0	7.2	20.4	72.4
N	745	313	139	141	152
NEET patterns at age 16 to 21					
Percent with each spell pattern	100.0	24.0	23.3	24.9	27.7
Median days over six years	84	0	59	124	444
NEET for at least 365 days in total (%)	20.0	0.0	0.0	6.2	66.7
Median number spells	1	0	1	3	2
Median spell duration (days)	63	0	59	50	195
Sub-group share of all NEET days (%)	100.0	0.0	5.8	17.7	76.4
N	493	123	108	116	146

Notes: The sample for each section of the table is the set of people whose data in SoFIE covers the age range indicated.

Table 3: Variations in the incidence of long-term NEET while aged 16–21 years

	Proportion with a NEET spell of any duration, while aged 16-21 (%)	Proportion with a long-term NEET spell while aged 16-21 (%)	Total time NEET, for those with at least one long-term spell (median years)	N
All	76.0	27.7	1.2	493
Male	71.4	23.0	1.3	243
Female	80.2	32.1	1.2	250
European	75.1	26.4	1.2	403
Māori	86.2	42.9	1.5	76
Pacific	35.8	35.8	1.0	30
Residential location at 16 years				
Neighbourhood in lowest 3 deciles of NZ Deprivation Index	72.7	22.1	1.0	183
Neighbourhood in middle 4 deciles of NZ Deprivation Index	76.4	31.3	1.5	193
Neighbourhood in highest 3 deciles of NZ Deprivation Index	83.1	34.9	1.6	117
Age left school				
15 or 16	82.5	50.3	2.0	90
17	77.0	26.1	1.2	198
18 or 19	71.1	18.1	0.9	195
Highest school qualification when left school				
None	85.7	60.2	2.3	74
NCEA L1	81.7	39.1	1.5	76
NCEA L2	73.5	20.1	1.2	143
NCEA L3	72.7	19.1	0.9	198
Parental status				
Not a parent by 22 years	75.0	23.6	1.1	456
Parent by 22 years	85.7	85.7	2.0	37
Number of years with some post-school study				
0	70.7	37.3	1.8	84
1	82.5	40.5	1.2	41
2	87.3	47.1	1.3	76
3	74.0	18.8	1.0	292

Table 4: Characteristics of teenagers who experienced a long-term NEET spell

	First long-term NEET began at 15 or 16	First long-term NEET began at 17	First long-term NEET began at 18 or 19	All with long-term NEET spell at ages 16-19	Comparison – no long-term NEET before 20	All sample
<i>Percentages</i>						
Gender						
Male	56.4	47.0	39.9	45.6	50.1	49.2
Female	43.6	53.0	60.1	54.4	49.9	50.8
Ethnic group (all responses)						
European	67.9	73.7	74.0	72.4	83.1	80.9
Māori	36.1	23.5	20.8	25.3	12.6	15.2
Pacific	S	S	15.8	13.1	5.2	6.8
Location at 16 years						
Largest three cities	49.5	53.4	44.1	47.5	43.3	44.1
Other main urban centres	19.6	23.8	25.8	23.8	26.0	25.5
Secondary urban area or small town	22.3	14.6	13.9	16.2	12.4	13.1
Rural	S	S	16.2	12.6	18.4	17.2
Neighbourhood in lowest 3 deciles of the NZ deprivation index	22.3	15.1	34.3	27.1	47.8	43.6
Neighbourhood in middle 4 deciles of the NZ deprivation index	34.0	53.0	39.6	41.1	35.6	36.7
Neighbourhood in highest 3 deciles of the NZ deprivation index	43.7	31.9	26.1	31.8	16.6	19.7
Family or household characteristics at 16 years						
Rented dwelling	49.7	29.4	37.1	38.7	18.5	21.0
Living as child in a single parent family	28.8	28.8	21.7	25.0	15.6	16.9
Living with one or both parents and neither employed	18.7	18.3	8.7	13.3	5.6	6.9
Highest school qualification when left school						
None	68.6	27.7	16.2	32.0	8.4	13.2
NCEA L1	23.2	34.0	18.2	22.8	13.0	15.0
NCEA L2	S	26.4	28.9	22.1	30.5	28.8
NCEA L3	S	S	36.7	22.5	47.2	42.1
Parenting						
Parent by 18th birthday	S	S	S	4.0	0.7	1.4
Parent by 20th birthday	14.4	17.1	15.2	15.4	1.3	4.2
Health/disability						
Diagnosed as having psychological illness before 20th birthday	S	S	9.1	9.2	5.0	5.9
Diagnosed as having asthma before 20th birthday	23.6	26.4	28.2	26.7	26.7	26.7
Sample sizes	74	64	135	273	918	1191

Notes: Only teenagers who were surveyed continuously from their 16th to their 20th birthdays are included in the sample. Individuals with a long-term NEET spell that started at age 15 and continued at age 16 are included in the first column. Individuals with a NEET spell that started at age 19 and became long-term at age 20 are included in the third column.

