The Employment and Retirement Transitions of New Zealanders Aged in their 60s: Evidence from LEED

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Acknowledgements and notes on the data

Abstract

This study describes the employment patterns and work-to-retirement transitions of New Zealanders who were who were born between 1 April 1936 and 31 March 1940 and aged in their 60s during the 1999–2007 period, using longitudinal data from the Linked Employer-Employee Dataset.

The study has two main parts. The first part provides an overview of the employment rates and income support patterns of the study population, identifying the main changes that occurred with increasing age, for men and women and for different birth cohorts. This is designed to provide general insights into the employment activity of New Zealanders aged in their 60s, using a data source that has different strengths from the data sources previously available.

The second part describes the employment patterns and transitions of the study population. This section is intended to shed light on the types of employment pattern that were 'typical' of workers aged in their 60s during 1999-2007. It gives particular attention to the question of whether traditional or phased transitions from work to retirement were more common.

The employment rate of the study population declined gradually with each month and year of age, from 60 to 69. There was a sharper fall in the employment rate at 65 years, due to a greater number of people leaving work at this age. The aggregate wage employment rate of men fell by 3.1 percentage points at 65 years, while that of women fell by 1.7 percentage points. Overall, most people did not stop working at their 65th birthday: rather, they stopped working at a wide range of ages.

The employment patterns and work histories of study population members were diverse. The majority made at least one transition out of employment prior to their final exit. Among those who continued to work into their mid to late 60s, part-year and part-time employment became increasingly common. Phased transitions from work to retirement were more common than 'traditional' retirements involving a single and permanent transition from full-time employment to inactivity.

Keywords

Older workers, retirement, transitions.

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Contents

1. Introduction

Like many OECD countries, New Zealand has both an ageing workforce and predicted future growth in labour demand, making it increasingly important to involve older workers in the labour force and utilise their skills and experience effectively.

This paper investigates the employment patterns and employment-to-retirement transitions of adults who were born between 1 April 1936 and 31 March 1940 and aged in their 60s between 1999 and 2007, using data from the Linked Employer-Employee Dataset (LEED). The paper has two main objectives. Firstly, it aims to provide new insights into the labour market activities and income support patterns of New Zealanders in this age group, making full use of the longitudinal dimension of LEED to describe features of older workers' employment that are invisible in other data sources. Secondly, it aims to describe the nature of work to retirement transitions.

Understanding the changes that occur in employment patterns as people grow older, and the paths they take from employment to retirement, may help to illuminate the factors that encourage or discourage employment retention. A flexible labour market that allows older workers to work on a part-time or part-year basis if they wish to do so may encourage a higher rate of participation overall. Similarly, a flexible labour market in which older workers are easily able to change firms and form new employer relationships may encourage a higher rate of participation. This study is designed to provide some new evidence on rates of part-year and part-time employment and rates of employer mobility among older workers, to inform future discussions of these issues.

The study focuses particularly on the question of whether employment-to-retirement transitions tend to be sudden or phased. Survey evidence has indicated that New Zealanders, on average, have a preference for gradual transitions to retirement. Using LEED, we can make some assessment of whether this preference is frequently or rarely realised.

From an international perspective, New Zealand is an interesting case because it is one of the few countries in which a state retirement pension is paid on a universal basis from the age of 65 years, without income or asset testing. Individuals' entitlements to the state retirement pension, and the amount they receive once they turn 65, are not affected by their hours of work or earnings either before or after 65 years. In addition, until recently only a small proportion of New Zealanders were members of private or employer-based superannuation schemes. This means that the timing of retirement is likely to be less affected by the heterogeneous design features of private superannuation schemes in New Zealand than in most other OECD countries.[1]

New Zealand is also interesting because of the rapid changes that have occurred in the employment rates of older New Zealanders during the past 15 years. An increase in the age of entitlement to the state retirement pension, which was phased in between 1992 and 2001, led many older New Zealanders to delay their departure from work. Strong labour demand conditions also encouraged or helped to support large increases in older workers' employment rates. The employment rate of 60–64 year olds rose from 23 percent in 1992 to 41 percent in 1997 and to 65 percent in 2007.[2] The employment rate of 65–69 year olds more than doubled in ten years, rising from 13 percent in 1997 to 29

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[1] A survey of older persons conducted in 2000 found that NZS was the largest source of income in retirement for the majority of New Zealanders who were currently retired (Ministry of Social Development, 2001, p.48).

[2] These are June quarter figures from the HLFS.

percent in 2007. People aged in their mid to late 50s also became substantially more likely to work. At the same time, there were reductions in the unemployment rates of these age groups.

While the paper describes employment-to-retirement transitions in some detail it does not attempt to explain the *reasons* why different people retire at different ages. Health status, financial wealth, entitlements to future income from private superannuation schemes and publicly-provided pensions, caring responsibilities, and the experience of involuntary job loss, have all been identified in the international literature as significant factors that can influence the employment and retirement decisions of older workers. Unfortunately, LEED lacks data on most of these factors. However, LEED is well suited to the task of describing the employment and income receipt patterns of older New Zealanders because of its universal population coverage and accurate data on earnings and income support.

The study population is people who reached the age of 65 between 1 April 2001 and 31 March 2005. During April 1999 to March 2007, the period covered by LEED when this study began, the members of this study population were aged between 59 and 70 years. The study focuses on people aged in their 60s because the 60–64 year age group has shown the most rapid increases in its employment rates over the past decade, and because we are interested in exploring the association between the age of entitlement to New Zealand Superannuation and the timing of exits from work.

The structure of the paper is as follows. Section 2 briefly summarises recent international evidence on the push and pull factors that influence the work and retirement decisions of older workers. Section 3 outlines the government income support entitlements of New Zealanders aged in their 60s, and the limited evidence that is available on membership of private superannuation schemes. Section 4 describes the LEED data used in this analysis and the study population.

The main results of the study are presented in sections 5 and 6. Section 5 provides an overview of the employment rate and income support patterns of the study population. It describes the main changes that occurred with increasing age, for both men and women and for different birth cohorts. Sections 5.2–5.4 cover employment activity and sections 5.5–5.7 look at income support.

Section 6 investigates the longitudinal employment patterns of those who worked during the observation period. Section 6.3 analyses the employment patterns and transitions of the total study population, including people who were self-employed, using annualised employment data. It discusses different transition patterns and the ages at which individuals gave up work for the last time.

Section 6.4 uses LEED's monthly data on wage and salary employment to explore the employment patterns of employees, including the frequency of part-year employment, the frequency of part-time employment, and rates of job mobility. Section 6.4.2 identifies four different work-to-retirement transition paths and assesses their frequency.

The final sub-sections of sections 5 and 6 summarise the main findings of the research. Section 8 concludes and comments on future research directions.

2. Work and retirement decisions: recent research evidence

Retirement decisions have been the subject of a considerable amount of international research. This brief summary focuses on recent British and Australian studies. Borland (2005) provides a useful review of the Australian research.

Factors influencing retirement decisions

Health status and financial security have been consistently identified as the two leading factors that influence the decisions of older workers to retire. People who are in poor health are more likely to give up work, as are people who expect to be financially secure, based on the future income they will receive from their assets or pension entitlements.

Other factors that appear to influence the retirement decisions of significant numbers of older persons include the experience of involuntary job loss; caring responsibilities that are difficult to reconcile with work; earnings level; benefit entitlements, proximity to the state retirement age, and the employment status of a person's spouse. Redundancy sometimes triggers a permanent exit from work, as do caring responsibilities that are difficult to reconcile with employment. In some studies a higher earnings level is negatively associated with retirement, while for people below state retirement age, higher benefit entitlements are positively associated with giving up work. Many studies show an effect coming from proximity to state retirement age. Many studies also find that both men and women are more likely to work if their partner is employed and less likely to work if their partner is not working.

These generalisations are well supported in recent British research drawing on survey data collected through the English Longitudinal Study of Ageing (ELSA). Considering the influence of health status for example, Emmerson *et al* (2006, p 41) report that of all 50–64 year olds who were in paid work between 2002–03, those who reported that their health was only fair or poor were about twice as likely to leave work by 2004–05 as those who reported being in excellent or very good health. Among those who were not in paid work in 2002–03, those who reported poor health were less likely to return than those who reported being in good health.

The authors of this study also found that men and women who left work before state pension age were disproportionately drawn from the poorest and richest wealth quintiles. Taking into account both state and private pension wealth, and considering men and women aged 50–54 years, those in the poorest and richest wealth quintiles in 2002–03 were most likely to move out of paid work in the following two years (Emmerson et al, 2006, p.51). Among men aged between 55 and 59 years, movements out of paid work were also more common in the richest two wealth quintiles, though the majority of those in the poorest quintile were already out of paid work in 2002–03.

A number of British studies have considered the behavioural effects of pension scheme entitlements, distinguishing between defined benefit schemes (DB) and defined contribution schemes (DC).[3] Emmerson *et al* (2006, p53) report that men aged from 55–64 who were contributing to a DB scheme were more likely to leave work than those contributing to a DC scheme. They also found effects on the type of transition to

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[3] A typical defined benefit pension arrangement will provide a financial incentive for individuals to remain in paid work until the scheme's retirement age and a financial disincentive to remain in paid work past that date. In contrast, defined contribution pension arrangements typically are structured so that individuals accrue additional pension wealth from choosing to remain in paid work.

retirement. Men who were in full-time work in the first wave of the survey who had been contributing to a DC scheme were almost twice as likely to move into part-time employment by the second wave as those who were contributing to a DB arrangement. These patterns did not hold for women, however.

Banks *et al* (2007) use data from ELSA to model the factors influencing retirement and provide some further, more robust evidence. Their results indicate that men aged 50–59 years, having lower pension accrual, higher own pension wealth, higher family non-pension wealth, and lower earnings, were all significantly associated with a higher probability of retirement between 2002–03 and 2004–05. Cardiovascular disease and emotional/psychiatric problems were also associated with a higher probability of retirement for men in this age group, while having a partner in work was negatively associated with retirement. For men in the 60–64 age group, the financial incentives associated with pension entitlements, wealth and earnings continued to play a role but had reduced effects. Reaching state pension age was a significant predictor of retirement. Men whose partner was in work were less likely to retire, as were men who were self-employed rather than in waged employment. For women aged 50–59 years, partner's pension wealth was the only wealth variable that was found to be significantly associated with retirement. Reaching state pension age and reporting cardiovascular disease were positively associated with retirement, while the individual's earnings level was negatively associated with retirement. Women whose partner was in work were less likely to retire.

Recent qualitative research on the employment and retirement decisions of people aged in their 50s and 60s has also identified some common voluntary and involuntary factors. A good example is Irving *et al*, 2005. These authors found that negative changes in health, redundancy, changes in work that lead to reduced job satisfaction, and caring responsibilities that require time, were significant factors that pushed people from work to retirement. Financial security and proximity to the 'official' pension age were significant pull factors.

Work histories prior to complete retirement

Analysis of data collected in the English Longitudinal Study of Ageing indicated that a small proportion of workers in their 50s and early 60s who have left work for extended periods did return. Eight percent of those aged between 50 years and the state retirement age who were out of work when surveyed in 2002–03, had returned to work two years later (Emmerson et al, 2006, p.41).

Recent evidence from the United States indicates that pre-retirement transitions and 'bridge jobs' are relatively common in that country. Cahill *et al* (2005) analysed data from the Health and Retirement Survey on the work histories of a sample of Americans who were aged 51-61 in 1992, and were followed for the next 10 years. They found that one-half to two-thirds of respondents who had had a full-time career job at some stage in their work history, moved to a short-duration or a part-time job before leaving the labour force completely. People who left their career jobs at younger ages, were in good health, had wages at the upper and lower ends of the wage distribution, and were not members of a defined-benefit pension scheme, were more likely to take on bridge jobs rather than making an abrupt transition into retirement. Maestas (2004), also analysing data from the Health and Retirement Survey on older Americans, found that more than one-third of retirees aged in their 50 returned to work after an initial retirement.

New Zealand evidence on retirement

Previous New Zealand studies have analysed cross-sectional data from the HLFS or the census on the employment and participation patterns of older workers, and used this evidence to draw inferences about changing retirement ages. Hurnard, 2005, and Haig, 2007, are examples of this work.

The EEO Trust conducted a non-representative internet survey in April 2006 to gather information on what people want from work as they get older, and what workplace conditions would encourage them to stay in paid work for longer (EEO Trust, 2006). The survey was completed by around 6,500 New Zealanders, mostly aged from 45 to 64 years. Women were over-represented in the sample, and people in professional and managerial occupations were strongly over-represented.

Nearly half of the respondents who were still in the workforce said that their ideal pattern of transition from work to retirement would involve part-time work or more flexible hours. Another 20 percent said they would prefer to move to a less demanding job before retiring and about 10 percent said they would like to move to self-employment. Only 10 percent said they would like to retire straight from full-time work. However, 46 percent of respondents who had already retired said that they had moved directly from full-time work to full retirement. Seventeen percent had worked reduced hours (presumably part-time) before retirement and 13 percent had moved in and out of paid work for a period before retiring fully. These results suggest there may be a gap between the desire for part-time or flexible work options and the realisation.

3. Income support entitlements of people aged in their 60s

This section provides some background information on the pension and income support entitlements of New Zealanders in their 60s.

3.1 Eligibility for NZ Superannuation and take-up rates

NZ Superannuation (NZS) is a universal public pension that is funded from general taxation.

NZS is neither income nor asset tested. All people who meet the qualifying age of 65 years and the residential requirements are eligible. The residential criteria require a person to:
- be a New Zealand citizen or permanent resident, and
- have been resident and present in New Zealand for not less than ten years since the age of 20, of which five years or more must be since the age of 50, and
- be ordinarily resident in New Zealand on the date of application.

Ministry of Social Development documents suggest that around 92–93 percent of people living in NZ who are aged 65 years and over actually receive NZS (MSD, 2003, p.10; 2006, p.88). Non-recipients are likely to be primarily people who do not meet the residency requirements because they have not lived in New Zealand for long enough. In addition, a small percentage of older persons (less than 2 percent) receive the Veteran's Pension instead of NZS. In LEED, Veteran's Pension payments are included in the same category as NZS payments, so it is not possible to distinguish between the two.

NZ Superannuation is paid at three basic rates, based on the individual's living arrangements. The basic rates are for single people who live alone, single people who are sharing accommodation with others, and people living in couples where both partners qualify for NZS independently.[4] Payments are made to each qualifying individual (that is, each person in a couple receives half the total payment for a married couple).

Couples who have one qualifying partner and one non-qualifying partner can choose the basis on which NZS is paid. There are two options. Either the non-qualifying partner is *not* taken into consideration and the qualifying partner receives a half-share of the standard payment for a married couple, without income testing; or the non-qualifying partner *is* taken into account and both receive NZS at a slightly lower rate. In the latter situation, the payment is income tested.

Using the standard rates of NZS as a guide, the marital status of approximately 95 percent of individuals in LEED who ever receive NZS can be estimated.[5]

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[4] De facto couples are treated like legally married couples.

[5] Five percent of recipients never received a standard payment during the observation window. NZS can be abated if the individual receives pension income from an overseas government, or has been out of the country.

3.2 Changes in the age of eligibility for NZ Superannuation

The age of eligibility for NZS was progressively raised from 60 to 65 years between 31 March 1993 and 1 April 2001. The changes delayed the age of eligibility to 61 years for those born between 1 April and 30 June 1932; and increased the eligibility age by an additional 3 months for each successive 3-month birth cohort. The eligibility age for NZS reached 65 years on 1 April 2001.

For the period covered by LEED (1 April 1999 onwards), this means that the following birth cohorts became eligible at the following ages:

Table 3.1

Ages of eligibility for New Zealand Superannuation

Birth date	Eligibility age	Date of eligibility
1/4 – 30/6/1935	64 years	30/6/1999
1/7 – 30/9/1935	64 years and 3 months	31/12/1999
1/10 – 31/12/1935	64 years and 6 months	30/6/2000
1/1 – 31/3/1936	64 years and 9 months	31/12/2000

Everyone born from 1 April 1936 onwards became eligible at 65 years. This includes everyone in the study population for this study.

3.3 Other income support options for people in their 60s

People who are aged under 65 and have little or no employment income may be eligible for an income-tested working-age benefit such as the Unemployment, Sickness, Invalid's or Domestic Purposes benefit, if they meet the criteria.

Between 1 April 1994 and 31 March 2004, a Transitional Retirement Benefit was available to people aged between 60 and 64, who were approaching retirement at the time the decision to increase the age of eligibility for New Zealand Superannuation to 65 years was announced. It took the form of an income-tested benefit that did not require recipients to make themselves available for work or be medically assessed (Hurnard, 2005, p.12). The minimum age of eligibility for a Transitional Retirement Benefit was progressively raised over time, rising three months every six months. Transitional Retirement Benefits were abolished on 1 April 2004, when the eligibility age for these benefits reached 65 years.

People who are aged 65 years and over who do not meet the residency criteria for NZS may be eligible for a different kind of income support. The main benefit received by this group is the Emergency Benefit (EB), which provides income and asset tested support to people who are suffering hardship, unable to earn enough income for themselves (and any family members), and cannot receive any other benefit. As at the end of June 2006, approximately 600 people aged 60–64 years, and approximately 6,000 people aged 65 and over, received EB (MSD, 2006, p.96).

As noted above, some war veterans and widows of war veterans are able to receive a Veterans Pension (VP) as an alternative to NZS. The VP provides income support for ex-service people who have either reached the qualifying age for NZS and are on a 70 percent (or greater) war disablement pension, or are younger than 65 but precluded from participating in the labour force because of a disability. Although the VP rates are

the same as NZS, recipients of VP have some extra health service entitlements and the number of people receiving VP has been growing. In 2006 approximately 9,000 people aged 65 years or over received the Veteran's Pension (MSD, 2006, p.92).

3.4 Retirement wealth and investment income sources

The Household Savings Survey collected data on the ownership of superannuation scheme assets in 2001 (Statistics NZ, 2002). Twenty-two percent of non-partnered individuals and 34 percent of couples who were in the 55–64 year age bracket had superannuation scheme assets which they were not yet drawing income from. Superannuation scheme assets were more likely to be held by middle and upper income individuals and by couples who were both in employment. The value of people's superannuation assets was positively correlated with their income level.

Statistics NZ also reports that approximately 10 percent of 50–64 year olds in the Household Savings Survey, and 5 percent of 65–74 year olds, owned a rental property (Statistics NZ, 2002, p63). Older couples also had relatively high levels of ownership of business assets. In addition 26 percent of non-partnered individuals and 44 percent of couples in the 45–64 year age bracket owned other financial assets, such as shares, units in managed funds, or fixed-interest investments.

A survey of the living standards of older people living in private dwellings was conducted by the Ministry of Social Development and Statistics NZ in 2000. The report of the research provides a limited amount of data on the incomes of the 65-plus population. Fourteen percent of single adults and 20 percent of those who were living in couples reported that they received income from a private superannuation scheme (MSD, 2001, p.48). 76 percent of singles and 83 percent of couples received some income from other financial assets, such as interest, dividends or rent.

Further examination of the distribution of sources of income in this survey revealed that approximately 10 percent of singles and 6 percent of people living in couples were solely dependent for their income on NZS (with or without supplementation from other income support allowances such as the accommodation benefit); 88 percent of single respondents reported that their income came from NZS supplemented by at least one other source of income and 93 percent of partnered respondents reported receiving both NZS and at least one additional source of income (ibid, p.47).

The Income Survey collects data on the receipt of income from private superannuation schemes each June quarter. In the June 2006 quarter, only 3.8 percent of respondents aged 60–64 years, 6.2 percent of respondents aged 65–69 years, and 8.8 percent of people aged 70–74 years reported income from a private superannuation scheme. These percentages seem very low in view of the Household Savings Survey figures on the percentages of 55–64 year olds owning superannuation scheme assets and the data from the Survey of Living Standards on the percentages of older people receiving income from private superannuation schemes. It is difficult to believe they are good estimates.

4. Notes on LEED data and the study population

4.1 Relevant features of LEED

LEED contains data on individuals' wage and salary earnings, self-employment earnings, income from ACC earnings-related compensation, income from working-age benefits, and income from NZS. Employment activity can be inferred on the basis of whether employee or self-employment income was received. Note that self-employment income data does not include income from rental property.

At the time this study was begun, the period covered by the LEED data on wage and salary earnings, income support and NZ superannuation, was 8 years, from 1 April 1999 to 31 March 2007. The period covered by the data on self-employment income, which is largely reported in March-year annual tax returns, was only 7 years, from 2000 to 2006. We use all of the available data but allow the period covered to vary in different analyses.

LEED includes data on everyone who has received taxable income from self-employment, wage and salary employment, or a government benefit, during the observation period (ie 1999 to 2007). This includes overseas-born people who were not usually resident in NZ but lived and worked here for part of the period, and New Zealand residents who were overseas for part of the period. Because LEED does not currently include any immigration data on departures and arrivals, there is no direct way of identifying whether a person who is not receiving any income in LEED at a certain time is still resident (and should be included in population-based statistics) or is resident overseas (and should be excluded). Similarly, it is not possible to identify whether a person who is not receiving any income in LEED at a certain time is still alive or has died. The lack of a well-specified population base presents some challenges for the estimation of aggregate employment rates in LEED.

Most of the income data in LEED has a calendar-month reference period, due to the way the PAYE system operates. Employers are required to provide information to Inland Revenue on the tax numbers of their employees and their earnings each calendar month. The exact start or finish dates of jobs that begin or end during a calendar month are frequently not reported, when means it is not possible to tell exactly which individuals were employed on any given day during the month. In this paper, an individual is considered to be 'employed' in any calendar month in which they received any employee earnings. Because the reference period used in our employment rate measure is longer than the one-week reference period used in the HLFS, the employment rates reported here are not strictly comparable with the HLFS rates.

A limitation of LEED is that data on self-employment incomes is only available on an annual, tax-year basis. There is no way of telling whether people who received self-employment income in a particular year were at work for the whole year or only part of it. On the assumption that at least some self-employment activity is undertaken on a part-year basis, it is reasonable to anticipate that LEED-based self-employment rates are likely to be higher than self-employment rates calculated for shorter reference periods such as one week (as in the official survey-based employment statistics) or one month.

Another point to note is that receiving self-employment income is only an indirect measure of self-employment activity. A person who is part-owner of a business can receive income from it without playing any role in the management of the business or the production of its goods and services. Using income receipt as a proxy measure of

employment may in some cases lead to people being classified as working when they are not.

Due to differences in the nature and periodisation of the data, employment rates calculated using LEED data and reported in this paper are not directly comparable with the official, HLFS-based employment rate estimates. Readers should avoid attaching too much weight to the absolute level of the employment rate or inactivity statistics reported here. The value of the analysis lies in the trends and variations between population groups that are identified.

4.2 The study population

We begin by selecting everyone who was born between 1 April 1936 and 31 March 1940, who *ever* had a payment recorded in LEED. These date ranges ensure that everyone in the study population can be observed in LEED for at least two years before they turn 65 and for at least two years after they turn 65. They also mean that our study population is not affected by the changes to the age of eligibility for NZS. Everyone was first eligible at 65 years of age. The demographic groups encompassed by the study population are described in table 4.1.

Table 4.1

Definition of the study population

	Date of birth	Age at start of observation period (April 1999)	Date turned 65 years	Age at end of observation period (March 2007)
Oldest person in study sample	1 April 1936	63.0 years	1 April 2001	70 years and 11 months
Youngest person in study sample	31 March 1940	59.0 years	31 March 2005	67.0 years

It is useful to compare the size of this total population with Statistics NZ's official population estimates for the same birth cohorts. The official population estimates are shown in the first row of table 4.2. We use the official population estimate for the point in time when all cohort members had reached 66 years of age (eg 31 March 2003 for people born between 1 April 1936 and 31 March 1937).

The total number of LEED records for people with the same birthdates is shown in the second row of the table, and the difference between row 1 and row 2 is shown in the third row. The number of LEED records is 7 percent higher, overall. The most likely reason for this is that the LEED records include people who were not long-term residents of NZ and arrived or left the country during the observation period, and people who died before or during their 66th year.

Table 4.2

Dimensions of the study population

| | | Total | Year of birth (March years) | | | |
			1937	1938	1939	1940
1	Statistics NZ population estimates: birth cohort size when all members had turned 66 years	118,760	28,080	28,940	30,030	31,710
2	Appears in LEED database	126,580	29,340	30,670	32,280	34,290
	Ratio of LEED records to official population estimates	*1.07*	*1.04*	*1.06*	*1.07*	*1.08*
3	Payment received in LEED while aged 66 years	115,810	27,060	28,260	29,510	30,980
	Ratio of population (3) to official population estimate	*0.98*	*0.96*	*0.98*	*0.98*	*0.98*
4	Final study population: population (3) less people with imputed birthdates	106,070	24,830	25,800	27,020	28,430
	Ratio of final study population (4) to official population estimate	*0.89*	*0.88*	*0.89*	*0.90*	*0.90*

To reduce the effects of population attrition on the employment rates that are calculated in this paper, we apply some further selection restrictions.

