

Department of Labour
TE TARI MAHI



Trends in Youth Activity in New Zealand from 1985-2004

July 2006

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ABSTRACT - TRENDS IN YOUTH ACTIVITY IN NEW ZEALAND FROM 1985-2004*

Limited information is currently available on youth activity in New Zealand. This paper uses data primarily from the Household Economic Survey (HES) to provide a comprehensive picture of the activities undertaken by New Zealand youth during this transition to adulthood from 1985 to 2004. It presents evidence on both labour market and education activities and the intersection of the two. It also places these results in context by comparing the findings for New Zealand to similar evidence for Australia. There has been steady growth in study rates throughout the sample period. The fraction of youth only employed increases steadily with age before levelling-off at age 24 for individuals born after 1969 and at age 18 for older cohorts, while the fraction only studying declines steadily with age, but at a slower rate for each successive cohort. The fraction both employed and studying has increased with each successive cohort, but declines with age after age 16 or 17 within cohorts. Business cycles appear to have little impact on the fraction only employed or only studying, but have larger effects on the fraction employed and studying and, in particular, on inactivity.

Keywords: youth, New Zealand, employment, education, inactivity

JEL-Code: I21, J22, J24

* Earlier drafts of this paper were written while the author was employed at the New Zealand Department of Labour. The author thanks the Department of Labour for providing continued funding for this paper and Sylvia Dixon, Sarah Crichton, Deborah Cobb-Clark, and Dean Hyslop for providing valuable comments. Any views expressed are the sole responsibility of the author and do not purport to represent those of the New Zealand Department of Labour, Statistics New Zealand, or Motu Economic and Public Policy Research. Access to the data used in this study was provided by Statistics New Zealand under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975.

INTRODUCTION

Limited information is currently available on youth activity in New Zealand. In their teenage years and twenties, young people progress from a stage where education is the main focus of their life to one where most are employed and/or starting families. The path of this youth transition is typically thought to have a lasting impact on individuals well into their adult life (Gardecki and Neumark 1998; Maloney 2004a). This paper uses data primarily from the Household Economic Survey (HES) to provide a comprehensive picture of the activities undertaken by New Zealand youth during this transition to adulthood from 1985 to 2004. It presents evidence on both labour market and education activities and the intersection of the two.¹

This paper is divided into three main sections. None of the representative surveys undertaken in New Zealand provide the ideal data to for characterising past trends in youth activity. The HES provides the most useful data for this exercise, but has a small sample size which limits the feasibility of many sub-group comparisons. The Household Labour Force Survey (HLFS) has a much large sample size than the HES, but has a number of limitations in regards to measuring youth activity. However, most official information on youth activity in New Zealand is currently derived using the HLFS (Statistics New Zealand 2003; Ministry of Social Development 2003; Organization for Economic Cooperation and Development 2003).

In the first section, the characteristics of these surveys are described, focusing on their ability to measure jointly defined employment and education status and comparisons are made between the statistics generated from each of these datasets to judge their quality and comparability. These results are also compared to corresponding estimates from the 1996 and 2001 Census and the 1996 HLFS Education and Training Supplement (HLFS-ETS) to further gauge their usefulness.

In the second section, the HES is used to create consistent measures of youth activity for the years 1985 through 2004. Graphical and tabular analyses are used to examine trends in youth activity over time. This analysis is done separately for individuals aged 15 to 19 (referred to as youth for the rest of the paper) and those aged 20 to 24 (referred to as young adults). These results are further broken down by gender and ethnicity. The analysis in the section is complementary to the evidence presented in Ministry of Social Development (2003).

In the third section, the labour market and educational activity of cohorts of individuals (i.e. individuals born in the same few years) are followed over time. By focusing on cohorts it is straightforward to separate changes in outcomes over time that have resulted from differences in the behaviour of a new group of

¹ See Dixon (1996) for an overview of long-term trends in labour force participation in New Zealand for all age-groups.

young people from those that have resulted from the aging of the current group of young people. Attitudes towards education and work are thought to form at a young age and thus changes over time are likely to be driven mainly by differential experiences of new cohorts (Maloney 2004b). Again, results are broken down by gender and ethnicity to provide a richer picture of youth transitions in New Zealand.

COMPARABILITY OF YOUTH ACTIVITY ACROSS DATA SOURCES

The HLFS and HES can both be used to characterise youth activity. The HLFS collects quarterly information on employment status, job search activity, education and basic demographic information on individuals and households. The main objective of the HLFS is to produce a comprehensive range of statistics relating to the employed, the unemployed and those not in the labour force who comprise New Zealand's working-age population. This survey began in the fourth quarter of 1985 and has continued since on a quarterly basis. A representative sample of 15,000 households and approximately 30,000 individuals in the civilian non-institutionalised usually resident population aged 15 years and over are surveyed each quarter. This large sample size is one of the main advantages of working with the HLFS; data are available on between 2,000 and 2,500 youth and young adults in each quarter.²

The HES collects annual information on household income and expenditure, as well, as a wide range of demographic information on individuals and households. The three principal objectives of this survey are to provide expenditure statistics for use in the revision of the CPI, to provide expenditure statistics for use in preparing New Zealand's system of national accounts, and to provide selected socio-economic statistics on households and their members. The survey began in 1974 and was surveyed annually until 1998, and thereafter tri-annually. A sample of approximately 3,000 eligible responding households is achieved each year, divided equally between the four quarters. This smaller sample size is the main disadvantage of working with the HES; data are only available on roughly 500 youth and young adults in each year.

The HLFS's primary focus is on measuring labour force status. Participation in other activities, including education, can only be measured tangentially through data collected for this primary focus. For example, Statistics New Zealand publishes official statistics on educational activity using the results from a question which asks, "*Last week was (name's) main activity:*" where the choices are (1) *Studying*; (2) *Retired*; (3) *At home looking after children*; (4) *At home not looking after children*; or (5) *Doing something else*. Significant problems exist with this question which are expected to lead to a large understatement of educational activity.

First, this question is only asked of individuals who are neither employed nor unemployed, are not starting a new job in the next four weeks, and in the last four weeks have not been looking for paid work.³ The official measure of employment in New Zealand includes all individuals who work any hours for pay

² This large quarterly sample size is a bit misleading because all dwellings in the HLFS sample frame are surveyed for eight consecutive quarters and thus most individuals contribute data in multiple quarters which reduces the effective independent sample size.

³ This is the population of individuals not in the labour force excluding those that having a job lined up already or are looking for work using non-active methods (such as looking through newspaper ads).

or profit or who work without pay in a family business or farm, thus many young people are not asked this question even though they have limited labour force attachment. Second, this question refers only to the previous week and thus students who are on term break, school holidays, sick, or otherwise absent from school in that week are not counted as studying. This is particularly problematic for the first and fourth quarter surveys where most all tertiary students are on break for the entire survey period and school-age students are on holidays during a ten-week period. Third, only one main activity can be chosen and thus individuals who spend time at home looking after children and also attend an educational institution, for example, may not answer '*studying*' when filling out the survey.

Table 1 tabulates employment status for youth (i.e. 15-19 year-olds) and table 2 tabulates employment status for young adults (i.e. 20-24 year-olds) in 1987, 1991, 1996, 2001 and 2004, with studying as a separate category that includes individuals who are either unemployed or not in the labour force (NILF) and are studying.⁴ The first column of these tables presents the official measure of youth activity. Employment rates for youth declined from 58% in 1987 to 46% in 2004 with most of this decline occurring between 1987 and 1991. Similarly, employment rates for young adults declined from 79% in 1987 to 68% in 2004. Unemployment rates (exclusive of unemployed students) fluctuated between 7-11% for youth and 4-10% for young adults during this time period, increasing from 1987 to 1991 and then declining thereafter for both groups. Study rates (exclusive of working students) increased from 25% in 1987 to 39% in 2004 for youth and from 3% to 13% for young adults over this time period.

Other HLFS questions also ask tangentially about educational activity even though these are not used by Statistics New Zealand to produce official statistics in this area.⁵ These are described in detail in Appendix A. The second through fifth columns in tables 1 and 2 explore the impact of using these additional questions to identify individuals who are either unemployed or NILF and are studying. In the second column, individuals who are NILF and report they are not searching for employment because they are attending an educational institution are considered studying as opposed to NILF. Because few people answer this question, this has a limited effect on the percentage of young people in each labour market activity. In the third column, we code as studying individuals who are NILF and report that they could not start a job in the last week if one was available because they are attending an educational institution. The cumulative effect of incorporating these two questions is a 1-2% increase in the study rate (and decreases the NILF rate)

⁴ These tables focus on the results for the census years of 1991, 1996, and 2001 and the first and last years of the sample (1987 and 2004) for conciseness. The HES survey year goes from the 2nd quarter of the prior calendar year to the 1st quarter of the current one. To allow direct comparability, the same survey year is used when calculating results from the HLFS. Graphical analysis is used later in this section to examine the entire time series of results. All results in the paper are weighted using the sample weights provided by Statistics New Zealand to insure representativeness.

⁵ Two additional questions on educational activity were added permanently to the HLFS in the June quarter of 2004. Later in this section, we will examine the usefulness of these questions in measuring youth activity.

for both age-groups. In the fourth column, all non-employed individuals that report that they are still at school when asked about completed qualifications are considered to be studying.⁶ This leads to a 4-6% increase in study rates for youth, coming in equal measure from both unemployment and NILF rates. Not surprisingly, since most all young adults have already completed school, study rates for young adults remain unchanged. In the fifth column, all non-employed individuals that have been out of work for less than one year and report leaving their last job to return to studies are coded as studying.⁷ Again, because of the restricted population group that answers this question, little change is seen in the employment status measure, with at most a 1% increase in study rates found for youth and young adults in particular years.

The HES asks questions similar to the HLFS to ascertain the labour force status of all individuals. These questions are less comprehensive but cover the major topics used to assign labour force status. Similar to what is done with the HLFS, most users of the HES create a measure of education activity using the a question which asks, "*Last week was your main activity...*" where the choices are (1) *Studying*; (2) *Retired*; (3) *At home looking after children*; (4) *At home not looking after children*; (5) *At home temporarily on accident compensation*; (6) *At home on an invalid or sickness benefit*; or (7) *Doing something else*. Most of the same caveats apply when using this question as when using the HLFS main activity question. One big difference is that, in the HES, this question is asked to all individuals besides those employed full-time (here defined as those usually working at least thirty hours per week). This allows educational status to be measured for the complete population of non-workers and for the identification of individuals who both work and study.⁸

In the sixth column of tables 1 and 2, the HES main activity question is just used to identify individuals NILF who are also studying (i.e. a similar population to the one to whom the HLFS main activity question is asked). Thus, the percentages in this column should be the same as those in the first column. Of course, the HLFS and HES are designed differently, ask different questions, and survey two

⁶ There are a few downsides to using this question to help measure youth activity. First, '*still at school*' was only added as a valid response to this question when the original HLFS questionnaire was revised in June 1990. Second, since it only applies to the school age population, many youth are still not captured by this question. Third, it is not clear what an individual means when they respond '*still at school*' in the sense are they answering that they attended school in the last regular school week or are they merely confirming that they are currently enrolled. Ideally, our measure of youth activity would only include as 'studying' individuals who are actively engaged in educational activities. In practice, it is particularly difficult for survey questions to capture this. For example, is a thesis student pondering ideas for their dissertation actively studying?

⁷ The main weaknesses of incorporating this information into our measure of employed status is that some individuals who report having left employment to '*return to studies*' may not be currently studying.

⁸ Prior to the 1992/1993 survey, the HES did not ask direct questions on job search. Instead, individuals could respond to the main activity question with '*seeking work*', in which case they were categorised as unemployed. Thus, it was not possible in these older surveys to be both unemployed and studying (i.e. as in the official HLFS definition).

different random sub-samples of the population, thus these results should not be identical, but merely similar. Employment rates in the HES are 7-11% lower for youth in the 1980s and 1990s, 1-4% lower for youth in the 2000s, and 0-4% lower for young adults in all years than in the HLFS. Similarly, study rates (exclusive of working students) in the HES are 9-13% higher for youth in the 1980s and 1990s, 3-4% higher for youth in the 2000s, and 1-4% higher for young adults in all years. The HES puts less emphasis on measuring labour force participation which may explain why employment rates are much lower for youth, who typically have quite marginal attachment to the labour force. It is unclear why this discrepancy has largely disappeared in the 2000s, but it may indicate that employed youth (of which there are fewer) are now relatively more attached to the labour force.

In the seventh column of tables 1 and 2, the HES main activity question is now used to identify all unemployed who are also studying and now classifies these individuals as studying. This leads to a 1-3% increase in study rates for both youth and young adults. In addition to the main activity question, the HES also asks whether any individuals in the household are enrolled in any sort of education. This question does not emphasize a time-frame or ask whether individuals are actively attending this educational institution. In the eighth column of tables 1 and 2, all non-employed who are reported as being enrolled in an educational institution are considered to be studying instead of unemployed or NILF. This measure provides an upper-bound estimate of the studying rate as it also includes individuals who are enrolled but not attending an educational institution, but has the benefit of including individuals who are regularly attending but do not consider this their 'main activity' or who did not attend in the last week because of term break, holidays, sickness, or other temporary absences. This results in a further 1-6% increase in study rates for youth and 1-3% increase for young adults.