Table 5: Activities of teenagers who experienced long-term NEET spells

	First long-term NEET began at 15 or 16	First long-term NEET began at 17	First long-term NEET began at 18 or 19	All with long-term NEET spell at ages 16-19	Comparison – no long-term NEET before 20
NEET spell durations					
	<i>Days</i>				
Duration of first long-term NEET spell (mean days)	637	420	411	470	na
Time NEET in first year after leaving school (mean days)	272	221	134	187	26
Activities immediately before and after the first NEET spell					
	<i>Percentages</i>				
Before					
School	81.7	69.7	52.5	63.6	na
Post-school study	S	S	15.0	11.8	na
Working and not studying	S	22.0	32.5	23.6	na
After					
Post-school study	32.0	40.1	42.6	39.4	na
Working and not studying	60.3	58.5	47.2	53.0	na
Overseas or destination not observed	S	S	10.1	7.6	na
Activities immediately before and after the second NEET spell (if experienced)¹					
Before					
Post-school study	38.0	40.4	48.8	44.2	na
Working and not studying	60.9	59.6	50.5	55.1	na
After					
Post-school study	19.3	34.3	29.7	28.4	na
Working and not studying	62.5	49.9	52.3	54.1	na
Overseas or destination not observed	18.2	S	18.0	17.5	na
Activities between date of leaving school and 20th birthday²					
Proportion of time NEET	51.6	47.7	40.1	45.6	5.3
Proportion of time unemployed and searching for work	17.0	12.6	9.8	12.9	2.1
Proportion of time employed	39.2	38.1	42.3	40.3	72.4
Proportion of time participating in post-school study	14.4	26.2	26.9	22.5	49.2
Time spent NEET between school and 20th birthday					
None	0.0	0.0	0.0	0.0	42.7
Less than 6 months	S	S	10.4	5.9	53.8
6-12 months	14.0	30.2	55.8	39.7	3.3
12 months or more	84.8	69.8	33.8	54.4	S
Time spent employed between school and 20th birthday					
None	20.6	S	21.5	19.5	9.6
Less than 6 months	S	S	17.6	13.6	9.7
6-12 months	S	19.4	19.5	16.2	9.4
12 months or more	65.0	57.0	41.4	50.7	71.2
Time spent in post-school education between school and 20th birthday					
None	40.7	32.5	32.5	34.6	19.9
Less than 6 months	14.2	14.3	14.3	14.3	9.3
6-12 months	21.4	S	26.6	22.4	14.0
12 months or more	23.7	40.3	26.6	28.7	56.9
Reasons given for leaving a job or not searching for work³					
Caring responsibilities (%)	15.8	15.6	12.6	14.0	0.7
Own health or disability (%)	16.5	S	13.3	13.1	3.0
Sample sizes	74	64	135	273	918

See next page for notes.

1. Approximately 70 percent of the long-term NEET youth had a second NEET spell before their 20th birthday.
2. 'Unemployed and searching for work' is a subset of the total NEET time. The time that was spent in employment will often overlap with the time that was spent in post-school education or training.
3. We count everyone who gave this reason at least once while aged 16–19.

Notes: S = suppressed for confidentiality reasons. na = not applicable. Only teenagers who were surveyed continuously from their 16th to their 20th birthdays are included in the sample. Individuals with a long-term NEET spell that started at age 15 and continued at age 16 are included in the first column. Individuals with a NEET spell that started at age 19 and became long-term at age 20 are included in the third column.

Table 6: Outcomes of teenagers with long-term NEET spells, by age at start of first spell

	16	17	18	19	20	21	22
Any NEET (%)							
First long-term NEET at 15 or 16	100.0	93.9	66.1	60.5	55.9	44.6	
First long-term NEET at 17	17.0	100.0	98.8	62.4	47.7	58.1	
First long-term NEET at 18	9.9	25.9	100.0	83.7	61.7	37.9	S
First long-term NEET at 19	17.1	36.5	38.6	100.0	82.7	53.1	S
Comparison	5.0	22.8	33.6	24.4	25.9	26.5	27.7
Long-term NEET spell (%)							
First long-term NEET at 15 or 16	100.0	90.0	53.4	46.6	34.5	38.5	
First long-term NEET at 17	0.0	100.0	89.4	35.1	35.7	25.9	
First long-term NEET at 18	0.0	0.0	100.0	75.9	38.0	25.9	S
First long-term NEET at 19	0.0	0.0	0.0	100.0	70.7	36.1	S
Comparison	0.0	0.0	0.0	0.0	4.6	9.1	13.0
Studied at school or tertiary level (%)							
First long-term NEET at 15 or 16	72.1	21.7	27.1	25.0	22.3	18.8	
First long-term NEET at 17	100.0	89.9	37.4	29.6	S	S	
First long-term NEET at 18	97.7	85.3	71.9	35.9	46.9	47.2	S
First long-term NEET at 19	99.2	86.0	73.1	54.7	33.8	45.1	S
Comparison	99.2	92.5	80.2	70.3	65.8	60.7	40.1
Time spent studying - mean days per year							
First long-term NEET at 15 or 16	123	29	60	34	51	32	
First long-term NEET at 17	333	173	61	60	52	39	
First long-term NEET at 18	325	269	109	80	136	130	178
First long-term NEET at 19	322	266	177	73	85	129	115
Comparison	346	294	210	192	185	155	87
Time spent working - mean days per year							
First long-term NEET at 15 or 16	42	111	182	208	210	227	
First long-term NEET at 17	65	46	108	212	230	248	
First long-term NEET at 18	100	135	92	126	154	208	203
First long-term NEET at 19	72	120	204	94	100	133	126
Comparison	129	189	244	265	264	267	283
Time spent inactive - mean days per year							
First long-term NEET at 15 or 16	212	228	133	128	122	127	
First long-term NEET at 17	9	159	217	116	111	98	
First long-term NEET at 18	7	21	183	183	116	83	50
First long-term NEET at 19	15	14	27	209	195	113	136
Comparison	3	10	16	14	20	28	37
Sample sizes							
First long-term NEET at 15 or 16	74	74	74	74	49	28	
First long-term NEET at 17	64	64	64	64	44	34	
First long-term NEET at 18	72	72	72	72	46	34	18
First long-term NEET at 19	63	63	63	63	44	26	13
Comparison	918	918	918	918	625	371	171

