

The effect of New Zealand Superannuation eligibility age on the labour force participation of older people

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Abstract

New Zealand experienced a sharp rise in labour force participation rates among older people over the period 1991–2001. This stands in contrast to the experience of most other OECD countries where such participation rates have been in steady decline. The predominant reason for this turnaround was that the age of eligibility for New Zealand Superannuation, the universal public pension, was raised from 60 to 65 over a nine-year period. Combining an earlier reduction in eligibility age with this later policy reversal, this paper estimates the effect of public pension eligibility on the labour force participation of different age groups. The paper discusses why particular features of New Zealand's pension system mean that the strength and rapidity of the response to a rise in eligibility age might not be repeatable in other settings.

JEL CLASSIFICATION I38 Provision and Effects of Welfare Programs
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KEYWORDS public pensions; labour force participation; retirement; New Zealand

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The effect of New Zealand Superannuation eligibility age on the labour force participation of older people

1 Introduction

The design of retirement income policies can have a major effect on people's retirement decisions.¹ This paper looks at the evidence on changing employment and retirement patterns among older people in response to changes in public pension policy and in particular the age of eligibility for New Zealand Superannuation (NZS).² Two clear policy changes to the eligibility age have occurred within the past 30 years: an instantaneous drop in the age of eligibility in 1977 and a progressive increase in the age from 1992. These two natural experiments enable us to estimate the strength of the labour force participation response to NZS eligibility by older workers.

In common with many other countries, New Zealand experienced declining rates of employment among older people during the 1970s and 1980s, despite improving life expectancies. However, the past decade has seen a significant reversal of this trend in New Zealand, making this country an 'outlier' of particular interest to other countries concerned to manage the burgeoning costs of their public pension schemes and the prospect of a shrinking workforce.

This paper is structured as follows. Section 2 describes the trend towards earlier retirement across many OECD countries and how the financial incentives embedded within public pension policy influence retirement decisions and can lead to clear differences in patterns of older persons' labour force participation over time and across countries. Section 3 analyses the participation/retirement incentive effects inherent in the New Zealand public pension system and describes the policy changes in 1977 and 1992 that appear to have triggered large shifts in behaviour. Section 4 presents the estimates of the effect on labour force participation of these policy changes and Section 5 draws some conclusions.

¹ The OECD (1991) noted four possible interpretations of the term "retirement": complete withdrawal from the labour force, the termination of a particular career path with a shift to a "subsidiary" job, a substantial reduction in weekly hours worked in the "main" job, and a change in a person's income mix such that a significant share is in the form of pension income. In this paper I use the first meaning: complete withdrawal from the labour force. The results reported here may therefore underestimate the overall effect of policy changes on "retirement" more broadly interpreted to include reduced hours of work.

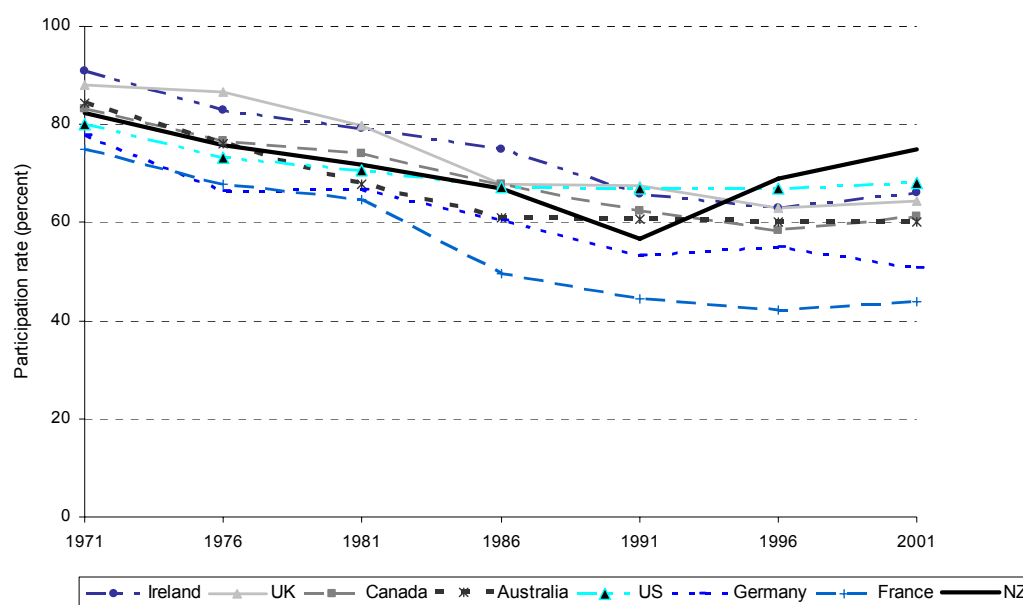
² This public pension has previously been termed National Superannuation (NS) and Guaranteed Retirement Income (GRI).

2 Trends in retirement

Labour force participation rates among OECD countries for the working age population as a whole have been fairly steady over the past 30 years. They rose by an average 0.2 percent per annum between 1975 and 1989 but then fell by 0.1 percent per annum through the 1990s. These growth figures refer to the average participation rates for the population in each country aged 15 and over. However, these broad trends disguise some noticeably different movements across countries, among age groups and between men and women. In this paper I concentrate on the age groups approaching retirement.

Across many OECD countries, the trend over the past 30 years has been for people to retire at a younger age, despite evidence of improvements in life expectancy. This trend can be seen in generally falling rates of labour force participation among males in the age group 55–64 years, as shown in Figure 1. In their research programme on social security programmes and retirement around the world, Gruber and Wise (2002) comment that the decline in labour force participation of older persons is perhaps the most dramatic feature of labour force change over the past decades.

Figure 1- Proportion of males aged 55-64 who are in the labour force



Source: OECD Labour Market Statistics for countries other than New Zealand. New Zealand data from Census documents (prior to 1986 these have been adjusted for a change in the coverage of 'actively engaged').

Figure 1 shows that the experience of New Zealand stands in contrast to that of other countries. The decline in labour force participation rates of older males that New Zealand shared with other OECD countries over the period 1971–1991 was reversed over the subsequent 10 years. New Zealand changed from experiencing a participation rate that in the earlier period was about average among the comparator countries shown in Figure 1 to one that, by 2001, was clearly higher than all the other comparator countries.

A similar pattern of divergence between New Zealand and other OECD country participation rates has occurred since 1991 in the case of older females, but in this case it has overlaid a generally rising trend of female participation.

This paper argues that the primary reason for New Zealand's sharp turnaround in older people's labour force participation since 1991 was the phased increase in the eligibility age for the public pension, NZS, from 60 to 65 years, which commenced in 1992. Delayed eligibility to the public pension has resulted in many people delaying their retirement from the paid work force.

2.1 Retirement decisions and pension policy design

Clearly, many factors can influence individual decisions about when to leave the paid work force. Among the primarily non-financial reasons for leaving the labour market could be poor health, family caring responsibilities, the retirement of a spouse, pressure of informal age-based discrimination, redundancy and a wish to undertake voluntary work or simply to enjoy more leisure time. Possible financial factors affecting individual retirement decisions would include accumulated assets, current and prospective earnings and the value of any pension entitlements.

This paper focuses on the factors that help to explain cross-country differences, by age and gender groups, in average rates of labour force participation, rather than factors that tend to differentiate among individuals. It uses census data and an analysis of changes in public pension policy settings to estimate the strength of one of these factors in the New Zealand setting. A more complete explanation of the variability of individual retirement behaviour would require an analysis of longitudinal unit record data (such as the US Health and Retirement Study), which is not available for New Zealand for the period of interest³.