Overall, these results suggest that the HES understates employment rates for youth and young adults, in particular for youth in the 1980s and 1990s, and that the HLFS using all available questions on educational activity captures most studying by non-employed young adults, but understates studying by non-employed youth, especially prior to 2001. The main focus of this paper is analysing the intersection of employment status and educational activity. While the simplified measure of youth activity presented in tables 1 and 2 is a useful starting point for comparing data sources, it does not allow us to examine the typically more complex patterns of youth activity. We expand upon this measure by further breaking down youth activity into eight mutual exclusive categories: (1) employed full-time and not studying; (2) employed part-time and not studying; (3) employed full-time and studying; (4) employed part-time and studying; (5) studying and not employed; (6) unemployed and not studying; (7) not in the labour force, home with kids, and not studying; and (8) not in the labour force, not home with kids, and not studying.⁹ The first four categories can

⁹ Individuals in the HES are classified as working full-time if they are usually employed for at least thirty hours. In the HLFS, actual hours worked in the last week are used instead to determine employment status, as this matches the time-frame over which educational activity is measured.

be added together to give the overall employment rate for these age-groups, categories three through five can be added together to give the overall study rate, and six through eight to give the inactivity rate. Results in this section are typically summarised using these three measures to focus the discussion. Government agencies in New Zealand and elsewhere have relied on the inactivity rate as a measure of unsuccessful youth transitions (Ministry of Social Development 2003).

Tables 3 (youth) and 4 (young adults) presents similar information as tables 1 and 2 for the census years of 1996 and 2001. The first three columns are calculated using the HLFS. In the first column, the main activity questions is used along with the two job search questions to assign people to one of the eight categories (remember, the two job search questions have a very limited impact on the results). In the second column, the '*still at school*' response is used in addition to these questions to classify people and, in the third column, both this and the why left last job question are used. Columns four and five are calculated using the HES. In the fourth column, the main activity question is used to classify people and, in the fifth, the enrolment question is used in addition to this question.

Study rates for youth range from 35% using the basic HLFS information to 77% using the HES with the enrolment question in 1996 and from 39% to 77% in 2001. These results indicate that the HLFS using all available information understates study rates by 6% compared to the main activity question in the HES and by 15-18% when the enrolment question is used as well. Inactivity rates for youth range from 10% using the HES with the enrolment question to 18% using the basic HLFS information in 1996 and from 6% to 17% in 2001. Inactivity rates are comparable between the HLFS using all available information and the HES using only the main activity question, but are 2-6% lower when using the HES with the enrolment question. Even using all available information, it is clear that the HLFS severely understates the proportion of youth workers who are also studying with the HES estimates indicating that between 48-66% (50-59%) of youth workers are studying in 1996 (2001) and the HLFS indicating only 38% (40%).

Study rates for young adults range from 9% using the basic HLFS information to 32% using the HES with the enrolment question in 1996 and from 14% to 34% in 2001. These results indicate that the HLFS using all available information understates study rates by 7-8% compared to the main activity question in the HES and by 19-21% when the enrolment question is used as well. Inactivity rates for young adults are quite comparable across the different definitions, 17-19% in 1996 and 20-23% in 2001, demonstrating that the HLFS mainly misses studying among the employed for this age-group. For example, the HES indicates that 8-26% of young adult workers are studying in 1996 and 16-29% are studying in 2001, while the HLFS only captures 1-2% of studying among these workers.

These results can be directly compared to results available from the census in each of these years. The census makes a useful comparison because it surveys the entire population and asks both basic questions for determining labour force

status and separate questions on educational activity to all individuals. However, there are a number of problems with the census questions on educational activity. First, the census is filled out during the first week of March and, as discussed below, measures education activity for some time prior to this week. Unfortunately, many university students are still on term break at this time and are likely to be missed by this question. Second, a different question is used in the 1996 and 2001 census making it impossible to compare results consistently over time (these questions are described in Appendix A). Third, item non-response rates (i.e. the failure to answer particular questions) are high in the census, particular among youth and young adults.

The fourth column of tables 3 and 4 report the comparable results from each census.¹⁰ Employment rates calculated using the census are generally comparable to those calculated using the HLFS for both youth and young adults. Study rates for youth in the census are similar to those measured in the HLFS using all available information and thus are lower than those measured in the HES even using just the main activity question. Interestingly, inactivity rates for youth are 5-7% higher in the census than those measured in the HLFS. This indicates that the census captures a larger share of working youth who also study than the HLFS, but reports lower study rates among the non-employed compared to the HLFS measure that incorporates the '*still in school*' question. On the other hand, study rates for young adults in the census are much higher than those reported in the HLFS and are similar to the HES measures (these rates are higher than the HES measure using only the main activity question, but lower than the measure which incorporates the enrolment question). Inactivity rates for young adults measured in the census are similar to both the HES and HLFS measures.

The September quarter of the 1996 HLFS included a one-off supplement called the Education and Training Survey (ETS), which was specifically designed to investigate the socio-demographic and educational profiles of those people who have participated in education and vocational (work related) training in the last year and/or those currently participating. This survey allows us to compare the previous results to those created using a more flexible measure of educational activity. In the seventh column, two questions on whether individuals have worked towards a qualification in the last year are used, in addition to the full set of HLFS questions, to classify individuals (see Appendix A for details).

Using this much broader definition of educational activity, 81% of youth are found to be studying and 7% are found to be inactive; for young adults, these numbers are 41% and 14%, respectively. The study rate for youth is similar to that measured in the HES, including the enrolment question, but the rate for young adults is 9% higher than the corresponding figure. The increased study rate found for young adults is mostly due to additional workers being recorded as studying, as little change is found in the inactivity rate for this group. The ETS data also show that a much higher percentage of working young people have touched the educational system at some point in the prior year (75% of youth and 36% of

¹⁰ The tabulated census data that was made available to the author did not allow for individuals not in the labour force to be classified as being at home with children versus other reasons.

young adults) versus just in the prior week. In general, these results indicate that many young people are rapidly moving in and out of the educational system making it difficult to measure their attachment to education without better data.

Two additional questions on educational activity were added permanently to the HLFS in the June quarter of 2004 with the goal of better measuring educational activity for older than school age youth. These questions are described in detail in Appendix B, which also presents the breakdown of youth activity in the June 2004 quarter using these new questions. Incorporating these new questions has a large effect on measured youth activity, increasing measured study rates. These results suggest that the HES provides reliable measures of youth activity for youth and young adults when the enrolment question is incorporated and that the HLFS understates both overall study rates and joint studying and employment for youth and young adults, although with the caveat that only one data point is being examined.¹¹

We further examine the comparability of the HLFS and HES measures by examining the trends in youth activity over time observed in these two datasets. Figure 1 graphs the fraction of youth and young adults in four mutually exclusive categories: i) only employed, ii) employed and studying, iii) only studying, and iv) inactive. All available HLFS and HES questions are used to calculate these rates, and the HLFS data are graphed on a quarterly basis and the HES on an annual basis (tri-annual since 1998) with the data point for a particular HES survey year plotted at the third quarter of the prior year (for example, the data point for the 1993 HES survey year is located at 1992 Q3). Vertical lines are added to each graph at 1990 Q2, when the HLFS survey was revised and added the 'still in school' question, and at 1992 Q3, when the HES survey was revised and main activity was now asked of the unemployed and part-time employed.

Four important results are revealed by this figure. First, there is strong seasonality in each measure of youth activity calculated using the HLFS. As previously discussed, HLFS questions typically refer only to the previous week and thus most tertiary students and many school-age students are on holiday when surveyed during the first and fourth quarter. For this reason, 'true' study rates are likely to be understated in these quarters and inactivity rates overstated. This is exactly what we see with study rates much lower and inactivity rates much higher in the first and fourth quarter of each year than in the second and third quarter. Second, the HLFS consistently overstates the proportion of youth and young adults that are only employed and understates the proportions that are employed and studying and only studying compared to the HES. Third, inactivity rates are quite similar for youth and young adults whether measured using the HES or the HLFS. Fourth, similar trends over time are found

¹¹ A second caveat, in interpreting this comparison for youth, is that the 'still in school' question in the HLFS and the 'enrolment' question in the HES may both capture many youth who are not actually actively engaged in educational activity. Without changing the wording of these questions or asking additional questions of individuals enrolled in school, it is not possible to examine this further. The alternative of only counting youth who report studying as their main activity as studying is an unappealing choice as it is difficult to know how individuals interpret the main activity question.

for all indicators of youth activity besides the fraction of young adults employed and studying whether measured using the HES or the HLFS. Overall, these results indicate that while only the HES can accurately measure the proportion of youth in different activities at a point in time, the HLFS can be used to measure changes in most youth activity between different years.

TRENDS IN YOUTH ACTIVITY 1985-2004

This section examines trends in youth activity over time using the HES data for different population sub-groups.¹² Figure 2 graphs the fraction of men aged 15-19, men aged 20-24, women aged 15-19, and women aged 20-24 in four mutually exclusive categories: i) only employed, ii) employed and studying, iii) only studying, and iv) inactive; based on both the main activity and enrolment questions in the HES. A vertical line is added to each graph for the 1993 survey year to indicate when the HES survey was revised and main activity started to be asked of the unemployed and part-time employed. Unfortunately, while these series are available on an annual basis from 1985-1998, the HES has only been fielded tri-annually since 1998. Table 5 presents the same information for the 1987, 1991, 1996, 2001, and 2004 HES survey years with youth activity broken down into the eight categories used in the previous section. Combined, this figure and table allows us to have a comprehensive look at the level and changes in youth activity over time.

The fraction of youth and young adults who are only employed has declined a great deal over the sample period for both men and women. In 1985, 45% of male youth, 38% of female youth, 81% of male young adults, and 60% of female young adults were only employed. For male youth, this figure declined to 15% in the depth of the 1991 recession before stabilising between 22-24% in the late-1990s and early-2000s. For female youth, this declined steadily before levelling off between 11-14% in the late-90s/early-00s. For male young adults, this also declined steadily before levelling off between 49-58% in the late-90s/early-00s. For female young adults, this declined to around 50% before levelling off in the early-90s and then declined further in the early-00s, ending at 38% in 2004.

At the same time, there has been a steady increase in the fraction of each group that is both employed and studying and only studying. Adding these together, overall study rates have increased from 48% for male youth, 51% for female youth, 12% for male young adults, and 12% for female young adults to 71%, 77%, 40%, and 48%, for these groups, respectively. For youth, study rates have levelled off in the mid-90s/early-00s, with some evidence of perhaps a small decline in the 2000s, but study rates for young adults appear to still be trending upwards. Interestingly, study rates for women have grown at a faster rate than those for men, and in 2004, women have 6-8% higher study rates than men. In particular, women are more likely than men to be both employed and studying while the fraction only studying is similar for both genders; for example, in 2004, 47% of employed male youth and 28% of employed male young adults are also studying while the corresponding figures for women are 70% and 40%, respectively.

Inactivity rates for youth and young adults of both genders are strongly cyclical. For each group, inactivity rates increased from 1985 before peaking in either

¹² Appendix table 2 shows the relevant sample characteristics for each survey year and sub-group used in the analysis.

1991 or 1992 during the post-structural reform recession. Since then, inactive rates have decreased fairly steadily, with an occasional levelling-off or small increase along the way. At the height of the recession, inactivity rates were 17% for male youth, 18% for female youth, 24% for male young adults, and 38% for female young adults. In 2004, they were 6%, 11%, 7%, and 14%, respectively. In general, business cycle effects appear weaker for youth than for young adults and for women then for men, with female youth having the least volatility in inactivity rates over time. While inactivity rates are typically higher for women than for men, between one-quarter and one-third of inactive female youth and nearly two-thirds of inactive female young adults report their main activity as 'at home taking care of children'. It is not obvious these individuals should be considered inactive. Once removing individuals in this category from overall inactive rates, female youth have slightly higher inactive rates than male youth, but among young adults, women have 1-4% lower inactivity rates than men.

Figure 3 and table 6 present the same information as in figure 2 and table 6, but instead of examining differences by gender, focus on differences between Pakeha/Europeans and Māori.¹³ In principle, youth activity rates can be calculated for the other tier one ethnicities, Pacific Islander, Asian, and Other, however, the small sample size of the HES make these estimates highly unreliable.¹⁴ The fraction of Pakeha/Europeans who are only employed declined steadily from 1985/87 to 1996/97, from 41% in 1986 to 11% in 1996 for youth and from 76% in 1987 to 54% in 1997 for young adults. This decline then levelled off for youth and the fraction who are only employed increased back to around 20% in the 2000s, but continued for young adults to around 50% in the 2000s. A quite different pattern is seen for Māori with the business cycle strongly correlated with employment. For example, the fraction of youth who are only employed declined from 55% in 1985 (i.e. higher than for Pakeha) to 10% in 1991, increased back to 20% in 1996, then 30% in 2001, before declining to 15% in 2004. This business cycle effect was even stronger for young adults, with the fraction only employed declining from 70% in 1985 to 30% in 1992, then increasing to 53% in 1995, declining back to 38% in 1997, before increasing to 67% in 2004.