Appendix 1: Alternative survey measures of NEET rates

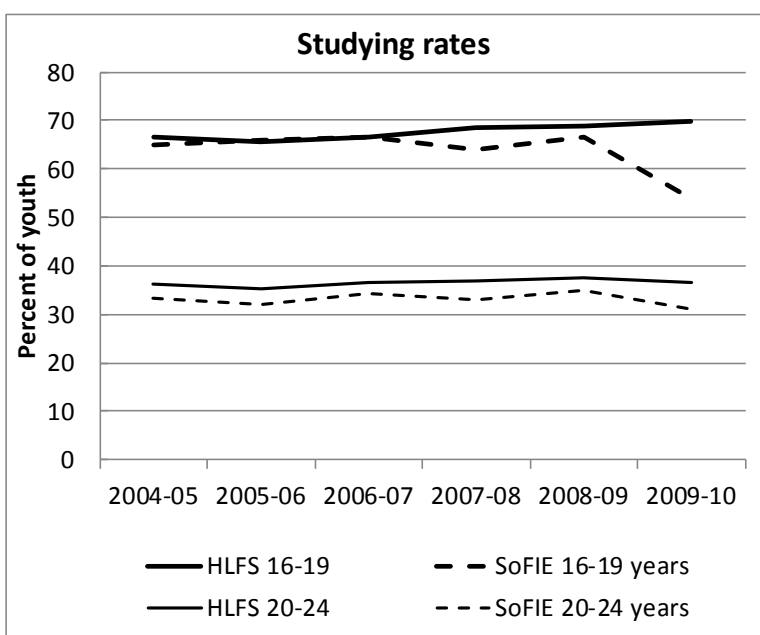
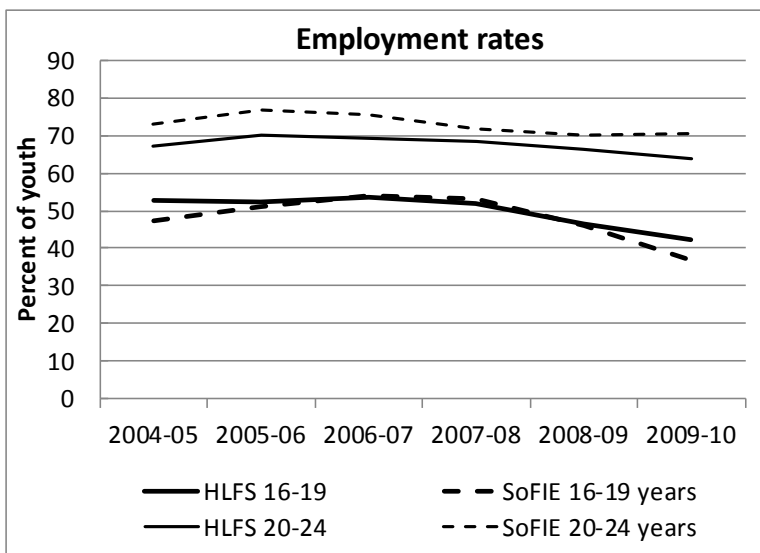
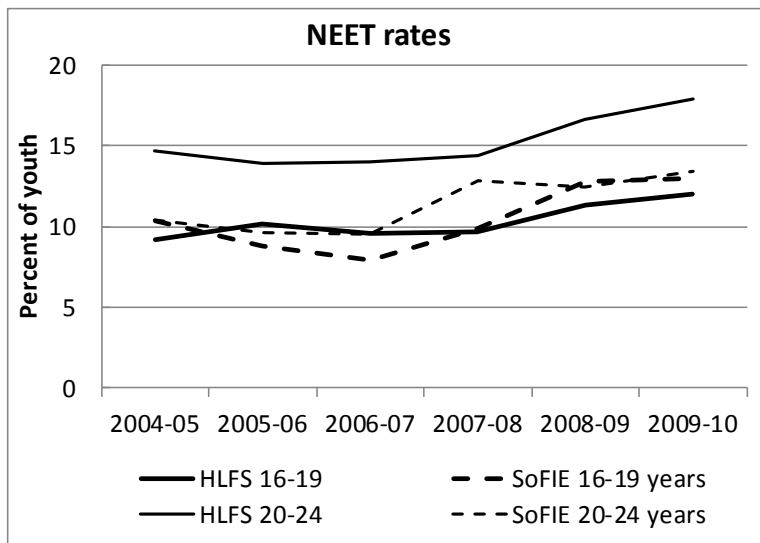
The Household Labour Force Survey (HLFS) is the source of New Zealand’s regularly published youth NEET rates. Measures of the point-in-time (or cross-sectional) youth NEET rate for all 16–19 year olds and all 20–24 year olds were calculated from SoFIE and the HLFS and compared.

For this comparison, we measured NEET rates in SoFIE at the time of each person’s interview and weighted each wave’s results using the survey’s wave-specific longitudinal weights, which include Statistics New Zealand’s adjustments for sample attrition. The comparison begins with the year ending in the September 2005 quarter because studying questions were first introduced into the HLFS in mid-2004. Results are shown in Table A1.1 and Figure 1.1. See Section 3.5 for further discussion of these results.

Table A1.1: NEET, employment and studying rates as at the time of the interview

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
NEET rates						
HLFS 16-19 years	9.2	10.1	9.6	9.7	11.3	12.0
SoFIE 16-19 years	10.3	8.8	8.0	9.9	12.8	12.9
HLFS 20-24 years	14.7	13.9	14.0	14.4	16.7	17.9
SoFIE 20-24 years	10.4	9.6	9.5	12.8	12.5	13.4
Employment rates						
HLFS 16-19 years	52.7	52.5	53.6	51.9	46.4	42.2
SoFIE 16-19 years	47.4	51.2	53.9	53.2	46.0	36.7
HLFS 20-24 years	67.2	70.2	69.1	68.3	66.4	63.7
SoFIE 20-24 years	73.0	76.8	75.6	71.7	70.3	70.6
Studying rates						
HLFS 16-19 years	66.5	65.7	66.4	68.6	68.9	69.6
SoFIE 16-19 years	65.0	65.8	66.4	63.8	66.6	53.8
HLFS 20-24 years	36.1	35.4	36.5	37.0	37.7	36.7
SoFIE 20-24 years	33.2	32.0	34.3	32.8	35.1	31.0

Figure A1.1: NEET, employment and studying rates as at the time of the interview



Appendix 2: Attrition patterns and impacts

To assess the size and impacts of response attrition, we selected everyone who was a respondent in SoFIE at wave 1 or the child of a respondent, who should have been surveyed for the entire period when they were aged 16–19 years if there was no attrition. We analysed their actual response patterns at 16 years and 19 years. Results are shown in Table A2.1.