Public policy can affect the financial incentive to retire through different channels. First it can affect the **replacement rate**, that is, the ratio of the amount of income in retirement to income when in the paid work force. A high replacement rate means that the opportunity cost of leisure, in terms of foregone consumption, is low, making retirement a relatively more attractive option. The replacement rate facing a worker at a particular age can be influenced by policies that determine eligibility for a retirement pension or similar benefit, conditions that might attach to that benefit, and the net level of pension entitlement.

The second channel of influence is through **changes in net pension wealth** that occur when a worker defers retirement. Such a deferral may result in a larger future annual pension entitlement, but for a smaller expected number of years. If the discounted value of that pension stream is less than the discounted value of the pension stream available by retiring today, then continuing to work carries an implicit tax. Conversely, if pension wealth increases by working an additional year, there is a subsidy to delay retirement (OECD, 2002: p143). The way in which a country's public pension entitlement formula responds to changes in earnings and years of contribution will clearly affect this incentive.⁴ Less directly, public policies that encourage or discourage the development of voluntary private and occupational saving schemes may affect the retirement incentive, since such schemes provide further options, such as lump-sum benefits at an earlier age.

An important factor influencing retirement rates is the age at which a person can claim a retirement benefit. Many countries' pension plans set both a 'normal' and an 'early'

³ Some longitudinal data is becoming available, with the Linked Employer-Employee Data project and the evolution of the Survey of Families, Income and Employment Dynamics, which is in its third year.

⁴ Gruber and Wise (1999, 2002 and 2005) have compared differences in pension rules across countries and find a clear association between the size of the incentive, which they call "the tax force to retire", and the proportion of older people no longer in the workforce, which they call "unused labour force capacity".

retirement benefit eligibility age. The retirement rate at both these specific ages is typically substantially greater than would be predicted on the basis of financial measures alone. This may be due to a liquidity constraint (people having insufficient savings to retire before any public benefit or pension is available) and a 'social custom' effect, where the normal age of pension eligibility is regarded as the customary age of retirement (Gruber and Wise, 2002).

The substantial reduction in effective retirement ages in most OECD countries over the past 30 years can be explained largely in terms of wider access to pension schemes offering early retirement options and other incentives towards early retirement that were part of the structure of many pension schemes. There are now signs that the trend to earlier retirement has become a matter of concern for OECD countries facing the fiscal, employment and growth implications of aging populations and many are now starting to change their policies with the aim of increasing the labour force participation of older people (OECD, 2002). The OECD (2005a) reports that since the late 1990s effective retirement ages have increased by more than one year in Australia, the United Kingdom and Finland, and by more than two years in Italy.

3 New Zealand's public pension system

This section discusses the features of New Zealand's public pension system⁵ that are most relevant to labour force participation decisions and goes on to describe the policy changes that led to the turnaround in this country's participation trend seen in Figure 1.

3.1 Structural differences

New Zealand's public pension system differs significantly from those in many other countries in several important respects. Four key features are discussed below: an emphasis on social protection; having no mandatory retirement age; pensions not being contingent on retirement; and limited early retirement options.

Emphasis on social protection

In its recent review of pension systems across OECD countries, the OECD (2005b) used a typology for classifying pension systems that is based on the two main goals of public pension systems: first, the prevention of destitution in old age by redistributing income towards low-income pensioners (social protection) and, second, helping workers to maintain their living standards in retirement (earnings replacement). Within these two main goals, systems can take several possible forms, which entails a further level of system classification.

This typology differs somewhat from the well-known "three-pillar" classification of pension systems originally developed by the World Bank (1994).⁶ That classification has been criticised as being unsuitable because it is prescriptive rather than descriptive, although

⁵ The relevant legislation is the New Zealand Superannuation and Retirement Income Act 2001.

⁶ The World Bank recommended that countries should seek to develop a three pillar old age financial security structure, comprising (1) a tax financed publicly managed pillar for income redistribution and old age poverty alleviation, (2) a mandatory, fully funded, privately managed pillar for individual income smoothing (saving), and (3) a voluntary, fully funded pillar for additional personal saving.

the recent revision and extension of it by Holzmann and Hinz (2005) has gone some way to addressing accusations that the World Bank's prescriptions were too inflexible.⁷

The OECD notes that most countries pursue both goals (social protection and earnings replacement) in their overall pension policy, but there is a large variation in the balance of emphasis between the two. New Zealand is at one extreme because it has historically placed a heavy emphasis on the objective of social protection rather than earnings replacement. For example, the influential 1972 Royal Commission of Inquiry into Social Security in New Zealand concluded:

The community's first responsibility for income maintenance is to give benefits which will enable its dependent sections to reach an adequate standard of living. This can best be done by a system of selective flat-rate benefits and allowances.

Adopting an earnings-related benefit system would not help those sections of the community to whom it owes its first responsibility. On the contrary their interests would most probably be prejudiced.

However desirable it may be for individuals to maintain their customary earnings and status, the community is not, and should not become, responsible for securing this status, particularly by imposing a compulsory scheme.

Royal Commission of Inquiry (1972: p181).

This view that a mandatory savings scheme is undesirable can also be seen expressed in the Report of the Todd Task Force (Task Force on Private Provision for Retirement, 1992), the Multi-party Accord on Retirement Incomes Policies (Accord Parties, 1993), and the heavy defeat in 1997 of a public referendum proposal to introduce a compulsory retirement savings scheme. Topping up the basic level of NZS by means of a second pension to achieve a high rate of income replacement continues to be viewed as a matter of individual responsibility and decision, with the government's role being focused on encouraging work-based savings, providing education and information services, minimizing tax distortions on saving and reducing compliance costs.⁸

A result is that almost all older people meet the eligibility requirements and receive the basic amount of NZS.⁹ At the same time, voluntary saving in private superannuation schemes has not been particularly high. A survey by Statistics New Zealand (2002) reported that 21% of working age couples and non-partnered individuals had private or employer-sponsored superannuation assets, with a median value of only \$25,000. The report commented that:

New Zealanders tend to hold most of their assets in the form of real assets and hold proportionally low amounts in financial assets... There also does not appear to be a culture of wage and salary earners investing a large part of their savings into the share market or in managed funds (as is more common in the United States).

⁷ "[From this reassessment comes] ... an appreciation of the diversity of effective approaches, including the number of pillars, the appropriate balance among the various pillars, and the way in which each pillar is formulated in response to particular circumstances or needs. Some pension systems function effectively with only a zero pillar (in the form of a universal social pension) and a third pillar of voluntary savings..." (Holzmann and Hinz, 2005). This is essentially the New Zealand structure.

⁸ The most recent review, by the Periodic Report Group (2003), proposed no change from the current voluntary approach to private provision and reported no strong interest in departing from the current voluntary model among the submissions it had received. It should be noted, however, that government encouragement of work-based saving through the recently announced, optional Kiwi Saver scheme will include an element of subsidy.

⁹ Take-up rates of NZS are estimated to be in excess of 95% of the age-eligible population. A relatively small number of people fail to meet the New Zealand residence test for NZS, which is to have spent at least 10 years of working age life in the country, and at least five years since age 50.

This pattern of heavy reliance on NZS as the major source of retirement income has reinforced the strong link between retirement decisions and the age at which people become eligible for NZS. Planned early retirement options are limited both by the absence of a trade-off between the timing and amount of NZS, and by the relatively low incidence of private pension arrangements that might offer that option.

Mandatory retirement is outlawed

Many countries allow employers to set a mandatory retirement age and eligibility for company pensions is often linked to this age. Under New Zealand's Human Rights Act 1993, however, it has been unlawful since 1999 for an employer to require the retirement of an employee solely on the basis of his or her age, even at and beyond the NZS eligibility age.¹⁰ Through the 1990s retirement became increasingly a matter of individual employee choice, or a consequence of demonstrated poor job performance, rather than determined by a standard age provision in an employment contract.