Study rates have grown rapidly for Māori youth compared to Pakeha during the sample period. For example, in 1985, 18% of Māori youth were studying compared to 54% of Pakeha youth, while by 2004, 62% of Māori youth were

¹³ Prior to the 1992/1993 survey, individuals in the HES reported their self-identified main ethnicity. Since 1992/1993, individuals have been able to report up to three ethnicities. These individuals are assigned to one category using the Statistics New Zealand prioritisation scheme, which works as follows: any individual who answers Māori in any choice is Māori, any individual who answers Pacific Islander in any choice but not Māori is a Pacific Islander, any individual who answers Asian in any choice but not Māori or Pacific Islander is Asian, any individual who answers Other in any choice but not Māori, Pacific Islander, or Asian is Other, and all remaining individuals are Pakeha/European.

¹⁴ Similarly, not too much should be read into the exact results for Māori because the small sample size leads to a good deal of uncertainty around the point estimates. However, the general trends should be fairly accurate in what they reveal. One solution to this sample size problem is to aggregate multiple consecutive years of the survey. Unfortunately, this is not feasible for years after the HES went to tri-annual data collection in 1998.

studying compared to 74% of Pakeha. Interestingly, Māori youth are less likely than Pakeha to be employed and studying at the same time. For example, approximately 30-45% of studying Pakeha youth are also employed while the corresponding figure for Māori is 10-30%. Thus, the catch-up for Māori youth was driven by large increases in the fraction only studying. A less encouraging story is told for young adults. Both Māori and Pakeha study rates have grown for this group (from 6% in 1985 to 18% in 2004 for Māori and from 13% to 39% for Pakeha), but Māori rates have remained around half of Pakeha study rates. Approximately half of young adults who are studying are also employed for both ethnic groups.

In general, Māori have higher inactivity rates than Pakeha throughout the sample period. Inactivity rates for both ethnic groups are quite cyclical, but this is especially pronounced for Māori. For example, for youth, inactivity rates for Pakeha increased from 7% in 1985 to 12% in 1992 and then declined steadily to around 4% in the 2000s, while for Māori, inactivity rates increased from 26% in 1985 to 45% in 1991, then declined to 13% in 1996, increased to 24% in 1998, declined to 9% in 2001, before increasing back to 23% in 2004. Similarly, for young adults, inactivity rates for Pakeha increased from 13% in 1986 to 20% in 1992, then declined to around 11% in 1997, increased to 17% in 2001, and declined to 10% in 2004, while for Māori, inactivity rates increased from 24% in 1985 to 61% in 1991, then declined to 32% in 1995, increased to 40% in 1997, before declining to 15% in 2004. Some of these differences are accounted for by the larger number of Māori youth and young adults taking care of children, but this is only a small component in the overall difference.

TRENDS IN YOUTH ACTIVITY BY BIRTH COHORTS 1985-2004

In the previous section, cross-sectional graphs were used to examine changes in outcomes for two age-groups over time. The main advantage of cross-sectional graphs is that they concisely display the information at hand. The main disadvantage is that, in analysing repeated cross-sections, these graphs mix cohort, age, and time effects together. For example, the sample of 15-19 year-olds in 1998 includes some individuals who were also 15-19 year-old in 1997 and some individuals who are new to the sample (i.e. they were 14 in 1997). If outcomes differ in 1998 compared to 1997, we cannot tell if this occurs because i) aging has led last years 15-18 year-olds to change their behaviour (age effects), ii) the 14 year-olds who have entered the sample have different outcomes than the previous 14 year-olds, who are now 15 (cohort effects, these make more sense over a longer sample period), or iii) changes in the economy or institutions (for example, a change in student loan rules) have occurred which affect all 15-19 year-olds in 1998 leading to different outcomes than in 1997 (time effects).

In order to separately examine these effects, in this section, we use synthetic cohort graphs that display outcomes over time for groups of individuals born in the same few years (i.e. a cohort). These groups are referred to as 'synthetic' cohorts because different individuals are actually surveyed each year, and thus we will be examining a different representative sample of the same cohort in each year. This is best explained by turning to a graph. Figure 4 graphs the fraction of individuals in four mutually exclusive categories: i) only employed, ii) employed and studying, iii) only studying, and iv) inactive; for five five-year birth cohorts over the sample period.¹⁵ For example, the upper-left graph examines the fraction of individuals who are only employed. The data point furthest to the bottom-left in this graph is labelled '82'. This indicates that this point represents the fraction of 15-year-olds born between 1980 and 1984 that are only employed. Following to the right on the same line, the next point indicates the fraction of 16-year-olds in the same birth cohort who are only employed. This line continues until age 20 after which some individuals in this birth cohort are no longer surveyed (i.e. individuals born in 1984 turn 20 in 2004, the last year of the HES survey). Right on top of the point labelled '82' is a point labelled '77'. This is the fraction of 15-year-olds who are only employed in the previous five-year cohort of youth, i.e. individuals who were born between 1975 and 1979. This too is the first point on a line that follows this same group of people all the way until they are 24.

The fraction of 15-year-olds who are only employed is below 10% for all cohorts examined in this paper, and has declined to under 1% for the most recent cohort. Age effects are quite similar for all youth born since 1970, with the fraction only

¹⁵ Only cohort-years with at least 150 observations are used for these graphs to reduce the sample noise. The sample is further restricted to cohort-years with at least 300 observations in the graphs from men, women, Pakeha, and Māori.

employed increasing steadily from age 15 to age 24 and then levelling-off at around 60-70%. In contrast, the fraction only employed increased much faster for the 1967 cohort (and likely the 1962 cohort as well), with this levelling-off occurring by age 18. Business cycles appear to have a limited effect on the fraction of young people only employed, which is why the lines for most cohorts are on top of each other or parallel. It is possible that the post-structural reform recession of the early-90s is related to the large change in age effects observed for individuals born after 1969 compared to prior youth.¹⁶

The fraction of 15-year-olds who are only studying is above 70% for all cohorts, and has increased to nearly 80% for the more recent cohorts. This declines steadily as individuals age with less than 5% of 29-year-olds only studying for each cohort. The rate of this decline has decreased for each progressive cohort. For example, while 13% of 18-year-olds born between 1965 and 1969 are only studying, this increases to 26% of those born between 1970 and 1974 and 35% of those born between 1980 and 1984. By age 26, the fraction of individuals only studying is similar for all cohorts. Again, no obvious business cycle effects can be seen on this graph.

The fraction of individuals employed and studying initially increases from age 15 to age 16 or 17 for each cohort and then declines steadily as each cohort ages. In general, being both employed and studying is becoming more common in each progressive cohort. For example, while 10% of 18-year-olds born between 1965 and 1969 are employed and studying, this increases to 16% of those born between 1970 and 1974 and 25% of those born between 1980 and 1984. However, there is also possible evidence of business cycle effects here, with the fraction employed and studying lower for more recent cohorts than older cohorts at particular ages (i.e. in particular years). For example, the fraction of 22-year-olds employed and studying is lower for the 1975-79 cohort than the 1970-74 cohort, which might be due to the impact of the 1997/1998 recession.

Inactivity rates are below 4% for 15-year-olds in each cohort and then increase as individuals age. Most of the increase in inactivity after age 18 is due to the rise in individuals staying at home and taking care of children (this can be seen more clearly in the next two figures which examine youth activity separately from men and women). Business cycles appear to have a much stronger relationship with inactivity than with the other activity states. In fact, time effects clearly dominate when examining inactivity rates. For example, inactivity rates peaked during the post-structural reform recession for all cohorts (i.e. at age 18 for the 1970-74 cohort, at age 23 for the 1965-69 cohort, and at age 27 for the 1960-64 cohort). This pattern can also be seen for younger cohorts. For example, inactive rates are similar for 18-year-olds from the 1980-84 cohort and 22-year-olds from the 1975-79 cohort. The most recent cohort (1980-1984) appears to have lower

¹⁶ Because the survey years only cover 1.5 business cycles, it is difficult to distinguish true business cycle effects from other time-varying changes in institutions. In particular, it is not really possible to differentiate between the impact of the structural reforms of the 1980s and the large post-structural reform recession. This caveat should be kept in mind when examining the time and cohort effects apparent in the synthetic cohort graphs.

inactivity rates, in general, than prior cohorts but are only currently observed until age 20.

Figures 5 and 6 graph the same information as figure 4, but separately for men and women. The cohort-age pattern of the fraction only employed is similar for men and women, with the major difference being that rates level-off at around 80% for men and 60% for women. Similar patterns are also seen for the fraction only studying. Women born after 1969 are more likely to be employed and studying than men, with similar (low) rates for earlier cohorts. The fraction employed and studying also appears to be more sensitive to the business cycle for women, although there is a noticeable impact for men as well. Interestingly, employment rates have not increased for recent cohorts of young women, as seen in many other countries.

The largest gender difference is in inactivity rates. The fraction of men who are inactive increases from age 15 to 18 for all cohorts and then fluctuates between approximately 10% and 20% up until age 29. This fluctuation appears to be mostly driven by the business cycle with little evidence of consistent cohort or age differences. On the other hand, inactivity rates for women born before 1970 increased steadily from age 15 to age 25 before levelling-off and, for later cohorts of women, increased steadily from age 15 to around age 19 before levelling-off or even declining. This pattern is driven by women having children and leaving the labour force. Inactivity rates at this levelling-off point have steadily declined for each progressive cohort, with around 40% of women in their late 20s inactive in the 1960-64 cohort, 30-35% in the 1965-69 cohort, and 25% in the 1970-74 cohort. There is suggestive evidence of a new pattern emerging for recent cohorts, as inactive rates decline between age 19 and 21 for the 1975-79 cohort, but without more data it is difficult to come to a firm conclusion. There is some evidence of business cycle effects on inactivity for women, but these appear to be much weaker than the impact on men.

Figures 7 and 8 graph the same information separately for Pakeha/Europeans and Māori. The cohort-age pattern of the fraction only employed is similar for Pakeha and Māori, but Māori rates level-off at a much lower level (50% versus 70%) and, in contrast to those for Pakeha, appear to be impacted by the business cycle. In particular, the fraction of Māori only employed actually declined after the structural reform period for the 1960-64 and 1965-69 cohorts, even though these individuals were only in their mid to late 20s. The fraction of Māori only studying is actually higher than that of Pakeha at early ages, but this rate drop-off faster for Māori. Otherwise, the age-cohort patterns in only studying are fairly similar for the two groups. Pakeha at all ages in each cohort are more likely to be employed and studying than equivalent Māori. Business cycle effect appear prevalent for both groups. Pakeha also experience decreasing rates as they age, while Māori rates are consistently low at all ages.

Inactivity rates for Pakeha show fairly limited business cycle effects, with a fairly steady increase seen for each cohort as they age and little other variation over time or between cohorts (besides some evidence of decreasing inactivity at older ages for more recent cohorts, which is consistent with the evidence presented on

cohort effects for female inactivity). In contrast, inactivity rates for Māori are, on average, 10-30% higher than those for Pakeha, and show extremely strong correlation with the business cycle. For example, inactivity rates for the 1975-79 cohort declined by 20% between age 18 and 21, while for the 1970-1974 cohort, they declined by 30% between age 23 and 26 (i.e. in the same calendar years for these cohorts). Enormous cyclical volatility in inactivity rates is seen for all the Māori cohorts. Unfortunately, the small sample size of the HES and the recent tri-annual data collection makes it impossible to follow recent Māori cohorts and examine whether these patterns have changed now that the economy is doing better.

CONCLUSIONS

This paper has two main goals. First, it introduces a variety of data sources and survey questions that can be used to measure youth labour market and educational activity in New Zealand. The characteristics of these surveys are described, focusing on their ability to measure jointly defined employment and education status. Comparisons are then made between the statistics generated from each of these datasets to judge their quality and comparability. While similar trends over time are found for all indicators of youth activity besides the fraction of young adults employed and studying whether measured using the HES or the HLFS, these comparison show that only the HES can accurately measure the proportion of youth in different activities at a point in time and can be used to create consistent measures of youth activity over time.¹⁷

Second, it uses fifteen rounds of the HES survey covering nineteen years to examine temporal patterns in youth activity. Employment, study, and inactivity rates are examined, as well as, the fraction of youth only employed, only studying, and both employed and studying,, to give a comprehensive picture of the activities undertaken by New Zealand youth during this transition to adulthood. Both cross-sectional and synthetic cohort analysis are used to examine how aging and the business cycle influence these outcomes and all main results are presented separately by gender and ethnicity. There are a number of interesting findings.

There has been steady growth in study rates throughout the sample period with nearly 50% of 20-24 year-olds and 75% of 15-19 year-olds studying in 2004 compared with only 12%, and 50% of these age-groups, respectively, in 1985. The fraction of youth only employed increases steadily with age before levelling-off at age 24 for individuals born after 1969 and at age 18 for older cohorts, while the fraction only studying declines steadily with age, but at a slower rate for each successive cohort. The fraction of youth both employed and studying has increased with each successive cohort, but declines with age after age 16 or 17 within cohorts. Business cycles appear to have little impact on the fraction of youth only employed or only studying, but have larger effects on the fraction employed and studying and, in particular, on inactivity.

Comparing our results by gender, we find that the increase in studying has been even larger for women than for men and, overall, more women are now studying than men, in particular, both working and studying at the same time. Inactivity rates are higher for women, but one-quarter to one-third of inactive female youth and two-thirds of inactive female young adults describe their main activity as being home taking care of children. Once removing these individuals from inactivity figures, women have comparable or lower inactivity rates than men. Cohort-age patterns of the fraction of individuals only employed and only studying are similar for men and women. Women are more likely than men to be

¹⁷ The permanent introduction of two new questions on educational activity to the HLFS in the June quarter of 2004 should allow the HLFS to be used in the future to study trends in youth activity.

both employed and studying and this state is more sensitive to the business cycle for women. Inactivity rates are mainly driven by the business cycle for men, while for women they are mainly related to the lifecycle, e.g. women leaving the labour force to take care of children. Not surprisingly, inactivity rates are lower at all ages for each successive cohort of women.