We find that 17.5 percent of this group left SoFIE before their interview at 16 years, and 36 percent in total left before their interview at 19 years of age. The fourth column of the table gives the total rate of attrition prior to the interview at 19 years. The variation in attrition rates the table indicates that attrition rates are generally higher for individuals in lower socio-economic groups.

The rates of attrition were:

- somewhat higher for males than females
- substantially higher for young people of Māori and Pacific ethnicity than for Europeans
- higher for the younger individuals in our sample, who needed to stay in the survey for longer before reaching their 16th birthday
- substantially higher for children who were living in a rented house at wave 1 (55 percent rather than 27 percent)
- substantially higher for children living in neighbourhoods that were ranked at the top three deciles of the New Zealand Deprivation Index¹⁰ than for children whose neighbourhoods were ranked at the opposite end of the index
- higher for children who lived in single-parent families at the wave 1 interview date or were not living with a parent at wave 1 than for children in two-parent families
- higher for children whose parent or parents weren't employed at the wave 1 interview date than for children with one or two employed parents in co-residence.

The overall pattern is for attrition to be correlated with lower socio-economic status.

This is unfortunate because the incidence of long-term NEET is also correlated with lower socio-economic status. We give data on the proportion of the responding youth who experienced at least one long-term NEET spell while aged 16–19 in the right-hand column of the table. (Note that these proportions are not weighted to account for different sample selection probabilities and so are inferior to the measures of the incidence of long-term NEET given later in the paper.) With the exception of gender and early parenthood, most of the characteristics that are positively associated with higher attrition rates are also positively associated with higher rates of long-term NEET.

This points to a real likelihood that our estimates of the long-term NEET rates of 16–19 year olds would be higher if there was no attrition and more of the 'high risk' individuals had remained in the sample until wave 8.

¹⁰ See footnote 4 for more information about the New Zealand Deprivation Index 2001.

Table A2.1: Attrition rates for survey respondents who should have been observed at ages 16–19

	Number of wave 1 respondents	Left survey before interviewed at 16 years %	Interviewed at 16 years %	Left survey before interviewed at 19 years %	Interviewed at 19 years %	At least one long-term NEET spell, if interviewed at both 16 and 19 %
All	2005	17.5	82.5	36.2	63.8	21.3
Male	1045	17.8	82.2	38.7	61.3	19.2
Female	960	17.2	82.8	33.5	66.5	23.5
Ethnic group (all responses)						
European	1419	12.5	87.5	28.1	71.9	19.5
Māori	479	29.4	70.6	53.2	46.8	31.7
Pacific	240	28.8	71.3	57.5	42.5	36.3
Asian	161	18.6	81.4	39.8	60.2	19.6
Place of birth						
Born in NZ	1751	18.4	81.6	36.8	63.2	21.0
Born overseas	254	11.4	88.6	31.9	68.1	23.7
Age at wave 1						
12	556	29.3	70.7	42.4	57.6	22.2
13	508	20.1	79.9	39.0	61.0	17.1
14	496	13.1	86.9	32.5	67.5	21.2
15	445	4.7	95.3	29.4	70.6	24.8
Residence at wave 1						
Largest 3 cities	903	18.5	81.5	36.8	63.2	23.5
Other main urban areas	551	17.1	82.9	37.4	62.6	18.8
Minor urban areas	155	14.2	85.8	30.3	69.7	20.4
Small towns	191	18.8	81.2	39.3	60.7	29.3
Rural areas	205	15.6	84.4	32.2	67.8	12.9
Dwelling at wave 1						
Home not rented	1323	12.2	87.8	26.7	73.3	18.1
Home rented	682	27.9	72.1	54.7	45.3	31.4
Neighbourhood at wave 1						
Lowest 3 deciles dep index	558	11.5	88.5	24.0	76.0	12.7
Middle 4 deciles dep index	691	13.0	87.0	30.1	69.9	23.4
Highest 3 deciles dep index	756	26.1	73.9	50.8	49.2	28.5
Number of parents in co-residence						
0	91	37.4	62.6	58.2	41.8	28.9
1	560	23.6	76.4	45.9	54.1	30.4
2	1354	13.7	86.3	30.7	69.3	18.1
Number of employed parents in co-residence						
0	734	24.5	75.5	46.9	53.1	26.4
1	529	20.6	79.4	38.8	61.2	23.5
2	742	8.4	91.6	23.9	76.1	16.6

We explored the sensitivity of the long-term NEET rate for 16–19 year olds, measured at the time of the interview, to survey attrition by:

- applying the longitudinal weights that were calculated by Statistics NZ to adjust differences in the response patterns of different groups in the sample after wave 1
- applying an additional weight adjustment designed to preserve the proportion of respondents who were classified to each decile of the NZDep Index at wave 1 at each of the remaining waves. Through this weighting adjustment, people who lived in relatively deprived areas at wave 1 (who were more likely to leave) were weighted up relative to those who lived in the least deprived areas in wave 1.

Table A2.2: Impact of alternative weights on estimates of the long-term NEET rate for 16–19 year olds

Wave	Wave 1 weights	Wave-specific longitudinal weights	Difference between (1) and (2)	Wave-specific weights, adjusted to maintain original NZ Dep Index proportions	Difference between (1) and (4)
	(1)	(2)	(3)	(4)	(5)
1 2002/03	4.8	4.8	1.00	4.8	1.00
2 2003/04	5.8	6.2	1.06	6.1	1.05
3 2004/05	5.4	5.9	1.08	6.0	1.12
4 2005/06	5.4	5.9	1.09	6.4	1.17
5 2006/07	4.1	4.6	1.12	4.9	1.21
6 2007/08	5.4	6.0	1.11	6.2	1.15
7 2008/09	7.4	8.8	1.19	9.7	1.31

Notes: The figures in the table represent the percentage of 16–19 year olds who were experiencing a long-term NEET spell at the time of their interview.