The fourth row of table 4.2 shows the number of people that had at least one payment recorded in LEED when they were aged 66 years. That payment could have been wage or salary earnings, self-employment earnings, income from ACC earnings-related compensation, income from a working-age benefit, or income from NZS.[6] Of all those who ever appeared in LEED, approximately 9 percent *did not* receive any taxed income in the year that they were aged 66.

We impose this criterion to reduce the biasing effects of attrition from the sample due to deaths or departures from NZ. By restricting the study sample to people who had any LEED payment recorded in their year that they were aged 66, we exclude individuals who died at a fairly early age or left the country. Because NZ Superannuation is universally available to New Zealand residents aged over 65 who meet the residency conditions, most people have a high chance of appearing in LEED if they are indeed alive and living in NZ during their 66th year of age.[7] The cost of this restriction is that we exclude from our study any individuals who were not eligible for NZS, not earning any income from employment, and not in receipt of any income support in their 66th year. Another limitation is that we fail to exclude people who arrived in NZ part way through the observation period (who had a payment at 66). These people will be classified as inactive (non-employed) until they receive their first LEED payment.

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[6] Self-employment income is usually reported to Inland Revenue on an annual, financial-year basis. For most people, financial years do not correspond to the interval between birthdays. A person was considered to have received self-employment income in their 65th or 66th year if they received income in either of the two tax years that overlapped their 65th or 66th year of age.

[7] We cannot restrict the sample to those who were still receiving employment or income support payments in a higher age bracket because the youngest members of our study sample do not turn 68 within the LEED observation window.

In row 4, we show the additional impact of excluding individuals whose date of birth was not supplied to Inland Revenue and therefore was imputed by Statistics NZ. A further 8 percent of people are lost through this exclusion. We exclude people whose birth date was imputed because there is reason to believe their inclusion would distort our results on the relationship between age and economic activity. Figure A1.3 in appendix 1 shows that people with imputed birth dates had much lower employment rates on average than individuals whose birth date was supplied to Inland Revenue. Figure A1.4 indicates that the take-up of NZS follows a different pattern in imputed-age records than in non-imputed. Imputed-birth date individuals are less likely to receive any NZS payments before the age of 65, and less likely to receive them afterwards. Other analyses (not included in the paper) indicated that imputed-age records had payments recorded in LEED for a smaller proportion of years on average than non-imputed records, suggesting the subjects were more likely to be inactive or out of the country for part of the observation window.

The final study population includes everyone who met the following criteria:

- Born between 1 April 1936 and 31 March 1940

- Received some kind of payment that was recorded in LEED in the period 13–24 months after the month in which they reached 65 (ie they received a LEED payment sometime between their 66th and 67th birthdays)

- Had a non-imputed date of birth in LEED.

The final study population is 11–12 percent smaller than the Statistics NZ population estimate.

Figures A1.1 and A1.2 in appendix 1 illustrate the impact of our population restrictions on the wage employment rate and NZS take-up estimates. Restricting the study population to people that had payments recorded at the age of 66 raises employment rates by 1–2 percentage points, by eliminating people who were less likely to be employed both before and after 65 years from the sample. Excluding people whose birth date was imputed further raises average employment rates, by 1–2 percentage points.

Restricting the study population to people that had payments recorded in LEED while they were aged 66 years substantially raises the estimated overall NZS take-up rate in the post-65 period. After imposing the restriction, around 92 percent of the study population received NZS in their 66th year (compared with 85 percent previously). It is interesting to note that even with the population restriction, the NZS take-up rates in our study population decline by several percentage points after 67 years, from around 93 percent to around 89 percent. This is probably due to the fact that some recipients have died or left the country.

Excluding the imputed birth date group does not materially alter the overall NZS take-up rates. As noted, however, individuals with imputed birth dates were less likely to be receiving NZS both before the age of 65 and afterwards.

4.3 Sub-samples used in the analysis

In some sections of the paper, we work with sub-samples of the total study population. Sample sizes are given in table 4.3 below.

When estimating self-employment or total employment rates, we use the records of people who were born in April (ie one-twelfth of the total sample), so that the period between each birthday coincides approximately with the reference year for reporting self-employment incomes. This leads to more accurate measures of the employment activity of sample members at each year of age. We also use the April-birth date sub-sample when analysing total incomes from all sources by year of age, and for part of the analysis of transitions of retirement.

The analysis of wage employment patterns and transitions to retirement in section 6 uses the sub-group of persons who ever earned wages during a 7-year observation window when they were aged 60–66, 61–67, 62–68, or 63–69 years (depending on their birth year).

Table 4.3

Sub-groups of the total study sample

| Sample | Used for | Total | Year of birth (March years) | | | |
			1937	1938	1939	1940
Total study population	Employment and income overview in section 5	106,070	24,830	25,800	27,020	28,430
Persons born in April	Total employment rate estimates, total income analyses, analyses of transitions to retirement in section 6	8,190	1,940	2,070	2,100	2,090
Persons with any wage employment recorded in the 7 years when they were aged 60-66, 61-67, 62-68 or 63-69	Analysis of wage employment patterns and transitions to retirement in section 6	51,770	10,350	12,000	13,710	15,720

4.4 Comparison of LEED and HLFS employment rate estimates

As mentioned above, employment rate estimates derived in this study are higher than the official survey-based employment rate estimates for the same time periods and demographic groups. The most important reason for this is that reference periods used to measure 'employment' in LEED are longer. The reference period for classifying employment activity in the HLFS is one week, and only people who worked in the week before the survey are counted as employed. In our study the reference period for assessing waged employment is one month, while for self-employment it is one financial year.

A comparison of the study population's average annual total employment rates with the corresponding HLFS estimates, calculated by year of age and for each March year from 2000 to 2005, is set out in table 4.4. For the comparison, we use study population members who had birthdays in the month of April, and calculate age-specific and year-specific estimates of average annual employment rates using the data for the reference April through to the following March. This means that the underlying sample sizes are relatively small. Similarly, the HLFS samples are fairly small when employment rates are calculated by single years of age. Given these sample sizes, both sets of estimates will be affected by sampling error.

As expected, the total employment estimates calculated from LEED are systematically higher than the HLFS estimates. On average (averaging across the ages and years shown) they are 5 percent higher for men and 6 percent higher for women.

Table 4.4

Comparison of study population and LEED employment rate estimates

	60	61	62	63	64	65	66	67	68
					Males				
LEED study population									
2000	68.7	66.0	61.8	54.4					
2001		67.3	62.5	57.3	50.7				
2002			65.3	58.6	53.1	43.9			
2003				62.3	56.7	45.3	39.5		
2004					59.0	49.3	40.9	36.1	
2005						51.3	43.7	37.0	33.4
HLFS comparison									
2000	63.5	63.1	54.6	46.1					
2001		63.1	59.7	52.2	45.0				
2002			61.0	56.9	52.0	38.4			
2003				64.4	53.2	39.1	33.8		
2004					51.7	34.8	32.0	30.3	
2005						37.5	36.7	28.2	30.2
LEED-HLFS (difference)									
2000	5.2	2.9	7.2	8.3					
2001		4.3	2.8	5.1	5.7				
2002			4.2	1.7	1.1	5.4			
2003				-2.0	3.5	6.2	5.7		
2004					7.4	14.5	8.9	5.7	
2005						13.9	7.0	8.8	3.2
					Females				
LEED study population									
2000	47.7	45.2	36.7	32.3					
2001		45.2	41.7	33.6	29.8				
2002			42.5	38.1	30.4	25.6			
2003				38.6	35.2	25.6	21.7		
2004					35.3	32.5	23.2	19.0	
2005						31.6	29.0	20.6	17.9
HLFS comparison									
2000	41.2	32.2	29.0	26.2					
2001		44.8	28.6	24.4	24.1				
2002			41.8	31.9	25.0	18.1			
2003				38.6	26.5	20.6	12.5		
2004					32.2	21.0	17.3	14.7	
2005						29.3	20.1	19.0	16.3
LEED-HLFS (difference)									
2000	6.5	13.0	7.7	6.1					
2001		0.4	13.1	9.2	5.6				
2002			0.7	6.2	5.3	7.5			
2003				0.0	8.8	5.0	9.2		
2004					3.1	11.4	5.9	4.3	
2005						2.3	8.8	1.6	1.6

5. The employment patterns and incomes of 60–69 year olds

5.1 Introduction

This section contains the paper's first set of results. It provides an overview of the employment activity and income support receipt patterns of the study population during the LEED observation period of 1999 to 2007. A strength of LEED is the large number of records (due to full population coverage), which are linked longitudinally. This means it is possible to examine the way employment patterns change with each year and month of age for constant samples of individuals. The employment patterns of people in different birth cohorts can also be compared.

Initially, we treat the study population like a cross-sectional survey sample and simply tabulate various outcomes by age and gender. Given the spread of ages within the study population as a whole, the data for 59–60 year olds in each graph are supplied by people who were born in the year ended March 1940. The data for 60–61 year olds are supplied by people who were born in the 1939 and 1940 March years, while the data for 61–62 year olds are supplied by the 1938–40 birth cohorts. All four birth cohorts contribute to the data for 63–66 year olds. At the other end of the age spectrum, the data for 70–71 year olds come solely from the cohort that was born in the year ended March 1937.

We then disaggregate the data by year of birth, and graph employment rates by year of age, for each birth cohort separately. The different birth cohorts in our study population faced slightly different policy settings in the years immediately before their 65th birthday, because the older cohorts were eligible for income assistance through the Transitional Retirement Allowance, for varying amounts of time, while the youngest cohort was not.

For brevity, we illustrate the findings using graphs. Numerical estimates were also calculated, typically in the form of annual averages, and these are presented in a series of tables in appendix 2. Those tables can be consulted for verification of points made in this section. The sample sizes underlying the graphs and tables are set out in appendix 3.

5.2 Employment activity by year of age

Figure 5.1 plots the monthly wage or salary employment rates of the entire study population by gender and age (in years and months). The plot lines reveal that wage employment rates decline gradually with age. For the study population as a whole, the male rate falls from 42 percent at age 60.0 to 13 percent at age 70.0. The female rate falls from 36 percent at age 60.0 to 10 percent at age 70.0.

Figure 5.1

Wage employment rates by age and gender
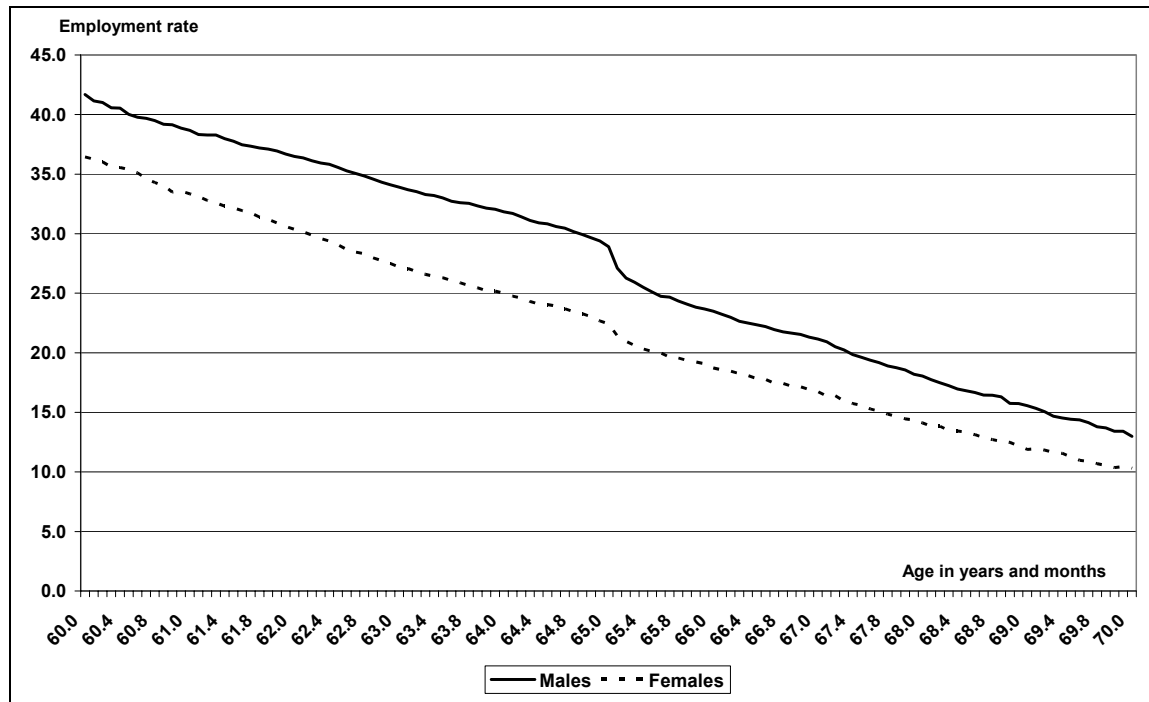
There is a more rapid decline in employment rates at 65.0 years, creating a kink in the trend line, and suggesting there may be a statistically significant 'NZS eligibility effect'. We estimate that approximately 10.6 percent of male employees and 7.5 percent of female employees who were at work at 64 years and 11 months, stopped working within the following three months.[8] These outflows reduced the aggregate wage employment rate of males by 3.1 percent and that of females by 1.7 percent.

Because NZS is not income or asset tested, and employers are not permitted to set mandatory retirement ages, no one is compelled to leave work at 65 years. The milestone of reaching 65 could be important for financial reasons, however, if some people have insufficient savings to retire until they start to receive NZS payments, or if their private or employer-sponsored superannuation schemes provide a financial incentive for them to stop work at 65 rather than some other age. It could also be important for social reasons, if it is conventional to retire at 65 and this influences behaviour.

Although the milestone of reaching 65 years is associated with a higher rate of exit from work for wage earners than immediately before or after, the majority of men and women aged in their 60s were not in waged employment just prior to turning 65, and so were not directly affected by this milestone.

Figures 5.2 and 5.3 plot the wage employment, self-employment, and total employment rates of men and women on an annual basis. Further supporting data is given in table A2.1. Annual observations are shown in these graphs because self-employment is

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[8] Those departures from work were not all permanent departures, however. Further analysis showed that approximately 45 percent of those who left wage employment at their 65th birthday returned to work at some later stage.

measured in LEED using an annual reference period (based on March tax years).[9] Only seven years of self-employment data were available at the time this study was undertaken, and therefore the analysis spans a shorter period than the analysis of waged employment. The wage employment rate is simply the annual average of the monthly employment rate shown in Figure 5.1. The self-employment rate counts all those who received any self-employment income during the year.

Figure 5.2

Total employment rates by age: Males
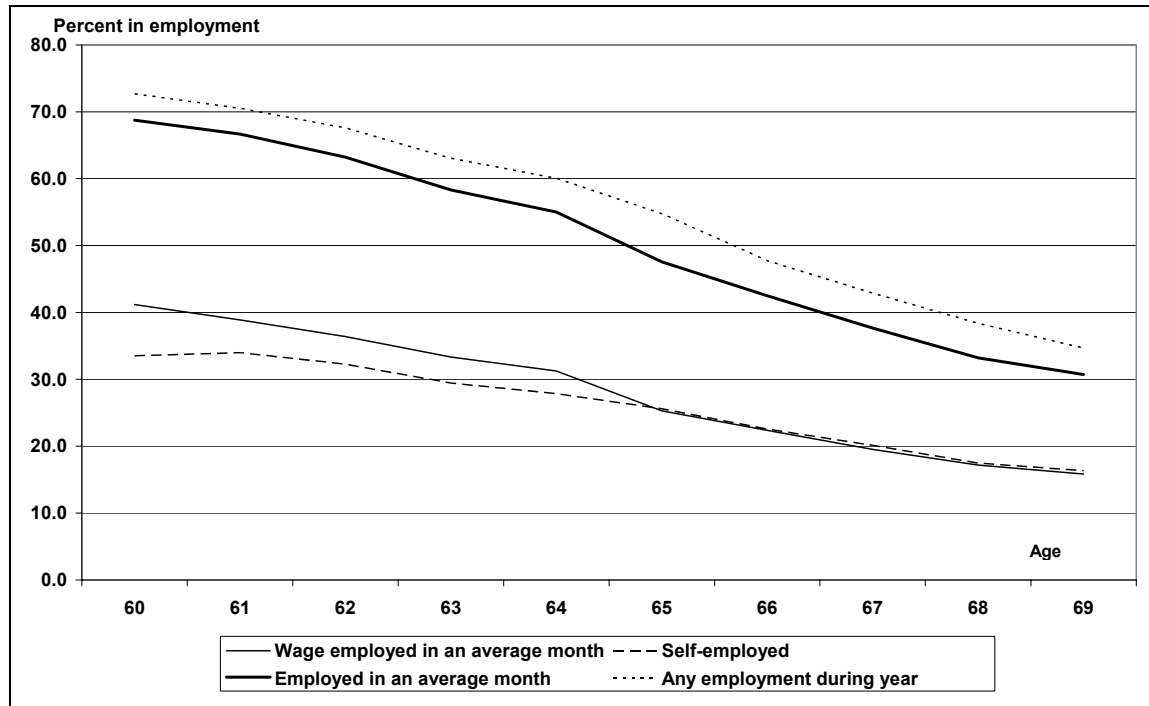
Figure 5.3

Total employment rates by age: Females
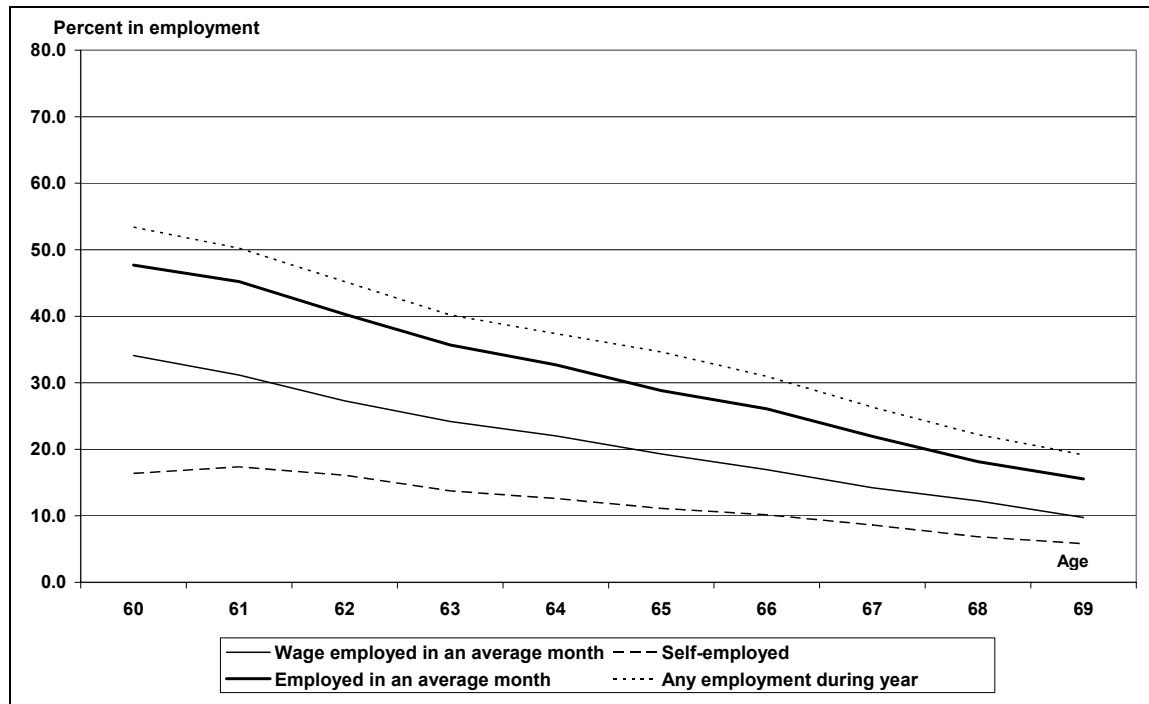
Self-employment is relatively common in this age group.[10] About 34 percent of men and 16 percent of women in the study population were self-employed at the age of 60.[11] Rates of self-employment decline gradually with age, falling to 16 percent of men and 6 percent of women over the 9 years from age 60 to 69. The rate of decline, as indicated by the slope of the lines in figures 5.2 and 5.3, is a little slower for self-employment than for wage employment. This means that over time, the ratio of the number of self-employed to the number of employees rises.

It is worth noting that the receipt of income from a business is only an indirect measure of employment activity. Someone who is part-owner of a business can receive income from the business without playing any role in production or the management of the business. This means that some of the individuals who are classified as self-employed in LEED might not meet an ILO or economic definition of being employed. On the other hand, there are incentives to minimize reported taxable income from self-employment, and therefore it is possible that some self-employment activities are more substantial in nature than the income totals recorded in LEED would suggest.

Estimated total employment rates are also shown in figures 5.2 and 5.3, and table A2.1. Our preferred measure represents the proportion of people who were either wage employed in an average month (that is, they worked for at least 6 months of the year) or self-employed during the year, or both. The bold line in the figures gives the total employment rate, estimated this way. The total employment rate for males was 69 percent at age 60 and declined to 31 percent at age 69. The total employment rate for females was 48 percent at age 60, declining to 16 percent at age 69.

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[10] Income from rental property is not included in the LEED measures of self-employment income.

[11] The wage employment and self-employment estimates include all persons who received any income of the relevant type, even if it wasn't their main source of employment income.

We also show the percentages of people that undertook *any* employment in any month of the year (the highest lines in the two graphs). At every year of age, this alternative total employment rate, which uses an annual reference period, is higher.

From these results, we can also calculate non-employment rates. We find that 27 percent of men and 65 percent of women earned no employment income at the age of 60 (although they may have returned to work at a later age). At age 69 years, 65 percent of men and 81 percent of women earned no employment income during the year.

5.3 Birth cohort differences in employment activity

Because LEED is a panel dataset, the age-specific activities of study sample members who were born in different years can be compared. Birth cohort analyses can be instructive at times when labour market behaviour is changing rapidly. The birth cohorts considered here are those born in the years ending in March 1937, 1938, 1939 and 1940. In the graphs below, we limit the age ranges shown so that the plot line for each cohort represents the employment rates of a fixed sample. Data on wage employment rates, self-employment rates, and total employment rates by year of birth as well as gender and age are presented in figures 5.4 to 5.6 and table A2.2 in appendix 2.