Comparing our results by ethnicity, we find that study rates are catching-up for Māori youth compared to Pakeha youth, but are still only one-half the Pakeha rate for young adults. Māori youth are also much less likely to be both employed and studying than Pakeha youth. The fraction of Māori only employed is much lower than the fraction of Pakeha and, in contrast to Pakeha, is strongly related to the business cycle. The fraction of Māori and Pakeha only studying is similar for comparable cohorts and ages. However, the fraction of Māori both employed and studying is lower than the fraction of Pakeha in this joint activity at all ages for every cohort. This difference is particularly large at young ages where this is fairly common activity among Pakeha. Inactivity rates are a good deal higher and much more cyclical for Māori than for Pakeha. In fact, the cyclical of inactivity rate for Māori appears to drive most of the overall cyclical of youth inactivity.

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APPENDIX A: RELEVANT SURVEY QUESTIONS

Household Labour Force Survey (HLFS)

The following HLFS questions are used to identify whether individuals are studying.¹⁸ Question #53 asks, "Last week was (name's) main activity:" where the choices are (1) *Studying*; (2) *Retired*; (3) *At home looking after children*; (4) *At home not looking after children*; or (5) *Doing something else*. This question is typically used to identify individuals in the HLFS who are studying, but is asked only of individuals who are neither employed nor unemployed, are not starting a new job in the next four weeks, and in the last four weeks have not been looking for paid work. Question #55 is asked of all individuals that also respond to question #53 and answer 'yes' to question #54 which asks "If (name) had been offered a job, would (name) have started last week?" This question proceeds to ask, "What is the main reason (name) hasn't been looking for work in the last four weeks." The third answer to this question is 'Attending Educational Institution'. Question #63 is asked of individuals who are searching for a job in the last four weeks or have a new job lined up to start in the next four weeks and are not be able to start a job in the last week had one been available. This question asks, "Why was (name) not available for work last week?" Again, the third answer to this question is 'Attending Educational Institution'. Questions #30 and #73, which are part of a sequence of questions asked to all individuals to measure completed qualifications, can also be used to measure educational activity.¹⁹ These questions ask, "Has (name) obtained any qualifications since leaving school?" One of the possible responses is 'Still At School'. Question #71 is asked of all non-employed individuals who have been out of work for less than two years. This question asks, "Why did (name) leave (name's) last job?" The sixth response is 'Returned To Studies'.

Household Economic Survey (HES)

The following HES questions are used to identify whether individuals are studying. Question #1.14 asks, "Last week was your main activity..." where the choices are (1) *Studying*; (2) *Retired*; (3) *At home looking after children*; (4) *At home not looking after children*; (5) *At home temporarily on accident compensation*; (6) *At home on an invalid or sickness benefit*; or (7) *Doing something else*. This question is typically used to identify individuals in the HES who are studying and is asked of all individuals who usually work less than 30 hours per week. An additional question is asked to the household head when filling out the household roster and reads, "Is (name) enrolled in any sort of education?" A show card with

¹⁸ The Income Survey, which is asked as a supplement to the HLFS each June quarter starting in 1997, asks a question on receipt of student allowances that can be used to further classify individuals as studying. A quick examination indicated that this variable only captures a small number of 'missing' students. Given its limited availability over the time period, this extra information is ignored in this paper.

¹⁹ These questions are identical with #30 asked of the employed population and #73 of the unemployed and NILF.

twelve different types of educational institutions is used to prompt the respondent.²⁰

New Zealand Census

The 1996 census asked about educational activity in question #30 which stated, "Tick as many circles as you need to answer this question. In the 7 days that ended on Sunday 3 March, did you:" with the response options of 'attend or study for a full-time course at school or anywhere else', 'attend or study for a part-time course at school or anywhere else', or 'neither of these things'. On a positive note, this question focused solely on educational activity, but unfortunately only covered the week prior to the census. In contrast, the 2001 census asked about educational activity in question #41 which stated, "Mark as many spaces as you need to answer this question. In the last 4 weeks, which of these have you done, without pay?" Included in the list of eight non-market activities were 'attending or studying for 20 hours or more per week at school or any other place' and 'attending or studying for less than 20 hours per week at school or any other place'. Also included in this list were activities such as looking after children and housework. The longer timeframe could help capture more students than in 1996, but it is also likely that by asking about educational activity in a comprehensive question on unpaid activities many students may have ignored the question entirely.

1996 HLFS Education and Training Survey (ETS)

Two questions from the ETS can be used to determine that an individual is studying beyond those already used above with the ordinary HLFS data. These questions are asked of all individuals no longer in school. Question #6 asks, "Within the last 12 months have you worked towards or gained a school qualification, a trade certificate or an apprenticeship?" and question #8 asks, "Within the last 12 months have you worked towards or gained any (other) qualification that takes more than the equivalent of three months of full-time study to get?"

Appendix B: HLFS June 2004 Revision

Two additional questions on educational activity were added permanently to the HLFS in the June quarter of 2004 with the goal of better measuring educational activity for older than school age youth. These questions are asked of all individuals no longer in school. The first question asks, "In the last week has (name) studied or worked towards a qualification? IF ON TERM/SEMESTER BREAK TICK YES." The second question asks, "If (name) was studying full time, would this qualification take 3 months or more to complete? FULL-TIME MEANS STUDYING AN AVERAGE OF 20 HOURS OR MORE PER WEEK. STUDYING INCLUDES CLASSROOM TIME, ASSIGNMENTS, AND REVISIONS."

Appendix Table 1 presents the same breakdown of youth activity as in tables 3 and 4 for youth and young adults in the June 2004 quarter of the HLFS. In the first column, only the main activity question is used to measure youth activity

²⁰ The list of different types of educational institutions has changed over time, but otherwise this question has been asked consistently across all HES survey years used in this paper.

(i.e. this is the official measure) and in the second column the 'still in school' question is used in addition. As discussed early, adding the 'still in school' question leads to a large increase in study rates for youth, but little change for young adults because they are mostly out of school. In the third column, individuals who are working towards a qualification that takes three months or more of full-time studying to complete, as measured by the new HLFS question, are now classified as studying. This increases the youth study rate by 11% and the young adult study rate by 20%. The majority of the new individuals now captured as studying are also employed, thus inactivity rates only fall by 2% for youth and 3% for young adults. In the fourth column, all individuals who are working towards any qualification, as measured by the new HLFS question, are now classified as studying. This adds an additional 1% to the study rates for youth and 3% to the study rate for young adults, but has no impact on inactivity rates. In the fifth column, all the additional HLFS questions are used to classify individuals. Once the new educational activity questions are added, these additional variables have no impact at all on the results.

Incorporating the new HLFS questions has a large effect on measured youth activity. As shown in the sixth column of this table, youth activity rates from the HLFS are now quite similar to those measured in the HES, including the question on enrolment. For youth, the employment rate in the HLFS is 1% higher than in the HES, the study rate is 2% higher, the inactivity rate is 2% lower, and the percentage of employed youth also studying is 3% higher. For young adults, the employment rate is 3% lower than in the HES, the study rate is 4% lower, the inactivity rate is 3% higher, and the percentage of employed young adults also studying is 5% lower. While this is only one data point, these results suggest that the HES provides reliable measures of youth activity for youth and young adults when the enrolment question is incorporated and that the HLFS understates both overall study rates and joint studying and employment for youth and young adults.

Table 1: Employment Status by Data Source and Definition for 15-19 Year-Olds

	Official	Why Not Look For Work	Why Not Available	Still in School	Why Left Last Job	Matching HLFS	Standard	Adding Enrolment
	1986q2-1987q1 HLFS (Observations: 11,696)					1987 HES (Observations: 824)		
Employed	58.4%	58.4%	58.4%	NA	58.4%	51.0%	NA	51.0%
Unemployed	7.4%	7.4%	7.4%		7.1%	6.3%		6.0%
Studying	25.4%	25.6%	26.8%		27.4%	38.7%		39.4%
NILF- Other	8.8%	8.6%	7.5%		7.2%	4.1%		3.7%
	1990q2-1991q1 HLFS (Observations: 21,618)					1991 HES (Observations: 625)		
Employed	48.0%	48.0%	48.0%	48.0%	48.0%	36.9%	NA	36.9%
Unemployed	10.9%	10.9%	10.9%	8.6%	8.2%	13.8%		12.8%
Studying	31.0%	31.3%	32.6%	37.2%	37.6%	44.6%		46.0%
NILF- Other	10.1%	9.8%	8.4%	6.3%	6.1%	4.7%		4.3%
	1995q2-1996q1 HLFS (Observations: 10,870)					1996 HES (Observations: 548)		
Employed	47.1%	47.1%	47.1%	47.1%	47.1%	40.1%	40.1%	40.1%
Unemployed	9.1%	9.1%	9.1%	6.5%	6.1%	8.0%	4.8%	3.5%
Studying	33.9%	34.3%	35.2%	40.8%	41.3%	42.8%	46.1%	50.3%
NILF- Other	9.9%	9.5%	8.6%	5.6%	5.5%	9.1%	9.1%	6.1%
	2000q2-2001q1 HLFS (Observations: 9,887)					2001 HES (Observations: 414)		
Employed	44.4%	44.4%	44.4%	44.4%	44.4%	43.4%	43.4%	43.4%
Unemployed	8.8%	8.8%	8.8%	6.1%	5.8%	7.4%	4.1%	3.1%
Studying	37.4%	37.7%	38.5%	44.0%	44.4%	43.3%	46.6%	51.0%
NILF- Other	9.4%	9.1%	8.3%	5.6%	5.4%	6.0%	6.0%	2.5%
	2003q2-2004q1 HLFS (Observations: 10,760)					2004 HES (Observations: 447)		
Employed	45.6%	45.6%	45.6%	45.6%	45.6%	41.8%	41.8%	41.8%
Unemployed	7.0%	7.0%	7.0%	4.6%	4.3%	4.6%	3.4%	2.4%
Studying	38.7%	39.9%	40.9%	45.3%	45.7%	42.2%	43.4%	49.8%
NILF- Other	8.7%	7.5%	6.5%	4.5%	4.4%	11.4%	11.4%	6.1%

Notes: Results are generated by the author using unit record data from the indicated Household Labour Force Survey (HLFS) or Household Economic Survey (HES). The four employment status categories are mutually exclusive with individuals classified as "Studying" neither "Employed" nor "Unemployed". Appendix A describes the variables used to define employment status in each column. Variables are added sequentially such that the definition used in say the second column includes certain new variables plus those used to define employment status in the first column.

Table 2: Employment Status by Data Source and Definition for 20-24 Year-Olds

	Official	Why Not Look For Work	Why Not Available	Still in School	Why Left Last Job	Matching HLFS	Standard	Adding Enrolment
	1986q2-1987q1 HLFS (Observations: 10,181)					1987 HES (Observations: 754)		
Employed	79.2%	79.2%	79.2%	NA	79.2%	77.8%	NA	77.8%
Unemployed	4.0%	4.0%	4.0%		4.0%	5.0%		4.5%
Studying	2.9%	2.9%	3.3%		3.4%	4.9%		5.5%
NILF- Other	13.9%	13.9%	13.5%		13.4%	12.3%		12.2%
	1990q2-1991q1 HLFS (Observations: 18,888)					1991 HES (Observations: 561)		
Employed	69.1%	69.1%	69.1%	69.1%	69.1%	64.8%	NA	64.8%
Unemployed	10.0%	10.0%	10.0%	10.0%	9.7%	8.7%		8.6%
Studying	5.5%	5.5%	6.1%	6.2%	6.6%	8.5%		9.7%
NILF- Other	15.4%	15.3%	14.8%	14.7%	14.6%	18.0%		16.9%
	1995q2-1996q1 HLFS (Observations: 10,582)					1996 HES (Observations: 524)		
Employed	71.6%	71.6%	71.6%	71.6%	71.6%	68.5%	68.5%	68.5%
Unemployed	7.1%	7.1%	7.1%	7.0%	6.5%	5.3%	4.8%	4.3%
Studying	8.7%	8.8%	9.3%	9.3%	10.0%	12.3%	12.8%	14.1%
NILF- Other	12.7%	12.6%	12.1%	12.1%	11.9%	13.9%	13.9%	13.0%
	2000q2-2001q1 HLFS (Observations: 8,145)					2001 HES (Observations: 403)		
Employed	65.7%	65.7%	65.7%	65.7%	65.7%	63.9%	63.9%	63.9%
Unemployed	7.1%	7.1%	7.1%	6.9%	6.5%	8.0%	7.0%	5.5%
Studying	12.9%	13.0%	13.7%	14.1%	14.7%	11.8%	12.8%	16.1%
NILF- Other	14.3%	14.2%	13.5%	13.3%	13.0%	16.3%	16.3%	14.5%
	2003q2-2004q1 HLFS (Observations: 9,070)					2004 HES (Observations: 409)		
Employed	68.4%	68.4%	68.4%	68.4%	68.4%	69.0%	69.0%	69.0%
Unemployed	4.9%	4.9%	4.9%	4.8%	4.4%	5.0%	1.8%	1.4%
Studying	13.3%	13.7%	14.5%	14.7%	15.3%	15.1%	18.3%	20.6%
NILF- Other	13.3%	13.0%	12.1%	12.0%	11.8%	10.9%	10.9%	9.0%

Notes: Results are generated by the author using unit record data from the indicated Household Labour Force Survey (HLFS) or Household Economic Survey (HES). The four employment status categories are mutually exclusive with individuals classified as "Studying" neither "Employed" nor "Unemployed". Appendix A describes the variables used to define employment status in each column. Variables are added sequentially such that the definition used in say the second column includes certain new variables plus those used to define employment status in the first column.