The removal of any mandatory retirement provisions from employment contracts has opened up a wider range of employment options from both employers' and employees' points of view and has no doubt facilitated the rise in employment rates among those above NZS eligibility age.¹¹

Pension not contingent upon retirement

A third significant difference from many other systems is that NZS is not subject to any income test or other means test, nor is it contingent upon retirement from paid employment. Provided they are age-qualified for NZS, people receive the same amount whether or not they remain employed in the labour market.

This has important implications for analysing the work incentive effects of public pension entitlements. In models of retirement behaviour involving decisions based on changes in net pension wealth or the implicit social security tax on work, the present New Zealand structure is an outlier. This is because one can choose to stay an extra year in paid employment and still receive the same flow of pension payments as if one had retired; the discounted future value of pension entitlements is essentially independent of the age of retirement.¹² Alternatively, one can say that the implicit social security tax on work is zero.

Limited early retirement options

A fourth feature is that the fixed age of eligibility for NZS means that there are limited options for someone wishing to retire before that age. Public pension schemes in other countries commonly offer early retirement options whereby one can choose to take a lower pension from an earlier age. In New Zealand, the only public income support for someone leaving the labour market before age 65 is through the income-tested benefit system. That support is at a lower rate than NZS and is subject to a tight income test and

¹⁰ Prior to 1999, the Act made it unlawful to use age as the basis for dismissal or retirement, but only up to the standard age of eligibility for NZS.

¹¹ It might be argued that not being able to set a mandatory retirement age might discourage employers from employing older workers in the first place. However a recent review of age discrimination legislation across a number of countries concluded that while it may have made employers a bit less likely to hire older workers, there is no evidence that this has been a major disincentive – see Hornstein (2001).

¹² There is a small marginal income tax effect. NZS is a component of taxable income and so can be thought of as attracting a higher effective tax when combined with earnings than when it is the sole source of income. However there was a period of 12 years between 1986 and 1998 where NZS was effectively income-tested, thereby reducing its net value more substantially than the marginal tax effect alone.

to meeting certain qualifying conditions, such as continuing to seek full-time employment, being medically unfit for employment, widowhood or having to care for a sick relative.¹³

One partial exception to this conditionality arises in the case of the non-qualified spouse of a NZS recipient. The age-qualified partner may receive the standard amount of NZS for themselves or instead choose for the couple to receive a higher amount in recognition of their non-qualified spouse but which is subject to abatement against their combined incomes. It is possible, therefore, for a non-earning younger spouse (typically the wife) of a recipient to receive some NZS.¹⁴ This option enables couples to choose to retire at the same time once the older partner reaches the qualifying age for NZS. It also explains why the tendency for early retirement of females, reported later in this paper, is financially feasible.

3.2 Overall effect on incentives to retire

It is possible now to assess New Zealand's retirement income policies using the analysis in Section 2.1 of how financial incentives affect retirement decisions.

It is important to recognise that the main focus of retirement income policies in New Zealand is social protection rather than earnings replacement. From the point of view of the replacement rate effect, the standard amount of NZS corresponds to a wide range of earnings replacement rates depending on individual earnings. High pre-retirement earnings produce a low replacement rate and a low incentive to retire, while for people with low earnings NZS offers a higher replacement rate and hence a stronger incentive to retire.

Table 1 shows the gross incomes, before and after age 65, of someone with the average weekly earnings of those in each age group who are working full-time or part-time. For a married person aged 64 working full-time and contemplating retirement next year, the relevant measure of the expected loss of consumption possibilities as a result of retiring might be *NZS plus leisure next year versus earnings this year*. On this basis a representative full-time wage replacement rate is \$235 divided by \$953, or 25%, although it can be as high as 62% for someone working full-time on the minimum wage.

Table 1 - Comparison of gross weekly incomes (earnings plus pension) before and after eligibility for NZS, married person

	Full-time	Part-time	Retired
Age 60-64	\$953	\$303	\$0 / \$212*
Age 65 and over, including NZS	\$1017	\$481	\$235

* Available only if married to an older spouse who is qualified for NZS.

Sources: Average weekly earnings by age group, from New Zealand Income Survey, June 2005 quarter; rates of NZS (married person or non-qualified spouse) from 1 April 2005 from the Ministry of Social Development.

For someone aged 65 or over who is choosing whether to continue working or to retire, however, the relevant income comparison is not *NZS versus earnings*, but *NZS alone*

¹³ For example, a widow aged under 65 and living alone may receive an income-tested benefit that is about 69% of the NZS she would receive from age 65.

¹⁴ The additional amount is equivalent to about 91% of the NZS rate for a qualified, married individual.

versus *earnings plus NZS*. On this basis, their replacement rate is \$235 divided by \$1017, or 23%, which is lower than the previous calculation, illustrating how the ability to stay in work beyond age 65 and receive a pension at the same time reduces the incentive to retire.

Where the prospective retiree is single rather than married, NZS is paid at a higher rate than that shown in Table 1 and the replacement rates quoted above are correspondingly higher.¹⁵

The 'joint retirement' option for a couple, mentioned in Section 3.1, is most likely to be financially attractive where the younger spouse (usually the wife) is aged 60-64 and is currently in part-time work. In this case her income replacement rate is \$212 divided by \$303, or 70%.

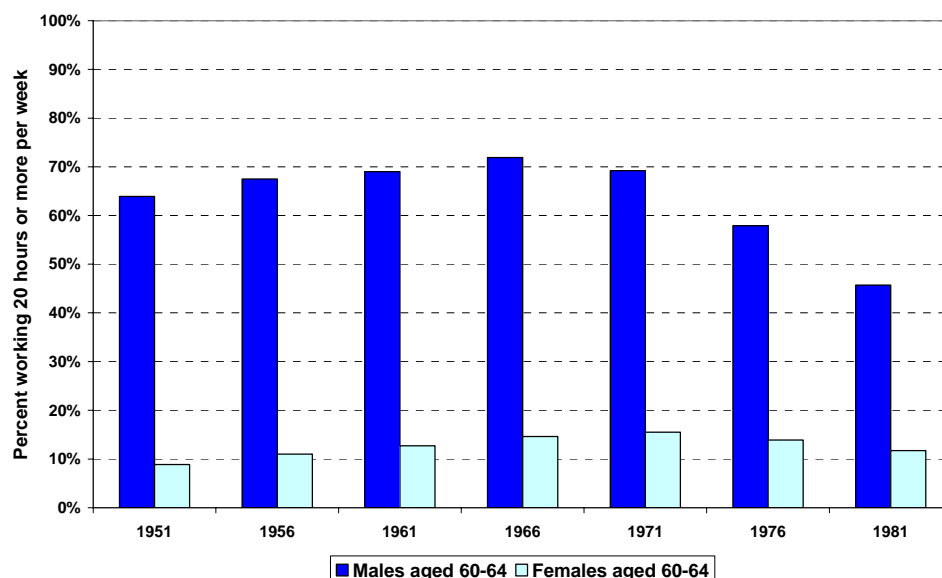
To summarise the retirement incentive effects associated with NZS, retiring before the eligibility age for NZS is financially very unattractive (replacement rate is zero) unless one has a private source of income or can access NZS indirectly via an older spouse. Retiring at age 65 with no private income is moderately or highly attractive (replacement rates typically in the range 20% – 50%) depending on wage rate, hours worked and marital status. Continuing in employment beyond age 65 remains a financially attractive option for those who can command a high wage because their NZS entitlement is unaffected. Furthermore, the absence of any mandatory retirement provisions means that there is no restriction on being employed beyond age 65.