The results are shown in Table A2.2 and illustrated in Figure A2.1. The first column of the table gives base estimates calculated using wave 1 weights. The second column shows the rates obtained if the longitudinal weights for each wave are used. The third column shows the rates obtained if we adjust those longitudinal weights in such a way as to preserve the distribution of respondents by NZ Deprivation Index decile at wave 1 in each subsequent wave. Only waves 1 to 7 are shown because measures of long-term NEET rates at the final interview are distorted by ‘censoring’.¹¹

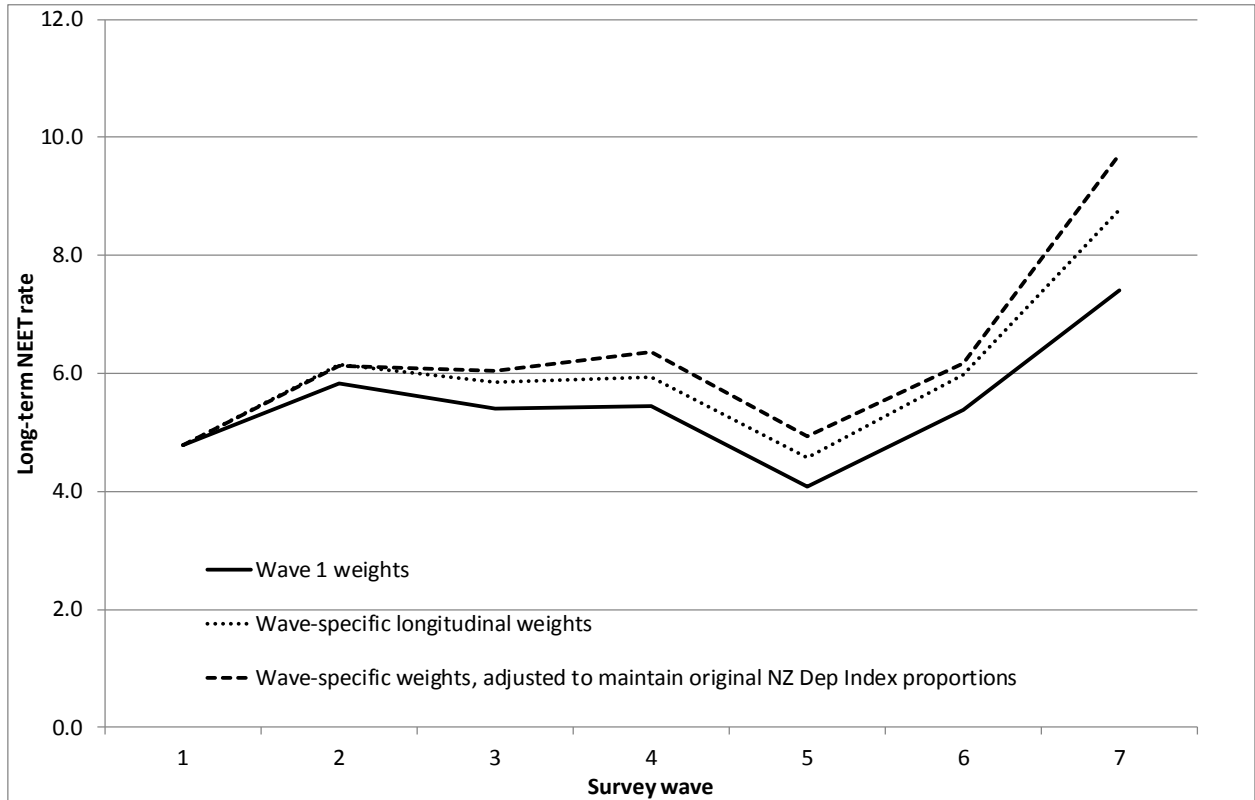
The results suggest that, by wave 7, the true long-term NEET rate for 16–19 year olds may have been 20–30 percent higher than the rate that is estimated using wave 1 weights, as used in this paper. If the reported long-term NEET rate was 10 percentage points, for example, the true rate (using a 30 percent adjustment factor) would have been 13 percentage points (10 x 1.30).

Because the impact of attrition increases gradually over the life of the survey, the average underestimation of long-term NEET rates in the results presented in this paper is likely to be half as

¹¹ The end of the survey window means we can’t identify all spells that would eventually become long-term.

large or about 10–15 percent. If a particular rate given in this paper was 10 percentage points, for example, the true rate would have been 11.5 percentage points (10 x 1.15).

Figure A2.1: Impact of alternative weights on estimates of the long-term NEET rate for 16–19 year olds



Appendix 3: Further results on NEET patterns using four-year and six-year observation periods

Table A3.1: NEET patterns at ages 16–19

	N	Spell pattern				Median days by spell pattern			
		None %	One spell, < 6 months %	Multiple spells, < 6 months %	One or more long spells %	One spell, < 6 months	Multiple spells, < 6 months	One or more long spells	All youth
All	1191	37.0	28.0	16.5	18.6	45	124	411	40
Male	595	38.6	27.3	17.1	17.0	45	118	421	31
Female	596	35.4	28.6	15.9	20.1	46	124	395	45
European	960	39.1	27.7	16.2	17.0	44	121	393	31
Māori	195	29.1	22.5	17.9	30.5	56	141	474	90
Pacific	91	28.8	26.5	10.0	34.7	32	153	379	90
Age left school									
15 or 16	261	22.4	22.2	16.7	38.7	41	154	551	42
17	463	36.5	29.7	17.5	16.2	51	121	365	145
18 or 19	450	44.9	29.7	15.6	9.8	45	119	335	27
Highest school qualification when left school									
None	182	21.6	16.8	15.8	45.8	60	113	558	190
NCEA L1	180	27.0	27.8	16.6	28.6	45	153	462	70
NCEA L2	344	43.0	28.2	14.3	14.5	45	113	364	31
NCEA L3	474	41.5	31.6	17.5	9.4	46	121	334	31
Parental status									
Not a parent by 20 years	1130	37.9	28.9	16.8	16.4	45	123	385	32
Parent by 20 years	61	15.4	S	S	69.4	S	S	594	411
Number years with some post-school study									
0	287	33.6	30.3	8.8	27.3	50	140	501	45
1	171	33.9	26.5	19.2	20.4	44	132	398	45
2	422	35.0	28.2	19.8	17.0	46	123	393	46
3	311	44.3	26.3	17.0	12.4	41	123	335	30

Notes: S = suppressed for confidentiality reasons.