Table 3: Youth Activity by Data Source and Definition for 15-19 Year-Olds

	Why Not Available	Still in School	Why Left Last Job	Standard	Adding Enrolment	Studying / Enrolled	Worked Towards Qual in Past Year
	1995q2-1996q1 HLFS (Observations: 10,870)			1996 HES (Observations: 548)		1996 Census	1996q3 ETS
Employed full-time and not studying	19.5%	18.3%	18.3%	16.4%	12.0%	17.6%	9.9%
Employed part-time and not studying	27.6%	10.7%	10.7%	4.5%	1.6%	7.1%	2.5%
Employed full-time and studying	NA	1.2%	1.2%	NA	4.4%	3.1%	7.4%
Employed part-time and studying	NA	16.9%	16.9%	19.2%	22.1%	21.1%	29.1%
Studying, not employed	35.2%	40.8%	41.3%	46.1%	50.3%	32.4%	44.0%
Unemployed, not studying	9.1%	6.5%	6.1%	4.8%	3.5%	6.1%	3.6%
NILF, home with kids, not studying	1.6%	1.6%	1.6%	1.9%	1.5%	12.6%	0.9%
NILF, other, not studying	7.0%	4.0%	3.9%	7.2%	4.6%		2.7%
Employment Rate	47.1%	47.1%	47.1%	40.1%	40.1%	48.8%	48.9%
Study Rate	35.2%	58.9%	59.3%	65.3%	76.9%	56.6%	80.5%
Inactivity Rate	17.7%	12.1%	11.6%	13.8%	9.6%	18.7%	7.2%
% of Employed who Study	NA	38.4%	38.4%	47.9%	66.2%	49.4%	74.6%
	2000q2-2001q1 HLFS (Observations: 9,887)			2001 HES (Observations: 414)		2001 Census	
Employed full-time and not studying	17.1%	15.8%	15.8%	17.6%	15.9%	15.6%	
Employed part-time and not studying	27.3%	10.7%	10.7%	4.0%	1.7%	5.5%	
Employed full-time and studying	NA	1.2%	1.2%	NA	1.6%	3.7%	
Employed part-time and studying	NA	16.6%	16.6%	21.8%	24.1%	22.1%	
Studying, not employed	38.5%	44.0%	44.4%	46.6%	51.0%	37.0%	
Unemployed, not studying	8.8%	6.1%	5.8%	4.1%	3.1%	5.4%	
NILF, home with kids, not studying	1.7%	1.7%	1.7%	1.0%	0.9%	10.7%	

	Why Not Available	Still in School	Why Left Last Job	Standard	Adding Enrolment	Studying / Enrolled	Worked Towards Qual in Past Year
NILF, other, not studying	6.6%	3.9%	3.8%	5.0%	1.6%		
Employment Rate	44.4%	44.4%	44.4%	43.4%	43.4%	46.9%	
Study Rate	38.5%	61.8%	62.2%	68.4%	76.7%	62.8%	
Inactivity Rate	17.1%	11.7%	11.2%	10.0%	5.6%	16.1%	
% of Employed who Study	NA	40.2%	40.2%	50.2%	59.4%	55.0%	

Notes: Non-Census results are generated by the author using unit record data from the indicated Household Labour Force Survey (HLFS), Household Economic Survey (HES), or Education and Training Survey. The results from the Census are from customised tables created by Statistics New Zealand. The eight youth activity categories are mutually exclusive. Appendix A describes the variables used to define youth activity in each column. Variables are added sequentially such that the definition used in say the second column includes certain new variables plus those used to define employment status in the first column. It is not possible to identify in the Census data whether individuals not in the labour force (NILF) are a home with children.

Table 4: Youth Activity by Data Source and Definition for 20-24 Year-Olds

	Why Not Available	Still in School	Why Left Last Job	Standard	Adding Enrolment	Studying / Enrolled	Worked Towards Qual in Past Year
	1995q2-1996q1 HLFS (Observations: 10,582)			1996 HES (Observations: 524)		1996 Census	1996q3 ETS
Employed full-time and not studying	55.2%	54.9%	54.9%	57.8%	47.5%	50.5%	39.8%
Employed part-time and not studying	16.4%	16.0%	16.0%	5.0%	3.6%	6.7%	5.4%
Employed full-time and studying	NA	0.3%	0.3%	NA	10.3%	6.0%	15.5%
Employed part-time and studying	NA	0.3%	0.3%	5.7%	7.1%	6.2%	10.2%
Studying, not employed	9.3%	9.3%	10.0%	12.8%	14.1%	11.0%	15.0%
Unemployed, not studying	7.1%	7.0%	6.5%	4.8%	4.3%	7.1%	4.5%
NILF, home with kids, not studying	7.3%	7.3%	7.3%	7.5%	7.4%	12.6%	6.8%
NILF, other, not studying	4.9%	4.8%	4.7%	6.4%	5.7%		2.8%
Employment Rate	71.6%	71.6%	71.6%	68.5%	68.5%	69.4%	70.9%
Study Rate	9.3%	9.9%	10.6%	18.5%	31.6%	23.2%	40.7%
Inactivity Rate	19.2%	19.1%	18.4%	18.6%	17.3%	19.7%	14.2%
% of Employed who Study	NA	0.8%	0.8%	8.3%	25.5%	17.6%	36.2%
	2000q2-2001q1 HLFS (Observations: 8,145)			2001 HES (Observations: 403)		2001 Census	
Employed full-time and not studying	46.2%	45.9%	45.9%	47.7%	41.0%	44.9%	
Employed part-time and not studying	19.6%	18.8%	18.8%	6.0%	4.6%	6.3%	
Employed full-time and studying	NA	0.3%	0.3%	NA	6.7%	7.4%	
Employed part-time and studying	NA	0.7%	0.7%	10.2%	11.6%	8.5%	
Studying, not employed	13.7%	14.1%	14.7%	12.8%	16.1%	14.3%	
Unemployed, not studying	7.1%	6.9%	6.5%	7.0%	5.5%	6.8%	
NILF, home with kids, not studying	7.4%	7.4%	7.4%	8.6%	7.7%	11.8%	

	Why Not Available	Still in School	Why Left Last Job	Standard	Adding Enrolment	Studying / Enrolled	Worked Towards Qual in Past Year
NILF, other, not studying	6.1%	5.9%	5.7%	7.7%	6.8%		
Employment Rate	65.7%	65.7%	65.7%	63.9%	63.9%	67.1%	
Study Rate	13.7%	15.1%	15.7%	23.0%	34.4%	30.2%	
Inactivity Rate	20.6%	20.2%	19.6%	23.3%	20.0%	18.6%	
% of Employed who Study	NA	1.6%	1.6%	16.0%	28.6%	23.7%	

Notes: Non-Census results are generated by the author using unit record data from the indicated Household Labour Force Survey (HLFS), Household Economic Survey (HES), or Education and Training Survey. The results from the Census are from customised tables created by Statistics New Zealand. The eight youth activity categories are mutually exclusive. Appendix A describes the variables used to define youth activity in each column. Variables are added sequentially such that the definition used in say the second column includes certain new variables plus those used to define employment status in the first column. It is not possible to identify in the Census data whether individuals not in the labour force (NILF) are a home with children.

Table 5: Youth Activity by Gender and Age-Group in the Household Economic Survey

	1987	1991	1996	2001	2004	1987	1991	1996	2001	2004
	Men					Women				
15-19										
Employed, full-time and not studying	39.7%	14.6%	12.3%	22.6%	20.9%	33.9%	16.2%	11.7%	8.9%	10.0%
Employed, part-time and not studying	0.6%	0.0%	1.9%	1.6%	2.0%	1.1%	3.5%	1.2%	1.7%	1.9%
Employed, full-time and studying	3.8%	5.1%	3.8%	2.4%	4.1%	1.8%	3.9%	5.1%	0.9%	1.1%
Employed, part-time and studying	8.9%	14.3%	22.0%	18.0%	16.5%	12.0%	16.4%	22.3%	30.6%	27.0%
Studying, not employed	40.0%	48.7%	50.1%	51.6%	50.7%	38.7%	43.2%	50.6%	50.3%	48.8%
Unemployed, not studying	5.4%	16.1%	5.8%	1.7%	3.0%	6.6%	9.4%	1.1%	4.6%	1.7%
NILF, home with kids, not studying	1.6%	1.3%	0.0%	0.0%	0.0%	5.9%	7.4%	3.1%	1.9%	3.0%
NILF, other, not studying			4.1%	2.0%	2.8%			5.0%	1.2%	6.5%
Employment Rate	53.0%	34.0%	40.0%	44.6%	43.5%	48.8%	40.0%	40.2%	42.0%	40.0%
Study Rate	52.7%	68.1%	75.9%	72.0%	71.3%	52.5%	63.5%	77.9%	81.8%	76.9%
Inactivity Rate	7.0%	17.3%	10.0%	3.7%	5.8%	12.5%	16.8%	9.3%	7.7%	11.2%
% of Employed who Study	23.9%	57.1%	64.5%	45.6%	47.3%	28.3%	50.8%	67.9%	74.8%	70.2%
Number of Observations	410	291	271	201	234	414	334	277	213	213
20-24										
Employed, full-time and not studying	78.2%	62.5%	50.5%	44.6%	51.4%	59.8%	42.5%	44.7%	37.4%	35.3%
Employed, part-time and not studying	1.0%	3.8%	2.2%	4.2%	2.2%	3.7%	3.4%	4.8%	5.0%	2.7%
Employed, full-time and studying	4.7%	6.9%	12.0%	5.5%	11.4%	3.0%	4.9%	8.7%	7.8%	7.9%
Employed, part-time and studying	3.4%	2.7%	5.1%	9.2%	9.4%	1.8%	3.1%	9.1%	14.1%	17.5%
Studying, not employed	5.8%	11.5%	17.7%	20.0%	18.8%	5.2%	7.9%	10.8%	12.2%	22.5%
Unemployed, not studying	4.9%	8.9%	6.1%	6.4%	1.6%	4.0%	8.3%	2.6%	4.5%	1.1%
NILF, home with kids, not studying	2.1%	3.8%	0.3%	1.5%	0.0%	22.5%	30.0%	14.2%	14.0%	8.7%
NILF, other, not studying			6.1%	8.6%	5.1%			5.3%	5.0%	4.2%
Employment Rate	87.2%	75.8%	69.9%	63.6%	74.5%	68.2%	53.8%	67.2%	64.3%	63.4%
Study Rate	13.9%	21.1%	34.8%	34.7%	39.6%	10.0%	15.8%	28.5%	34.1%	47.9%

	1987	1991	1996	2001	2004	1987	1991	1996	2001	2004
	Men					Women				
Inactivity Rate	7.0%	12.7%	12.5%	16.5%	6.8%	26.5%	38.3%	22.0%	23.6%	14.0%
% of Employed who Study	9.2%	12.6%	24.5%	23.1%	28.0%	7.0%	14.7%	26.4%	34.1%	40.0%
Number of Observations	332	270	248	189	194	422	291	276	214	215

Notes: Results are generated by the author using unit record data from the indicated Household Economic Survey (HES). The eight youth activity categories are mutually exclusive and are defined using both the main activity and enrolment questions in the HES (i.e. equivalent to column 5 in tables 3 and 4). It is not possible to identify in the HES survey before 1993 whether individuals not in the labour force (NILF) are a home with children.