3.3 Policy changes in 1977

The post-war period saw a gradual rise in the proportion of men and women aged 60-64 remaining in the labour force. In that period old age income support could take one of two possible forms: a universal pension from age 65 and an income-tested age benefit available from age 60. A weakening in New Zealand's economic performance in the 1970s, together with a rise in the generosity of the income-tested age benefit for this age group, saw this trend reversed and the start of an accelerating decline in participation, as shown in Figure 2.

¹⁵ The gross weekly amounts paid in 2005 were \$310 for a single person who is living by themselves and \$285 for a single person who is sharing accommodation with others. These rates compare with the married person amount of \$235 shown in Table 1.

Figure 2 - Proportion of people aged 60–64 working 20+ hours per week, 1951 - 1981



Source: Department of Statistics (1990), Table 14.

The introduction of National Superannuation in 1977 was an important factor in establishing 60 years as the ‘standard’ retirement age and lowering the labour force participation rates of older workers. This new form of public pension lowered the age of eligibility for non-income tested superannuation from 65 years to 60 years and raised the rate of payment. Table 2 compares the two systems.

Table 2 - Comparison of systems pre- and post 1977

	Old system (pre-1977)	New system (from 1977)
Non income tested component	<i>Universal superannuation</i>	<i>National superannuation</i>
Age of eligibility	From age 65	From age 60
Rate of payment – equivalent to a net of tax pension/avg wage ratio of:	32.7% for a married person (July 1976)	39.1% for a married person (August 1977); rising to 44.7% a year later, before settling at 40% from 1980.
Income tested option	<i>Age benefit</i>	
Age of eligibility	From age 60	None
Rate of payment – equivalent to a net of tax pension/wage ratio of:	36.3% for a married person (July 1976)	
Number of payments in force	In 1976: 300,000 Total, of which: (112,000 universal super) (188,000 age benefit)	In 1980: 405,000 Total
Annual Expenditure (In 1980 dollars)	In 1976: \$814 million	In 1980: \$1,134 million

Source: Preston (2001) and Department of Social Welfare annual report 1976.

The post-1977 system is hypothesised to have affected the retirement behaviour of three groups:

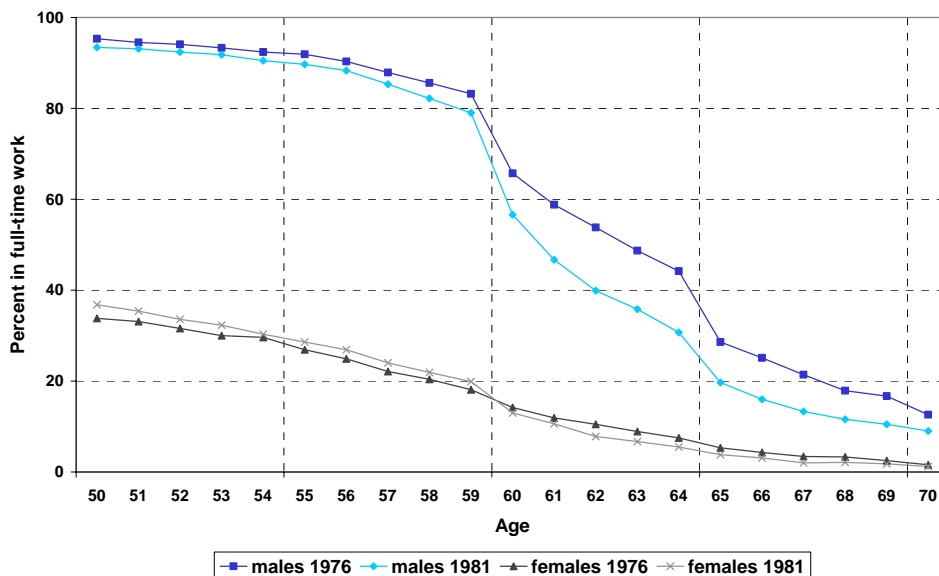
Group A. People aged 60-64 who had been planning to remain in employment until age 65, when they would become eligible for universal superannuation. These people could now choose to retire on national superannuation without being affected by the income test for age benefit.

Group B. People aged 65+ who had chosen to stay in employment in order to supplement the income they were receiving from universal superannuation. The higher rate of national superannuation would encourage a proportion of these to leave the labour force.

Group C. People approaching the age of 60, with modest savings, who might choose to retire on these savings before age 60 in anticipation of receiving national superannuation from age 60.

We might hypothesise that the strongest impact would be on Group A, which offered the largest (static) financial gain (from zero pension to national superannuation). Figure 3 tends to confirm this hypothesis. It shows how the proportion of men in full-time employment for the age group most affected by this policy change (Group A) fell much more than those of slightly younger age groups (Group C). It also shows a sizeable response to the income effect of the increase in pension rates among those over 65 (Group B). In the case of females the trend towards higher rates of full-time employment evident amongst those aged in their 50's becomes reversed from age 60 in response to eligibility for national superannuation.

Figure 3 - Changes in the proportion of males and females in full-time work, 1976-1981



Source: Data reported in Rochford (1985).

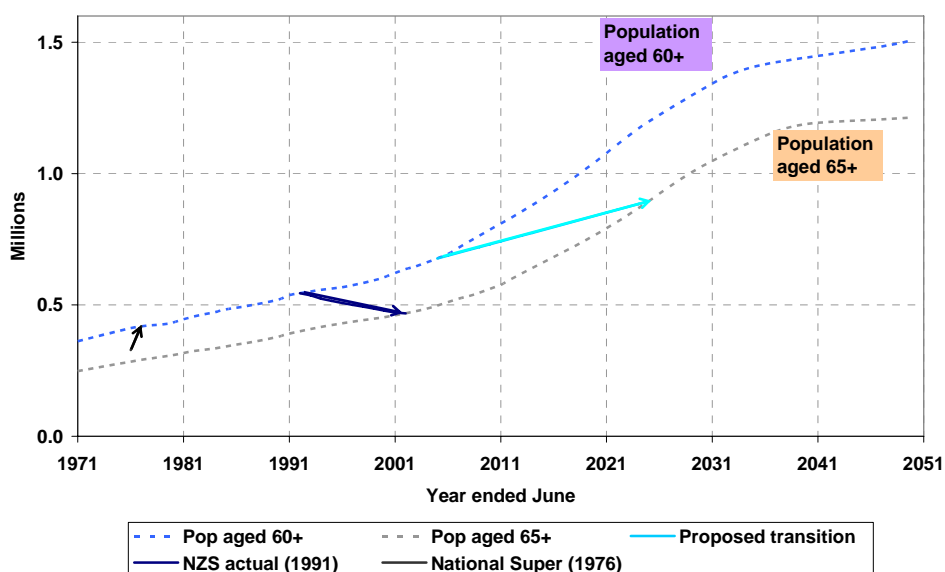
3.4 Policy changes in 1992

During the 1980's the fiscal burden of paying a higher rate of national superannuation to a steadily increasing number of older people became a matter of growing concern and a number of policy steps were taken to trim back this cost.¹⁶ At the same time governments were facing the prospect of acceleration in public pension costs further in the future once the post-war 'baby boom' generation started to retire from 2006 onwards.

In 1989 the government announced that this prospective rise in pension costs would be addressed by gradually raising the age of eligibility from 60 to 65 between the years 2006 and 2025. This timing was chosen to coincide with the period of rapid growth in the number of older New Zealanders (Caygill, 1989). However, following the change of government in 1991, the incoming administration decided to compress and bring forward the timing of this change as part of a comprehensive package of social policy changes aimed at fiscal consolidation.¹⁷

The age of eligibility for NZS was to be raised progressively from 60 to 65 over the relatively brief timeframe of nine years, 1992 to 2001. The schedule involved delaying payment to age 61 for those born in the period 1 April 1932 to 30 June 1932 and then raising the eligibility age by an additional 3 months for each successive 3-month birth cohort. This formula resulted in the age of eligibility reaching 65 for people born after 31 March 1936 and the transition was completed on 1 April 2001.