Figure 5.4

Wage employment rates by birth year, age and gender
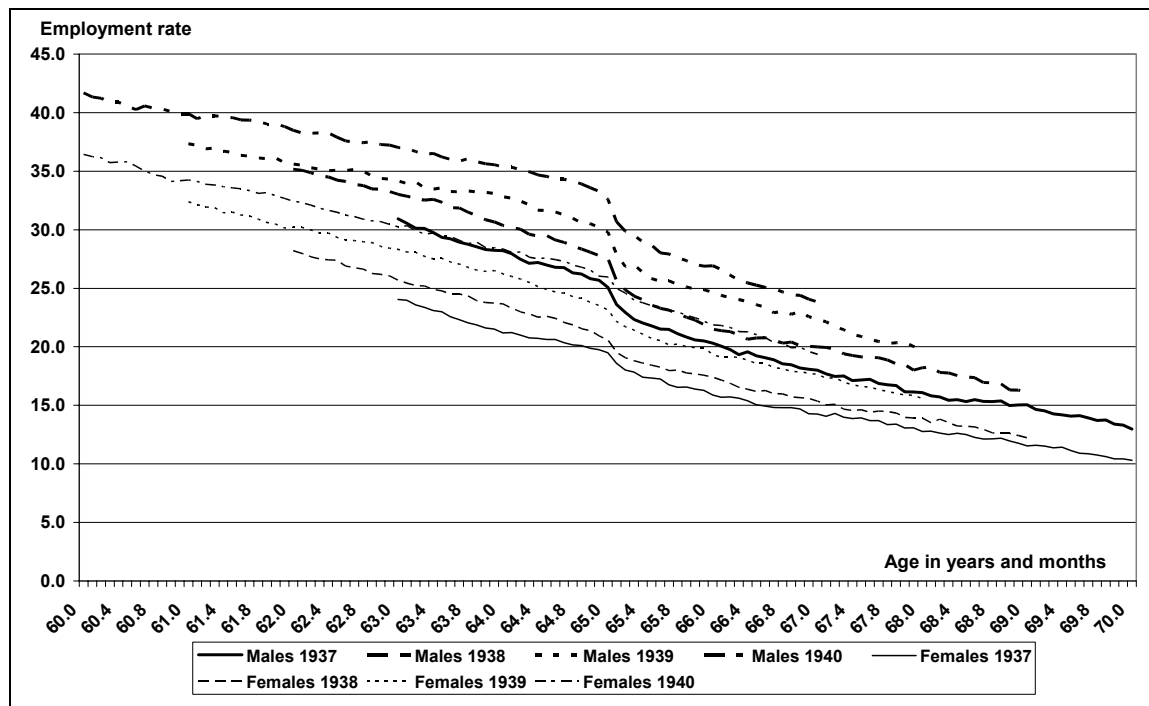
Figure 5.5

Self-employment rates by birth year, age and gender
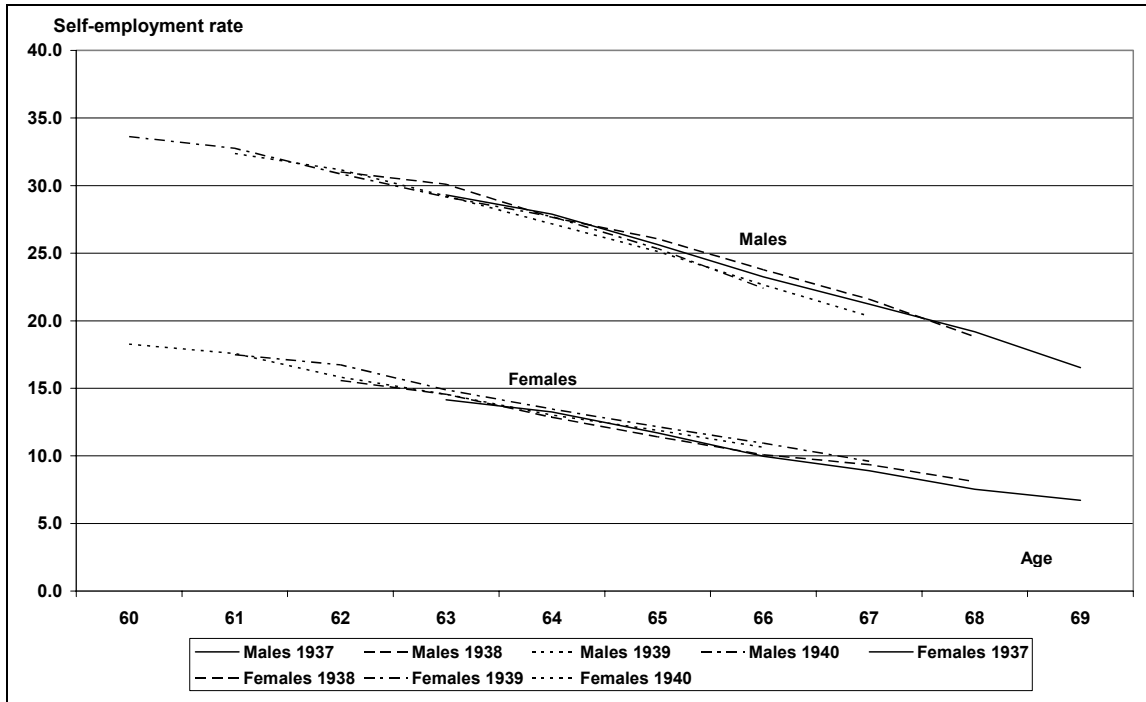
Figure 5.6

Total employment rates by birth year, age and gender
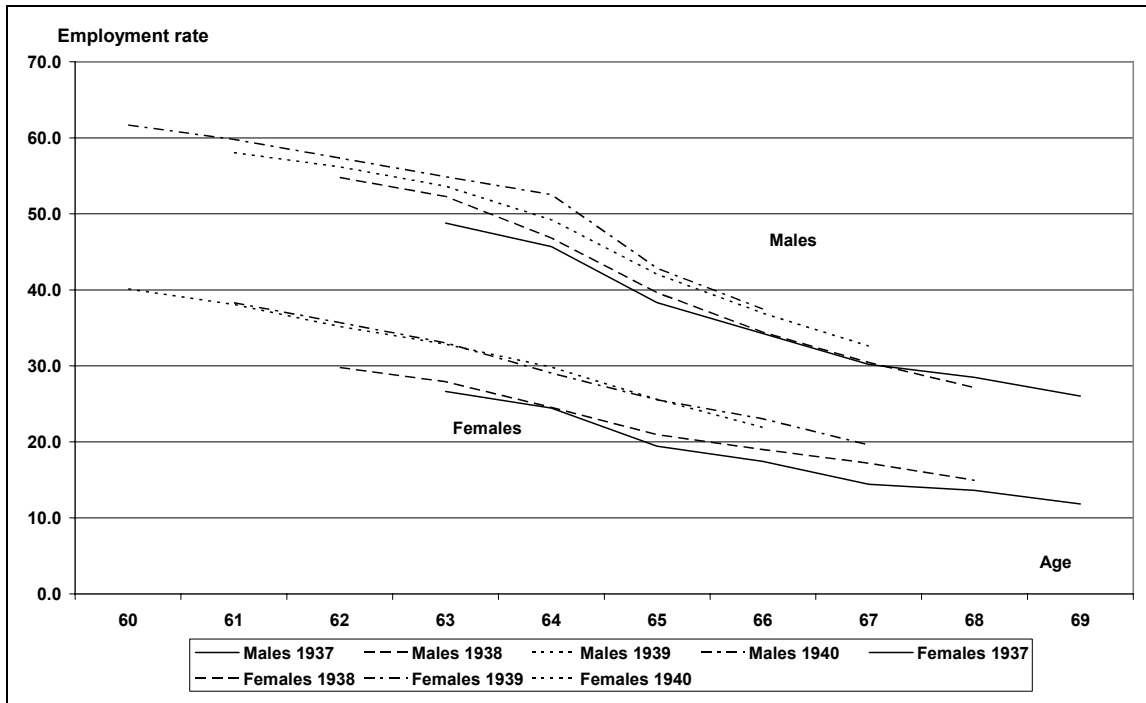
Wage employment rates by year of age rose consistently across the four one-year birth cohorts. For example, the annual average wage employment rate for men aged 63 was 29 percent for the 1937 birth cohort and 36 percent for the 1940 birth cohort, an increase of 7 percentage points. For women aged 63, the rates ranged from 23 percent

for the 1937 birth cohort to 29 percent for the 1940 birth cohort, an increase of 6 percentage points. There were increases at all ages considered.

By contrast, self-employment rates did not increase much over the four birth cohorts. This implies that the increases in total employment rates by year of birth shown in figure 5.6 were largely due to the increases in wage employment. This suggests that demand-side factors, such as an increase in job vacancies during the decade of the 2000s, are likely to have played an important role in raising the total employment rates of people aged in their 60s.[12]

For any given cohort (ie for a fixed sample of people), the rate of decline in wage employment rates with age is lower than it appears in the composite view of the study population as a whole (figure 5.1). For example, the wage employment rate of men in the 1940 cohort fell from 41.7 percent at age 60.0 years to 21.8 percent at age 67.0 years, a decline of 43 percent. This is less than the decline shown in figure 5.11 for the study population as a whole over the same age range (41.7 percent to 21.2 percent, a decline of 49 percent). Similarly, the employment rate of men in the 1937 birth cohort fell from 30.9 percent at 63.0 years to 13.0 percent at age 70.0 years, a decline of 58 percent. This is less than the decline shown in figure 5.1 for the study population over the same age range (33.9 percent to 13.0 percent, a decline of 62 percent).The general lesson from this comparison is that age-related changes in employment outcomes are more accurately measured using a true panel sample or set of panel samples, as in figure 5.4, than in a cross-sectional survey like the HLFS, where people of different ages in the dataset are drawn from different birth cohorts.

We summarise the wage employment rate age patterns and differences across birth cohorts using a simple regression specification that captures the stylised effects seen in figures 5.1 and 5.4. We regress, separately for males and females, individuals' binary wage employment outcome in each month on a linear age trend, a linear birth cohort trend, an indicator variable for being at least age 65, and an interaction between this indicator and the age trend which allows for a trend difference before and after 65. The results of this exercise are presented in table 5.1.

Table 5.1

Wage employment regressions

	Males		Females	
Intercept	0.288	---	0.216	---
	(0.0006)		(0.0005)	
Aged 65+	-0.042	-0.042	-0.021	-0.022
	(0.0007)	(0.0004)	(0.0007)	(0.0004)
Birth-cohort	0.020	---	0.019	---
	(0.0002)		(0.0002)	
Age (in years)	-0.018	-0.018	-0.022	-0.022
	(0.0002)	(0.0001)	(0.0002)	(0.0001)
Aged 65+ *Age	-0.004	-0.004	0.005	0.005
	(0.0003)	(0.0003)	(0.0003)	(0.0002)
Fixed effects	No	Yes	No	Yes

Note: Standard errors are in parentheses.

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[12] The HLFS also provides evidence that the self-employed share of all employed persons has fallen among older workers, particularly men. For example, 39 percent of employed men aged 55–59 were self-employed in June 1997 but by June 2007 this had fallen to 33.0 percent. Among 60-64 year old men, the self-employed share declined from 40 percent to 33.8 percent. Among 65–69 year old men, it fell from 55.7 to 38.0 percent.

Consistent with the patterns shown in figures 5.1 and 5.4, the age and cohort trends are generally similar for males and females. The wage employment rate is estimated to fall 4.2 percent for males, and 2.1 percent for females, at age 65. Successively younger annual birth cohorts are estimated to have about 2.0 percent (for males, 1.9 percent for females) higher employment rates at any age.

The age trend estimates indicate that for males, the employment rate declines at 1.8 percent per year of age before 65, and 2.2 percent per year after 65. For females, the age trends are 2.2 percent per year prior to 65 and 1.7 percent after 65. The age parameter estimates are unaffected by including person fixed effects in the regression.

5.4 Employment intensity

This section considers the relationship between age and employment intensity, or hours worked per week. For simplicity, we focus on the employment intensity patterns of the total study population, but acknowledge there are likely to be some underlying birth cohort differences.

It is a well recognised fact that older workers tend to work fewer hours per week than prime-aged workers. Data from the HLFS show that the part-time fraction of employment rises with age. In the June 2007 quarter, for example, 21 percent of employed 50–54 year olds worked part time, as did 25 percent of employed 60–64 year olds and 39 percent of employed 65–69 year olds. Interestingly, the part-time share of the work done by 60–69 year olds has fallen over the last decade as mean retirement ages have been pushed out. For example, 18.6 percent of employed 60–64 year old men worked part-time hours in June 1997, but only 12.8 percent in June 2007. Among women in this age group, the part-time share fell from 48.0 percent to 41.0 percent.

LEED does not contain a measure of hours worked. It is possible to get a rough indication of people's level of employment activity, however, by assessing their level of earnings. We use the *monthly* full-time equivalent of the minimum wage as a threshold to assess whether an individual in wage employment was likely to have been employed only part-time in a given month (or for fewer than four weeks). We use the *annualised* full-time equivalent minimum wage to assess whether a person's self-employment activity is likely to have involved only part-time or part-year employment. These thresholds are likely to underestimate the true level of part-time employment to some degree, because part-timers in regular work with moderately high wages are able to earn more per month than the full-time equivalent of the minimum wage.[13]

The results of the analysis, shown in figures 5.7 and 5.8, suggest that the vast majority (80–88 percent) of men in the 60–64 year age group who were undertaking wage work were likely to have been doing it on a full-time basis. Nevertheless the part-time or part-month share of wage employment rises with increased age, especially after 65 years, when the slope of the graph line changes. By age 69, more than half of men in waged employment earned less than the equivalent of the full-time minimum wage.

Analysis by year of birth indicates that the full-time proportion at any given age increased slightly across cohorts. For example, 84 percent of male employees in the

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[13] Although some individuals may have had earnings below the thresholds because they were paid less than the statutory minimum wage, was assume that this is uncommon, and that the predominant reason for monthly earnings below the full-time equivalent of the minimum wage is reduced hours.

1940 cohort were full-time employed at the age of 63.0 years, up from 81 percent of the 1937 cohort at the same age.

For women, the part-time or part-month share of waged employment is initially much higher at one-third of the total, and this rises to two-thirds by age 70. It is clear that part-time or part-month employment is an increasingly prevalent characteristic of women's waged employment as women move through their 60s. However, as was the case for men, the full-time share increased moderately across successive birth cohorts.

Self-employment is much less likely than waged employment to be providing the equivalent of a full-time income. The data in figure 5.8 indicate that only 43 percent of self-employed men and 30 percent of self-employed women were earning more than the annualised full-time minimum wage at 60 years. These 'full-time' proportions decline further with age.

Figure 5.7

Estimated full-time share of wage employment
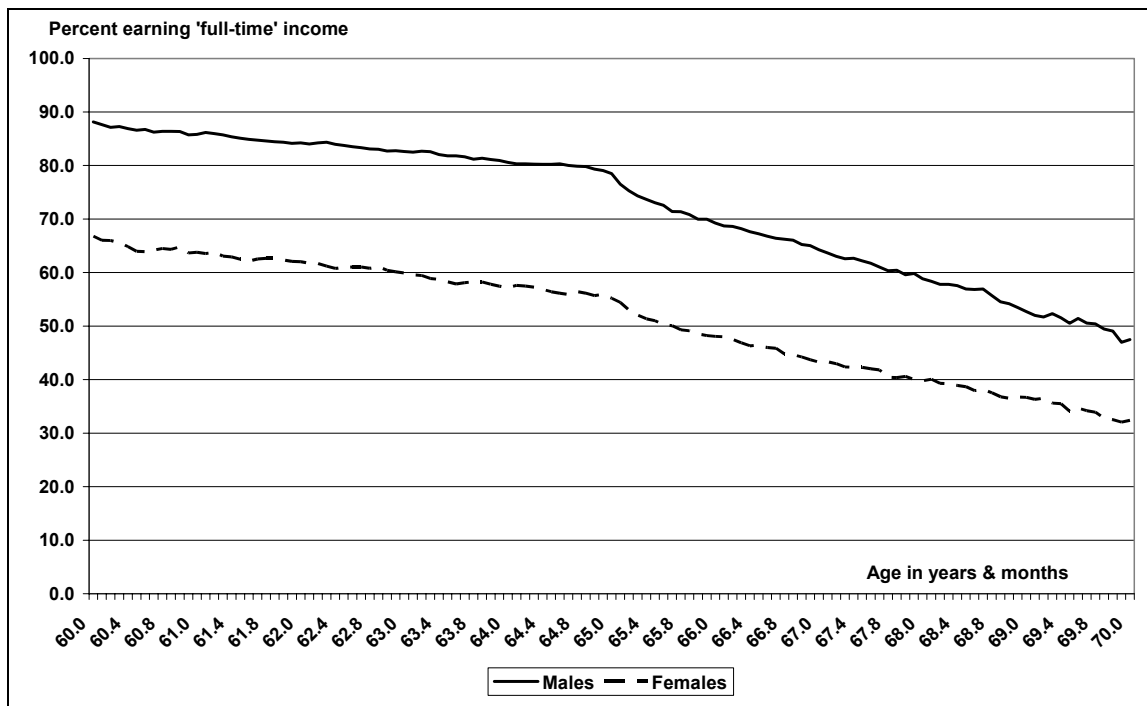
Figure 5.8

Estimated full-time share of self employment
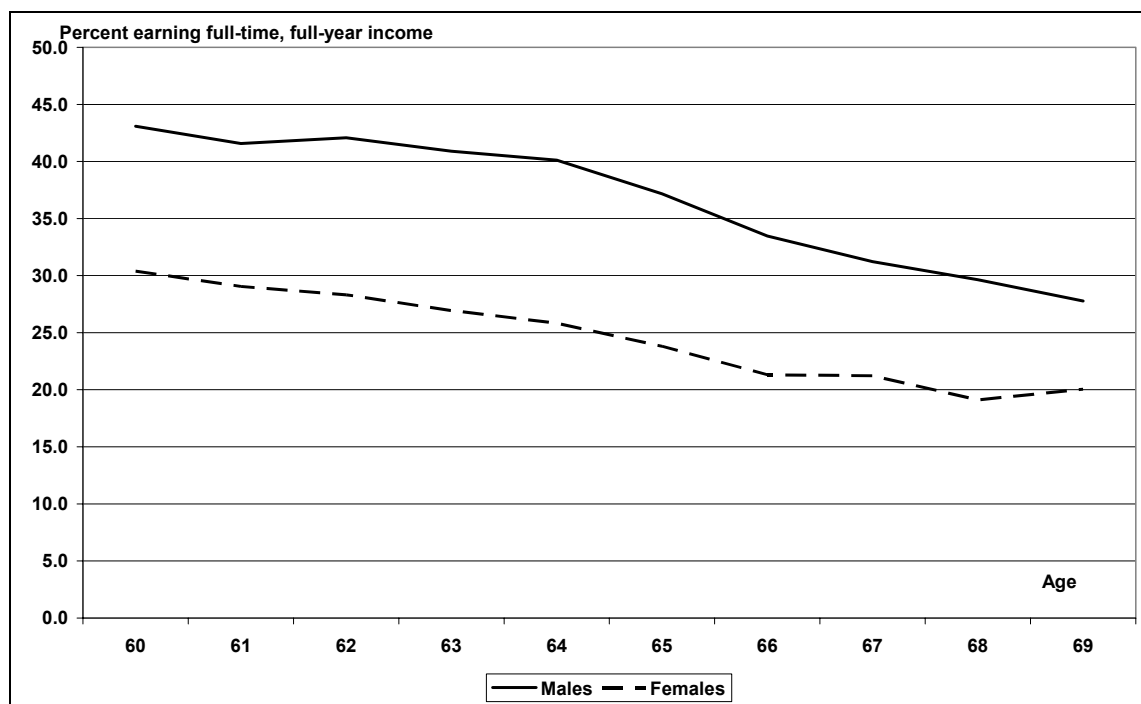
Overall, it appears that part-time employment is fairly common in this age bracket and becomes more important, as a share of total employment, as people move from their early 60s to their late 60s. A change in the slope of the trend lines at 65 years suggests that some full-time wage employees may be switching to part-time employment at this age. This pattern could also be generated by a higher rate of retirement at 65 years on the part of full-time employees, thereby changing the mix.

5.5 Income support and superannuation receipt rates

By the age of 64, approximately 40 percent of men and 63 percent of women in the study population were not working – that is, they earned no employment income at all during the year prior to their 65th birthday. This raises the question of how non-working adults support themselves in the years prior to 65 years, the standard age of eligibility for NZS. In this section, the income support and superannuation receipt patterns of the study population, both before and after 65, are described. We also estimate total annual incomes from all of the sources that are measured in LEED.

Note that in the case of married and de facto couples, any entitlement to a benefit or NZS is assessed on a joint basis, and the benefit or pension is normally paid in half shares to each member of the couple. This means that both members of the couple will have income recorded in LEED.

5.5.1 Take-up of NZ Superannuation

Figure 5.9, and table A2.5 in appendix 2, give data on the NZS take-up rate for individuals in the study population, by year of birth, age and gender.

For the study population as a whole, the NZS take-up rate peaks at the age of 66 at around 92 percent, and then falls off in subsequent years. Take-up rates are highest at age 66 because we require that individuals received a payment in LEED in that year as

a condition of selection into the study sample. The decline at older ages is probably caused by exits from the study sample due to deaths or departures from NZ.

A reasonably large fraction of women in the study population received NZS before reaching 65 years. As outlined above, people who are aged under 65 but married to someone who is 65 years or over can elect to receive NZS at the 'unqualified spouse' rate, subject to an income test. In the study population, 9 percent women in the 1940 birth cohort were already recipients of NZS at 59 years. This rose to 14 percent at 62.0 years and 22 percent at 64 years and six months. Among women in the 1937 cohort, 28 percent were recipients at 64 years and six months.

In contrast, male rates of receipt were very low for all birth cohorts, but rose between 60 and 64 years. Less than 5 percent of 64 year old males received NZS.

The NZS take-up rates of women in the 60–64 year age group were declining across birth cohorts. Focusing on 63–64 year olds, the take-up rate of the 1940 birth cohort was around two-thirds to three-quarters of the take-up rate of the 1937 birth cohort. Falling take-up could be partly due to the rising employment rates of women in this age group, because NZS payments to people younger than 65 years are income tested.

Figure 5.9

NZS take-up rates by year of birth, age and gender

5.5.2 Receipt of working-aged income support (including ACC)

Members of the study population who were born in the years ending March 1937, 1938 and 1939 were eligible for a Transitional Retirement Benefit (TRB) for varying amounts of time in the lead up to their 65th birthday. As explained previously, the TRB was an income-tested benefit that was made available to people who were relatively near to retirement at the time the decision to raise the age of entitlement to NZS was announced. Entitlement to TRB was phased out gradually over time. The oldest individuals in the study population, who were born in April-June 1936, were eligible for up to 3 years, from 62 to 65 years. This spans a period from 1 April 1998 to April 2001.

Those born in each successive quarter were eligible for 3 months fewer than the preceding group. Those who were born in the March 1939 quarter were only eligible for the 3 months prior to their 65th birthday. Those born between 1 April 1939 and 31 March 1940 were not eligible for TRB at all.

The percentages of people who were receiving either a main benefit or ACC earnings-related compensation, in each cohort and at each year of age, are graphed in figures 5.10 and 5.11. LEED does not currently include information on the type of benefit received, and therefore we are unable to disaggregate the receipt rates by benefit type.

As shown in figure 5.10, the income support take-up rate for males rose over the 60–64 age range and then declined sharply at the age of 65. Most people are able to transfer to New Zealand Superannuation at this point, and there is a financial incentive to do so (NZS payments are more generous). In addition, earnings-related ACC is generally not payable beyond 65 years. The income support take-up rate does not fall to zero, however, because people who do not meet the residency requirements for NZS can be eligible for some other type of government income support.

A key point of interest is the large reduction income support receipt rates across successive birth cohorts, which is especially pronounced for males. The take-up rate for the 1937 birth cohort peaked at 42 percent, but at only 28 percent for the 1940 cohort. The phase out of the TRB may have made a significant contribution to this fall. Rising employment rates during the study period may also have played a role, by reducing income support requirements.

For women, the rate of receipt at 60 years was higher than the male rate, but it did not rise as steeply in the following years. At 64 years, 27–33 percent of women were receiving a benefit or ACC (depending on their birth cohort). The most likely reason why the female take-up rate at 64 years was lower than the male take-up rate is that far more women were eligible for pre-65 payments of NZS.

Figure 5.10

Income support receipt by year of birth, males
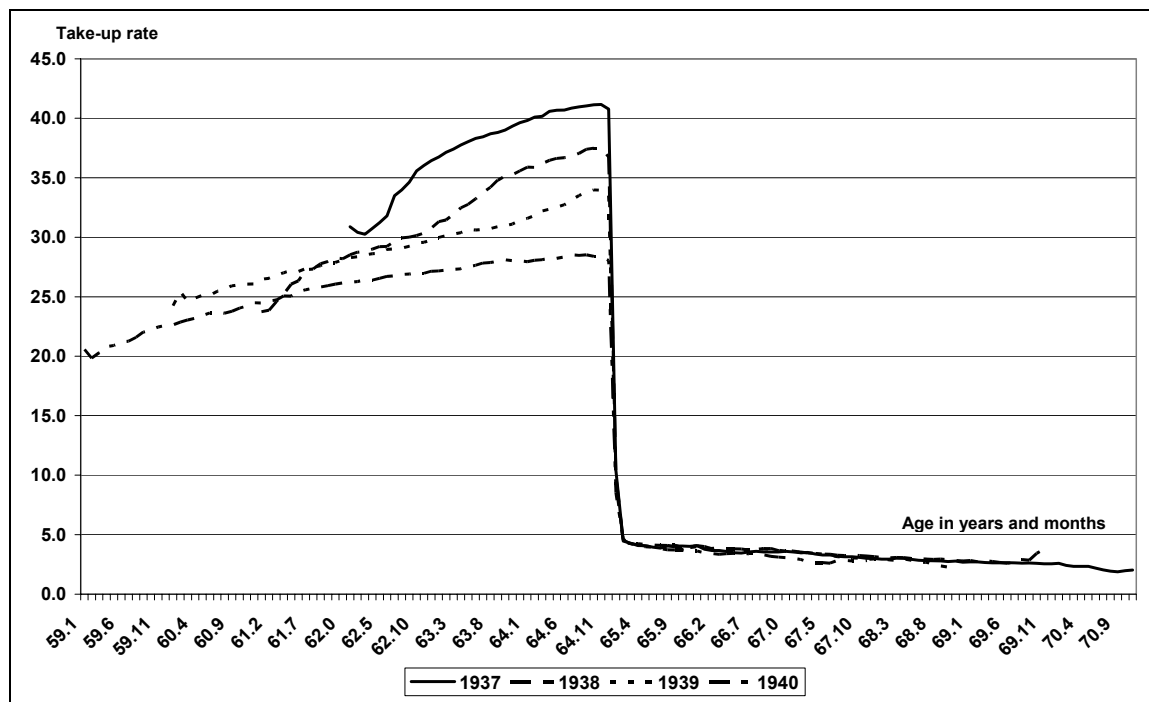
Figure 5.11

Income support receipt by year of birth, females
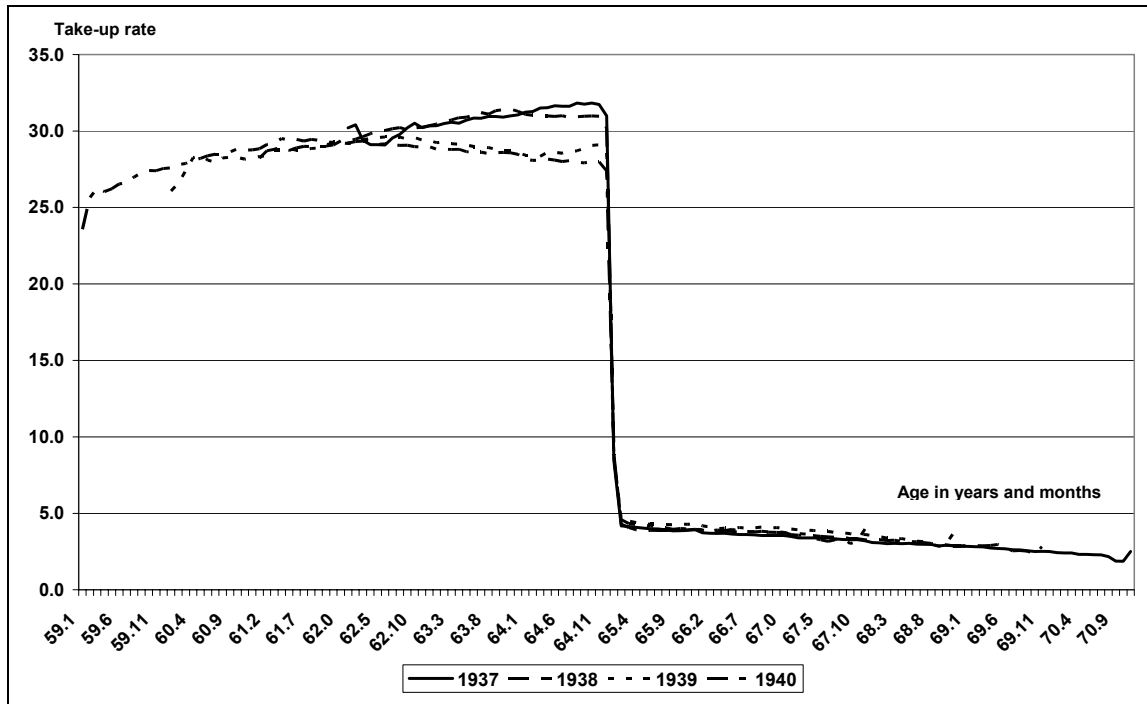
5.6 Total annual incomes from employment and government income support

We turn now to look at the total annual incomes of the study population, adding together their employment income and government income. We sum income received from wage employment, self-employment, benefits, ACC earnings-related compensation, and NZS, to estimate the total *taxed* incomes of study sample members.