Table 6: Youth Activity by Ethnicity and Age-Group

	1987	1991	1996	2001	2004	1987	1991	1996	2001	2004
	Pakeha					Māori				
15-19										
Employed, full-time and not studying	36.3%	17.6%	9.3%	14.6%	19.8%	44.3%	7.9%	18.6%	26.7%	13.5%
Employed, part-time and not studying	0.8%	1.7%	1.8%	1.4%	2.2%	1.3%	1.8%	1.7%	2.9%	1.7%
Employed, full-time and studying	3.3%	5.7%	4.5%	1.5%	3.7%	0.9%	0.2%	4.9%	1.5%	1.3%
Employed, part-time and studying	12.1%	19.6%	28.3%	30.9%	29.0%	3.7%	3.4%	11.5%	12.3%	8.3%
Studying, not employed	40.7%	45.8%	47.5%	47.6%	41.1%	28.2%	42.1%	49.9%	47.1%	52.2%
Unemployed, not studying	3.4%	7.8%	4.0%	1.8%	0.5%	15.9%	31.9%	2.4%	7.1%	5.6%
NILF, home with kids, not studying	3.3%	1.8%	1.2%	0.9%	0.3%	5.7%	12.7%	3.1%	0.0%	7.6%
NILF, other, not studying			3.5%	1.3%	3.5%			7.9%	2.4%	9.9%
Employment Rate	52.5%	44.7%	43.8%	48.4%	54.6%	50.2%	13.3%	36.7%	43.4%	24.7%
Study Rate	56.2%	71.1%	80.3%	80.0%	73.8%	32.8%	45.7%	66.4%	60.9%	61.7%
Inactivity Rate	6.7%	9.5%	8.7%	4.0%	4.2%	21.6%	44.6%	13.3%	9.5%	23.1%
% of Employed who Study	29.4%	56.8%	74.7%	66.9%	59.8%	9.1%	27.2%	44.7%	31.9%	38.6%
Number of Observations	681	445	387	284	266	83	93	97	63	63
20-24										
Employed, full-time and not studying	72.3%	58.4%	51.5%	43.1%	47.5%	61.4%	28.8%	38.0%	38.5%	63.5%
Employed, part-time and not studying	3.3%	3.5%	3.5%	5.1%	3.0%	0.0%	2.3%	6.4%	3.5%	3.3%
Employed, full-time and studying	4.4%	7.1%	12.0%	9.2%	11.5%	0.0%	3.6%	7.6%	0.0%	5.0%
Employed, part-time and studying	2.6%	3.8%	7.4%	13.9%	13.3%	0.9%	0.4%	4.9%	1.4%	1.8%
Studying, not employed	5.6%	10.5%	11.3%	12.3%	14.3%	3.7%	3.6%	6.5%	22.2%	11.4%
Unemployed, not studying	3.3%	5.7%	3.4%	5.0%	2.3%	8.0%	16.1%	9.9%	7.3%	0.0%
NILF, home with kids, not studying	8.4%	11.0%	6.4%	5.0%	2.7%	25.9%	45.2%	13.0%	15.9%	10.5%
NILF, other, not studying			4.5%	6.5%	5.4%			13.6%	11.4%	4.4%
Employment Rate	82.6%	72.8%	74.5%	71.2%	75.4%	62.4%	35.1%	57.0%	43.3%	73.6%
Study Rate	12.7%	21.4%	30.7%	35.4%	39.1%	4.6%	7.6%	19.1%	23.5%	18.3%

	1987	1991	1996	2001	2004	1987	1991	1996	2001	2004
	Pakeha					Māori				
Inactivity Rate	11.7%	16.7%	14.2%	16.5%	10.3%	33.9%	61.3%	36.5%	34.5%	15.0%
% of Employed who Study	8.6%	15.0%	26.1%	32.4%	32.9%	1.5%	11.4%	22.0%	3.1%	9.3%
Number of Observations	598	401	407	282	266	89	78	56	67	41

Notes: Results are generated by the author using unit record data from the indicated Household Economic Survey (HES). The eight youth activity categories are mutually exclusive and are defined using both the main activity and enrolment questions in the HES (i.e. equivalent to column 5 in tables 3 and 4). It is not possible to identify in the HES survey before 1993 whether individuals not in the labour force (NILF) are a home with children. Pakeha and Māori are defined using prioritisation rules, thus Māori include all individuals identifying as Māori while Pakeha include individuals only identifying as Pakeha or European.

Figure 1: Youth Activity by Data Source from 1986-2004

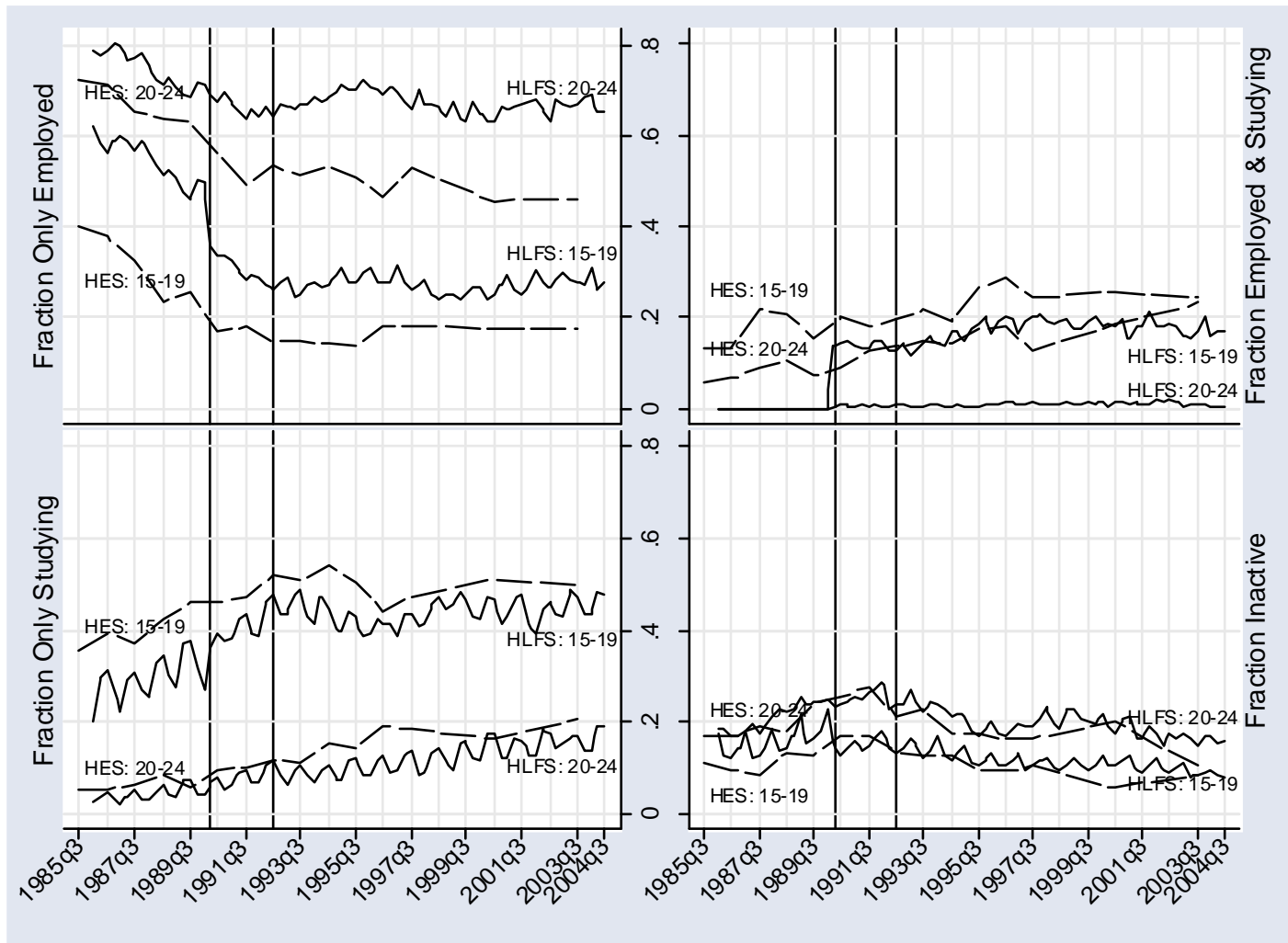


Figure 2: Youth Activity by Gender and Age-Group in the Household Economic Survey from 1985-2004

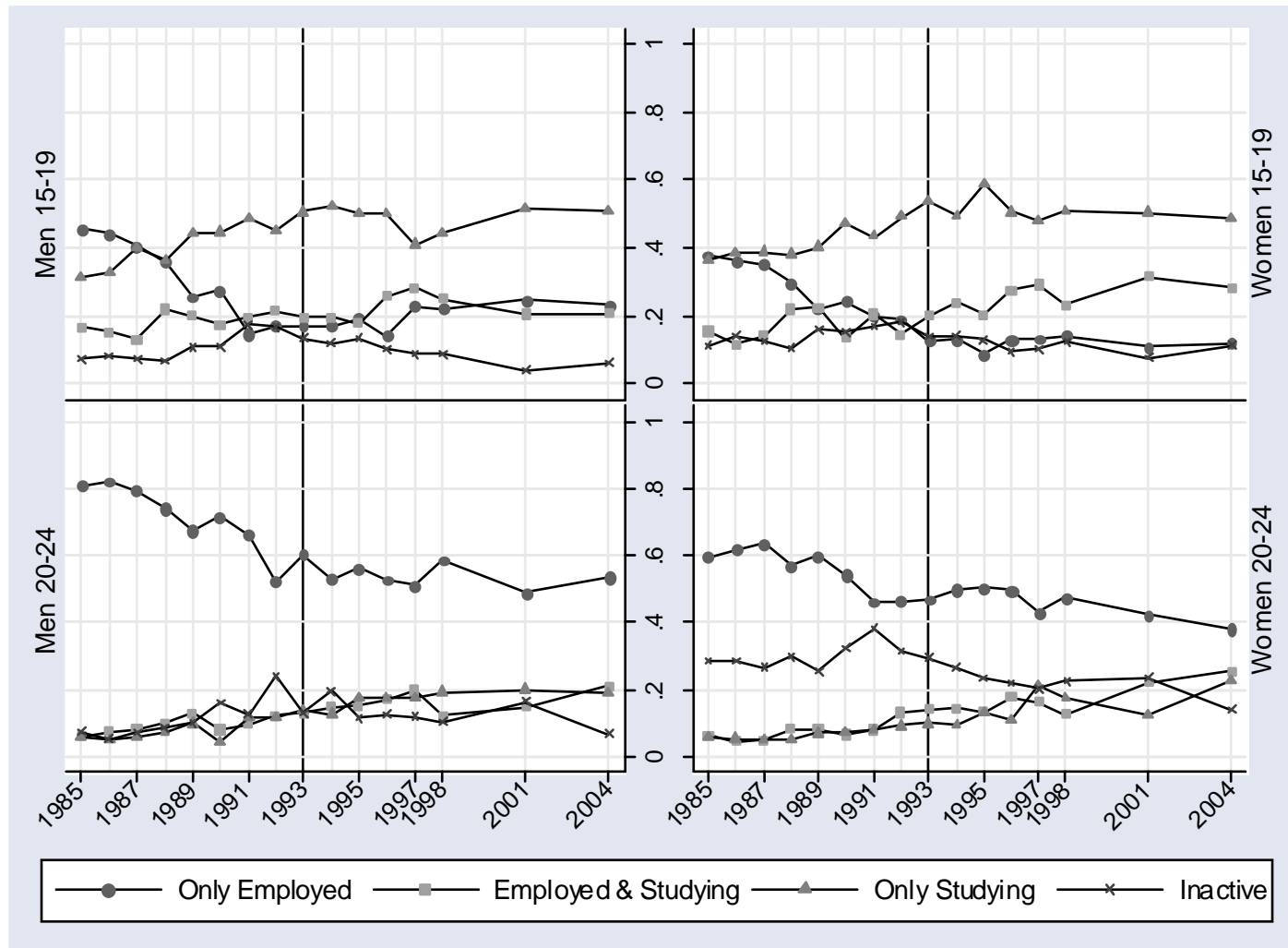


Figure 3: Youth Activity by Ethnicity and Age-Group in the Household Economic Survey from 1985-2004

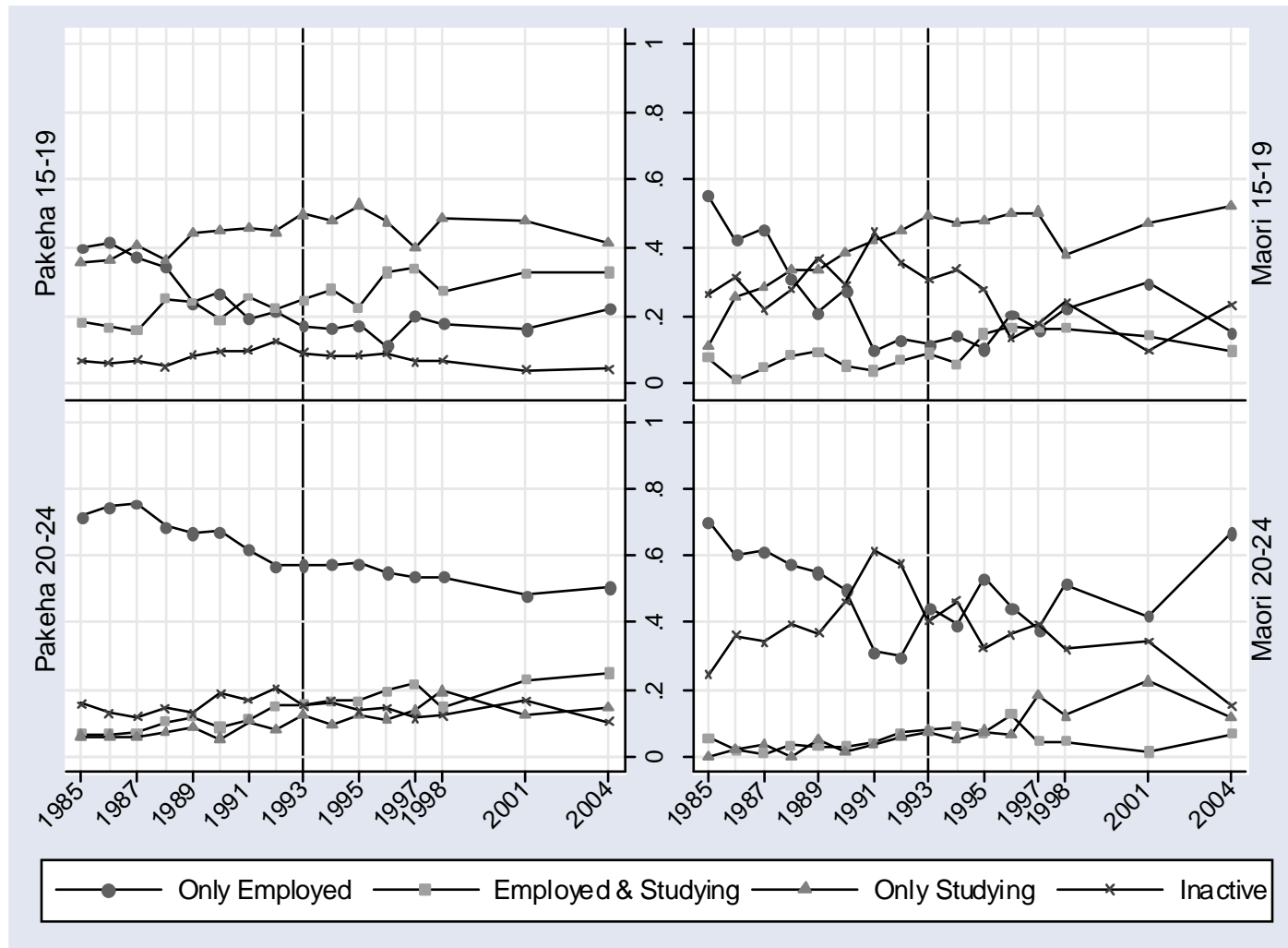


Figure 4: Youth Activity by Cohort and Age in the Household Economic Survey from 1985-2004