Table A3.2: NEET patterns at ages 18–21

	N	Spell pattern				Median days by spell pattern			
		None %	One spell, < 6 months %	Multiple spells, < 6 months %	One or more long spells %	One spell, < 6 months	Multiple spells, < 6 months	One or more long spells	All youth
All	917	31.1	25.1	22.8	21.0	56	123	449	62
Male	440	34.9	24.9	24.3	16.0	48	124	418	56
Female	477	27.5	25.4	21.5	25.5	59	121	454	73
European	746	33.1	26.2	21.9	18.8	47	111	428	53
Māori	132	19.9	15.9	21.4	42.8	62	125	548	188
Pacific	51	26.9	26.6	S	35.7	62	S	454	90
Age left school									
15 or 16	198	37.2	18.9	11.8	32.1	59	135	746	53
17	353	31.8	28.5	20.4	19.3	47	118	424	59
18 or 19	351	27.8	25.9	30.9	15.4	62	123	371	73
Highest school qualification when left school									
None	137	32.7	15.2	11.2	40.9	59	125	799	105
NCEA L1	157	33.2	19.9	16.0	30.9	53	150	548	77
NCEA L2	229	31.9	30.2	21.7	16.1	59	108	387	47
NCEA L3	384	29.0	27.1	29.5	14.4	47	143	348	62
Parental status									
Not a parent by 20 years	829	32.6	26.8	23.8	16.8	55	121	412	59
Parent by 20 years	88	12.9	S	11.1	70.6	S	150	761	548
Parental status if female									
Not a parent by 20 years	407	30.4	28.4	23.7	17.5	59	118	411	62
Parent by 20 years	70	S	S	S	85.5	S	S	761	736
Number years with some post-school study									
0	204	37.4	23.3	8.9	30.5	59	89	641	59
1	105	22.7	20.2	19.1	38.0	47	155	548	155
2	124	21.8	24.1	26.7	27.4	32	150	494	81
3	484	32.4	27.0	27.9	12.7	59	117	348	59

Notes: S = suppressed for confidentiality reasons.

Table A3.3: NEET patterns at ages 20–23

	N	Spell pattern				Median days by spell pattern			
		None %	One spell, < 6 months %	Multiple spells, < 6 months %	One or more long spells %	One spell, < 6 months	Multiple spells, < 6 months	One or more long spells	All youth
All	745	41.6	19.5	20.0	18.9	42	122	431	31
Male	349	48.5	16.2	19.8	15.5	35	138	409	9
Female	396	35.4	22.6	20.1	21.9	49	120	485	49
European	598	44.4	19.7	18.0	17.9	37	120	434	22
Māori	103	37.0	16.8	18.8	27.4	42	133	806	56
Pacific	42	40.2	S	S	35.7	S	S	485	79
Age left school									
15 or 16	116	57.0	7.2	12.0	23.8	78	95	623	12
17	195	44.7	23.6	15.5	16.1	28	109	457	0
18 or 19	204	35.3	23.3	25.9	15.5	59	144	417	54
Highest school qualification when left school									
None	97	39.1	12.2	15.5	33.2	78	100	606	67
NCEA L1	118	56.1	8.5	12.0	23.4	54	124	521	0
NCEA L2	168	56.1	14.8	8.3	20.8	37	120	388	0
NCEA L3	340	33.5	25.4	28.2	12.8	40	138	420	45
Highest qualification at 20th birthday									
None or NCEA L1	149	49.9	9.7	10.9	29.4	54	130	535	9
NCEA L2	127	47.2	12.7	12.1	28.1	30	138	341	14
NCEA L3	258	32.3	26.3	31.0	10.3	40	133	410	46
Post-school, L1-L3	125	42.6	17.7	19.8	20.0	42	95	674	29
Post-school, L4 or higher	70	51.0	22.1	11.9	15.0	59	97	374	0
Parental status									
Not a parent by 24 years	611	44.9	21.6	20.4	13.1	42	122	388	21
Parent by 24 years	134	22.2	7.4	17.6	52.7	86	119	545	260
Parental status if female									
Not a parent by 24 years	303	42.5	26.9	21.4	9.2	45	120	388	27
Parent by 24 years	93	S	S	15.1	73.5	S	119	545	402
Number years with some post-school study									
0	229	54.7	12.5	8.3	24.5	72	122	440	0
1	101	38.2	19.7	15.3	26.8	44	120	781	41
2	105	33.8	21.6	26.4	18.2	30	91	431	44
3	310	36.5	23.5	26.9	13.2	37	144	374	41

Notes: S = suppressed for confidentiality reasons.

Table A3.4: NEET patterns at ages 16–21

	N	Spell pattern				Median days by spell pattern			
		None %	One spell, < 6 months %	Multiple spells, < 6 months %	One or more long spells %	One spell, < 6 months	Multiple spells, < 6 months	One or more long spells	All youth
All	493	24.0	23.3	24.9	27.7	59	124	444	84
Male	243	28.6	23.1	25.3	23.0	51	148	490	72
Female	250	19.8	23.5	24.5	32.1	59	117	436	103
European	403	24.9	23.9	24.8	26.4	48	121	436	76
Māori	76	13.8	12.9	30.3	42.9	62	104	548	201
Pacific	30	29.4	S	S	35.8	32	S	365	54
Residential location at 16 years									
Neighbourhood in lowest 3 deciles of NZ deprivation index	183	27.3	24.1	26.5	22.1	59	124	371	67
Neighbourhood in middle 4 deciles of NZ deprivation index	193	23.6	19.7	25.4	31.3	42	120	540	99
Neighbourhood in highest 3 deciles of NZ deprivation index	117	16.9	28.6	19.6	34.9	59	147	591	147
Age left school									
15 or 16	90	17.5	14.9	17.4	50.3	41	139	736	308
17	198	23.0	25.1	25.9	26.1	59	121	423	87
18 or 19	195	28.9	25.1	27.9	18.1	59	123	346	62
Highest school qualification when left school									
None	74	14.3	13.1	12.5	60.2	43	139	845	366
NCEA L1	76	18.3	16.3	26.3	39.1	51	168	548	168
NCEA L2	143	26.5	25.5	27.8	20.1	59	113	423	62
NCEA L3	198	27.3	27.7	25.9	19.1	59	124	346	62
Parental status									
Not a parent by 22 years	456	25.0	25.0	26.4	23.6	59	124	413	76
Parent by 22 years	37	S	S	S	85.7	S	S	747	612
Parental status if female									
Not a parent by 22 years	221	22.0	26.3	27.5	24.2	59	117	371	84
Parent by 22 years	29	S	S	S	97.7	S	S	747	641
Number years with some post-school study									
0	84	29.3	20.1	13.3	37.3	74	147	670	104
1	41	17.5	21.5	20.4	40.5	59	168	423	168
2	76	12.7	18.4	21.9	47.1	31	171	458	221
3	292	26.0	25.7	29.5	18.8	59	120	363	65