Other income sources that are not recorded in LEED include transfer income received from spouses or other family members, investment income, income from private superannuation schemes, and non-taxed income supplements that are paid on the basis of special need (such as the Accommodation Supplement and the Disability Allowance). The biggest source of underestimation is probably the exclusion of investment incomes. All study population members are included in the estimates, including people with nil incomes in the reference year.

Figure 5.12

Total LEED-reported annual incomes by age and gender
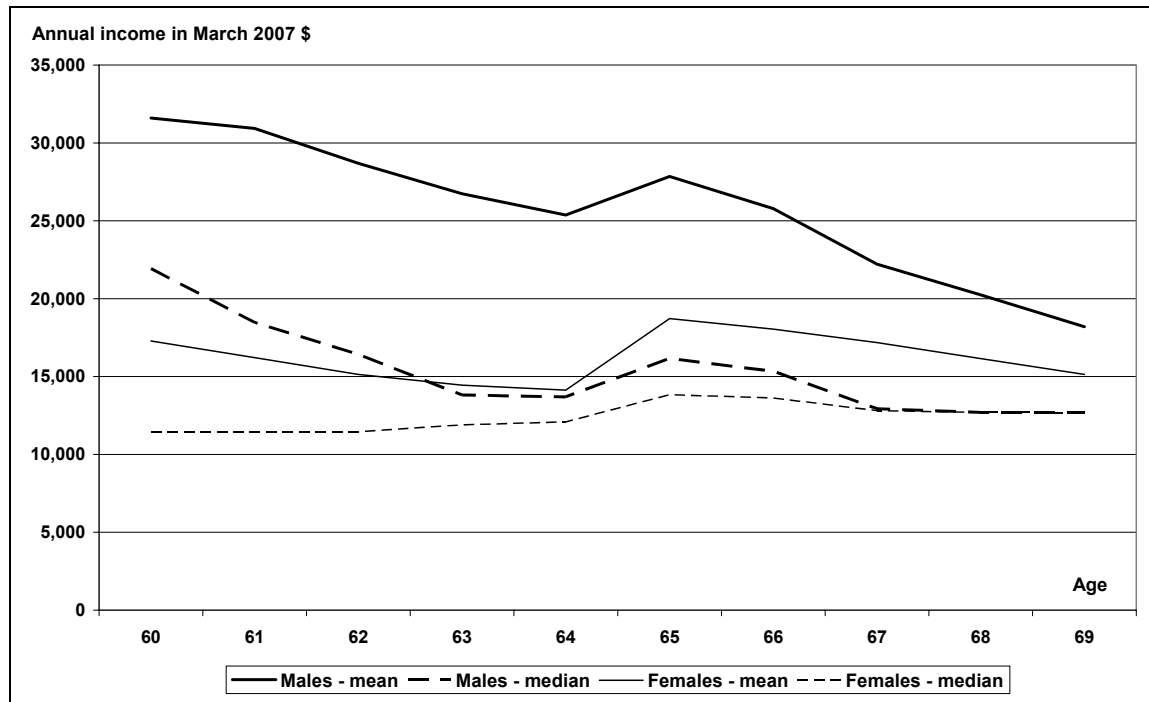
The mean and median annual incomes of men decline with rising age (as shown in figure 5.12), although there is a small increase in level at 65 years when NZS payments commence. The mean and median incomes of women are generally higher after 65 years than before, possibly because a higher proportion of women have some personal income recorded in LEED after NZS payments begin. From 67 years, the median incomes of both men and women reflect the basic level of NZ Superannuation payments.

These average profiles hide considerable diversity and change in the income levels and sources of different individuals. This point is illustrated in appendix 4, which explores the varying income trends that were experienced by people who had different employment activities and income sources at the age of 60 years. The analysis in appendix 4 is intended to illustrate the potential of LEED for tracking the main income sources of specific groups that are of interest for policy reasons.

5.7 Sources of income

The total employment rates discussed above indicate that by the age of 64 years, about two-fifths of men and more than three-fifths of women in the study population were not in paid employment.[14] This raises the question of how non-working adults support themselves in the years prior to their 65th birthday.

We analyse income sources on an annual basis because of the annual reference period of the self-employment income data. (Ideally income sources would be analysed on a weekly or monthly basis.) We use the sample of people who were born in April, whose birth years coincide approximately with financial years.

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[14] Using an annual reference period to identify 'non-employment'.

The combinations of income sources that were received by members of the study population at different ages are shown in table 5.2. The first two rows of the table give the percentage of people at each age that had no employment income recorded in LEED during the year. At 60 years, 27 percent of men and 47 percent of women had no employment income recorded in LEED. By 64 years, this group had grown to encompass 40 percent of men and 63 percent of women.

The next section of the table gives data on combinations of income sources. It shows that the majority of people in the study population who were aged 60–64 and did not have any employment income in a particular year, received income from a working-age benefit, NZS, or ACC in that year. Focusing firstly on males aged 60 years, 18 percent of the 27 percent with no employment income during the year received income support payments that were recorded in LEED. This represents about two-thirds of the non-working group. It leaves only 9.4 percent (representing about one-third of the non-working group) with no income recorded in LEED. Forty-seven percent of women aged 60 years had no employment income during the year, but of these 31 percent received income from the government, leaving 16 percent (about one-third of the initial 47 percent) with no recorded income in LEED.

At 64 years of age, the proportion of non-employed persons without any income support recorded in LEED was only around one-quarter. After 65 years it was very low, although this may be partly a function of the study population selection strategy which required people to have some form of LEED payment in their 66th year.

Table 5.2

Total receipt of government income support (including NZS and ACC) before and after 65 years

	60 %	61 %	62 %	63 %	64 %	65 %	66 %	67 %	68 %	69 %
Percent with no employment income during the year										
Males	27.3	29.5	32.4	37.0	39.9	45.2	52.3	57.1	61.6	65.3
Females	46.6	49.8	54.8	59.8	62.6	65.4	69.1	73.7	77.8	80.9
Percent with each income source or combination										
Males										
Employment income only	61.2	57.9	55.2	50.3	46.1	2.3	1.8	1.3	1.1	0.6
Both employment & inc supp	11.5	12.6	12.4	12.7	14.0	52.4	46.0	41.6	37.2	34.0
Income support only	17.9	18.7	21.4	26.4	29.3	43.7	52.1	55.1	58.0	61.0
Neither	9.4	10.8	11.0	10.6	10.6	1.5	0.2	2.1	3.6	4.3
Females										
Employment income only	38.9	36.2	30.9	27.0	24.6	1.2	1.1	0.7	0.6	0.5
Both employment & inc supp	14.5	14.0	14.3	13.1	12.8	33.4	29.8	25.6	21.6	18.6
Income support only	30.8	33.6	38.7	43.1	46.1	63.9	68.9	71.7	74.4	76.2
Neither	15.8	16.1	16.1	16.7	16.5	1.5	0.1	1.9	3.3	4.7
Percent receiving any government income support during the year										
Males	29.4	31.3	33.9	39.1	43.3	96.2	98.0	96.6	95.3	95.1
Females	45.3	47.7	53.0	56.3	58.9	97.3	98.7	97.4	96.0	94.8
Monthly average rate of receiving government income support										
Males	25.1	26.8	29.4	34.9	38.8	92.6	95.9	95.3	94.2	94.3
Females	41.9	44.1	49.3	53.0	55.9	94.8	97.2	96.2	95.0	93.9
Sample sizes										
Males	1,060	2,080	3,080	4,020	4,020	4,020	4,020	2,960	1,940	940
Females	1,030	2,110	3,180	4,180	4,180	4,180	4,180	3,140	2,060	1,000

Note: The types of income support that are recorded in LEED include the main working-age benefits, NZ Superannuation and Veteran's Pensions, and earnings-related accident compensation payments.

Three important caveats must be placed on this analysis. Firstly, had we been able to use a shorter reference period such as a week, the proportion with no employment income and no government income is likely to have been higher. When we compare annual and monthly benefit receipt rates (shown in the lower sections of table 5.2), we find that the annual receipt measure overstates the percentage of people with benefit income in any given month, although not by a large order of magnitude.

Secondly, our study population selection strategy could have led us to underestimate the proportion of people with no employment or government income before the age of 65. We selected people on the basis that they received a payment that was recorded in LEED at 66 years, and this attribute could be positively correlated with receiving a LEED payment before the age of 65.

Thirdly, the composition of income sources is likely to have changed across successive birth cohorts, and those shifts over time are not explicitly identified in table 5.2. The figures given for 63–66 year olds are averages for the entire study population.

The results in this section suggest that a relatively small proportion of non-working adults aged in their early 60s were living entirely on private sources of income (such as investment income, income from private superannuation schemes, and income earned

by spouses). However, LEED is not the ideal data source for identifying the true proportions of people with different sources of income because it does not cover all private income sources or identify marital relationships. Further work could be undertaken using a data source with good coverage of incomes, such as the Survey of Family, Income and Employment or the Household Economic Survey.

5.8 Summary and discussion

This section described changes in the employment and income support patterns of the study population with increasing age, and compared the employment and income support patterns of successive birth cohorts.

Employment rates by age

The monthly wage and salary employment rates of people aged in their 60s decline quite gradually with each month and year of age, except for a discrete downward step at 65 years. The male wage employment rate declined from 40 percent at age 60 to 14 percent at age 69, while the female wage employment rate declined from 35 percent at age 60 to 11 percent at age 69. The underlying trend decline was about 2 percent a year for both men and women.

Relatively few people gave up work on their 65th birthday or within a few months of their birthday. However, there was a sharper fall in the wage employment rate at this age, indicating that the milestone of reaching 65 years does trigger withdrawal from work for a fraction of employees. We estimate that approximately 10.6 percent of male employees and 7.5 percent of female employees who were at work at 64 years and 11 months, stopped working within the following three months. This reduced the aggregate wage employment rate of males by 3.1 percentage points and that of females by 1.7 percentage points. Estimates from simple regressions that also control linear age and birth cohort effects suggest the step-down at 65 was 4.2 percent for males and 2.1 percent for females.

Self-employment is relatively common among people aged in their 60s. In the study population about 34 percent of men and 16 percent of women earned some self-employment income at the age of 60, while about 28 percent of men and 13 percent of women did so at the age of 64. If self-employment activity was not taken into account, total employment rates would be substantially underestimated. Self-employment rates also decline gradually and smoothly with rising age, without a noticeable downward step at 65 years.

As well as reducing their labour force participation, people in their 60s tend to reduce their hours of work with increasing age. We estimated the fraction of months in which employment was likely to have been full-time in nature, because total earnings were above the full-time, full-month equivalent of the minimum wage. This measure of full-time employment declined gradually with rising age, with a somewhat larger downward shift at 65 years. Among males, for example, the fraction of wage employees with full-time earnings in any given month fell from 87 percent at age 60 to 50 percent at age 69.

Birth cohort differences in employment rates

Wage employment rates at any given year of age increased consistently across successive one-year birth cohorts in the study population. For example, the average wage employment rate for men aged 63 years was 29 percent for the 1937 birth cohort and 36 percent for the 1940 birth cohort, an increase of 7 percentage points. Among

women aged 63 years, the rate increased from 23 percent for the 1937 birth cohort to 29 percent for the 1940 birth cohort, a rise of 6 percentage points.

There was almost no increase in self-employment rates across successive birth cohorts, suggesting that older workers increasingly took up job opportunities in existing firms rather than creating their own work.

Incomes by age and birth cohort

A reasonably large fraction of women in the study population received NZS before the age of 65 years, through the provision for unqualified spouses who have an age-qualified partner. On average, 12 percent of women were receiving NZS at the age of 60 and 25 percent at the age of 64. Take-up rates declined across successive cohorts. Twenty-eight percent of women in the 1937 cohort were recipients of NZS at 64 years and six months, but only 22 percent of the 1940 cohort were recipients at this age.

Male rates of NZS receipt were very low until the age of 64. Less than 5 percent of 64 year old males received NZS at this age.

Twenty-four percent of men in the study population received working-age income support payments (either a working-age benefit or ACC earnings-related compensation) at the age of 60, on average. For all cohorts, the proportion of men receiving income support rose steeply to a peak just before the age of 65. The take-up rate for the 1937 birth cohort peaked at 41.1 percent. The take-up rate for the 1940 cohort remained lower, peaking at only 28.4 percent. The phase out of the Transitional Retirement Benefit during the study period may have influenced income support take-up rates and contributed to this large reduction.

Among women, the rate of working-age income support at the age of 60 was higher than the male rate, but it did not rise as steeply with age. The most likely reason why the female take-up rate at 64 years was lower than the male take-up rate is that far more women were eligible for NZS before 65, because they had older, eligible spouses. If the two forms of income support are added together, the total fraction of women receiving income support at 64 was higher than the male total.

The income sources of those who left employment before the age of 65 were explored. The majority of individuals with no employment income in any given year received at least some income from the government in that year, in the form of a working-age benefit, accident compensation payments, or NZS payments. For example, at the age of 60, roughly two-thirds of both men and women who had no employment income recorded in LEED did receive some government income that was recorded in LEED, while the other third did not. At the age of 64, the proportion of non-employed persons with no government income recorded in LEED was about one-quarter. Some of the people with neither government nor employment income recorded in LEED may have received non-taxed payments from the government, such as an Accommodation Supplement,[15] but most were probably reliant on private sources of income, such as investment income, payments from a private superannuation scheme, or the income of a spouse.

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[15] Non-taxed income supplements such as the Accommodation Supplement and the Disability Allowance are not recorded in LEED.

Discussion

The relatively small reduction in the average employment rate at 65 is perhaps not surprising given the design of NZS. NZS is paid on a universal basis from the age of 65, without income or asset testing. The scheme does not provide any financial incentive for workers to leave work or reduce their hours of work after reaching the age of 65. Eligibility for NZS and payment levels are also not affected by the amount of work that is done before 65 years.

The pattern of change in employment rates implies that the incomes and income support needs of this age group are likely to change fairly gradually as individuals move through their 60s – the change is not especially concentrated at 65.

Self-employment comprises a relatively large share of employment in this age group. This suggests that employed persons in their 60s are more likely to have some degree of control over their working time patterns than workers in younger age groups. This may assist older workers to achieve their desired level or pattern of employment.

Some time-specific factors may have contributed to the large increases in employment rates by birth cohort that were identified in this analysis. The phase out of the TRB is likely to have made some contribution to the reduction in income support take-up rates, and may have encouraged an increase in employment rates. The economic environment, featuring strong growth in the demand for labour, may have had an impact. It is unclear whether the employment of people aged in their 60s will continue to growth as rapidly in future, or will grow at a slower rate.

6. Employment patterns and transitions from work to retirement

6.1 Introduction

This section analyses the longitudinal employment patterns of study population members who worked during the observation period (1999–2007). It identifies different types of work-to-retirement transition and assesses which types of transition were common.

As discussed in the introduction, an understanding of the changes that occur in employment patterns as people grow older, and the paths they take from employment to retirement, may help to illuminate the factors that encourage or discourage employment retention. A flexible labour market that allows older workers to work on a part-time or part-year basis if they wish to do so is likely to encourage a higher rate of participation overall. Similarly, a flexible labour market in which older workers are easily able to change jobs and enter new employer relationships may lead to a higher rate of participation.

The analysis in this section looks at the amount of time that study population members were in work and the number of transitions they made in and out of employment. It calculates rates of part-year and part-time employment and rates of job mobility, by year of age. Although the analysis does not deal directly with the question of whether older workers face employment barriers, it does provide a picture of the labour market context in which they work and seek employment.

A question of particular interest is whether New Zealanders tend to make sudden and permanent departures from work or gradual transitions to retirement. As discussed above, overseas research findings and a survey conducted by the EEO Trust in New Zealand suggest that a reasonably high proportion of adults would like to reduce their hours or work part-time as an intermediate stage in their retirement, rather than retiring directly from full-time work. In a non-representative survey conducted by the EEO Trust in 2006, nearly half of respondents who were still in the workforce said that their ideal pattern of transition from work to retirement would involve part-time work and/or more flexible hours (EEO Trust, 2006). Nineteen percent said they would prefer to move to a less demanding job before retiring and about 10 percent said they would like to move to self-employment. Only 10 percent said they would like to retire straight from full-time work. Using LEED, it is possible to make some assessment of whether this preference is frequently or rarely realised.

We begin by discussing different concepts of retirement. Section 6.2 explains the basis for the definition of retirement used in this paper. Essentially, we define retirement as a complete and permanent withdrawal from employment. 'Retirement' is a situation in which an individual has not received any employment income for a minimum of two years, and has no further employment income recorded in the LEED observation window.

Section 6.3 explores the employment patterns and transitions from work to inactivity of the total study population, including people who were self-employed. The work activity and inactivity patterns of men and women, and those of employees and the self-employed, are compared.

Section 6.4 turns to the employment patterns of wage and salary employees, and uses monthly data to explore their longitudinal employment patterns in more depth. The part-year and part-time employment rates and the job mobility rates of people at different years of age are compared in section 6.4.1. Section 6.4.2 provides an analysis of the

paths to retirement that were taken by employees who retired during the LEED observation window. Section 6.5 summarises the main findings and concludes.

6.2 The definition of retirement

There is no single concept of retirement. Banks and Smith (2006) identify the following possible criteria:

- Complete and permanent withdrawal from employment

- Receipt of income from a state or private pension

- A state of mind in which the individual perceives themselves to be retired.

In practice, some of these criteria are often met before others. For example, someone who has stopped working after losing their job may have effectively withdrawn from employment for the last time, yet might not consider themselves to be 'retired'. Or someone who is drawing a pension may consider themselves to be retired even though they continue to carry out a small amount of paid work.

Arguably, the most meaningful concept of retirement is a self-defined one, as this is most likely to coincide with a lasting change in a person's propensity to search for work. All that can be observed in LEED, however, is whether a person has withdrawn from employment on a long-term basis and whether or not they are receiving NZS. Because the entitlement to NZS is age-based and largely independent of employment or earnings, receiving NZS is unlikely to be a very good predictor of current or future labour supply.

Because of the nature of the data in LEED, we simply require that a person be out of employment for a minimum period in order to be classified, provisionally, as 'retired'. One important issue with the implementation of this sort of definition is how long the gap in employment needs to be before we can presume that an individual has left work for the final time. As we will show below, New Zealanders aged in their 60s make a relatively large number of transitions into and out of employment.

The duration of workers' gaps in employment, grouped by the age when the gap began, is tabulated in table 6.1. We use annualised employment data for all persons who were ever employed in the LEED observation window, stopped work within the observation window, and were born in April, for this analysis.[16]

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[16] The employment data were annualised to March-end financial years so that wage employment and self-employment could be treated on a consistent basis.

Table 6.1

Duration of employment gaps by age when the gap began

Duration in years	Age when gap began						
	61	62	63	64	65	66	67
1	17.9	13.5	17.4	17.0	13.0	9.6	9.0
2	11.3	9.6	6.5	6.3	4.2	3.4	2.3
3	2.8	7.0	4.6	2.8	2.1	1.1	
4	2.8	4.8	1.1	2.2	0.5		
5	0.0	0.0	1.1	0.2			
End not observed	65.1	64.2	69.3	71.4	80.1	85.9	88.8
Total	100.0	99.1	100.0	100.0	100.0	100.0	100.0

Note: the gap duration variable is right-censored because sample members are observed for a maximum of 7 years.

Approximately 17 percent of employment gaps that began in the 61–64 age range ended after a year. Another 6–11 percent (depending on age of commencement) ended after two years. Smaller percentages of the gaps ended after 3, 4, or 5 years. Comparison of figures across rows suggests that the probability of returning to work after a gap of 1 or 2 years tends to decline with increasing age.

Based on this analysis, we conclude that the probability of re-entry to employment after a gap of two years is relatively low. We use a two-year or 24-month gap in employment as the minimum threshold for categorizing an individual as 'provisionally retired'. A more conservative definition would use a longer gap. However, the current definition allows us to assign a notional 'retirement status' to a greater proportion of people in the study population than would be possible if a more conservative definition was used.

In the analysis of transitions to retirement that follows, we require that a person be out of employment for at least 24 months in order to be classified, provisionally, as 'retired' or in 'probable retirement'. We select this period because we find that a relatively high proportion of those who did not work for one year returned in a subsequent year, while the proportion who returned after an absence of two years is lower.

6.3 A view of employment transitions obtained from annual income data

We begin by summarising the annual employment activities and transitions of all members of the study population. We use annualised income data in this initial work because self-employment activity is measured in LEED in terms of annual, March year, reference periods. The purpose of the analysis is to explore population-level differences in the employment and retirement patterns of men and women, self-employed and wage employed workers, and people in different birth cohorts.

Table 6.2

Overview of the employment patterns and exit transitions of the study population

	All %	Males %	Females %	Born April 1936 %	Born April 1937 %	Born April 1938 %	Born April 1939 %	Solely wage employ-ed %	Solely self-employ-ed %	Both wage & self empt %
Employment pattern										
Never worked	35.7	24.8	46.3	44.1	38.3	32.2	28.9	0.0	0.0	0.0
Always worked	26.5	33.8	19.4	18.7	22.7	30.0	33.9	35.5	38.3	57.7
Single transition from work to inactivity	23.6	26.8	20.6	23.6	25.0	23.0	23.0	40.2	42.8	22.0
Other transition pattern	14.2	14.7	13.8	13.7	14.0	14.8	14.2	24.3	18.9	20.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Single transition to provisional retirement	19.4	21.4	17.5	20.2	21.4	19.3	16.8	33.9	35.4	15.8
Multiple transition to provisional retirement	4.1	3.9	4.3	4.1	4.2	4.9	3.3	8.0	5.9	3.1
Provisionally retired by end of LEED	23.5	25.4	21.7	24.3	25.6	24.2	20.2	41.9	41.3	18.8
Age of final work episode										
Last worked before 63 years	46.4	35.2	57.2	47.7	46.8	44.6	46.8	20.7	14.8	8.9
Last worked at 63-64 years	11.4	12.6	10.3	10.4	12.2	11.3	11.7	18.3	21.0	13.1
Last worked before 65 years	57.8	47.8	67.5	58.1	59.0	55.9	58.5	39.0	35.8	21.9
Last worked at 65 years	7.7	9.4	6.1	8.0	6.8	8.3	7.6	13.5	10.3	9.8
Last worked at 66 or later	34.5	42.8	26.5	34.0	34.2	35.8	33.9	47.4	53.9	68.2
Percent female	50.1	0.0	100.0	51.6	51.5	51.5	49.3	49.8	36.8	31.6
N	8,190	4,020	4,180	1,940	2,070	2,100	2,090	2,830	1,260	1,180

Note: A worker had to be out of work for at least the final two years of the observation window to be classified into the 'provisionally retired' category. See section 6.2.

Earnings from wage employment are aggregated to March years to match the aggregation of self-employment income data. The analytical sample is all members of the study population who were born in April. The observation period is the seven years from April 1999 to March 2006. The data for each person covers these seven years.

More than one-third (36 percent) of the study population did not work at all in the observation period (see column 1 of table 6.2). Another 27 percent worked in every year. Nineteen percent made a single transition from work to probable retirement, and another 4 percent made a singe exit from work to inactivity but weren't inactive for long enough to be classified as provisionally retired. Fourteen percent made more than one transition in or out of work. Of the latter group, 4 percent were in a state of provisional retirement by the end of the period.