Figure 4 - Public pension age transitions in New Zealand



Source: Statistics New Zealand population projections.

Figure 4 shows the difference between the originally proposed age transition and the one that was finally implemented, labelled NZS actual (1991). It illustrates how the change in policy focus, from expenditure smoothing to fiscal consolidation, resulted in a very large

¹⁶ The main measures were to reduce the ratio of the pension to national average weekly earnings and to introduce an element of income-testing via a tax surcharge on the other income of superannuitants.

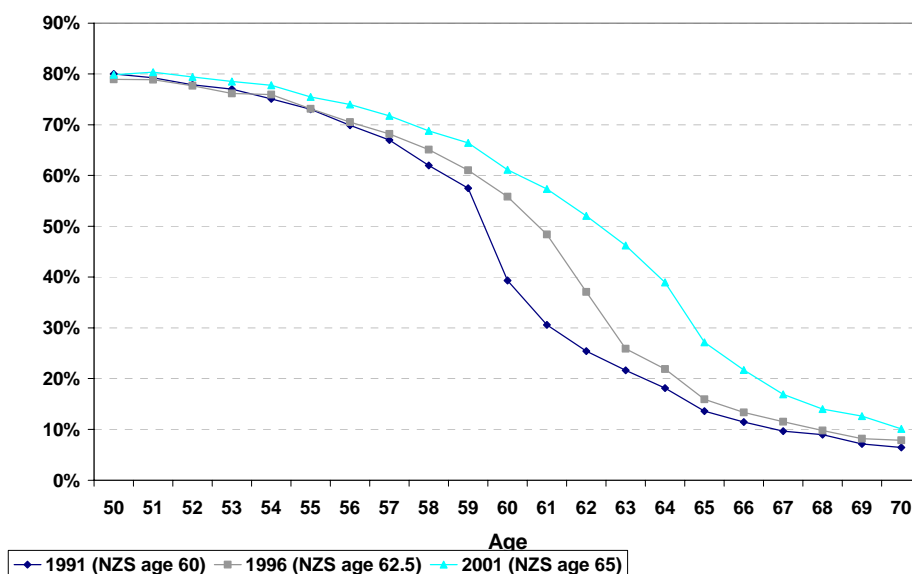
¹⁷ The 1991 package also included a temporary suspension of the normal indexation of pension rates and a tightening of the income testing regime that was in place at the time.

reduction in the number of people receiving the pension over the period of the transition. Also shown is the earlier 1976 policy change that lowered the eligibility age to 60.¹⁸

The new transition started almost immediately after it was announced and was rapid. People who had been planning to retire at age 60 and who had little savings of their own were suddenly faced with having to delay their retirement. To deal with this issue, a transitional assistance programme, known as the Transitional Retirement Benefit (TRB) was introduced for those who had been close to retirement at the time of the announcement. This took the form of an income-tested benefit that did not require recipients to be medically assessed or to make themselves available for work. The TRB was available to eligible cohorts for up to three years prior to the new eligibility age for NZS and phased out completely by April 2004.

In its review of the framework of retirement income provision, carried out halfway through the transition, the Periodic Report Group (1997) noted the extent of the emerging change in employment rates among those most directly affected by the rising age of eligibility for NZS. This change has continued and can be seen in the pattern of employment rates at single years of age over the complete transition period. This is illustrated in Figure 5 which shows, for the case of males, how the maximum rate of exit from full-time employment has shifted, from age 60 in 1991 to age 65 in 2001.¹⁹

Figure 5 - Changing full-time employment rates of males by single year of age during the transition, 1991, 1996 and 2001



Source: Census documents.

Another way of illustrating this phenomenon is by calculating ‘exit work hazard rates’, that is the probability that someone of a particular age will not be employed in a year’s time, given that they were employed in the current year. These estimates have several

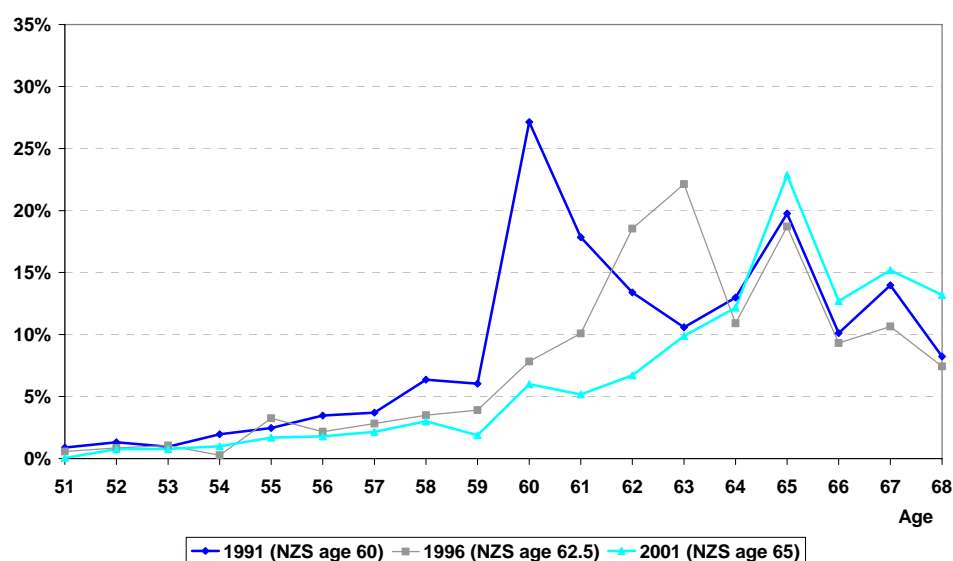
¹⁸ The 1976 arrow starts between ages 60 and 65 because a proportion of people aged 60 - 64 were already receiving an income tested Age Benefit.

¹⁹ It is important to locate the census dates within the age transition schedule. The 1991 census was held when the NZS eligibility age was 60 and the new policy had not been announced. At the time of the March 1996 census, the eligibility age for NZS had moved from 62 years 3 months to 62 years 6 months; in other words it was half way through its transition. By the time of the 2001 census the transition was complete and the age of eligibility was fixed at 65.

shortcomings²⁰ but follow the general approach of Gruber and Wise (1999) in examining empirical regularities between retirement hazard rates and pension eligibility ages across countries.

Figure 6 contrasts the exit work hazard rate patterns for males in 1991, 1996 and 2001. The peak hazard rate shifted from 60 to 65, reflecting the shift in NZS eligibility age. At the same time the peak has become somewhat less²¹ pronounced, indicating a lessening of the tendency towards a ‘standard’ retirement age²¹ and perhaps also easier access to other income-tested support for those approaching age 65 under the TRB.

Figure 6 - Exit work hazard rates for males, 1991, 1996 and 2001



Source: Census documents.

4 Estimating policy impacts

In order to estimate the impact of the NZS eligibility age on retirement behaviour, we need consistent data on the labour force participation patterns of older males and females covering the whole period between 1976 and 2001. Census data is available at five yearly intervals for the whole period, but two particular limitations need to be noted.

First, tabular data for the early years is available only in 5-year age groups rather than by single year of age, so the model uses these groupings, starting with those aged 45-49 years and with an upper category of age 65 and over.