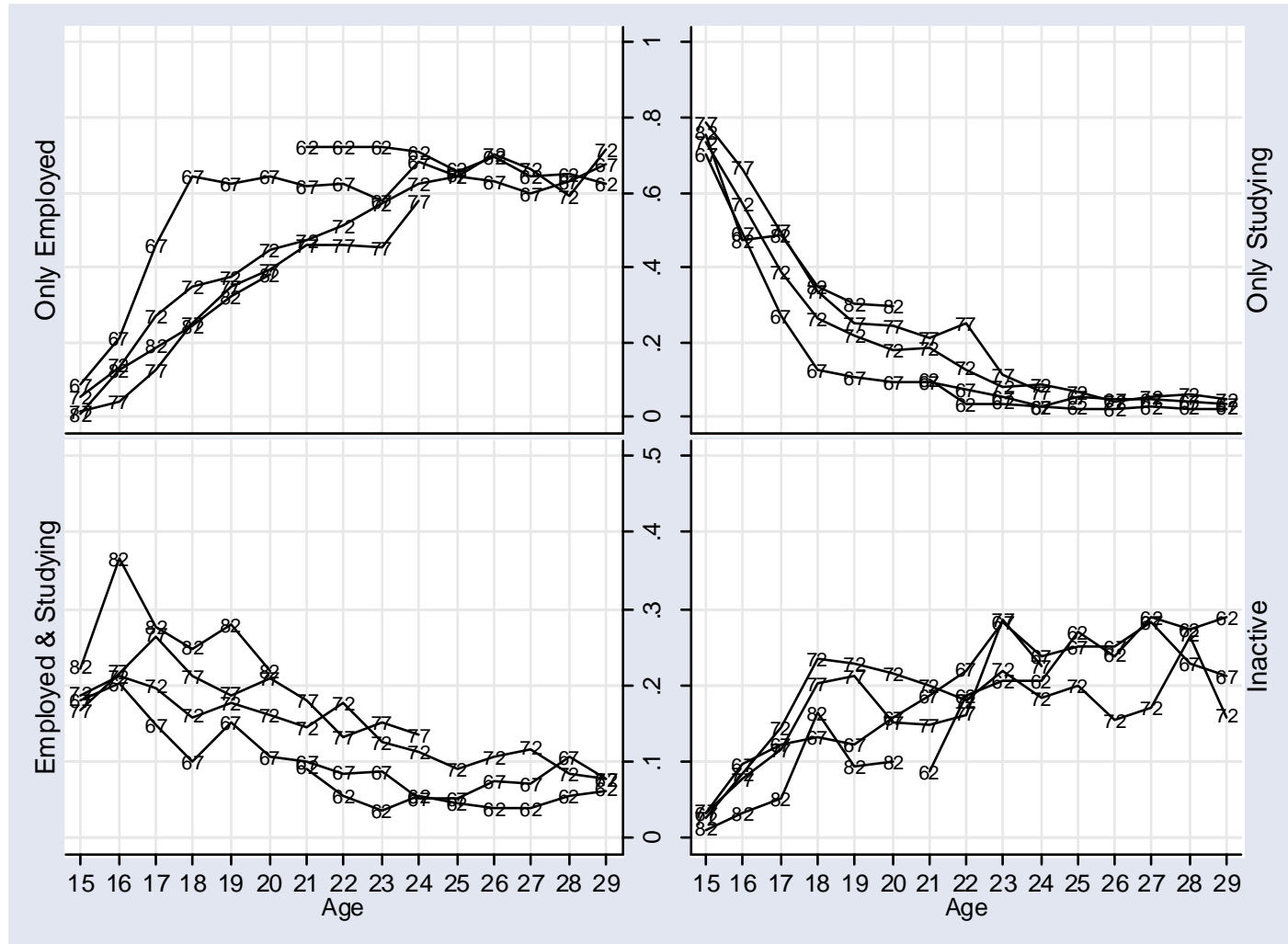


Figure 5: Youth Activity by Cohort and Age for Men in the Household Economic Survey from 1985-2004

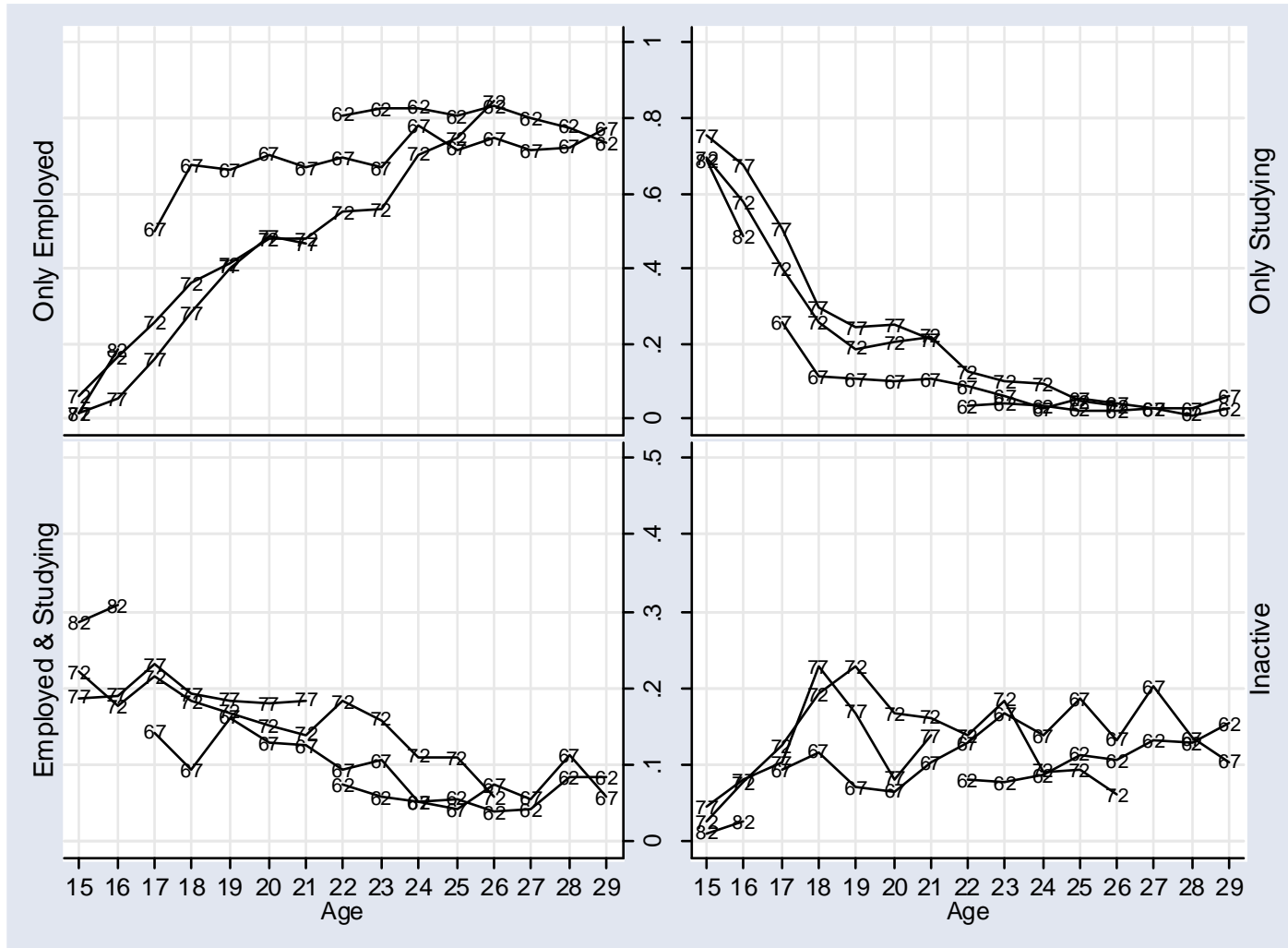


Figure 6: Youth Activity by Cohort and Age for Women in the Household Economic Survey from 1985-2004

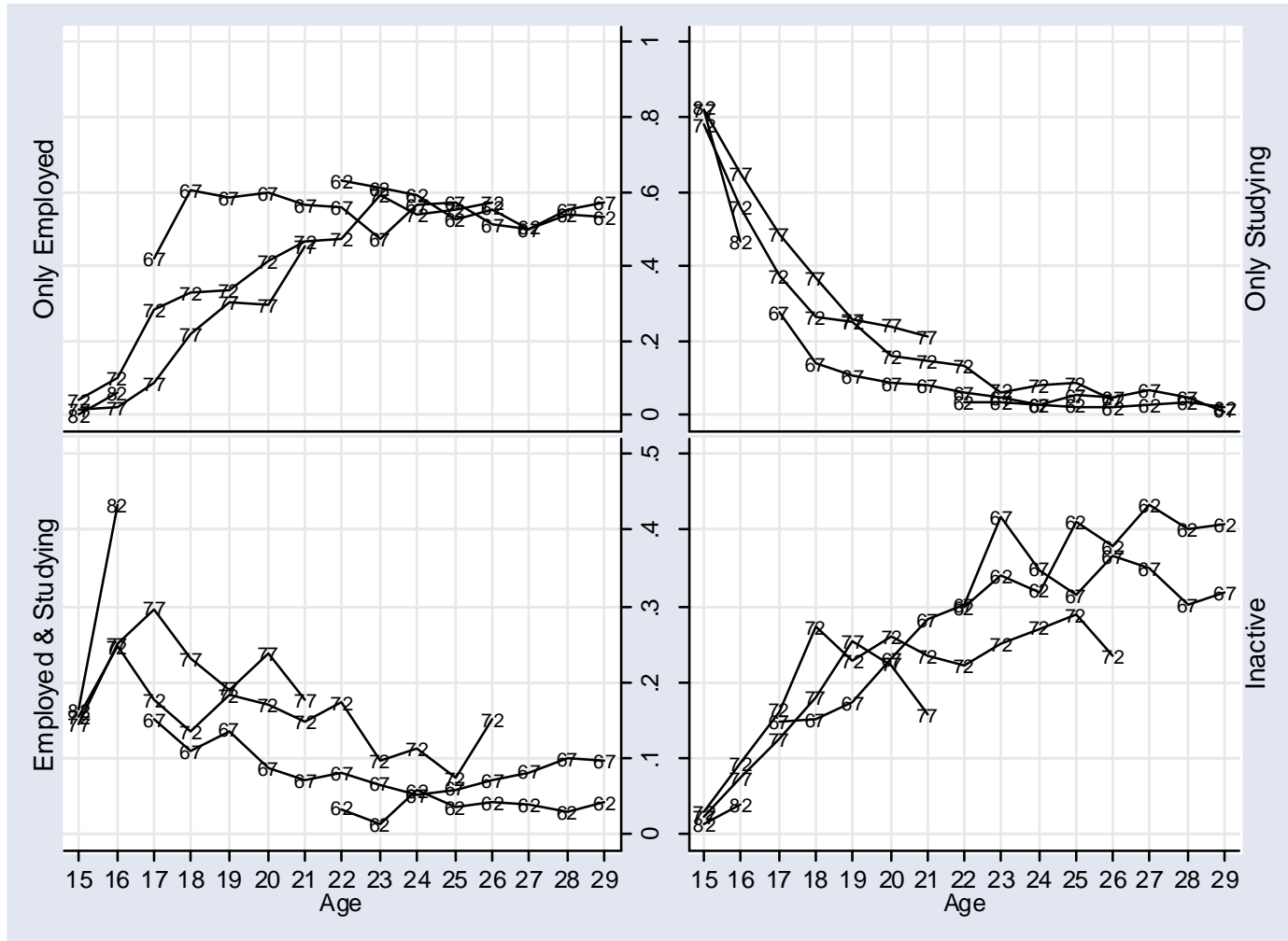


Figure 7: Youth Activity by Cohort and Age for Pakeha in the Household Economic Survey from 1985-2004