Because high proportions of people in the study population either did not work in the observation window or were still working near the end, we only observe the retirement

process of a minority of persons – about 23 percent of the study population. This has a number of implications. For example, it is not possible to calculate an overall 'mean age of retirement' using LEED data, given the current panel length. For any given birth cohort, final exits from employment are widely spread across ages, and a 7-year observation window captures only a minority of these final exits.

The study population is classified according to the age when worked for the last time, to the extent this is observed, in the bottom section of table 6.2. Forty-six percent of the population last worked (if they worked at all) before the age of 63 years. Fifty-eight percent last worked before the age of 65. Eight percent last worked at 65 years and 35 percent last worked when aged 66 or older. There may be an element of error in the classification of the last two groups, because the observation period is truncated for some sample members.

Gender

There are some clear gender differences in transition-to-retirement processes, as shown in the second and third columns of table 6.2. Women were more likely than men to have left employment before the observation window began (as shown in the first row of the table). If they did undertake employment within the study period, they were less likely than men to work in every year. A much higher proportion of women than men were 'provisionally retired' by the end of LEED (68 percent compared with 50 percent, respectively).

Forty-six percent of women in the study population had given up work (if they worked at all) before the age of 63, compared with 25 percent of men. Sixty-eight percent of women had given up work before they reached their 65th birthday, compared with 48 percent of men. Just one-third of women worked when they were aged 65 years or older, compared with fifty-two percent of men.

Birth year

Employment and transition-to-retirement patterns differ substantially across the four birth cohorts (April 1936 to April 1939). To a considerable extent, this is due to the fact that they were observed at different ages. The youngest birth cohort was observed while aged 60–66 years (inclusive), while the oldest was observed while aged 63–69 years.

Not surprisingly, people in the youngest cohort were far more likely to work in every year of the study period (30 percent) than members of the oldest cohort (19 percent). They were less likely to have retired by the end of the study period.

The 'age at last employment' breakdown does not show any clear trend in the proportion of each cohort who last worked before the age of 65. This is around 58–59 percent for three of the four cohorts. The 'age at last employment' breakdown also indicates that individuals in the oldest birth cohort were about as likely to have worked at 66 or older than individuals in the youngest birth cohort. This shouldn't be interpreted as robust evidence of similarity in outcomes, however. The older cohort was observed over a greater number of years after the 65th birthday, and therefore had more chances to be counted in employment than the younger cohort.

Although these results fail to show clear evidence of cohort differences in retirement age profiles, the wage employment rates presented in section 5 do provide robust evidence of increases in employment activity across successive birth cohorts. Those

employment rate increases should eventually be translated into measurable retirement age effects (once more data become available).

Whether wage employed or self-employed

The final three columns of the table compare the employment and transition-to-retirement patterns of people who were solely wage employees during the study period, solely self-employed, or engaged in both types of employment. Fifty-four percent of persons with any employment were solely wage employees (2830 / 5268 = 53.7). Twenty-four percent were solely self-employed, and the remaining 22 percent earned both wage and self-employment income.

The retirement literature suggests that self-employed workers are likely to remain in work for longer than wage and salary employees because they have more control over their working hours and working time patterns. One hypothesis is that greater flexibility makes it more feasible or more rewarding for the self-employed to continue working to a greater age. Iriving *et al* (2005) found evidence of employees moving to self-employment specifically to ensure they could remain in work up to and beyond the age of eligibility for a state pension, in their qualitative research into factors affecting the labour force participation of older workers in Britain. They report that 'self employment allowed self-management and the option to work flexibly, particularly for people who were unable to negotiate flexible working conditions with their employers' (p.65–66).

LEED is not ideally suited to answering the question of whether the self-employed tend to remain in work for longer because only a fraction of all departures from work are observed, given the current panel length. It is possible to compare the percentages of waged employees and self-employed persons who worked at some stage in LEED, who were still working at the end of the observation period, as shown in Table 6.2. An important caveat is that the results might be different if workers could be sampled at an earlier stage in their life-cycle and followed over a longer period.

The 'solely waged' and 'solely self-employed' have broadly similar patterns in the table. We estimate that 42 percent of the solely waged and 41 percent of the solely self-employed had provisionally retired by the end of the period. There is some evidence, on the other hand, that the self-employed were more likely to be still working at the age of 65 or 66 years than the wage employed in our sample (who were more likely to last work at ages 63–64).

The solely self-employed group contains a higher proportion of men than women (two-thirds were men, as opposed to half of the solely wage employees). It is unclear whether the small difference in work retention patterns between employees and the self-employed would persist if we controlled for the effects of gender mix. Overall, a conservative interpretation of these results is that they fail to provide robust evidence of a retirement age difference between wage employees and the self-employed.

Table 6.2 reveals that the self-employed were less likely to have multiple transitions in or out of work than the wage employed. Nevertheless, 26 percent of the self-employed had more than one transition (for example, they entered and left self-employment, or they left and re-entered), indicating that there is a reasonable amount of labour force mobility.

The minority of workers who were both wage and self-employed (shown in the final column of table 6.2) are a distinctive group in terms of employment retention. A much higher proportion of this group worked in every year of the study period and a much

lower proportion had provisionally retired by the end (only 19 percent). It is unclear why this is the case.

Table 6.3 provides some additional information on the employment outcomes of the groups who either made multiple transitions in and out of work, or made a discrete transition from work to probable retirement.

Multiple transitions

Focusing on the multiple transitions group first, we estimate that 42 percent (representing 12 percent of all persons with any employment) were not employed in the first year of observation. This highlights the relative frequency of transitions into and out of employment, for people in this age group. The proportion of women who were not working in the first year is higher than the proportion of men, perhaps because of a higher rate of transitions overall.

The multiple transitions group had an average of 1.4 non-final gaps in their employment sequence (counting only gaps that were followed by a return to work). The average duration of the first observed gap (which may have begun before the observation window) was two years. While one-year gaps were most common, gaps of two or more years made up around 44 percent of the total. Gaps of three years or more made up around 30 percent of the total.

After the first recorded gap in employment, people in the multiple transitions group worked an additional 1.9 years in the LEED observation window, on average. However, they were much less likely to earn a 'full-time, full-year' income after the first gap than prior to it. Only 12 percent of employment years that occurred after a return to work generated incomes in excess of the annualised full-time minimum wage, compared with 27 percent of *all* the employment years that were worked by this group. Therefore, re-entry to work after an employment gap lasting for a minimum of one year appears to be associated with a reduction in the volume of work that is undertaken, in this sample at least.

Single transitions to inactivity

Table 6.3 also presents additional data on the set of people who made a discrete transition from work to inactivity and did not return. We find that members of this group tended to have a higher level of employment intensity when still employed than the members of the 'multiple transitions' group. Forty-six percent of their employment years generated incomes in excess of the annualised full-time minimum wage, implying that they were more likely to be employed on a full-year, full-time basis.

Table 6.3

The employment patterns of people with annual transitions

	All	Males	Females	Born April 1936	Born April 1939	Solely wage employ-ed	Solely self-employe d	Both wage & self employ-ed
Multiple transitions								
Size of group as a percent of all persons who worked during study period	28.6	26.6	31.4	30.5	28.7	30.6	26.3	26.5
Percent female	46.7	0.0	100.0	43.0	42.2	51.7	45.6	33.9
Percent not working in first year	42.3	38.5	46.7	47.0	38.9	50.5	39.6	22.7
Mean number employment gaps before final	1.4	1.3	1.4	1.4	1.3	1.4	1.4	1.3
Mean duration of first gap in employment (in years)	2.0	1.9	2.1	2.0	1.9	2.2	1.8	1.6
Distribution of first gap duration								
1 year	56.5	61.1	51.3	53.6	61.8	49.5	67.1	64.9
2 years	16.6	15.5	17.8	19.4	14.1	17.8	12.1	17.9
3 years	10.6	9.4	11.9	10.0	9.4	12.1	7.9	9.3
4 years	7.2	6.3	8.2	7.6	4.9	8.7	6.0	4.5
5 years	5.4	5.0	6.0	5.2	5.9	6.6	4.5	3.2
6 years	3.6	2.6	4.8	4.2	4.0	5.3	2.4	0.3
Mean additional years after first exit	1.9	1.8	1.9	2.0	1.8	1.9	1.7	1.9
Percentage of empt years after first exit with income above full-time full-year equivalent of the minimum wage	11.9	15.9	7.8	8.6	15.8	8.4	21.7	12.1
Mean years employment	4.1	4.3	3.9	3.9	4.4	3.8	4.3	4.8
Percentage of all employment years with income above full-time full-year equivalent of the minimum wage	27.3	35.3	18.2	20.4	36.2	24.4	30.7	31.9
Single transition from work to probable retirement								
Size of group as a percent of all persons who worked during study period	30.2	28.5	32.5	36.1	23.6	33.9	35.4	15.8
Percent female	45.9	0.0	100.0	44.5	51.1	51.5	40.0	30.7
Mean age at exit from work	64.6	64.8	64.4	65.9	63.1	64.4	64.7	65.2
Mean years employment	3.0	3.2	2.9	2.9	3.1	2.9	3.1	3.7
Percentage of all employment years with income above full-time full-year equivalent of the minimum wage	45.5	54.1	35.4	44.0	42.6	49.4	37.6	44.7

Comparative results are shown for men and women, people in the oldest and youngest birth cohorts, and people with different employment types, in the remaining columns of the table. One overall comment that could be made is that the most of the gender and type-of-employment variations are not large, pointing to more common elements than contrasting elements in the employment patterns of these groups.

Focusing on the multiple transitions group, the results indicate that women tended to have slightly longer gaps in their employment than men, and wage employees tended to have slightly longer gaps than the self-employed. Women were less likely than men to

have full-time, full-year earnings recorded if they returned to work after an employment gap, but the proportion with full-time, full-year earnings is low for both women and men. Similarly, wage employees were less likely than the self-employed to have full-time, full-year earnings recorded if they returned to work after an employment gap, but the proportions were low for both types of worker.

6.4 The employment patterns and transitions of employees

This section examines the employment patterns of wage and salary earners using LEED's monthly data on wage employment. The population of analysis is everyone with any wage employment recorded in LEED.

We analyse the longitudinal employment patterns of employees in two ways. Firstly, we calculate several measures of work attachment for all wage employees, to identify how work attachment changes with increasing age and with proximity to retirement. This analysis is intended provide a picture of the employment continuity, work intensity and job mobility rates of *all* wage employees in the study population, including those only worked for a few months in total.

Secondly, we describe the employment patterns of employees who moved into a state of 'provisonal retirement' at least three years after the start of the observation window, during the three years prior to their final episode of work. We identify four types of transition to retirement and estimate the proportions making type of transition. For this analysis, we are forced to discard about three-quarters of the sample: those who retired relatively early in the LEED observation window or relatively late, and therefore did not have three complete years of pre-retirement employment data. Although the sample used in that analysis is quite selective, we endeavour to show that its employment patterns had much in common with those of the full sample of employees.

To set the context, the wage and salary employment activity of the total study population is summarized in table 6.4. Nearly half of the study population (44 percent of males and 54 percent of females) did not have any wage employment recorded in LEED in the 8-year period from 1 April 1999 to 31 March 2007. Five percent were employed in every month. Nine percent made a single, discrete transition from continuous wage employment to non-employment, did not return within the LEED observation window, and met the criteria for classification as 'provisionally retired'. The remaining 37 percent – the majority of all wage employees – made multiple transitions, or a single transition that occurred too late to be classified as a transition to provisional retirement.

Note that the fraction of wage employees who made multiple transitions is much higher in table 6.4 than in table 6.2 above, because we are now counting the transitions in or out of employment that occurred *within* years.

The lower section of the table gives some further information on wage employees' transitions. Nearly 70 percent had at least one gap in their sequence of monthly employment before their final gap. Approximately one-half had at least one gap of three months or more, and 30 percent had at least one gap of 12 months or more. The fraction of employees with employment gaps was similar for men and women but lower for the members of youngest birth cohort than members of the oldest birth cohort (possibly because they were observed at younger ages).

Table 6.4

Overview of monthly wage employment patterns, 1 April 1999–31 March 2000

	All %	Males %	Females %	Born April 1936 %	Born March 1940 %
Study population					
Never did wage work	49.3	44.3	54.0	57.3	41.4
Wage employed in every month	5.0	5.4	4.6	2.7	8.1
Single transition from work to provisional retirement	8.8	9.6	7.9	8.3	7.4
Other transition pattern	37.0	40.7	33.5	31.7	43.0
Total	100.0	100.0	100.0	100.0	100.0
Multiple transitions to provisional retirement	14.8	15.6	14.1	15.5	13.3
Other multiple transitions	22.2	25.2	19.4	16.2	29.8
Some wage or salary employment 1999-2007					
Provisionally retired by end of LEED	46.4	45.2	47.9	55.7	35.3
Gap in employment before final work episode	69.6	69.6	69.6	71.2	68.2
Gap of 3 months or more	50.6	51.3	49.7	54.3	46.4
Gap of 12 months or more	29.8	30.8	28.7	36.0	27.7
N	106,070	51,960	54,110	1,940	2,350

6.4.1 Changes in work attachment by age and proximity to retirement

This section explores the manner in which employment patterns change with increasing age and proximity to retirement, using several measures of work attachment:

- The proportion of employees who did some wage employment at each year of age.

- The proportion of employees who worked in every month of the year (conditional on working in at least one month). This is a measure of full-year employment.

- The proportion of employment months that generated earnings in excess of the full-time, full-month minimum wage. This is an indicator of full-time employment.

- The proportion of employees who had two or more employers during the year (conditional on working in at least one month). This measure can be viewed as an indicator of the frequency of job changes, although it also captures multiple job holding.

- The proportion of employees who started at least one new employer relationship during the year (conditional on working for at least one month). A new employer relationship is defined as a job with a firm that the employee had not worked at previously in LEED, and had not worked at for a minimum of 12 months. This measure can't be calculated for the first year in which each individual appears in LEED. In most cases, seasonal employees who return to the same employer each year in the same month will be excluded from the definition.

The analysis sample is all those who ever undertook wage employment when they were aged 60-69.[17]

The upper section of table 6.5 shows the fraction of this sample that worked in a wage or salaried job at each year of age. This fraction declines from 82 percent at age 60 to 43 percent at age 69. The percentage is never as high as 100 percent, because of movements in and out of the workforce. In any given year, some of the people who were employees at some stage during the observation period were not actually working.

The remaining rows of the table give measures of work attachment calculated for the subset of people who were working in each year. However, people who were in their final year of employment are also excluded from the figures, because many of them left the labour force part-way through the year, and this would be expected to affect their outcomes on all work attachment measures.

Table 6.5

Measures of work attachment, by year of age

	60 %	61 %	62 %	63 %	64 %	65 %	66 %	67 %	68 %	69 %
Percent of employees in study population who worked at each age										
Total (N=51,770)	81.9	79.5	77.2	74.0	69.0	63.8	55.2	50.5	46.2	42.8
Males (N=27,880)	80.9	78.7	77.1	74.4	70.1	65.1	56.1	51.4	46.7	42.6
Females (N=23,900)	83.0	80.4	77.3	73.4	67.8	62.2	54.1	49.4	45.6	43.0
Employees who worked during the year and were not in their final year of work										
Total										
Full-year employed (all 12 months)	70.8	70.1	69.7	69.0	68.4	60.4	59.7	58.1	57.2	57.7
Percent of months with full-time earnings	72.8	70.5	69.1	67.1	65.3	58.5	53.3	48.1	44.1	40.4
Worked for two or more employers during the year	23.5	23.5	23.3	22.4	21.5	23.7	24.2	24.6	24.4	23.5
Started a new employer relationship	..	25.1	24.5	23.3	22.2	25.1	26.0	25.9	25.2	23.9
Males										
Full-year employed (all 12 months)	72.7	71.9	71.1	70.6	69.8	60.5	59.4	57.2	56.0	56.5
Percent of months with full-time earnings	83.4	81.4	79.3	77.6	75.7	68.2	62.3	56.5	51.0	46.7
Worked for two or more employers during the year	22.2	22.6	22.3	21.5	20.2	22.8	23.5	23.3	23.4	21.9
Started a new employer relationship	..	25.0	24.6	23.1	21.4	25.0	26.4	25.7	25.2	22.4
Females										
Full-year employed (all 12 months)	68.7	68.2	68.1	67.1	66.6	60.2	60.0	59.2	58.7	59.3
Percent of months with full-time earnings	61.0	58.4	57.0	54.5	52.6	46.8	42.3	37.8	35.4	32.6
Worked for two or more employers during the year	24.9	24.5	24.5	23.5	23.0	24.7	25.0	26.2	25.6	25.5
Started a new employer relationship	..	25.3	24.4	23.6	23.2	25.3	25.6	26.2	25.2	25.8

Note: The indicator of starting a new employer relationship isn't calculated for the first year in which employees were observed in LEED, because of insufficient data on their prior work history.

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[17] Specifically, we select 1940 cohort members who did any wage employment when they were aged 60-66 years, inclusive; 1939 cohort members who did any wage work when they were aged 61-67; 1938 cohort members with wage employment recorded at 62-68 years, and 1937 cohort members with wage employment recorded at 63-69 years.

The average rate of full-year employment declines with age. On average, 71 percent of the employees who worked at the age of 60 worked in every month of the year. This full-year proportion fell to 68 percent at age 64 years, 60 percent at 65 years, and 58 percent at 69 years.

The proportion of employment months that yielded earnings equalling or exceeding the full-time, full-month, minimum wage (labelled 'full-time earnings') also declines gradually with age, both before and after 65 years.

The fraction of employees who worked for two or more employers during the year, at about 22–24 percent, is fairly constant across ages. Finally, the fraction of employees who started at least one new employer relationship during the year was in the 22–25 percent range, and was a little higher among employees who were still working after 65 years of age.

One potential problem with the results in table 6.5 is that the effects of compositional changes in the analytical sample are not controlled for. People who worked until their mid-60s or late 60s may have had systematically different employment patterns from those who last worked in their early 60s. If so, the patterns of change with increasing age that are shown in table 6.5 could be caused by changes in the composition of the sample (as groups with different employment patterns progressively drop out), rather than ageing.

In tables 6.6 and 6.7, the measures of full-year employment and number of employers per year are re-estimated. This time the sample is stratified by the age when each person was last observed working in LEED. Individuals whose last work episode was at least two years before the end of LEED are shown in the upper half of each table, because they are assumed to have retired within the study period. Individuals who were still working at the end of the observation window, or had not ceased working for a full 24 months, are shown separately in the lower half of the table, because the age when they worked for the last time is potentially a right-censored (non-observed) variable.

Table 6.6

Percentage of employees who worked in every month of the year, conditional on doing some work

Age when last observed in work	60	61	62	63	64	Age 65	66	67	68	69	Row means	N
People whose final work episode was observed												
61	53.9										53.9	1,780
62	62.4	55.2									58.8	2,830
63	63.5	62.0	56.3								60.6	3,870
64	66.9	64.6	64.3	57.9							63.4	4,350
65	76.2	76.5	74.5	72.4	68.2						73.6	5,270
66		66.6	66.0	65.4	62.9	49.4					62.1	2,470
67			65.3	65.0	61.7	51.8	43.9				57.6	1,380
68				64.1	63.0	54.3	52.5	46.9			56.2	430
People whose final work episode was not observed												
65	73.3	71.2	67.8	67.8	62.4						68.5	740
66	69.2	68.0	67.6	65.0	65.7	49.4					64.2	2,480
67	74.8	73.4	73.4	73.3	71.5	63.8	60.3				70.1	9,100
68		72.9	70.8	71.5	69.3	63.5	60.9	57.9			66.7	7,260
69			72.2	69.6	69.3	61.9	59.4	57.9	55.7		63.7	5,460
70				67.4	66.2	60.9	62.5	60.4	59.6	57.7	62.8	3,440

Table 6.6 presents measures of full-year employment rates, by age last observed in work. The first row of the table shows, for example, that 54 percent of employees who did some wage work at the age of 60 and last worked when they were aged 61 years, worked in every month of the year when aged 60. The remaining 46 percent were part-year employed.

Tracking numbers across the rows of the table, there is evidence that full-year employment becomes less common with increasing age and/or increasing proximity to retirement. For example, 67 percent of the employees who last worked at age 64 worked in every month of the year when aged 60, but by the time they reached 63 years old, only 58 percent were full-year workers. In addition, comparing the results for people in different age-of-exit groups (ie different rows of the table), there is evidence that people who were still in work after 65 years were more likely to be full-year workers when they were still in their early 60s, than those who left the labour force before they reached 65.

Table 6.7

Percentage of employees who had two or more employers during the year, conditional upon working during the year

Age when last observed in work	60	61	62	63	64	65	66	67	68	69	Row means	N
					Age							
People whose final work episode was observed												
61	17.7										17.7	1,780
62	20.8	20.3									20.6	2,830
63	20.4	20.4	18.7								19.9	3,870
64	23.3	20.8	18.9	17.4							20.1	4,350
65	18.2	18.3	17.3	16.9	15.2						17.2	5,270
66		25.2	20.7	20.2	17.0	18.2					20.3	2,470
67			22.7	19.6	19.6	20.3	17.8				20.0	1,380
68				18.6	23.2	18.7	20.1	14.2			18.9	430
People whose final work episode was not observed												
65	21.5	19.8	19.0	18.1	16.7						19.0	740
66	22.8	22.7	24.0	22.1	19.2	20.3					21.9	2,480
67	26.1	25.3	25.3	23.8	21.8	24.3	23.4				24.3	9,100
68		26.9	26.2	25.1	24.3	24.6	25.8	24.8			25.4	7,260
69			27.9	26.8	24.9	25.1	24.4	25.1	23.3		25.4	5,460
70				25.6	25.5	26.0	25.6	24.6	26.2	23.5	25.6	3,440

Table 6.7 shows the proportion of employees who worked for two or more employers during the year. Approximately 18–27 percent of employees (who worked in at least one month) had more than one employer during the year. Most rows show a small decline in the percentage working for more than one employer as the group's final year of work approaches, providing some weak evidence of a possible 'proximity to retirement' effect on job mobility. Employees who continued working after the age of 65 had slightly higher 'multiple employer' rates. Overall however, the variation in this measure across ages and age-of-exit groups is relatively limited, suggesting that job change patterns do not change in dramatic ways as retirement approaches, or after the milestone of 65 years has been reached.

Both tables 6.6 and 6.7 offer some evidence of systematic differences in the employment patterns of employees who last worked at different ages, and some evidence that work attachment may have a weak negative relationship to age and/or

proximity to retirement, even within fixed cohorts. Future research could attempt to separate out these different effects using more advanced methods of analysis.

Overall, the results of this section suggest that a high proportion of older employees, in all age groups and age-of-final-exit groups, had transitions from work to retirement that were in some sense 'phased'. In addition, it appears that many may have been in this phase for several years before they exited from the labour force for the last time. Part-year employment was not markedly concentrated in just the final year or two of each group's employment history. The results also indicate that employees in this age group had a modest level of job mobility, with around one-quarter starting a new employer relationship in any given year.

In appendix 5, the part-year employment and job mobility rates of employees aged in their 60s are compared with those of employees in younger age groups. The results provide fairly strong evidence that part-year employment is higher among employees in their 60s, on average, than among prime-age employees. Job mobility, on the other hand, appears to be somewhat lower.

6.4.2 Characterising transitions from wage work to retirement

In this section, we examine the longitudinal employment patterns of employees who left work for the final time at least three years after the start of the LEED observation window and at least two years before the end of the observation period. We describe their employment patterns in the three years prior to their final episode of work, and estimate the proportions with different kinds of transition to retirement. Note that when we use the phrase 'transition to retirement' in this study we are essentially looking at the way the employment patterns of older workers change in the years before they stop working for the final time.

Four types of transition to retirement are defined:

- 'Traditional'. People who had a single exit from wage employment, worked continuously on a full-time basis before the exit, and did not return to work.

- 'Single-exit with some part-time work'. People who had a single exit from wage employment, worked continuously on a part-time or mixed basis before the exit, and did not return.

- 'Few pre-retirement transitions'. People who had one or two transitions in or out of employment before their final exit into retirement.

- 'Multiple pre-retirement transitions'. People who had three or more transitions in and out of employment before their final exit into retirement.

The overall objective is to assess the frequency of each transition pattern, and to identify any associations between personal or employment attributes and type of transition to retirement.

Before we discuss the results, it is worth noting that the exact proportion of people who are classified to each 'type of transition' group is influenced by the length of the observation period. A higher proportion of employees are likely to be recorded as 'continuously full-time employed' if the observation period is just one year, for example, than if the observation period is three years long. Without a complete time series of data on each individual, the proportion of people who are classified to each retirement group is also likely to be affected by the age of sample members, because employment

patterns change gradually with age, and gaps become more common. In a separate analysis (not shown here) we explored the sensitivity of the classification results to the length of the observation window and the birth years of the people selected. We found that changes in these selection variables *did* alter the relative frequency of the different retirement patterns, but do not undermine the key findings of our analysis, such as the finding that phased retirements are more common than traditional ones.[18]

Two contrasting cohorts of wage earners were selected for the analysis: those born between 1 April 1936 and 31 March 1937, and those born between 1 April 1939 and 31 March 1940. The analytical samples in this section are also restricted to employees who had a well-defined retirement during the LEED observation window (that is, they left work for the last time at least two years before the end) and were observed for at least three years leading up to their final work episode. The analysis focuses on their employment patterns in those final 36 months.