Second, the definition of labour force participation has been revised over the years, reflecting first the exclusion of people in part-time employment and then a change in the number of hours per week that constituted part-time employment. For this estimation exercise the current Statistics New Zealand definition of a labour force participant has been adopted, namely a person who either works regularly for one or more hours per

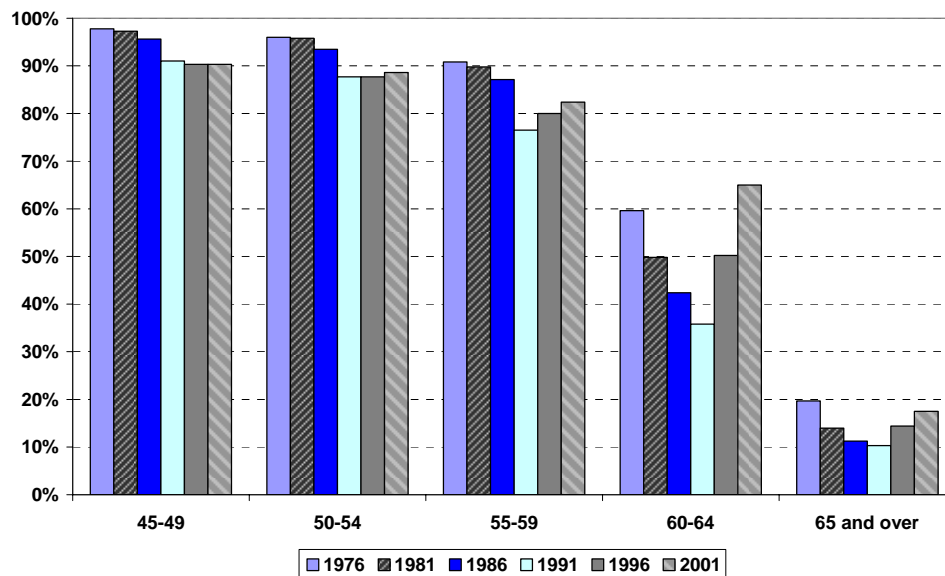
²⁰ They are based on cross-sectional census data, rather than longitudinal sample data and make no adjustment for mortality, so cannot strictly be interpreted as the probability of retirement by somebody who is currently employed.

²¹ As noted in Section 3.1, New Zealand has anti-age discrimination legislation that does not allow employment contracts to specify a mandatory retirement age.

week or is unemployed and was seeking work during the week prior to the census. Earlier census data have been adjusted to make them as consistent as possible with this definition.²²

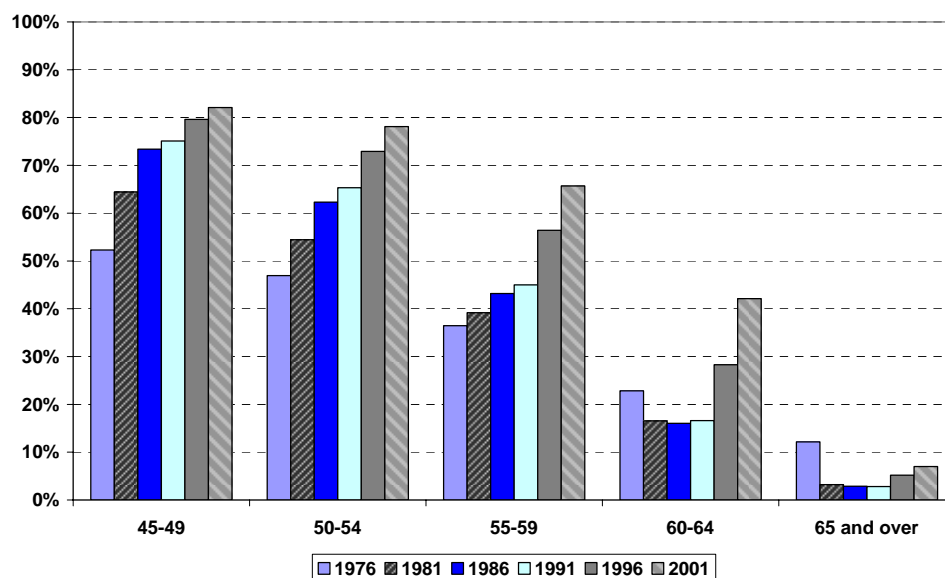
Figure 7 and Figure 8 illustrate how the labour force participation rates of males and females in different age groups have changed over the period 1976 to 2001. It is these data that the following model seeks to explain. Key features to note are: the trend for participation rates for males to generally fall over time, while rates for females generally rise; and the changing trend in participation rates within the 60-64 year age group compared with younger age groups.

Figure 7 - Labour force participation rates of males, by age group, 1976-2001



Source: Census documents and author's calculations.

Figure 8 - Labour force participation rates of females, by age group, 1976-2001



Source: Census documents and author's calculations.

²² In particular, the 1976 census numbers classified as 'actively engaged' (i.e. working 20+ hours per week) has been augmented by the proportion of those 'not actively engaged' who were employed for 1-19 hours per week, allocated across age groups according to the propensity of their employment status to be classified as retired, full-time student, household duties (unpaid) or other.

4.1 The model

The determinants of labour force participation rates among older people have been modelled as follows.

$$P_{gjt} = a + bU_t + cE_{gjt} + dD_{gj} + \varepsilon_{gjt} \quad (1)$$

where P_{gjt} is the labour force participation rate of a particular gender (g) and age group (j) in a census year (t); U_t is the general unemployment rate in that year; and E_{gjt} indicates the proportion of each gender and age group that is eligible to receive NZS in census year t ²³. D_{gj} is a vector of dummy variables that capture age group and gender influences and ε_{gjt} is a normally distributed random error term.²⁴

The eligibility variable, E , is interacted with the gender variable to allow for differential responses by males and females to being eligible for NZS. In addition, the model allows for the possibility that females who are within five years of being eligible for NZS might retire at the same time as their (older on average) husbands, since there is some financial assistance for those who do so.²⁵

Separate age-group dummies for males and females have been used to pick up possible gender differences in age/retirement profiles and to avoid imposing any particular functional form on the profile. This specification constrains the profiles to be the same across different cohorts. However, the long-term trend of rising female labour force participation has been captured using a logarithmic time trend in age groups that are not eligible for NZS.²⁶

The estimated model uses data covering 6 census years (1976, 1981, 1986, 1991, 1996, 2001), 2 genders and 5 age groups (45-49, 50-54, 55-59, 60-64, 65 and over), giving a total of 60 observations. The estimated coefficients are shown in Table 3 and all are statistically significant at the 99% level, except for one age-group dummy.

²³ E takes the value 0 for age groups under 60 and 1 for the age group 65+. For the age group 60-64, $E = 0.28$ (0.40) for males (females) in 1976, which reflects the proportions in that age group receiving the income-tested Age Benefit, $E = 1$ in 1981, 1986 and 1991, $E = 0.5$ in 1996 (half way through the eligibility age transition), and $E = 0$ in 2001.

²⁴ Since the observation periods are each five years apart, the risk of serially correlated error terms is small, and the model has been estimated using ordinary least squares.

²⁵ This is a gender-neutral policy but has been modelled as most likely to influence female's decisions. The older, qualifying spouse may opt for an alternative, higher rate of NZS, subject to an income test on the couple's joint income. If the younger, non-qualifying spouse is still in employment, her earnings are likely to make this an infeasible option.

²⁶ A linear time trend assumption becomes problematic for longer term projections since it ignores the likelihood that the rise in female participation rates will ease back as they approach male rates.