Notes: S = suppressed for confidentiality reasons.

Appendix 4: Regression analysis of the likelihood of having a long-term NEET spell

Regression models can be used to better identify the pattern and strength of association between particular characteristics and the likelihood of experiencing a long-term NEET spell. Understanding these associations may be useful for predicting which individuals and groups are most likely to have long-term NEET spells while aged 16–19.

We begin by considering the likelihood of having a long-term NEET spell at any time between 16 and 20 years. The analytical sample for these regressions is restricted to the teenagers who responded to the survey for the entire period from their 16th to their 20th birthday. The dependent variable is 1 if a long-term NEET spell was experienced during this four-year period and 0 otherwise. The explanatory variables initially are time-invariant characteristics (such as gender, ethnicity) and characteristics of the young person’s family and living circumstances at the age of 16 – variables that are largely exogenous to the decisions and behaviour of the young person.

Information on educational outcomes between 16 and 20 years is not included at this point because the time that was spent at school directly determines the time that was available for NEET spells from 16–20 years. The explanatory variables are described in Table A4.1. Initially, we include gender; ethnic group; whether the teenager lived in a rural, small town or urban location at 16 years; the deprivation index associated with the neighbourhood of residence at 16 years, defined as an ordinal variable ranging from 1–10, where 10 represents most deprived; whether the teenager lived in a rental property at 16 years; and family structure at 16 years, interacted with the employment situation of the parents.

Table A4.1 : Explanatory variables used in the regressions

Variable	Measure	Omitted group
Gender	Indicator for female.	Male
Ethnic group	Indicators for each of Māori, Pacific and Asian ethnicity.	European only
Rural/urban location	Indicators for living in a small town or provincial centre and living in a rural location. Measured at 16 years.	Urban – living in a major or minor city
Neighbourhood deprivation index	Ordinal measure ranging from 1–10, based on the classification of each meshblock in New Zealand to a decile of the NZ Deprivation Index 2001. Measured at 16 years. A value of 10 represents the most deprived.	
Lived in a rental property	Indicator variable. Measured at 16 years.	Living in an owner-occupied dwelling
Family structure	Indicators for living away from parents, living with a single parent who was not employed, living with a single parent who was employed, living with two non-employed parents and living with two parents including one who was non-employed. Measured at 16 years.	Living with two employed parents
Highest school qualification	Indicators for the completion of NCEA level 1, 2 and 3.	No school qualifications
Parent before 19 years	Indicator for having a child before 19th birthday.	No children
Psychological illness	Indicator for reporting a diagnosis of a psychological illness before 19th birthday.	None reported

Table A4.2 reports the estimated marginal effect of each explanatory variable on the likelihood of having a long-term NEET spell. These marginal effect estimates are derived from coefficients estimated in logistic regressions (the latter are not shown). Each marginal effect represents the estimated percentage point change in the likelihood of experiencing a long-term NEET spell that is associated with moving from the omitted group to the reference group (if the variable is categoric) or with a one unit change in the explanatory variable (if numeric). Statistically significant estimates are highlighted in bold type.

Table A4.2: Marginal effects from logistic regression models of the likelihood of having a long-term NEET spell while aged 16–19

	Long-term NEET at 16-19 years		Long-term NEET at 19 years		Long-term NEET at 19 years	
	Marg Effect	SE	Marg Effect	SE	Marg Effect	SE
Female	0.024	0.023	0.043	0.017	0.042	0.018
Māori	0.076	0.026	0.029	0.022	0.008	0.021
Pacific	0.043	0.040	0.027	0.026	0.049	0.024
Asian	-0.036	0.045	0.004	0.036	0.039	0.031
Living circumstances at 16 years						
Small city or town	0.017	0.032	0.019	0.022	-0.003	0.020
Rural location	-0.017	0.044	0.001	0.037	-0.017	0.032
Neighbourhood deprivation index	0.015	0.004	0.013	0.003	0.008	0.003
Lived in rental property	0.104	0.027	0.039	0.021	0.008	0.019
Not living with parents	0.094	0.063	0.051	0.046	0.019	0.041
Living with non-working single parent	0.197	0.048	0.065	0.034	0.046	0.030
Living with working single parent	0.053	0.033	0.012	0.026	0.014	0.025
Living with two non-working parents	0.055	0.067	-0.020	0.060	-0.021	0.058
Living with two parents, one working	0.154	0.027	0.090	0.025	0.059	0.025
NCEA L1					-0.055	0.023
NCEA L2					-0.097	0.021
NCEA L3					-0.134	0.025
Parent by 19 years					0.186	0.033
Psychological illness by 19 years					0.050	0.031
N dep var=1	273		125		125	
N dep var=0	918		1066		1066	
N	1191		1191		1191	

Māori, youth who were living in relatively more deprived neighbourhoods at 16 years, youth who were living in rental properties at 16 years and youth who were living with a non-employed parent at 16 years were significantly more likely to have a long-term NEET spell while aged 16–19 than the omitted groups: Europeans, those living in less deprived neighbourhoods, those living in an owner-occupied home and those living in a two-parent two-job family. The effects of the other explanatory variables in the regression, including gender, Pacific and Asian ethnicity and whether living in a rural, small town or urban location at 16 were not significant.