The retirement-transition sub-samples comprise approximately one-quarter of all wage employees in each of the two birth cohorts, and approximately half of all those who retired during the LEED observation window (48 percent in the case of the older cohort and 59 percent in the case of the younger cohort). Table 6.8 compares the attributes of these sub-samples with the attributes of employees who either didn't retire or weren't selected for the analysis because of insufficient pre-retirement data.

The retirement-transition sub-samples are not fully representative of all employees who retired in the total study population, but they are broadly similar in terms of their gender mix, the proportion of months worked before the final exit from work, and the proportion of months with full-time earnings. The retirement-transition sub-samples retired at a later age on average than the not-selected employees, and worked for a longer period within the LEED observation window. They also had lower mean monthly earnings.

Table 6.8

Sub-samples of wage employees in the 1937 and 1949 birth cohorts

	1937 cohort				1940 cohort			
	Not retired by end	Retired	Not selected for transition analysis	Selected for retirement transition analysis	Not retired by end	Retired	Not selected for transition analysis	Selected for retirement transition analysis
N	5,090	5,790	3,010	2,780	9,730	6,490	2,660	3,830
Percent female	44.7	44.6	45.3	43.9	45.7	48.9	52.6	46.3
Mean monthly earnings	2,132	2,757	3,232	2,241	2,801	2,922	3,339	2,632
Months employed in study period	60.3	22.7	13.7	32.4	69.1	28.6	12.1	40.0
Percentage of months employed, up to final employment month	65.4	67.5	72.7	61.9	74.7	69.6	69.6	69.7
Percentage of employment months that were full-time	48.1	50.6	51.2	49.9	63.6	55.1	50.1	58.6
Mean age at final month of work	70.1	65.4	64.0	66.9	67.1	62.9	61.0	64.2

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[18] The percentage of individuals in the 'traditional' retirement group increased if the observation period was reduced. Comparing estimates obtained using different birth cohorts and observation periods, the traditional retirement group ranged from a low of 18 percent (three-year observation period, oldest cohort) to a high of 31 percent (one-year observation period, youngest cohort).

For each sub-sample, we construct a range of different measures of the continuity of employment, the intensity of employment, and the strength of employer attachment. These measures are shown in tables 6.9 and 6.10, along with background information on the attributes and employment patterns of each group. Results for the 1937 birth cohort are given in table 6.9 and results for the 1940 cohort are presented in table 6.10.

Table 6.9

Transitions to retirement by retiring wage earners in the 1937 birth cohort

	Traditional retirement	Single-exit with part-time work	2-3 transitions	Multiple transitions	All retirees in 1937 cohort
N	510	310	810	1,150	*2,780*
Percent of sample	18.5	11.0	29.2	41.3	*100.0*
Background data on each subsample					
Mean age at retirement	66.6	66.8	66.9	67.0	*66.9*
Percent female	32.0	61.8	44.3	44.1	*43.9*
Mean monthly earnings if employed	4,420	1,363	2,017	1,394	*2,131*
Mean months of employment	36.0	36.0	16.2	16.7	*22.2*
Mean months with benefit or ACC income	0.2	3.6	4.9	4.9	*3.9*
Mean months with NZS income	17.7	22.1	22.4	23.7	*22.0*
Continuity of employment					
Percentage of months employed	100.0	100.0	45.1	46.3	*61.8*
Continuously employed (%)	100.0	100.0	0.0	0.0	*29.5*
Worked at least 90 percent of months (%)	0.0	0.0	22.3	6.9	*9.4*
Worked 50-<90 percent of months (%)	0.0	0.0	23.1	39.0	*22.8*
Worked less than half of months (%)	0.0	0.0	54.6	54.1	*38.3*
Percentage of months employed in final year	100.0	100.0	52.1	46.8	*64.0*
Tenure and employment gap measures					
Longest employment spell in months (capped at 36)	36.0	36.0	14.4	9.2	*18.6*
Longest job spell in months (capped at 36)	34.5	33.4	13.7	8.8	*17.7*
Number gaps of 3-5 months duration before final exit	0.00	0.00	0.09	0.73	*0.33*
Number gaps of 6-11 months duration before final exit	0.00	0.00	0.11	0.60	*0.28*
Number gaps of 12+ months duration before final exit	0.00	0.00	0.62	0.45	*0.37*
Estimated hours worked					
Percentage of employment months that were full-time	100.0	35.2	24.6	16.5	*36.3*
All full-time (%)	100.0	0.0	0.0	0.0	*18.5*
At least 90 percent full-time (%)	0.0	13.4	8.5	1.4	*4.5*
At least 50 percent full-time (%)	0.0	24.8	16.3	12.3	*12.6*
Less than 50 percent full-time (%)	0.0	61.8	75.2	86.3	*64.4*
Percentage months in final year that were full-time	100.0	27.2	20.8	11.5	*32.3*
Sustained full-time to part-time transition	0.0	21.6	3.6	3.8	*5.0*
Sustained part-time to full-time transition	0.0	6.2	1.5	0.7	*1.4*
Employer attachment or mobility					
Number of employers	1.3	1.6	1.3	2.1	*1.6*
Only one employer (%)	79.3	65.4	75.0	48.4	*63.7*
Three or more employers (%)	4.5	13.7	5.9	24.7	*14.3*
At least one new employer in months 13-36 (%)	12.1	24.2	71.3	59.2	*50.2*

Table 6.10

Transitions to retirement by retiring wage earners in the 1940 birth cohort

	Traditional retirement	Single-exit with part-time work	2-3 transitions	Multiple transitions	All retirees in 1940 cohort
N	1,030	480	1,070	1,250	*3,830*
Percent of sample	26.9	12.6	28.0	32.6	*100.0*
Background data on each subsample					
Mean age at retirement	64.4	64.3	64.1	64.1	*64.2*
Percent female	29.1	68.8	47.8	50.6	*46.3*
Mean monthly earnings if employed	4,485	1,391	2,225	1,647	*2,540*
Mean months of employment	36.0	36.0	19.3	17.8	*25.4*
Mean months with benefit or ACC income	0.2	8.1	8.9	9.7	*6.7*
Mean months with NZS income	1.3	3.0	3.4	3.4	*2.8*
Continuity of employment					
Percentage of months employed	100.0	100.0	53.6	49.6	*70.6*
Continuously employed (%)	100.0	100.0	0.0	0.0	*39.4*
Worked at least 90 percent of months (%)	0.0	0.0	33.5	8.3	*12.1*
Worked 50-<90 percent of months (%)	0.0	0.0	21.5	41.8	*19.6*
Worked less than half of months (%)	0.0	0.0	45.0	49.8	*28.8*
Percentage of months employed in final year	100.0	100.0	59.5	51.4	*72.8*
Tenure and employment gap measures					
Longest employment spell in months (capped at 36)	36.0	36.0	16.7	10.2	*22.2*
Longest job spell in months (capped at 36)	34.3	32.9	15.6	9.6	*20.8*
Number gaps of 3-5 months duration before final exit	0.00	0.00	0.10	0.72	*0.26*
Number gaps of 6-11 months duration before final exit	0.00	0.00	0.09	0.55	*0.21*
Number gaps of 12+ months duration before final exit	0.00	0.00	0.52	0.42	*0.28*
Estimated hours worked					
Percentage of employment months that were full-time	100.0	33.7	32.8	20.9	*47.1*
All full-time (%)	100.0	0.0	0.0	0.0	*26.9*
At least 90 percent full-time (%)	0.0	13.5	16.3	1.9	*6.9*
At least 50 percent full-time (%)	0.0	19.6	17.6	16.5	*12.8*
Less than 50 percent full-time (%)	0.0	66.9	66.1	81.5	*53.5*
Percentage months in final year that were full-time	100.0	28.2	29.9	16.2	*44.1*
Sustained full-time to part-time transition	0.0	16.9	4.9	3.1	*4.5*
Sustained part-time to full-time transition	0.0	8.5	1.0	1.1	*1.7*
Employer attachment or mobility					
Number of employers	1.3	1.6	1.5	2.2	*1.7*
Only one employer (%)	78.8	62.3	68.4	41.9	*61.8*
Three or more employers (%)	5.3	12.5	10.2	28.2	*15.0*
At least one new employer in months 13-36 (%)	12.8	23.1	68.2	64.1	*46.3*

The first two rows of tables 6.9 and 6.10 provide information on the numbers of people who were classified to each transition-type group. Employees who had a traditional retirement, working continuously on a full-time basis until a single, permanent exit from work, made up 19 percent of the retirees in the 1937 cohort and 27 percent of those in

the 1940 cohort. They are shown in column 1. The group that worked continuously until retirement but not always on a full-time basis (column 2) was smaller, comprising 11 percent of the older cohort and 13 percent of the younger cohort. Approximately 30 percent of employees made just one or two transitions into or out of employment before their final exit (29.2 and 28 percent, respectively), and were classified to the third group (column 3). The final group of employees, who made three or more transitions before their final departure, made up around one-third of the two samples (41 percent of the older cohort and 33 percent of the younger cohort).

Because of the timing of the LEED observation window as well as our selection criteria, people in the 1937 cohort sample retired while they were aged 65–68 years, and had a mean retirement age of 66 years and 9 months. People in the 1940 cohort sample retired when they were aged 62–65 years, and had a mean retirement age of 64 years and 2 months. Average retirement ages do not vary much across the type of transition groups in each cohort.

It is interesting to note that many of the people in the 'traditional' retirement group retired at ages 63, 64, 66, or 67 years. Thirty-two percent of the traditional retirees in the 1937 birth cohort, and 44 percent of those in the 1940 cohort, retired at the age of 65 years while the rest retired at other ages. Although 65 may be a popular age for traditional retirements, it did not dominate in these two transition-to-retirement sub-samples.

The gender breakdowns indicate that women were over-represented in the non-traditional transition groups, especially the 'single-exit with part-time work' group. Women were under-represented in the group with the most traditional retirement path.

The 'traditional' retirement group had substantially higher mean monthly earnings than the other transition groups. This is at least partly because it is the only group that worked on a full-time, full-month basis through out the whole of the 3-year reference period. Occupational differences may also be contributing to the differences, but we are unable to explore these with LEED data.

By definition, employees in the 'traditional' and 'single-exit with part-time work' retirement groups worked 100 percent of months up to their final employment month. Those in the other two transition groups worked far less – just 45 and 46 percent of months, in the case of the older cohort sample, and slightly longer in the case of the younger cohort sample. If the overall fraction of months worked by these latter two groups is compared with the fraction of months they worked in the final year, the differences are generally minor. This suggests that the continuity of work undertaken by people in the 'few transitions' and 'multiple transitions' groups was low through out the three years studied, rather than tailing off mainly in the final year.

Some further information on the duration of employment gaps is given in the tables. People in the 'few transitions' group tended to have a few long gaps, implying greater continuity when they *were* at work. More than half had a gap of 12 months or longer within the 36-month reference period. People in the 'multiple transitions' group tended to have a mixture of short and longer gaps.

Employment intensity, measured in terms of the percentage of employment months that yielded earnings greater than the full-time monthly equivalent of the minimum wage, is associated with type of transition to retirement. By definition, people in the traditional retirement group worked full-time in every month. Employees in the 'single-exit with part-time work' group also had a higher proportion of months with full-time earnings than those who had several pre-retirement transitions. However, about two-thirds of their

employment months yielded part-time earnings, indicating that part-time employment was the predominant work pattern for this group.

Measures of the fraction of employees who made a sustained transition from full-time employment to part-time employment during their final three years in the workforce, or a sustained transition from part-time employment to full-time employment, were constructed. We identify sustained full-time to part-time transitions by looking for sequences in which an employee had full-time earnings for at least 5 out of 6 adjacent months, followed by part-time earnings for at least 5 out of 6 adjacent months. The measure of part-time to full-time transitions is constructed in the same way.

Five percent of all retirees in the 1937 cohort sample made a sustained full-time to part-time transition, and 1.4 percent made a sustained part-time to full-time transition. The proportions are similar for the 1940 cohort. Employees in the 'single-exit with part-time work' group were the most likely to make a full-time to part-time transition during the study period. Twenty-one and 17 percent did so in the 1937 and 1940 samples.

Although part-time employment was common in these cohort samples, many employees were working part-time from the start of the reference period or switched between full-time and part-time earnings, and therefore did not experience a sustained full-time to part-time transition as it is defined here.

Measures of employer attachment are given in the bottom section of the tables. The mean number of employers that members of the 1937 cohort worked for during the reference period was 1.6; the equivalent figure for the 1940 cohort was 1.7. However, about two-thirds (64 percent of the 1937 cohort and 62 percent of the 1940 cohort) worked for just one employer in the three years leading to their retirement. Approximately 20 percent had two employers and around 15 percent had three or more employers. A small number of people worked for a large number of different employers, raising the overall mean.

A measure of new employer starts was constructed, counting person-firm matches that began in the second or third year of the reference period. In this measure, a 'new employer' is defined simply as an employer that the individual did not work for during the first year of observation. Fifty percent of the older cohort and 46 percent of the younger cohort had at least one new employer start.

Employees in the 'traditional' and 'single exit' retirement groups were fairly unlikely to start work with a new employer in their final two years. Only 12–13 percent of 'traditional' retirees and 23–24 percent of 'single exit with part-time employment' retirees in the two cohorts had at least one job start with a new employer. Presumably, the majority of people in these two groups kept on working in a stable existing employment relationship. Employees in the other two retirement groups, by contrast, were fairly likely to have at least one new employer relationship that began in the final two years. Roughly speaking, about two-thirds did so.

It is likely that the measure over-estimates the true number of new employer relationships at least a little, because we did not track employer relationships further back in time. Timmins (2008) finds that repeat job spells (in which an employee returns to an employer they worked for previously) are much more common among older workers than at prime ages. It is likely that some of the jobs that are classified here as 'new' were actually repeat spells with a previous employer, following a gap of more than 12 months. Taking this bias into account, it is probably fair to conclude that the majority – somewhat more than 50 percent – of employees in these age groups and birth cohorts did *not* enter a new employer relationship within two years of their final work

episode. At the same time, entering into a new employer relationship while nearing retirement was not a rare event.

Finally, the industry of the work undertaken by employees with different types of transition to retirement is described in table 6.11. Each person is classified by the industry of their main employer – the employer who paid them the largest amount of income during the three-year observation period. Employees with traditional retirement patterns were much more likely than other sample members to be working in the manufacturing industry, and to a lesser extent in wholesale trade and government. Employees who made a single exit from employment following some part-time employment were over-represented in retail trade and in health and community services. Employees who made multiple transitions before retirement were over-represented in agriculture, forestry and fishing, business services, and education.

Table 6.11

Industry of main employer in the final three years of employment

	1937 cohort					1940 cohort				
	Traditional retirement	Single-exit with part-time work	2-3 transitions	Multiple transitions	All retirees in 1937 cohort	Traditional retirement	Single-exit with part-time work	2-3 transitions	Multiple transitions	All retirees in 1940 cohort
	%	%	%	%	%	%	%	%	%	%
Agri/Forestry/Fishing	s	4.3	8.5	10.9	*7.8*	1.0	2.9	6.8	11.8	*6.4*
Manufacturing	22.3	9.2	10.5	10.9	*12.7*	24.7	12.7	14.4	12.0	*16.2*
Electricity/Gas/Water	1.2	s	s	s	*0.4*	s	s	s	s	*0.4*
Construction	4.3	2.0	3.5	4.1	*3.7*	7.0	s	5.6	3.8	*4.9*
Wholesale	8.2	5.2	5.8	3.5	*5.2*	7.4	4.6	4.4	2.8	*4.7*
Retail trade	6.5	14.7	8.4	8.1	*8.6*	6.5	15.6	9.0	6.0	*8.2*
Hospitality	s	4.6	4.4	4.2	*3.8*	2.2	5.6	4.4	4.1	*3.9*
Transport/Storage	6.1	s	4.2	4.3	*4.4*	6.1	2.9	4.2	3.6	*4.4*
Communication	s	3.3	1.9	1.3	*1.7*	1.3	2.9	1.6	s	*1.4*
Financial services	2.9	s	1.6	1.1	*1.8*	3.7	2.3	2.9	2.6	*2.9*
Business services	9.2	10.5	13.0	10.6	*11.0*	7.8	9.4	9.9	10.9	*9.6*
Government	8.2	s	6.2	6.0	*6.1*	7.0	2.5	4.9	6.1	*5.5*
Education	8.2	5.2	9.0	16.2	*11.4*	9.8	6.3	8.9	16.9	*11.4*
Health/Community	12.5	22.6	12.7	8.8	*12.1*	10.1	22.1	14.6	10.8	*13.1*
Cultural/Recreational	s	4.3	3.6	4.0	*3.4*	1.0	3.1	1.5	3.1	*2.1*
Personal/Other	4.9	5.6	5.4	4.3	*4.9*	3.6	4.8	5.1	3.6	*4.2*

Notes: s = suppressed because of the small number of observations in the cell. Employees in the mining industry and people whose industry could not be identified are excluded from the table because of small sample sizes. For this reason, column totals do not add to 100 percent. An employee's main employer is the one that paid the highest total earnings.

One issue posed by the analysis of transitions to retirement in section 6.4 is whether the employment patterns described were strongly influenced by the employees' proximity to retirement, or were fairly typical of all employees in those age groups and birth cohorts. As a partial answer to this question, the employment patterns over a seven-year period of the employees who did not retire, and were still working in the final year of observation, are described in appendix 6. That analysis indicates that part-year employment, sustained employment gaps and part-time employment were also relatively common among employees who were four years or more away from their final episode of work.

6.5 Summary and discussion

In this section, LEED's annual employment data were used to explore the employment transitions and retirement transitions of the total study population, including people who were self-employed. LEED's monthly data on wage employment were used to explore the employment patterns and transitions of employees in more depth.

There was considerable diversity in employment patterns. Thirty six percent of the study population did not work at all during the observation period (1999–2007). Twenty-seven percent worked in every year. The remaining 37 percent worked in some years but not all. Approximately 24 percent were working at the start of the study period but could be provisionally classified as 'retired' by the end of it, based on the fact that they had been non-employed for at least two years.

Age of leaving the workforce for the final time

Forty-six percent of all persons in the study population had given up work permanently before the age of 63 and a further 11 percent had done so before the age of 65. Thus, a total of 58 percent 'retired' before their 65th birthday. (This includes people who may not have worked for many years or perhaps did not work at all.) Retirement ages cannot be assigned to the remaining 42 percent with any certainty, but the data indicate those retirement ages were well spread across post-65 ages rather than clustered at 65.

There is strong evidence that women were less likely to be employed than men and tended to leave work earlier. Fifty-eight percent of women in the study population had given up work before they reached 63 years, compared with 35 percent of men. Fifty-two percent of men worked when they were 65 or older, compared with 33 percent of women.

We did not find robust evidence of significant differences between the transition-to-retirement age profiles of wage employees and the self-employed. This means our analysis does not lend support to the hypothesis that the self-employed tend to retire later than wage employees. However, given the possibility that workers could have switched employment types or retired at different rates before they were observed in LEED, a longer time series of data on employment patterns is needed to evaluate the hypothesis properly.

It is difficult to compare the retirement age profiles of different birth cohorts in a meaningful way because they were observed in LEED at different ages, and only observed for seven years in total. The partial comparison we undertook did not provide clear evidence of a shift in retirement ages. However, there is clear evidence of rising wage employment rates across successive birth cohorts (as discussed in section 5), and this should eventually be reflected in retirement age profiles, when more data are available.

An analysis of annual employment patterns indicated that transitions in and out of employment that led to gaps of one year or several years in duration were reasonably common among both wage employees and the self-employed. The self-employed were somewhat less likely than wage earners to leave employment and then return before their final exit.

Employment patterns of employees

LEED's monthly data on wage and salary employment were used to explore the employment patterns and transitions of employees over an 8-year period. In this part of

the analysis, we looked at the wage employment of everyone who did any wage employment during the observation window.

There was considerable diversity in wage employment patterns. Fifty-one percent of the study population did some wage employment within the observation window. Of this group, 10 percent worked in every month of the 8 years observed. Eighteen percent worked in every month initially, before leaving work once and then remaining permanently inactive. The remaining 72 percent had more complex employment patterns involving two or more transitions in or out of wage employment.

Nearly 70 percent had at least one gap in their sequence of monthly employment before their final exit or gap. Approximately one-half had at least one gap of three months or more, and 30 percent had at least one gap of 12 months or more.

An analysis of employment patterns by year of age showed that both part-year and part-time work were reasonably common at all ages and increased with increasing age. For example, the proportion of employees who were not yet in their final year of work who worked in every month of the year (our measure of 'full-year employment') was 71 percent at age 60, 68 percent at age 64, 60 percent at age 65, and 57 percent at age 68. The proportion of months worked that generated earnings consistent with full-time employment was 73 percent at 60 years, 65 percent at 64 years, 59 percent at 65 years, and 40 percent at 69 years.[19]

A comparison of the part-year and part-time employment rates of employees in their 60s with those of employees aged in their 50s and 60s indicated that both part-year and part-time employment were significantly more common in the older age group.

Approximately 20 percent of wage employees worked for two or more employers in any given year, and 20–25 percent began a new employer relationship, indicating a modest level of job mobility.

Types of transition to retirement among employees

In this study 'retirement' was defined as a long-term withdrawal from employment that is assumed to be permanent. We required that an individual did not receive any employment income for a minimum of two years, and had no further employment income recorded in LEED, in order to classify them, provisionally, as retired.[20]

The definition of retirement used here does not necessarily match older workers' own view of their retirement process. For example, some people may consider themselves to be retired after they leave a career job or once they start to draw a pension, even if they continue to work. When we use the phrase 'transition to retirement' in this study we are essentially looking at the way the employment patterns of older workers change in the years before they stop working for the final time.

A 'phased' retirement was defined as a situation whereby a worker reduces the quantity of work they undertake, or switches to less demanding work, as an intermediate stage before they give up work altogether. A 'traditional' retirement was defined here as an

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[19] Employees who didn't work at all during any given year, who may have been out of the workforce or overseas, were also excluded from these statistics.

[20] A two year gap was used because we found that a moderately large fraction of those who did not work for one year returned in a subsequent year, while the proportion that returned after an absence of two years was lower.

abrupt transition from continuous full-time employment to inactivity, with no return to work at a later date.

To estimate the relative frequency of different retirement patterns, we focused on the subset of employees who last worked at least three years after the start of the LEED observation window and at least two years before the end of LEED. The employment patterns of people who met these selection criteria (representing approximately one-quarter of all persons who did any wage employment in LEED), were examined in the three years leading to their final employment month.

Only a minority of the retirement transitions we studied took the most traditional form. Nineteen percent of employees in the 1937 birth cohort and 30 percent of employees in the 1940 birth cohort made a permanent transition from full-time employment to non-work and did not return. Men were over-represented in this 'traditional' transition group. About 80 percent of the group worked for the same employer for the entire three years, while 20 percent had two or more employers. Approximately 12 percent started a new employment relationship within their final two years in the labour force. Employees in this group were more likely to be working in the manufacturing industry, wholesale trade or government than their peers, yet were widely spread across major industry groups.

Another small group of retirees (11 percent of the older cohort and 13 percent of the younger cohort) made a single transition from continuous employment that was either part-time in nature or a mixture of full-time and part-time work. Women were over-represented in this group. Their predominant employment pattern was part-time: about two-thirds of their employment months generated earnings below the full-time, full-month equivalent of the minimum wage. About two-thirds worked for the same employer for the entire three years. Relative to the rest of the sample, employees in this group were more likely to be employed in retail trade and in health or community services.

The remaining 60–70 percent of the retirees studied had one or more transitions in and out of work in the three years before their final work episode. These groups include a group of individuals who worked at least 90 percent of the time, some who worked more than half of the time, and a fairly large number who worked for less than half the time in the three years prior to their final work episode.

Part-time or part-month employment was the predominant employment pattern among employees who made several or multiple transitions. About three-quarters of all months they worked were judged to be part-time or part-month in nature, based on the level of earnings. Interestingly, half to three-quarters of the employees in these transition groups had just one employer during the reference period, suggesting that they carried out multiple spells of work with the same firm. At the same time, around one-quarter of the employees in the multiple transitions groups had three or more employers during the reference period. Roughly two-thirds started at least one new employer relationship during their final two years. Employees who made multiple transitions before retirement were over-represented in the agriculture, forestry and fishing, business services, and education industries.

Discussion

These results provide some support for the notion that there is a group of employees who have relatively 'traditional' retirement patterns, working full-time and continuously before they give up work, and then not returning to employment. This group represented a minority of the employees who retired in the current study sample and observation window, however.

The finding that the majority of employees whose transitions to complete retirement were observed had phased rather than traditional transition paths is consistent with the findings of recent research in the United States. For example, Cahill *et al* (2005) report that one-half to two-thirds of older Americans who had had a full-time career job, moved to a short-duration or part-time job before they left with labour force for the final time.

More information is needed on the reasons why individuals take different paths to retirement, and the extent to which they are satisfied with the paths taken.