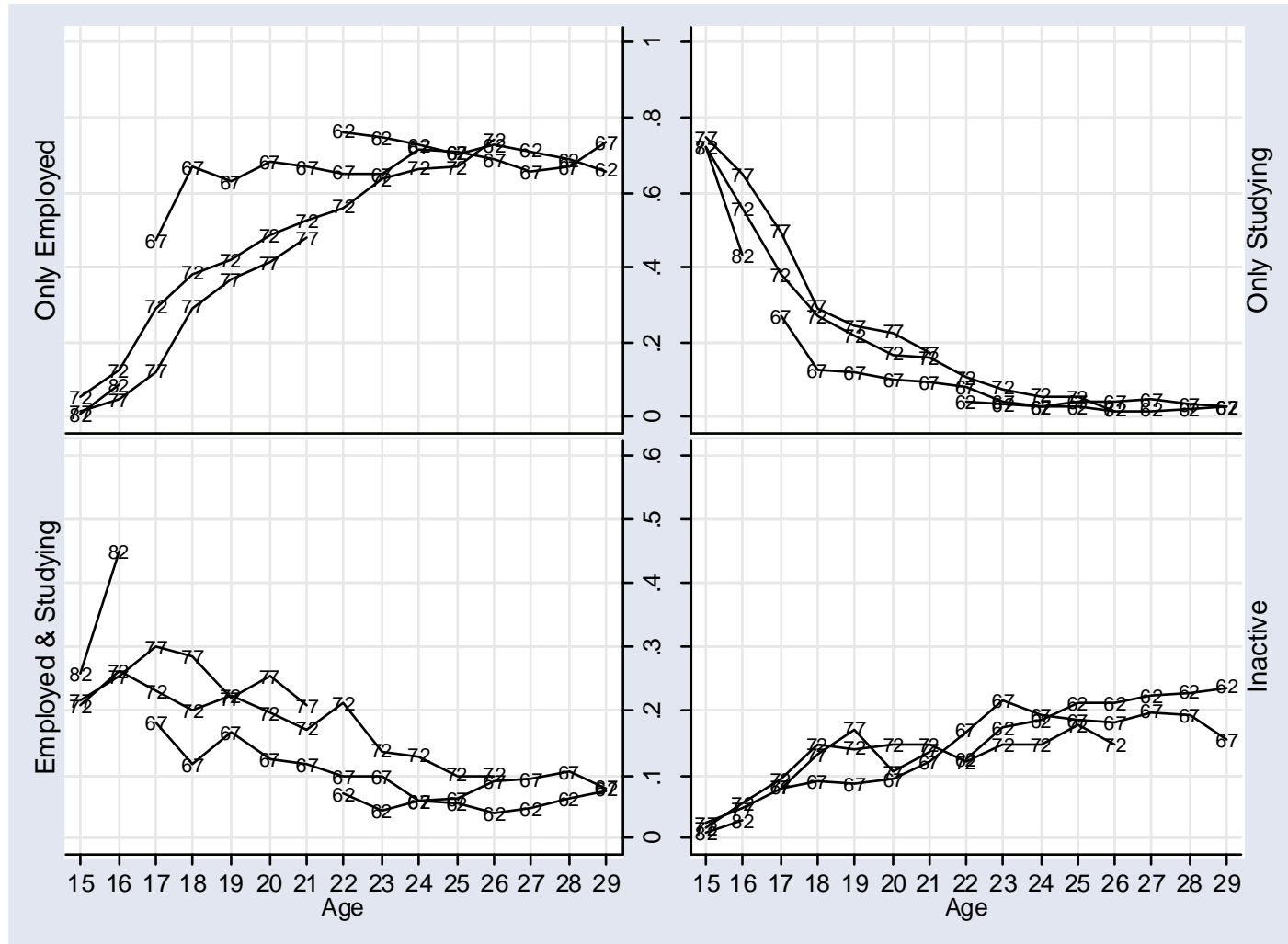
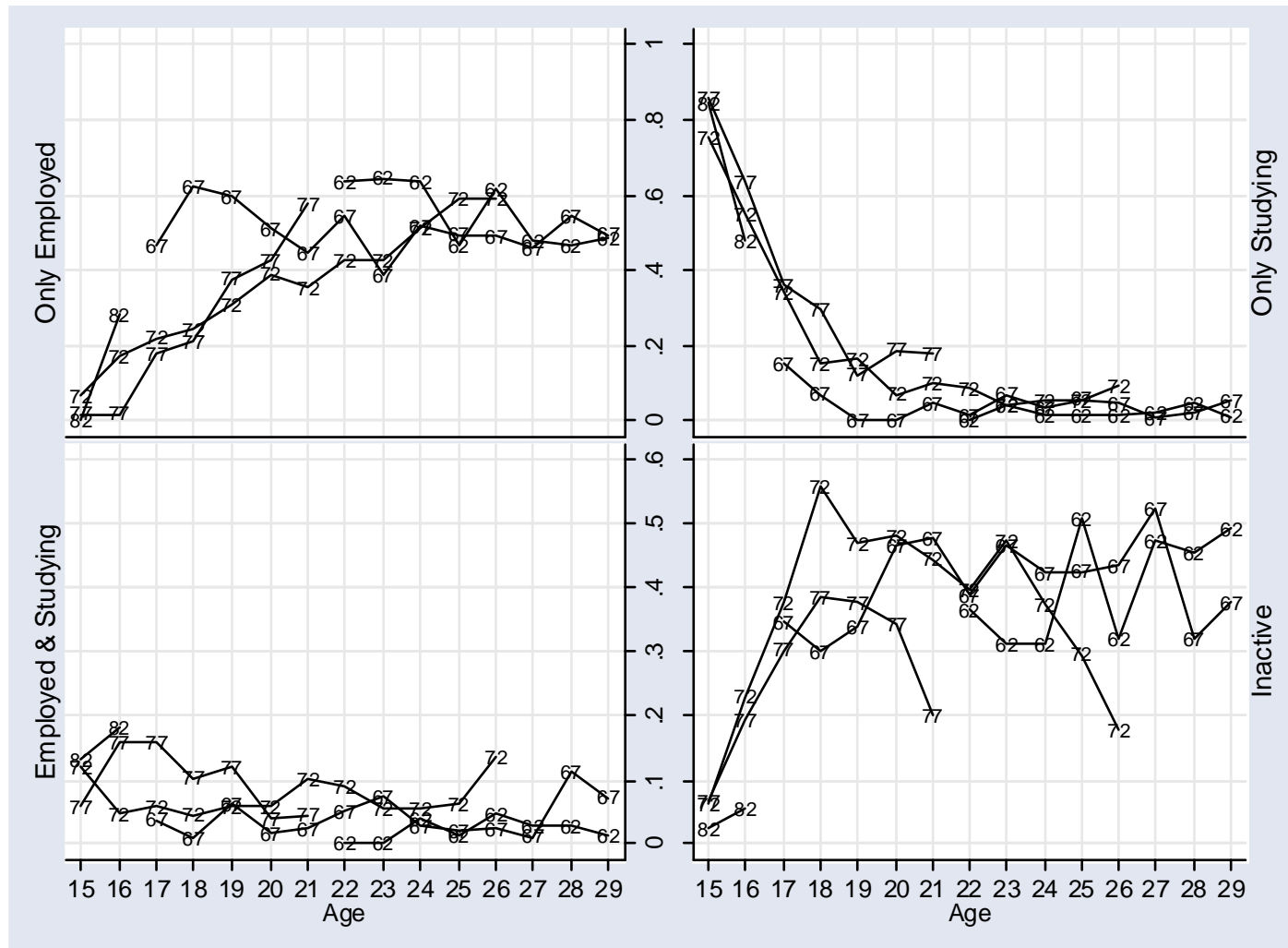


Figure 8: Youth Activity by Cohort and Age for Māori in the Household Economic Survey from 1985-2004



APPENDIX TABLE 1

Youth Activity by Definition and Age-Group in the June Quarter 2004 Household Labour Force Survey

	Official	Still in School	Worked Towards Long-Term Qual	Worked Towards Any Qual	Other HLFS Questions	2004 HES Including Enrolment
15-19 Year-Olds (Observations: 2,515)						
Employed full-time and not studying	17.8%	17.3%	14.3%	13.9%	13.9%	15.6%
Employed part-time and not studying	25.6%	9.1%	3.2%	3.0%	3.0%	2.0%
Employed full-time and studying	NA	0.5%	3.5%	3.9%	3.9%	2.6%
Employed part-time and studying	NA	16.5%	22.5%	22.6%	22.6%	21.6%
Studying, not employed	43.1%	47.0%	49.3%	49.4%	49.6%	49.8%
Unemployed, not studying	7.4%	4.8%	3.6%	3.5%	3.5%	2.4%
NILF, home with kids, not studying	1.1%	1.0%	0.8%	0.8%	0.8%	1.5%
NILF, other, not studying	5.0%	3.7%	2.9%	2.8%	2.6%	4.6%
Employment Rate	43.4%	43.4%	43.4%	43.4%	43.4%	41.8%
Study Rate	43.1%	64.1%	75.2%	75.9%	76.1%	74.0%
Inactivity Rate	13.5%	9.5%	7.3%	7.1%	6.9%	8.5%
% of Employed who Study	NA	39.3%	59.8%	61.0%	61.0%	58.0%
20-24 Year-Olds (Observations: 1,983)						
Employed full-time and not studying	46.7%	46.7%	41.9%	40.0%	40.0%	43.5%
Employed part-time and not studying	19.3%	19.0%	7.4%	6.9%	6.9%	2.5%
Employed full-time and studying	NA	0.0%	4.8%	6.7%	6.7%	9.7%
Employed part-time and studying	NA	0.3%	11.9%	12.3%	12.3%	13.4%
Studying, not employed	16.8%	17.1%	20.5%	20.9%	20.9%	20.6%
Unemployed, not studying	5.1%	5.1%	3.5%	3.3%	3.3%	1.4%
NILF, home with kids, not studying	6.1%	5.9%	5.3%	5.3%	5.3%	4.3%
NILF, other, not studying	5.9%	5.9%	4.7%	4.6%	4.5%	4.7%
Employment Rate	66.0%	66.0%	66.0%	66.0%	66.0%	69.0%

	Official	Still in School	Worked Towards Long-Term Qual	Worked Towards Any Qual	Other HLFS Questions	2004 HES Including Enrolment
Study Rate	16.8%	17.4%	37.2%	39.9%	40.0%	43.7%
Inactivity Rate	17.2%	16.9%	13.5%	13.2%	13.1%	10.4%
% of Employed who Study	NA	0.5%	25.3%	28.9%	28.9%	33.4%

Notes: Results are generated by the author using unit record data from the indicated Household Labour Force Survey (HLFS). The eight youth activity categories are mutually exclusive. Appendix B describes the variables used to define youth activity in each column. Variables are added sequentially such that the definition used in say the second column includes certain new variables plus those used to define employment status in the first column.

APPENDIX TABLE 2

Composition of the Youth and Young Adult Sample in the Household Economic Survey

Survey Year	Sample Size	% of Total Pop:	% of Age < 25:	% of 15-19 Year-Olds:			% of 20-24 Year-Olds:		
	Age < 25	Age < 25	Age 15-19	Female	Pakeha	Māori	Female	Pakeha	Māori
1985	1,628	23.8%	49.9%	48.5%	77.7%	12.0%	49.2%	73.6%	18.5%
1986	1,585	23.3%	50.6%	48.4%	73.6%	19.1%	49.3%	78.9%	15.3%
1987	1,578	22.7%	51.3%	48.7%	75.5%	17.7%	49.6%	71.7%	20.1%
1988	1,939	22.4%	51.7%	48.8%	75.2%	15.9%	49.5%	74.2%	16.1%
1989	1,458	22.0%	51.9%	48.9%	76.1%	17.1%	49.9%	75.3%	16.9%
1990	1,469	21.5%	51.5%	48.9%	72.1%	17.0%	50.3%	75.0%	16.6%
1991	1,186	21.1%	50.7%	48.5%	68.6%	20.3%	50.1%	70.5%	16.8%
1992	1,303	20.8%	49.4%	49.5%	68.5%	21.6%	50.6%	70.0%	16.3%
1993	1,981	20.4%	48.4%	49.8%	68.9%	21.0%	50.8%	74.0%	18.2%
1994	1,332	20.0%	47.7%	49.6%	72.7%	17.3%	50.9%	72.3%	17.4%
1995	1,094	19.6%	47.6%	49.6%	64.9%	23.0%	51.3%	73.1%	13.9%
1996	1,072	19.2%	48.0%	49.3%	63.1%	26.0%	51.0%	74.2%	14.6%
1997	1,091	18.8%	48.7%	49.0%	66.2%	21.9%	50.8%	68.2%	16.5%
1998	983	18.4%	49.3%	48.8%	64.5%	22.5%	50.5%	71.7%	18.4%
2001	817	17.8%	50.9%	48.6%	64.6%	21.0%	49.5%	65.1%	21.0%
2004	856	18.4%	51.2%	48.9%	56.6%	17.5%	49.5%	60.8%	14.4%

Notes: Results are generated by the author using unit record data from the indicated Household Economic Survey (HES). Pakeha and Māori are defined using prioritisation rules, thus Māori include all individuals identifying as Māori while Pakeha include individuals only identifying as Pakeha or European.