The deprivation index of the neighbourhood lived in at 16 years has a particularly large effect in these results. Each one-unit increase in the variable (which ranges from 1–10) is associated, on average, with a 1.5 percentage point increase in the likelihood of experiencing long-term NEET

between 16 and 19 years. The estimated likelihood for someone at the highest level of the index is 13.5 percentage points higher than that for someone at the lowest level. Living in rental property and living with a non-employed parent are also associated with reasonably large differences in the estimated likelihood of a long-term NEET spell.

A second set of regressions focused on the likelihood of experiencing a long-term NEET spell at the age of 19, after the completion of secondary school. The dependent variable for these regressions is set to 1 if a long-term spell occurred that fell partly or fully into the interval between the 19th and 20th birthdays.

The middle section of Table A4.2 gives the results obtained when we regressed this new dependent variable on the explanatory variable used previously. Being female becomes a statistically significant predictor of long-term inactivity, reflecting the fact that females make up more than half of the teenagers with long-term NEET at 19 years. Ethnicity becomes insignificant. The deprivation index of the neighbourhood and the indicators of family structure and parental employment at 16 years each continue to play some role as predictive factors.

We add measures of the teenager's completed school qualifications, parental status by their 19th birthday and whether the young person had reported a psychological illness by their 19th birthday, in the results shown on the right-hand side of table A4.2.¹² These variables represent outcomes that may be directly influenced by the choices and behaviours of the teenagers, along with their NEET outcomes, so there is likely to be some reverse causation from the dependent variable to the explanatory variables, which may bias the parameter estimates. The results obtained should be interpreted as showing correlations rather than the direct causal effect of a particular explanatory variable on the likelihood of having a long-term NEET spell.

Level of qualification attainment at school and becoming a parent by 19 years are significant parameters in the results. Teenagers with NCEA level 1 qualifications are estimated to have a 5.6 percentage point lower likelihood of being long-term NEET at 19 years than teenagers in the 'no qualifications' group. Those with NCEA level 3 qualifications are estimated to have a 13.4 percentage point lower likelihood of being long-term NEET at 19 years than the group with no qualifications.

Teenagers who had become parents have a 18.6 percentage point higher likelihood of NEET at 19, controlling for the effects of the other variables in the regression.

A few other characteristics in the regression results are also statistically significant – being of Pacific ethnicity, living in a deprived neighbourhood at 16 years and living in a two-parent family in which only one parent was employed when aged 16 are all associated with modest increases in the estimated likelihood of long-term inactivity at 19 after controlling for the effects of school attainment and parenthood.

¹² Almost everyone in the sample had left school by their 19th birthday, and those who hadn't did so soon after.

Table A4.3: Marginal effects from logistic regression models of the likelihood of having a long-term NEET spell while aged 19 – results for males and females

	Males		Females	
	Marg Effect	SE	Marg Effect	SE
Māori	0.003	0.035	0.023	0.036
Pacific	-0.021	0.043	0.103	0.042
Asian	0.064	0.042	-0.030	0.053
Living circumstances at 16 years				
Small city or town	-0.017	0.033	0.016	0.033
Rural location	0.005	0.040	-0.027	0.054
Neighbourhood deprivation index	0.012	0.005	0.005	0.005
Lived in rental property	-0.021	0.036	0.034	0.027
Not living with parents	0.018	0.043	0.002	0.055
Living with non-working single parent	0.080	0.037	0.005	0.048
Living with working single parent	0.035	0.030	-0.010	0.044
Living with two non-working parents	-0.018	0.056	-0.014	0.068
Living with two parents, one working	0.059	0.036	0.062	0.036
NCEA L1	-0.026	0.034	-0.092	0.038
NCEA L2	-0.081	0.036	-0.120	0.035
NCEA L3	-0.089	0.032	-0.169	0.038
Parent by 19 years	0.097	0.080	0.222	0.049
Psychological illness by 19 years			0.076	0.039
N dep var=1	49		76	
N dep var=0	546		520	
N	595		596	

After including measures of school attainment and early parenthood, the independent effect of Māori ethnicity on the likelihood of long-term NEET spells at 19 years disappears, suggesting that the Māori-European gap evident in the descriptive statistics on long-term NEET (as presented earlier in this paper) is mainly due to the differences in these two factors.

Results for males and females, estimated in separate regressions, are given in Table A4.3. These estimates show that school achievement is strongly and significantly associated with lower risks of long-term NEET at 19 years for both males and females. Early parenthood, not surprisingly, plays a major role in the results for females but is less important (and not statistically significant) in the results for males. Females who reported a psychological illness are estimated to have a 7.6 percentage point higher likelihood of long-term NEET at 19 years than other females. Few males in the sample reported having a psychological illness and so this factor wasn't included in the male regression. Measures of neighbourhood and family 'disadvantage' at 16 years are associated with higher rates of long-term NEET at 19 years for males but are not significant in the female regression. Females in Pacific ethnic groups had a significantly higher risk of long-term NEET at 19 than European females, controlling for other factors.

Summarising these results, several indicators of family and neighbourhood disadvantage at 16 years were statistically associated with a higher likelihood of long-term NEET at ages 16–19: living in a neighbourhood with a high NZ Deprivation Index score, living in a rental property and living with a non-working parent. Māori youth also had a higher likelihood of being long-term NEET in this age group. When we modelled the likelihood of long-term NEET at 19 years, bringing in measures of school attainment and early parenthood, we found that these two sets of variables (low school attainment and early parenthood) had relatively large effects on the estimated likelihood for both males and females. Pacific ethnicity and psychological ill health (for females) and selected indicators of family or neighbourhood disadvantage at 16 (for males) were also associated with a higher likelihood of long-term NEET at 19 years.