Table 3 - Determinants of labour force participation

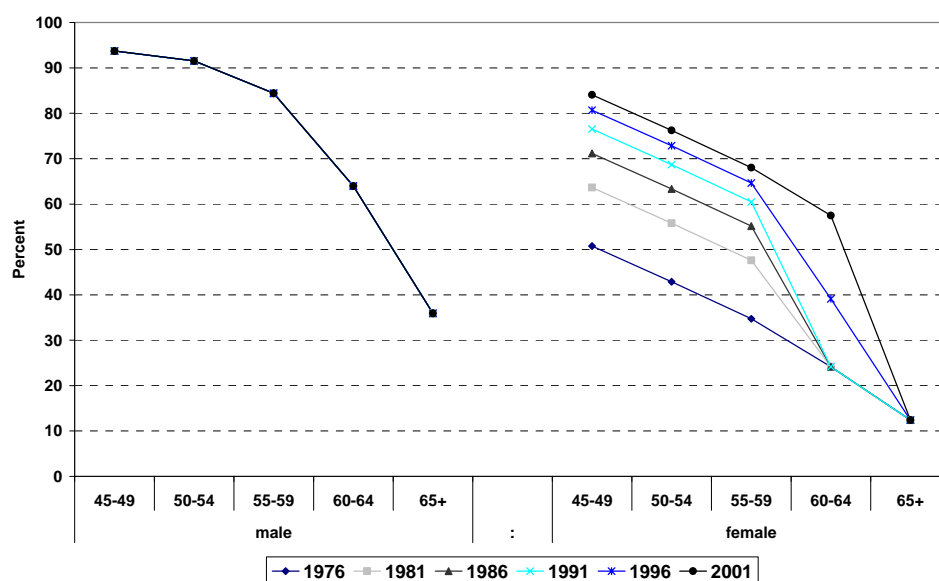
Independent variable	Coefficient	t value
Constant	98.76	74.69
Unemployment rate (average over year to date of census)	-1.098	-6.77
Eligible for NZS (0, proportion, 1))	-21.44	-7.79
Female*eligible for NZS (0, proportion, 1)	14.54	2.74
Female*near eligibility for NZS (0, proportion, 1)	-11.46	-3.97
Female (0,1)	-42.96	-21.57
Log time trend for females not eligible for NZS (trend based on 1976 = 1, 1981 = 2 etc)	18.60	16.22
Dummy for males aged 50-54	-2.167	-1.14
Dummy for males aged 55-59	-9.283	-6.01
Dummy for males aged 60-64	-29.75	-12.81
Dummy for males aged 65+	-57.76	-18.30
Dummy for females aged 50-54	-7.833	-5.07
Dummy for females aged 55-59	-16.03	-76.59
Dummy for females aged 60-64	-26.59	-6.96
Dummy for females aged 65+	-38.32	-8.68

Dependent variable: age group/gender specific %age participating in the labour force in census year t.

N=60; Adjusted R squared = 0.9928.

The underlying participation profiles for men and women as they age can be estimated by combining the constant term and the average unemployment effect with the values for the age/gender dummy variables – these are shown in Figure 9.

Figure 9 - Estimated shape of the age/ participation curves for males and females



Notes: (1) Calculations include the estimated effect of unemployment, based on the average unemployment rate of 4.6% for the six census observations. (2) Female participation trends include a log time trend interacted with being ineligible for NZS.

For men, abstracting from NZS eligibility, the pattern is for a decelerating rate of participation, i.e. an accelerating rate of retirement, from age 45 onwards, with no particular 'kink'. This is what one would expect as a result of factors such as maturing private retirement savings or rising rates of health problems that trigger retirement decisions. However, when eligibility for NZS is triggered, the estimated coefficient on the eligibility variable in Table 3 indicates that the participation rate drops by a further 21 percentage points (this is not shown in Figure 9).

The picture is more complicated in the case of women, since part of the impact of NZS eligibility shows up in Figure 9 through the female participation time trend term, which stops applying once a female becomes eligible for NZS. In addition there is a direct depressive effect of a further 7 percentage points (-21.44 +14.54 from Table 3) on women's labour force participation rates after they become eligible for NZS. This second effect is not shown in Figure 9.

The total percentage point effect on participation rates of NZS eligibility turns out to be similar for women and men. For example, in 1991 NZS eligibility was set at age 60. This model suggests that if the eligibility age had in fact been 65 at that time, the labour force participation rates of 60-64 year old males and females in 1991 would each have been about 21 percentage points higher.²⁷ Of course these percentage point changes would have translated into different total percentage changes for men and women (53% and 170% respectively) because of their different base levels of participation.

Finally, the results in Table 3 also indicate that there is a drop in the average participation rates of women if they are within five years of becoming eligible for NZS in their own right. This effect is estimated to lower participation in the near-eligible age band by 11 percentage points. This is most likely to reflect 'joint retirement' choices by couples when the (typically older) husband starts to receive NZS.

4.2 Forecasting future participation rates of older people

The model can also be used to obtain some idea of the future evolution of participation rates, although there are some limitations. Projections over the next ten years (i.e. two census periods) using the estimated parameters in this model suggest that the participation rates of older males and females will remain quite buoyant, assuming the age of NZS eligibility remains at 65.

A simulation of the effect of a further rise in the age of eligibility, to 66 by 2006 and to 68 by 2011, is illustrated in Figure 10 and Figure 11, for males and females respectively. This suggests that the participation rate of the 65+ group would be around 3 percentage points higher for males and 6 percentage points higher for females. However, one needs to be cautious in interpreting these estimates, since they are very sensitive to the form of the time trend chosen for female participation. Furthermore, the effect would be concentrated in only a small proportion of this open-ended age band.²⁸

²⁷ For females this is the net result of switching off the 'NZS eligible' and 'female eligible' dummies and switching on the 'female near eligibility' dummy and the time trend effect.

²⁸ Currently 17 percent of the 65+ age group are aged below 68 and so would be directly affected by this simulated policy change. However, once the baby boomers start to enter that age group, around 2011, this proportion will start to rise.

Figure 10 - Simulated participation rates of older males to 2011

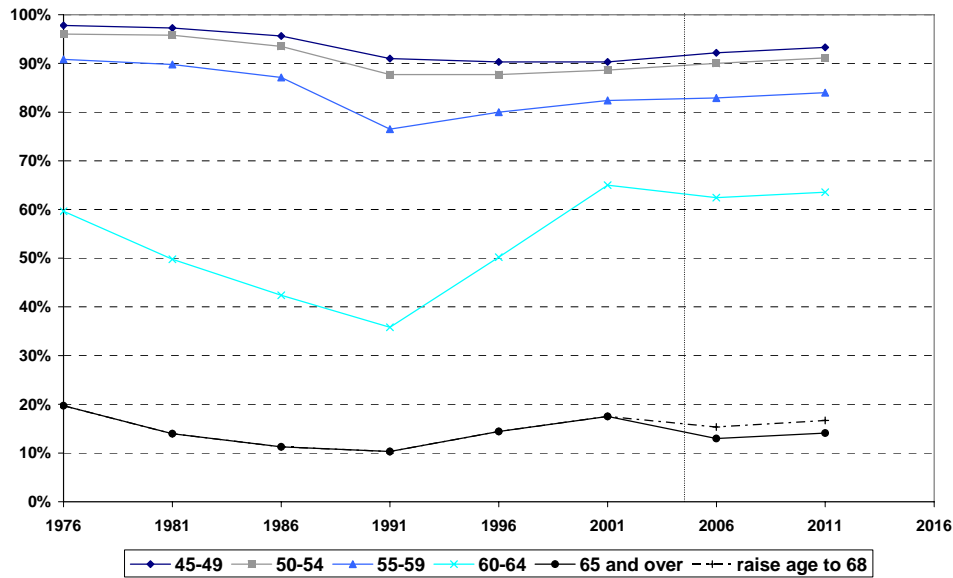
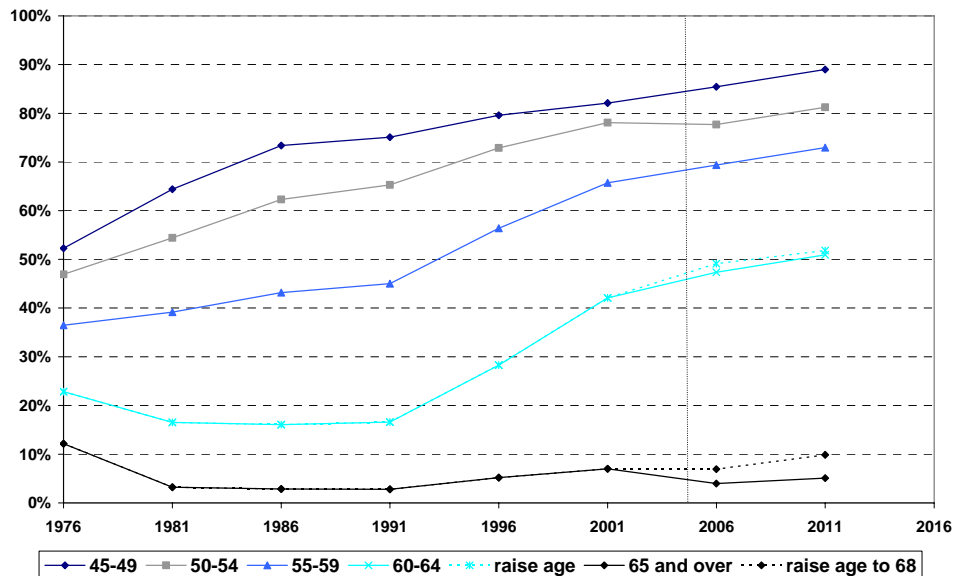