7 Concluding comments and future research

This study has described the employment patterns and work-to-retirement transitions of New Zealanders who were born between 1 April 1936 and 31 March 1940 and aged in their 60s between 1999 and 2007, using longitudinal data from the Linked Employer-Employee Database.

The analysis showed that the pattern of decline in the employment rates of older workers was more gradual, and less strongly associated with the milestone of turning 65 and becoming eligible for NZS, than is often assumed. Most people in the study population did not stop working at their 65th birthday or soon after: rather, they stopped working at a wide range of different ages, beginning when they were in their '50s and extending beyond the age of 70. Because of this wide spread of ages, the observation period for the study (1999-2007) covered only a minority of the final retirements of study population members.

The analysis revealed considerable diversity in the employment patterns of people aged in their 60s. Transitions into and out of employment were not uncommon. Nineteen percent of the solely self-employed had an employment gap of one year or more before their final work episode. Thirty percent of wage employees had at least one gap of 12 months or more before their final work episode, and fifty-one percent had a gap of three months or more. Among those who did some wage employment in any given year, both part-year employment and part-time employment were relatively common. Among those who did some wage employment, around 20 percent had two or more employers during the year and around 20-25 percent started at least one new employer relationship, indicating a moderate level of job mobility. This was true of employees aged in their late 60s as well as those in their early 60s.

Both the patterns of working among all wage and salary earners, and the paths taken to retirement by the sub-set of employees whose retirement transitions were analysed in detail, indicate that phased transitions from work to retirement (involving spells of non-employment, part-time employment, or both) were much more common than 'traditional' transitions from full-time employment to inactivity without return. At the same time, we were able to identify a group of employees whose transitions took the traditional form.

Related research

The 'Turning 65 – Reflecting Back' study, led by the Ministry of Social Development, will be surveying a sample of New Zealanders who turn 65 and apply for NZ Superannuation in 2008. The study will gather data on this group's employment history and job characteristics, motivations for working, reasons for not working or for leaving work, and aspirations for future employment. It will also look at factors that have supported or impeded participation in work. The study is expected to shed light on the push and pull factors that influence work and retirement decisions and the manner in which these outcomes vary by socio-economic status.

Future research directions

An important limitation of the current study is its lack of information on the reasons why individuals were employed or inactive at different times. More information is needed on the push and pull factors that shape the labour force participation decisions of older New Zealanders. In addition, it would be valuable to measure their work and leisure preferences and their expectations about their future work and retirement patterns, at repeated intervals of time they grow older, to identify whether there is a good or bad match between preferences and expectations on the one hand and outcomes on the

other. The 'Turning 65 – Reflecting Back' survey project will help to fill these gaps but will only gather data at one point in time (when respondents reach 65 years).

This study took a broad-brush approach in its analysis of employment patterns and transitions from work to retirement. Greater use could be made of LEED data on the identity of employers to better describe job tenure and job mobility patterns. For example, it would be possible to identify what proportion of employees who moved from regular full-time employment to regular part-time employment did so without changing their employer, and what proportion changed their employer or industry at the same time.

The results of this paper suggest that only a minority of individuals make significant changes to their employment activity at the time they start to receive NZ Superannuation. Data in LEED could be used to describe the changes in employment rates, employment intensity, income support receipt, and total income levels that coincide with the commencement of NZS payments (before 65, at 65 years, or after 65), for different population groups. That analysis could illuminate, at least in part, the labour supply responses that are associated with receipt of NZS.

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Appendix 1 – Definition of the study population

This appendix contains information on the impact of the study population selection criteria. Those criteria excluded people who did not have any payment recorded in LEED when they were aged 66 years, and people whose date of birth was imputed.

The first two figures show the cumulative impact of the two selection criteria on the employment rates and NZS take-up rates of the sample, by year and month of age. The bold line represents the final study population, after both criteria were applied.

The third and fourth figures show the underlying differences in wage employment and NZS receipt rates between records with a 'real' birth date and records whose birth date was imputed.

Figure A1.1

Waged employment rates for alternative study samples
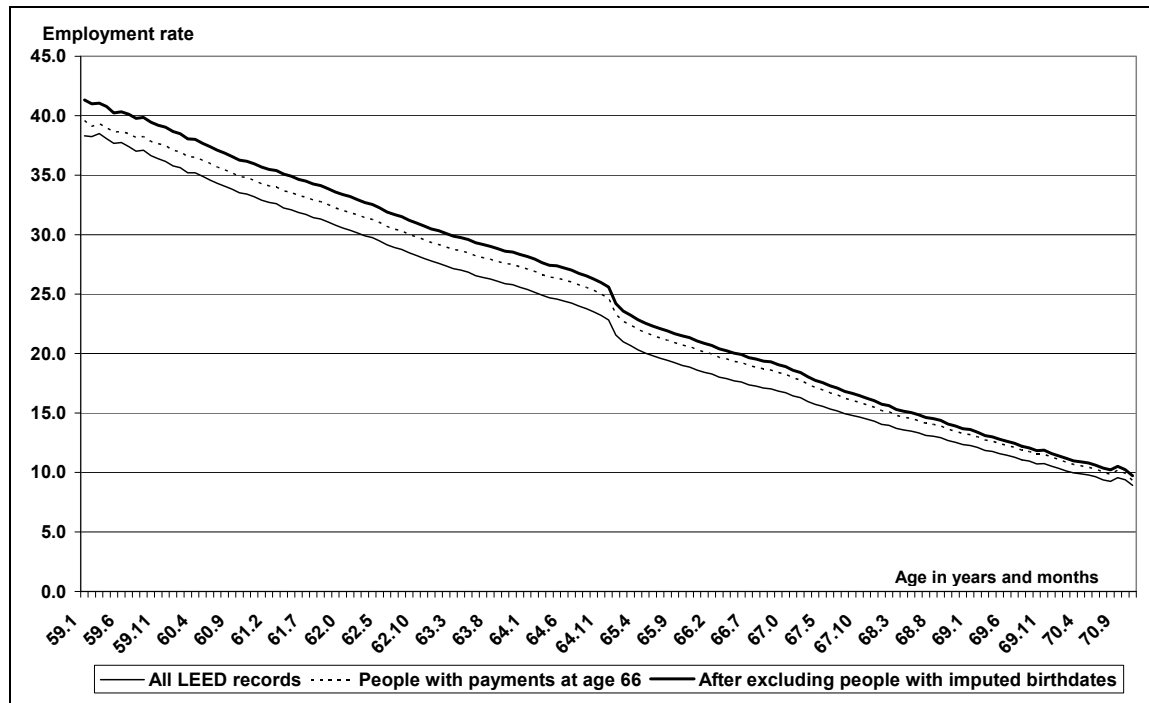
Figure A1.2

NZS take-up rates for alternative study samples
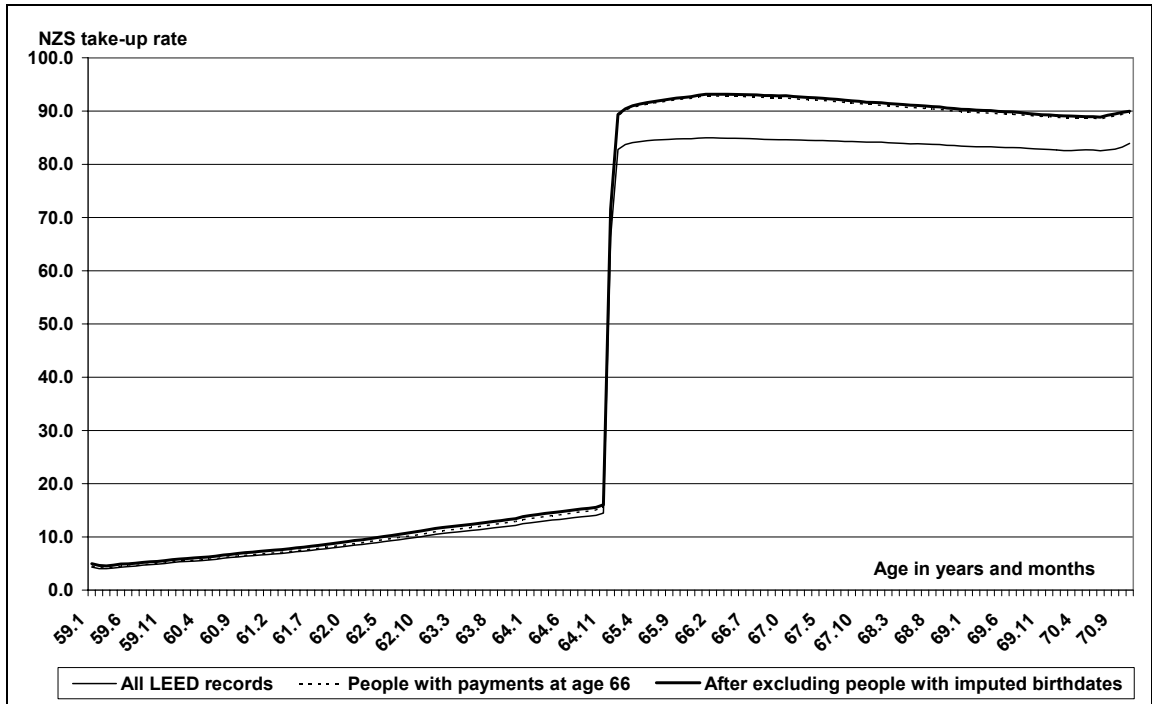
Figure A1.3

Waged employment rates by whether birth date was imputed
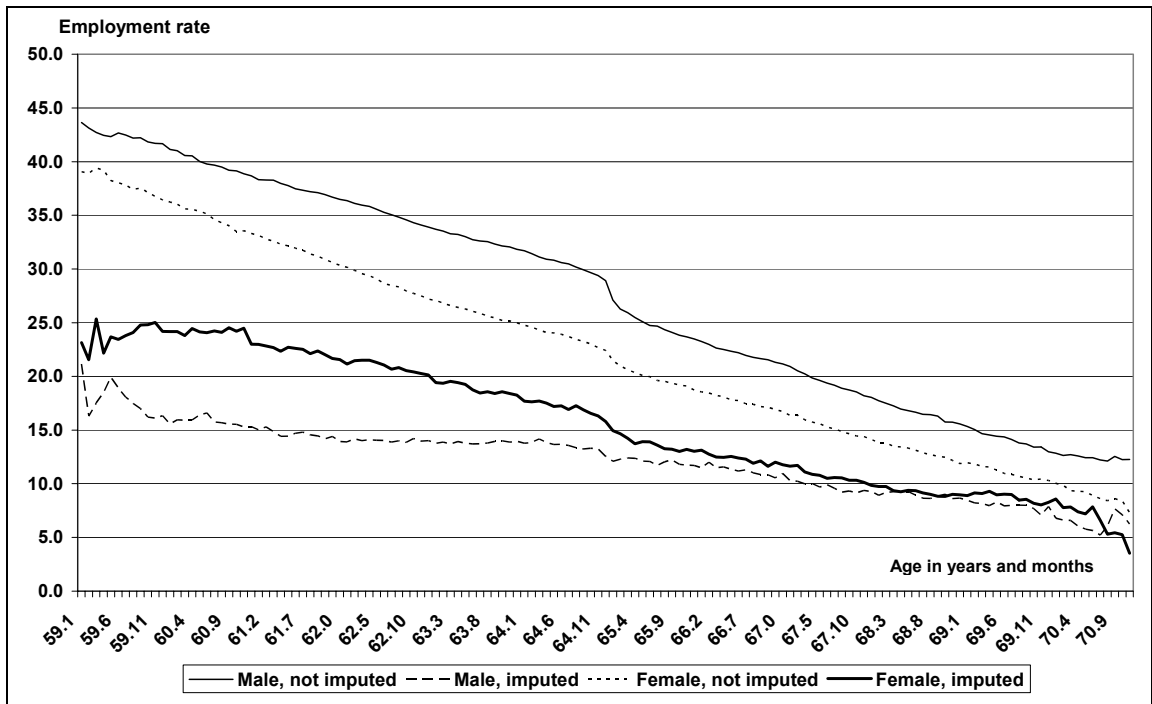
Figure A1.4

NZS take-up rates by whether birth date was imputed
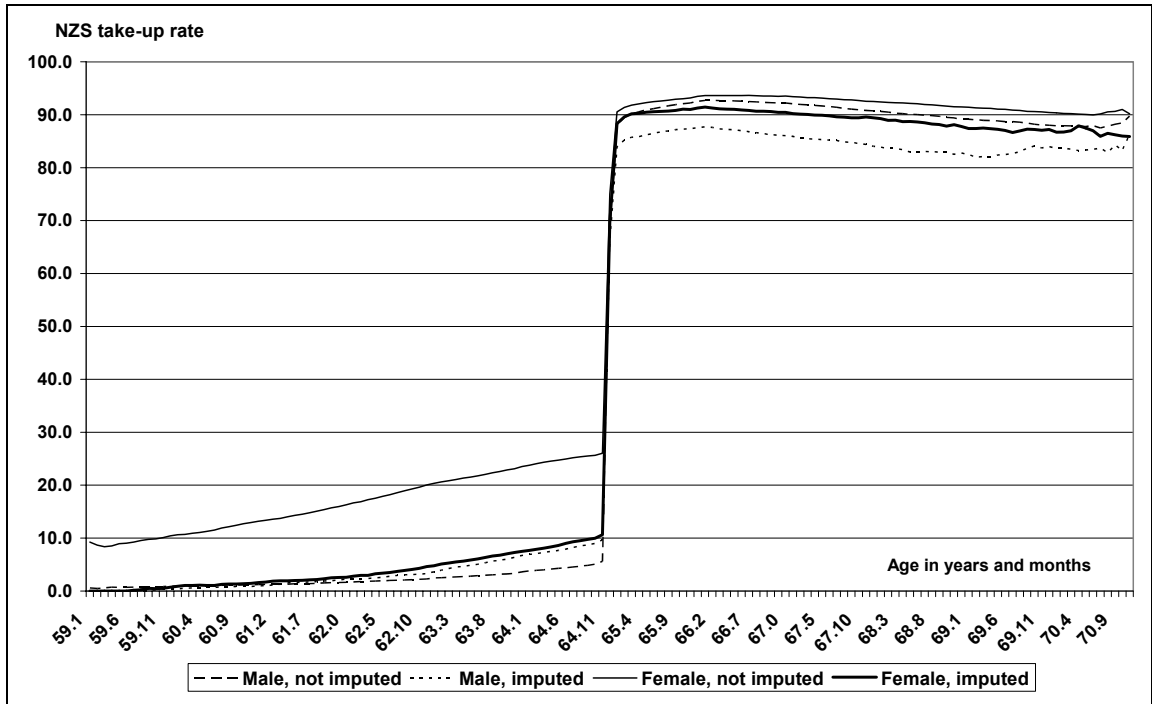
Appendix 2 – Employment and income support statistics for the study population

In the tables below, wage employment rates are calculated as an average of the monthly rates for the 12 months of the year. Income support and NZS take-up rates are calculated in the same manner. Self-employment and total employment rates are calculated on an annual basis, because self-employment income is recorded in LEED in terms of tax years ending in March. The self-employment and total employment estimates are derived using the sub-sample of individuals who were born in April, whose birthdays and increases in chronological age correspond fairly closely to the boundaries of each tax year.

The marital status of approximately 95 percent of NZS recipients within the study population can be identified by examining their rate of payment. In this study, we attribute a marital status to each individual using the first 'standard' NZS payment that was recorded in LEED. For example, someone who received NZS payments before the age of 65 years at the unqualified partner rate will be classified as married. Only the individuals whose marital status could be identified are included in the 'marital status' figures shown here.

The payments data suggest that small percentage of people in the study population changed their marital status during the observation period. The majority of these moved from 'married' to 'single'. Those changes are not reflected in the tabulated data shown here, but they are unlikely to alter the numbers significantly.

A small percentage of men and women aged under 65 years were receiving NZS at the 'single person' rate. The Veterans Pension probably accounts for at least some of these cases, as veterans who are aged under 65 can receive a pension if they do not have the capacity to work, and VP payments are combined with NZS payments in the LEED database.

Table A2.1

Employment rates by age and gender

	59	60	61	62	63	64	65	66	67	68	69	70
	%	%	%	%	%	%	%	%	%	%	%	%
Mean monthly wage employment rates using total sample												
Males	42.5	40.1	37.7	35.4	32.9	30.7	25.3	22.3	19.6	16.8	14.4	12.5
Females	38.1	35.0	32.0	28.9	26.1	23.9	20.2	17.8	15.5	13.2	11.2	9.0
Total employment rates using subsample with April birthdate												
Males												
Wage employed (monthly average)	41.2	38.9	36.4	33.3	31.2	25.3	22.4	19.5	17.2	15.8		
Self-employed	33.5	34.0	32.3	29.4	27.8	25.6	22.6	20.1	17.5	16.3		
Employed in an average month	68.7	66.7	63.2	58.3	55.0	47.6	42.5	37.7	33.2	30.7		
Any employment during year	72.7	70.5	67.6	63.1	60.1	54.8	47.7	42.9	38.4	34.7		
Females												
Wage employed (monthly average)	34.1	31.1	27.3	24.2	22.0	19.3	16.9	14.2	12.2	9.7		
Self-employed	16.4	17.4	16.1	13.7	12.6	11.1	10.2	8.6	6.8	5.8		
Employed in an average month	47.7	45.2	40.3	35.7	32.7	28.8	26.1	21.9	18.1	15.5		
Any employment during year	53.4	50.2	45.2	40.2	37.4	34.6	30.9	26.3	22.2	19.1		

Table A2.2

Employment rates by birth year, age and gender

	59	60	61	62	63	64	65	66	67	68	69	70
Wage employment rates												
Males												
1937				33.1	29.4	26.9	22.0	19.1	17.1	15.5	14.1	12.5
1938			36.1	34.2	32.0	29.2	23.8	20.7	19.1	17.3	14.9	
1939		38.5	36.5	35.0	33.5	31.5	26.3	23.5	21.0	18.2		
1940	42.5	40.7	39.4	37.8	36.2	34.5	28.8	25.3	22.1			
Females												
1937				25.9	22.8	20.5	17.4	15.1	13.7	12.4	11.1	9.0
1938			29.9	27.1	24.7	22.3	18.5	16.3	14.6	13.1	11.3	
1939		34.3	31.3	29.4	27.3	24.9	20.9	18.6	16.6	14.7		
1940	38.1	35.3	33.5	31.4	29.4	27.4	23.6	20.8	17.5			
Self-employment rates												
Males												
1937					28.0	26.9	24.7	22.4	19.7	17.8	16.3	
1938				31.8	30.5	28.0	25.8	22.2	19.5	17.2		
1939			35.0	33.8	30.2	28.8	26.4	23.2	21.1			
1940		33.5	33.1	31.2	29.0	27.6	25.4	22.5				
Females												
1937					12.5	12.2	10.6	8.8	7.0	6.3	5.8	
1938				15.2	14.0	12.9	10.8	9.8	8.6	7.3		
1939			19.2	17.0	14.5	12.6	11.8	11.7	10.1			
1940		16.4	15.4	16.0	13.9	12.7	11.1	10.3				
Total employment rates												
Males												
1937					54.4	50.7	43.9	39.5	36.1	33.4	30.7	
1938				61.8	57.3	53.1	45.3	40.9	37.0	33.0		
1939			66.0	62.5	58.6	56.7	49.3	43.7	39.8			
1940		68.7	67.3	65.3	62.3	59.0	51.3	45.5				
Females												
1937					32.3	29.8	25.6	21.7	19.0	17.9	15.5	
1938				36.7	33.6	30.4	25.6	23.2	20.6	18.3		
1939			45.2	41.7	38.1	35.2	32.5	29.0	25.9			
1940		47.7	45.2	42.5	38.6	35.3	31.6	30.2				

Note: Wage employment rates are monthly averages estimated using the entire study population. Self-employment and total employment rates are estimated using the sub-sample of people who were born in April. 'Total employment' is an estimate of the percentage of people who were employed in an average month.

Table A2.3

Intensity of employment

	59 %	60 %	61 %	62 %	63 %	64 %	65 %	66 %	67 %	68 %	69 %	70 %
Average monthly earnings from wages												
Males												
Above MW threshold	37.3	34.5	31.9	29.3	26.8	24.3	18.0	14.8	11.9	9.3	7.1	5.6
Below MW threshold	5.2	5.3	5.6	5.8	6.0	6.1	6.9	7.4	7.5	7.3	7.0	6.9
Percent 'full-time'	*88*	*87*	*85*	*83*	*82*	*80*	*72*	*67*	*61*	*56*	*50*	*45*
Females												
Above MW threshold	25.0	22.5	19.9	17.5	15.1	13.4	10.1	8.1	6.3	4.9	3.8	2.8
Below MW threshold	13.0	12.3	11.8	11.2	10.8	10.3	9.9	9.6	8.9	8.0	7.3	6.1
Percent 'full-time'	*66*	*65*	*63*	*61*	*58*	*56*	*51*	*46*	*42*	*38*	*34*	*32*
Annual self employment incomes												
Males												
Above MW threshold		14.5	13.5	13.0	12.0	11.1	9.5	7.7	6.6	5.6	4.6	
Below MW threshold		13.5	13.6	12.9	12.6	12.0	11.7	11.0	10.5	9.6	8.6	
Income loss		5.7	5.4	5.1	4.8	4.5	4.4	4.3	4.0	3.7	3.3	
Percent 'full-time'		*43*	*42*	*42*	*41*	*40*	*37*	*33*	*31*	*30*	*28*	
Females												
Above MW threshold		5.6	5.1	4.5	3.9	3.4	2.8	2.2	2.0	1.5	1.3	
Below MW threshold		8.9	8.9	8.3	7.7	7.1	6.4	5.8	5.3	4.4	3.9	
Income loss		3.8	3.6	3.2	2.9	2.7	2.6	2.4	2.1	1.9	1.5	
Percent 'full-time'		*30*	*29*	*28*	*27*	*26*	*24*	*21*	*21*	*19*	*20*	

Table A2.4

Employment rates by marital status, age and gender

	59	60	61	62	63	64	65	66	67	68	69	70
Wage employment rates												
Males												
Single	37.1	34.1	32.2	30.5	28.1	26.2	22.5	19.9	17.5	15.2	13.3	12.4
Married	46.3	43.8	41.2	38.5	35.8	33.3	27.2	23.7	20.8	17.8	15.1	12.9
Females												
Single	43.1	40.3	38.0	35.4	32.5	30.0	25.7	22.7	19.9	17.0	14.1	11.5
Married	38.2	34.5	30.9	27.2	24.2	21.9	18.2	15.9	13.6	11.6	10.0	8.1
Self-employment rates												
Males												
Single		20.5	19.4	19.4	17.2	16.3	15.5	13.3	13.2	12.8	11.2	
Married		39.7	40.1	37.7	34.5	32.5	29.7	26.1	22.9	19.4	18.2	
Females												
Single		11.1	10.2	9.2	8.2	7.3	6.2	5.7	4.6	4.2	4.1	
Married		20.9	22.4	21.0	17.5	16.1	14.3	13.0	11.1	8.6	6.8	
Total employment rates												
Males												
Single		53.9	50.6	49.8	45.2	43.0	37.2	32.0	29.8	27.5	28.4	
Married		76.7	74.7	70.1	64.7	60.8	52.5	46.9	41.0	35.7	32.3	
Females												
Single		46.1	41.7	37.2	34.3	31.8	27.9	25.2	20.5	17.0	14.9	
Married		51.8	50.2	44.4	38.4	34.9	30.3	27.4	23.4	19.3	16.2	

Note: See note to table A2.3.