Figure 11 - Simulated participation rates of older females to 2011



5 Summary and conclusions

This paper has attempted to explain changes in the labour force participation rate of older people over the past 30 years and in particular to estimate the impact of changing the age of eligibility of NZS. A relatively simple model that includes the general unemployment rate, age group, whether that age group is currently eligible for NZS, gender and a secular rising trend in female participation can explain a high proportion of the variation in participation rates. This model suggests that being eligible for NZS drops the participation rate of males by around 21 percentage points and of females by around 7 percentage points. The model suggests that female participation rates are also influenced by the age

of eligibility a few years before that age is actually reached, a drop of a further 11 percentage points.

There is considerable research and policy interest in many countries on initiatives to reduce the fiscal burden of public pension schemes, to avert the prospect of a shrinking workforce and to create greater growth potential. Much of this interest has centred on understanding how the financial incentives created by public pension rules impact on individual retirement decisions. The results of that research suggest that three mechanisms are important: the age at which people become eligible for retirement benefits (both the 'standard' and the minimum early retirement age); a person's current pension/earnings replacement rate; and the net present value of a person's future stream of pension entitlements (compared with their future earnings stream) when this varies with age and contributions.

5.1 New Zealand incentives to stay in the labour market

This paper has examined how these three mechanisms operate in New Zealand's case. It appears that public pension design contains several features that create stronger incentives on older workers to remain in the labour force than exist in most other countries. These features work both to avoid penalising those who choose to work beyond NZS eligibility age and to discourage early retirement, i.e. prior to NZS eligibility age.

First, there is no legal impediment to continuing to be employed beyond the NZS eligibility age; New Zealand does not have a legislated compulsory retirement age, nor are individual employers permitted to specify a mandatory retirement age in contracts of employment.

Second, because NZS is neither work-tested nor income-tested, it is possible to continue earning and receiving NZS with no financial penalty. One implication is that it offers greater timing choice and flexibility for people wishing to manage their transition from full-time work to complete retirement or to arrange to take spells in and out of the labour market. It also offers an alternative means to accumulate savings in order to top-up their income later on for those who have not done this earlier in their working lives.

A third feature, the absence of an early eligibility option for NZS, increases the likelihood that people adopt the standard age as the 'normal' age to retire and will remain in the labour market at least until they become eligible for NZS. This may be seen in the low exit work hazard rates prior to NZS eligibility age, shown in Figure 6.

The fourth feature is that, no doubt inadvertently, public pension policy has tended to crowd out private provision. The option for workers to accumulate private savings to finance early retirement or to top-up their public pension was not particularly attractive for the generation of New Zealanders who were approaching retirement during the period 1977 – 1991. The public pension was available at the relatively early age of 60 and it was set at a historically generous level (see Table 2).

Furthermore, savings attracted few tax concessions and, for some of this period, the returns from private saving faced the prospect of a tax surcharge.²⁹ Faced with these signals and employed at a time of inflation, economic restructuring and considerable labour market uncertainty, it is hardly surprising that that generation approached age 60 with generally low levels of non-housing wealth.

This meant that when the age of eligibility for NZS started to be raised in 1991 many of those immediately affected did not have a cushion of private savings sufficient to allow them to retire any earlier. The Transitional Retirement Benefit described in Section 3.4 provided an element of choice and probably helped to achieve public acceptance of the policy change. Nevertheless, a high proportion of potential retirees remained in the labour market and the result was the strong participation response reported in Section 4.1.

5.2 Changing prospects for baby boomers

Some of the factors that discouraged private saving and early retirement, and that contributed to the rise in labour force participation among older age groups, are likely to be much less relevant to the upcoming generation of potential retirees. In particular, the first wave of the baby-boom generation, currently aged 55-59, may observe that public pension policy rules can and have been changed at quite short notice. They may note that, while they are probably guaranteed a reasonable basic income from age 65, their earnings replacement rate is lower than would have been the case for those retiring 25 years earlier. Furthermore, because of the much larger size of their own cohort, there is little prospect of earnings replacement rates being raised without placing a heavy strain on other taxpayers and the long-term sustainability of the public pension system.

At the same time, growing skill levels and some widening in the distribution of earnings over the past 20 years suggests that a growing proportion of older workers have earnings that are high relative to the average weekly earnings measure that is used to benchmark NZS. It is this high earning group that is most likely to seek to top-up their NZS with private income in order to maintain their standard of living in retirement.

As a result we might expect to see a higher rate of private wealth accumulation among the baby boom generation than their parent's generation. If this is the case, there are two possible consequences of relevance to this paper.

First, higher levels of voluntary private wealth accumulation might be drawn on by a greater proportion of this cohort to finance early retirement or periods out of the workforce for lifestyle reasons. This would start to show up as a new downturn in labour force participation rates among the 60-64 year age group, or at least as a decline in their rates of full-time employment.³⁰

²⁹ Until 1987 there was a capped income exemption in respect of life insurance premiums and contributions to approved superannuation schemes.

³⁰ There are also possible countervailing reasons why savers might choose to extend their time in the workforce, such as wanting to make the most of their investment in work skills, trading off leisure time for enhanced future consumption or continuing to financially support other family members

The second consequence of higher savings among the baby boom generation is that, in the event of a future increase in the age of NZS eligibility, the positive labour market participation response might be much weaker than was observed in the 1991-2001 period. Many people would be better placed to choose whether to fund retirement at the age they had planned to or to stay working until the new age of eligibility. In this circumstance, therefore, the rates of labour force participation among those aged 65+ could turn out to be lower than those projected for the hypothetical policy change in Figure 10 and Figure 11.

Finally, I suggest that, in conjunction with evidence on the living standards of older people³¹, these results paint a generally encouraging picture of New Zealand's public pension system from the point of view of positive aging and continuing active engagement. Whether the system will remain fiscally sustainable at its current settings remains an open question, but rising rates of labour force participation among older people gives cause for some optimism.

³¹ Fergusson et al (2001) reports that the material living standards of older people are generally better than for working age people.

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