Table A2.5

NZS take-up rates by gender, year of birth, and marital status

	59 %	60 %	61 %	62 %	63 %	64 %	65 %	66 %	67 %	68 %	69 %	70 %
Males	0.7	1.1	1.4	2.0	2.9	4.4	89.0	92.5	91.5	90.1	88.7	88.1
Females	9.2	11.6	14.5	18.1	21.7	24.8	90.8	93.6	93.1	92.0	91.0	90.3
Males												
1937				2.4	3.6	5.1	88.8	92.4	91.7	90.2	88.9	88.1
1938			1.7	2.1	2.7	4.1	88.5	91.9	91.1	89.8	88.4	
1939		1.3	1.5	1.9	2.7	4.3	88.8	92.4	91.4	90.4		
1940	0.7	1.0	1.3	1.7	2.6	4.3	89.7	93.3	92.0			
Females												
1937				23.1	26.3	28.4	91.0	93.5	93.1	92.1	91.1	90.3
1938			17.0	19.8	22.0	25.4	90.7	93.3	92.8	91.9	90.6	
1939		12.5	15.3	17.4	20.5	24.1	90.6	93.4	93.0	92.1		
1940	9.2	11.1	12.7	15.3	18.6	21.8	91.1	94.0	93.5			
Males												
Single	0.5	0.5	0.6	0.8	1.3	1.9	91.7	96.5	94.8	92.5	90.4	88.3
Married	0.8	1.3	1.8	2.5	3.6	5.5	94.2	97.6	96.7	95.3	93.7	92.6
Females												
Single	1.0	1.3	1.4	1.5	1.7	2.1	93.2	97.4	96.5	95.0	93.1	91.5
Married	14.1	17.6	22.1	27.7	33.3	37.9	96.2	98.4	97.8	96.8	95.8	94.9

Table A2.6

Working-age income support rates (including ACC) by gender, year of birth, and marital status

	59 %	60 %	61 %	62 %	63 %	64 %	65 %	66 %	67 %	68 %	69 %	70 %
Males	21.2	23.9	26.2	28.8	32.1	34.3	7.1	3.7	3.2	2.9	2.7	2.2
Females	26.4	28.1	29.0	29.5	29.8	29.8	6.6	3.9	3.5	3.1	2.7	2.3
Males												
1937				32.6	38.0	40.6	7.7	3.6	3.3	2.9	2.6	2.2
1938			26.2	29.3	33.1	36.6	7.3	3.8	3.4	3.0	2.9	
1939		25.3	27.1	28.8	30.5	32.7	7.0	3.8	3.3	2.6		
1940	21.2	23.4	25.3	26.6	27.6	28.3	6.3	3.4	2.8			
Females												
1937				29.8	30.7	31.6	6.6	3.7	3.4	3.0	2.7	2.3
1938			28.9	29.9	30.9	31.0	6.5	3.9	3.5	3.1	2.8	
1939		27.8	28.7	29.5	29.0	28.7	6.7	4.1	3.8	3.3		
1940	26.4	28.2	29.3	29.2	28.7	28.1	6.5	3.8	3.5			
Males												
Single	38.9	43.2	46.0	49.0	52.6	55.5	8.5	1.6	0.9	0.6	0.4	0.2
Married	15.6	17.8	20.0	22.5	25.5	27.2	3.9	1.0	0.7	0.5	0.4	0.2
Females												
Single	48.6	52.1	55.2	58.5	61.9	64.8	9.0	1.5	0.9	0.7	0.5	0.2
Married	15.3	16.3	16.2	15.0	13.3	11.3	1.8	0.6	0.4	0.3	0.2	0.1

Appendix 3 – Samples sizes underlying figures in section 5

Table A3.1

**Sample sizes underlying the self-employment and total employment estimates
(people born in the month of April)**

		Age									
		60	61	62	63	64	65	66	67	68	69
All		2,090	4,190	6,260	8,190	8,190	8,190	8,190	6,100	4,000	1,940
Males		1,060	2,080	3,080	4,020	4,020	4,020	4,020	2,960	1,940	940
Females		1,030	2,110	3,180	4,180	4,180	4,180	4,180	3,140	2,060	1,000
Males	1937	0	0	0	940	940	940	940	940	940	940
	1938	0	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0
	1939	0	1,020	1,020	1,020	1,020	1,020	1,020	1,020	0	0
	1940	1,060	1,060	1,060	1,060	1,060	1,060	1,060	0	0	0
Females	1937	0	0	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	1938	0	0	1,060	1,060	1,060	1,060	1,060	1,060	1,060	0
	1939	0	1,080	1,080	1,080	1,080	1,080	1,080	1,080	0	0
	1940	1,030	1,030	1,030	1,030	1,030	1,030	1,030	0	0	0
Males	Single	220	420	630	820	820	820	820	600	390	190
	Married	770	1,520	2,260	2,960	2,960	2,960	2,960	2,190	1,440	700
Females	Single	340	650	1,000	1,310	1,310	1,310	1,310	970	660	310
	Married	630	1,320	1,980	2,620	2,620	2,620	2,620	1,990	1,300	640

Note: Numbers are rounded to the nearest 10.

Table A3.2

Sample sizes at the extremes and centre of the monthly-activity-by-birth-year graphs

| Age (years + months)	Males					Females				
	1937	1938	1939	1940	All	1937	1938	1939	1940	All
59.1	0	0	0	1,160	1,160	0	0	0	1,190	1,190
59.2	0	0	0	2,230	2,230	0	0	0	2,270	2,270
59.3	0	0	0	3,380	3,380	0	0	0	3,470	3,470
59.4	0	0	0	4,560	4,560	0	0	0	4,730	4,730
59.5	0	0	0	5,780	5,780	0	0	0	5,990	5,990
59.6	0	0	0	7,140	7,140	0	0	0	7,300	7,300
59.7	0	0	0	8,420	8,420	0	0	0	8,600	8,600
59.8	0	0	0	9,670	9,670	0	0	0	9,870	9,870
59.9	0	0	0	10,870	10,870	0	0	0	11,120	11,120
59.10	0	0	0	11,920	11,920	0	0	0	12,210	12,210
59.11	0	0	0	12,990	12,990	0	0	0	13,340	13,340
60.0	0	0	0	14,060	14,060	0	0	0	14,370	14,370
60.1	0	0	1,090	14,060	15,150	0	0	1,170	14,370	15,540
60.2	0	0	2,100	14,060	16,150	0	0	2,230	14,370	16,600
62.10	12,060	12,680	13,160	14,060	51,960	12,760	13,120	13,860	14,370	54,110
66.10	12,060	12,680	13,160	14,060	51,960	12,760	13,120	13,860	14,370	54,110
69.10	12,060	2,010	0	0	14,080	12,760	2,170	0	0	14,930
69.11	12,060	1,000	0	0	13,070	12,760	1,060	0	0	13,830
70.0	12,060	0	0	0	12,060	12,760	0	0	0	12,760
70.1	11,030	0	0	0	11,030	11,630	0	0	0	11,630
70.2	10,100	0	0	0	10,100	10,700	0	0	0	10,700
70.3	9,060	0	0	0	9,060	9,630	0	0	0	9,630
70.4	8,050	0	0	0	8,050	8,560	0	0	0	8,560
70.5	7,120	0	0	0	7,120	7,480	0	0	0	7,480
70.6	6,030	0	0	0	6,030	6,330	0	0	0	6,330
70.7	4,990	0	0	0	4,990	5,220	0	0	0	5,220
70.8	3,900	0	0	0	3,900	4,110	0	0	0	4,110
70.9	2,860	0	0	0	2,860	3,040	0	0	0	3,040
70.10	1,880	0	0	0	1,880	2,040	0	0	0	2,040
70.11	940	0	0	0	940	1,000	0	0	0	1,000

Note: Numbers are rounded to the nearest 10.

Appendix 4 – Annual income levels and trends by situation at the age of 60

The longitudinal income paths of study population members are briefly explored in this appendix. We sum incomes received from waged employment, self-employment, benefits, ACC earnings-related compensation, and NZS, to estimate total annual *taxed* incomes as recorded in LEED.

We focus on the sub-sample who were born in April 1939 and turned 60 years of age during the month of April 1999. These people are grouped according to their main source of income in the year when they were aged 60. Their annual income paths over the seven years when they were aged 60-66 are plotted in figures A4.1 and A4.2.

Figure A4.1

Average annual incomes of males by age and main income source at 60 years of age
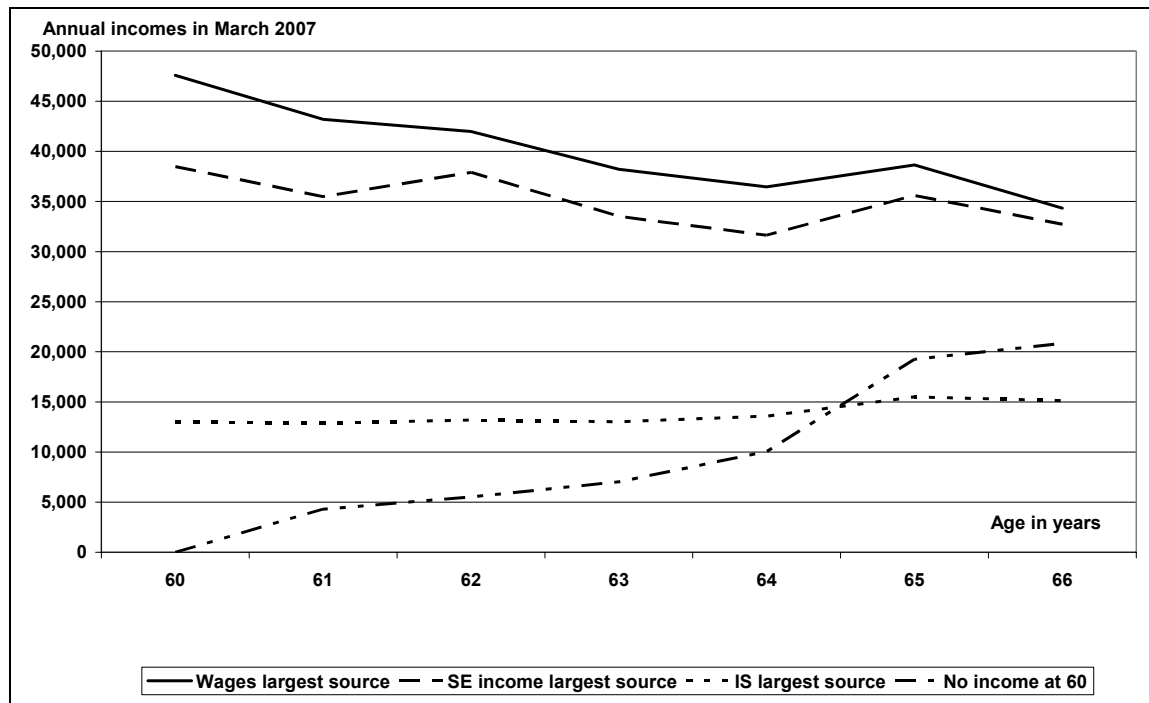
The average annual taxable income of people whose main source of income at 60 years was employment tended to fall with increasing age. This trend is likely to be due to both declining employment rates and a rise in the proportion of who were working on a part-time or part-year basis. However, the average annual incomes of both the wage employment and the self-employed groups rose between 64 and 65 years, as NZS was added to other income sources.

Those whose main source of income at age 60 was income support experienced a rise in their income at 65 years, on average, reflecting the fact that NZS is paid at a higher rate than working-age benefits. Women whose main source of income at age 60 was NZS also experienced a rise in income on average at the age of 65. People who had zero incomes in LEED at the age of 60 typically did not stay in this state on a long-term basis, and their average incomes were higher in subsequent years (although still relatively low).

Figure A4.2

Average annual incomes of females by age and main income source at 60 years of age

Annual incomes in March 2007
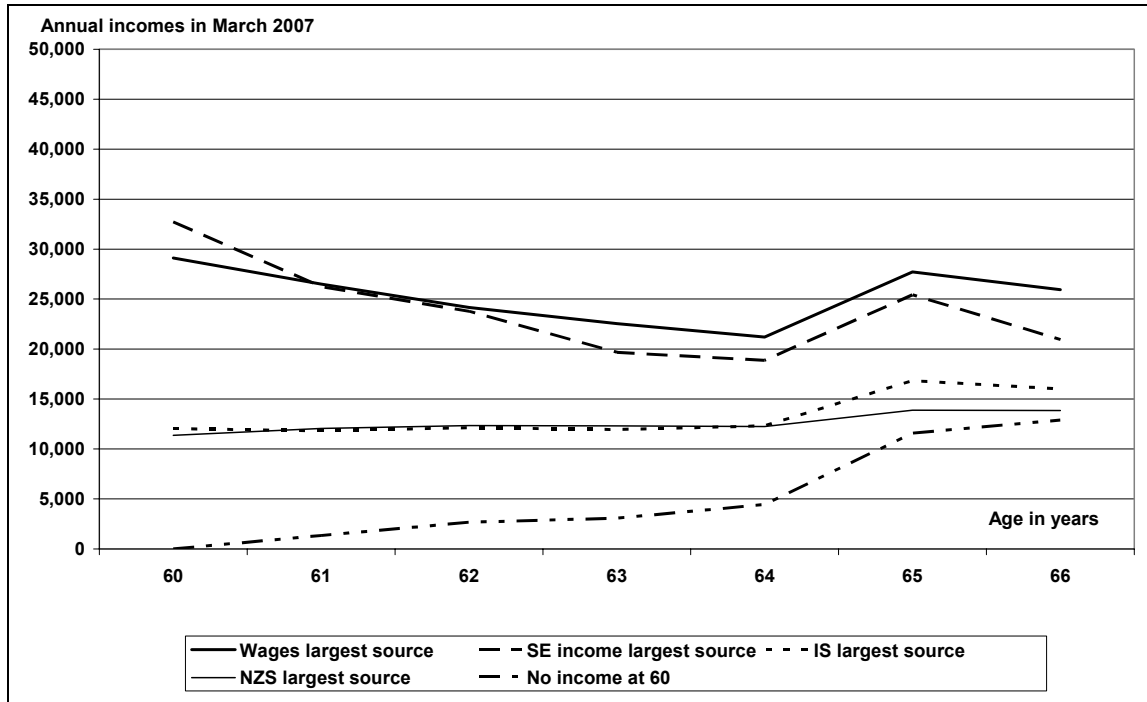
These average profiles are likely to hide considerable diversity in the circumstances of different individuals. For example, some people in the initially-employed group continued to work full-time until 65 years or older, some switched from full-time to part-time employment, some moved onto income support and some had periods without any recorded income in LEED. Future analyses of LEED data could look more closely at the rates and patterns of change in individuals' total incomes in the years before and after receipt of New Zealand Superannuation, if this is considered useful.

Appendix 5 – Comparison of prime-aged and older employees' wage employment patterns

This appendix compares the wage and salary employment patterns of older and prime-aged employees. Due to LEED data limitations, these results should be regarded as illustrative but imprecise (and probably biased).

The analysis uses the records of everyone who ever had a payment recorded in LEED and had an actual (non-imputed) birth date. Their records were stratified by birth year and age. We then calculated a 7-year sequence of outcomes for each one-year birth cohort. For example, the first row of table A5.1 gives results for males who were born in the year ended March 1950 and turned 65 during the first year of LEED (1999/00). The first cell (labelled 'year 1') uses employment data for the month in which they turned 65 and the following 11 months. The next cell to the right ('year 2'), uses data for the following 12 months, when this group of men was aged 66. The second row of the table gives results for the cohort that was born five years later, and turned 60 during the first year of LEED. Subsequent rows of the table give results for progressively younger birth cohorts.

Table A5.1 focuses on wage and salary participation rates. It shows the percentage of people from a selection of different birth cohorts who undertook some wage or salary employment (of any duration), in each year of observation. The first cell of the table indicates, for example, that 25 percent of men who turned 65 in the first year of LEED undertook some wage employment during the year they were aged 65. At the age of 71 (shown in the final column of the first row), 14 percent of this group undertook some wage employment.

Comparing the results across rows, there are large variations by age. As one would expect, prime-age men and women had substantially higher rates of participation in waged employment than older men and women.

Table A5.1

Wage employment rates of adults in a selection of different birth cohorts

Age in first year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Age in final year
				Males				
65	25.1	22.5	20.4	18.6	16.9	15.5	14.0	71
60	48.4	45.9	43.8	41.7	39.3	36.8	31.3	66
55	57.5	56.3	55.5	54.7	53.9	53.3	52.0	61
50	61.0	60.3	60.1	59.8	59.3	59.3	58.8	56
45	62.3	62.2	62.2	62.0	62.2	62.4	62.1	51
40	62.9	63.0	63.6	64.3	64.5	64.7	64.6	46
				Females				
65	18.0	15.6	14.0	12.7	11.6	10.5	9.4	71
60	42.3	39.7	37.0	34.5	31.9	29.6	26.1	66
55	61.4	59.6	58.4	56.7	54.5	52.9	51.1	61
50	69.1	68.9	68.3	67.4	66.5	65.7	64.5	56
45	69.5	69.9	70.1	69.9	70.2	70.1	69.4	51
40	65.5	67.0	68.1	69.3	69.9	70.5	71.2	46

An important limitation of these estimates is that temporary residents, and permanent residents who were overseas for part of the period, could not be excluded during the years they were out of the country. For this reason, the estimates can't be regarded as robust estimates for the resident population. They are likely to under-estimate the true

participation rates of the resident population in any given year. If rates of external migration vary across age groups (and other evidence suggests this is the case), age group comparisons are likely to be biased.

Tables A5.2 to A5.4 present measures of the work attachment and job attachment of men and women in different age groups. In each of these tables, the sample underlying each cell statistic is restricted to the set of people who participated in wage employment during the year.

Table A5.2

Percentage of employees who worked in every month of the year, conditional upon employment during the year

Age in first year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Age in final year
				Males				
65	43.4	42.4	43.3	44.3	42.7	41.7	40.8	71
60	67.0	67.8	67.4	67.4	66.3	51.9	53.4	66
55	71.3	72.7	73.9	74.6	74.6	72.7	71.4	61
50	72.6	74.0	74.9	75.4	75.8	75.4	75.0	56
45	72.0	73.1	74.1	75.0	75.6	75.1	75.2	51
40	70.3	71.8	73.0	73.7	74.7	74.8	74.7	46
				Females				
65	42.6	44.2	44.5	46.6	45.0	45.6	41.6	71
60	62.8	63.4	64.0	62.0	61.9	52.2	50.9	66
55	68.5	69.7	69.2	69.1	69.2	67.7	66.9	61
50	70.3	70.9	71.4	72.4	72.4	71.9	71.8	56
45	68.3	69.3	70.9	71.5	72.2	71.9	72.3	51
40	62.1	63.6	66.2	67.4	69.1	69.5	69.7	46

The results in table A5.2 indicate that older employees (aged 60 and above) were much less likely to be employed in every month of the year, and therefore less likely to be full-year employees, than were prime-age employees. This offers some evidence that older employees are more likely to make transitions in and out of employment during the year than those in younger age groups. The true age differences in full-year employment rates may be larger than those shown here, because rates of temporary migration into and out of New Zealand are likely to be higher among prime-aged adults than those aged in their late 50s or 60s. Any external migration that occurs during a work year will automatically cause an individual to be 'part-year employed'.

Table A5.3 reports results for a proxy measure of full-time employment. Each cell shows the average percentage of employment months in each year that yielded earnings at or above the full-time, full-month minimum wage. Each person's earnings across all their jobs were summed before their monthly earnings level was assessed. Months with earnings below the full-time equivalent minimum wage are assumed to be below because of the number of hours worked was less than full-time.

The results indicate, for example, that men aged in their 40s had earnings above the minimum wage threshold in approximately 85-90 percent of employment months. Men aged in their 60s had earnings above the threshold in 40-80 percent of employment months, a proportion that declines with increasing age. Overall, the results for both men and women suggest that employees aged in their 60s were much more likely to work reduced hours than employees aged in their 40s or 50s.

Table A5.3

**Average fraction of employment months that yielded earnings
consistent with full-time, full-month employment**

Age in first year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Age in final year
				Males				
65	52.8	47.3	43.6	41.9	38.9	37.0	34.1	71
60	79.2	78.1	76.7	75.3	73.6	67.7	60.4	66
55	84.6	84.1	84.8	84.2	83.3	82.4	81.3	61
50	86.9	87.3	87.5	87.6	87.5	87.0	86.6	56
45	86.8	87.3	87.8	88.0	87.8	87.8	87.4	51
40	86.5	87.1	87.9	87.9	88.2	88.6	88.4	46
65	36.5	32.5	30.7	29.3	27.6	26.3	24.9	71
60	56.2	53.9	53.8	51.5	49.3	45.4	39.5	66
55	64.3	63.6	63.3	61.8	60.0	58.8	57.0	61
50	68.8	68.9	69.2	68.3	67.1	67.3	66.3	56
45	68.2	69.2	70.1	69.9	69.8	70.3	69.7	51
40	62.0	63.9	65.4	65.8	66.6	68.0	68.2	46

Table A5.4

**Percentage of employees who worked for two or more employers during the year,
conditional upon employment during the year**

Age in first year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Age in final year
				Males				
65	20.3	19.1	19.9	21.0	19.6	19.0	20.9	71
60	20.7	20.9	20.8	19.5	17.7	19.6	20.2	66
55	23.0	23.0	21.3	21.1	19.9	20.9	20.6	61
50	25.2	25.2	23.8	22.4	22.1	22.6	21.7	56
45	27.0	26.6	25.4	23.6	23.4	24.3	22.8	51
40	28.9	28.6	27.3	25.8	25.1	25.0	24.5	46
				Females				
65	21.4	22.0	21.1	21.2	19.4	20.8	20.7	71
60	23.3	22.8	23.0	22.2	20.8	23.3	23.1	66
55	27.2	27.4	25.5	25.2	24.1	25.4	24.7	61
50	31.9	30.7	29.9	28.9	28.0	29.1	28.0	56
45	33.5	33.4	32.8	31.5	30.4	31.6	31.2	51
40	36.0	35.1	34.3	33.6	33.0	33.5	32.3	46

Table A5.4 focuses on job mobility. It tabulates a proxy measure of job mobility: the proportion of employees that had two or more employers during the year. The results suggest that the rate of job mobility is lower among older employees than the prime-aged, despite (or perhaps because of) the fact that they were more likely to be part-year workers.

Appendix 6 – The employment patterns of employees who retired relatively late

This appendix briefly describes the employment patterns of employees in the 1937 and 1940 birth cohorts who were still working in their final year of observation (that is, at 69 years or at 66 years of age, respectively).

For brevity, we label these employees 'late workers'. They represent 87 percent and 89 percent of the employees in each birth cohort who were classified to the 'not retired' columns of table 6.8. In other words, they include the vast majority of the employees in the 1937 and 1940 birth cohorts whose final work episode could not be identified with confidence.

Table A6.1

Employment patterns of employees who worked in the seventh year of observation

	1937 cohort				1940 cohort			
	Retirees during final 3 years	Late workers at ages 63-65	Late workers at ages 66-68	Late workers at ages 63-69	Retirees during final 3 years	Late workers at ages 60-62	Late workers at ages 63-65	Late workers at ages 60-66
N	2,780			4,430	3,830			8,660
Percent female	43.9			45.0	46.3			46.0
Background data on each subsample								
Age at end of observation period	66.9	65.11	68.11	69.11	64.2	62.11	65.11	66.11
Mean months of employment	22.2	23.6	24.5	56.5	25.4	26.9	27.9	63.9
Mean monthly earnings if employed	2,131	2,556	1,967	2,121	2,540	3,117	2,805	2,822
Mean months with benefit or ACC income	3.9	6.2	0.3	6.7	6.7	5.4	4.0	9.6
Mean months with NZS income	22.0	13.0	34.3	58.9	2.8	1.3	12.4	25.0
Continuity of employment								
Percentage of months employed	61.8	65.5	68.1	67.3	70.6	74.6	77.6	76.0
Continuously employed (%)	29.5	35.9	35.1	19.7	39.4	49.7	46.8	28.2
Worked at least 90 percent of months (%)	9.4	12.1	12.6	20.0	12.1	11.8	13.9	23.8
Worked 50-<90 percent of months (%)	22.8	19.3	21.8	29.8	19.6	14.9	19.6	27.7
Worked less than half of months (%)	38.3	18.7	23.3	30.5	28.8	12.0	14.2	20.3
No employment in this period (%)	0.0	13.9	7.2	0.0	0.0	11.6	5.5	0.0
Tenure and employment gap measures								
Longest employment spell in months (capped at 36)	18.6			42.2	22.2			52.3
Longest job spell in months (capped at 36)	17.7			38.1	20.8			46.3
Nbr gaps of 3-5 months duration before final exit	0.33			0.56	0.26			0.34
Nbr gaps of 6-11 months duration before final exit	0.28			0.40	0.21			0.23
Nbr gaps of 12+ months duration before final exit	0.37			0.38	0.28			0.26
Estimated hours worked								
Percentage of employment months that were full-time	36.3	44.3	34.9	38.3	47.1	58.6	55.2	55.3
All full-time (%)	18.5	23.6	17.6	10.8	26.9	38.8	32.5	19.5
At least 90 percent full-time (%)	4.5	5.6	4.3	7.5	6.9	7.4	7.2	13.1
At least 50 percent full-time (%)	12.6	16.0	11.8	18.0	12.8	12.6	16.7	24.2
Less than 50 percent full-time (%)	64.4	54.8	66.3	63.7	53.5	41.2	43.7	43.1
Employer attachment or mobility								
Number of employers	1.6	1.6	1.7	2.8	1.7	1.7	1.7	2.8
Only one employer (%)	63.7	47.9	52.7	35.6	61.8	48.4	54.1	34.8
Three or more employers (%)	14.3	17.8	17.8	39.2	15.0	18.9	17.5	41.1
At least one new employer in the period (%)	50.2	34.7	47.1	71.7	46.3	33.8	44.5	69.3

We analyse their employment patterns during the first three years of observation in LEED, the second three years, and the entire seven years. The duration of these periods was chosen to facilitate comparison with the employment measures calculated previously for retiring employees. Note however that the ages covered by each

observation period do not exactly match the ages covered by the three-year observation period for retiring employees, and these age differences are likely to affect the results to some degree. For example, the mean age of 1937 cohort employees who retired, by the end of the three-year period, was 66 years and 9 months. This is older than the age that the comparison group of 'late workers' had reached by the end of the first three-year period (65 years and 11 months), and younger than the age they had reached by the end of the second three-year period (68 years and 11 months).

The general pattern is that 'late workers' show somewhat more attachment to paid work than retiring employees, in terms of their work continuity and full-time share. They were also more likely to change their employer. At the same time, a high proportion of late workers had gaps in their sequence of employment or were working on a part-time basis in the period 4–7 years prior to their final work episode. This evidence suggests that older employees' transitions from work to inactivity often involve reduced work activity for an extended period of time before the final episode of work.