Mature Age Employment:
Who Works, Who Does Not, and Why?
Policy Options For Increased Employment*

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EXECUTIVE SUMMARY

Main issues

The aims of this report, defined in DEWR's brief to MI, are first to determine
reasons for participation and non-participation in the labour force by mature age people,
and secondly to suggest policy options which might induce more mature age people to
continue working to an older age than they do now. Mature age people are defined as
those 45 and over, but the focus will be more on those aged 55 to 64 than on younger or
older groups. Why? The group aged 55 to 64 are potential early retirees. They are the
group whose workforce participation has declined most since about 1970,[1] and the group
most likely to be responsive to policy interventions designed to increase participation.

More specifically, DEWR set out the following questions:
- What activities are participating males and females engaged in and what are their
  main sources of income?
- What do they want to be doing and what income sources do they expect to have in
  five and ten years time? What levels of workforce participation (full-time, part-
  time?) do mature age people prefer?
- Why are non-participating males and females not in the workforce – what are
  their motives and what disincentives to participation are they responding to?
- *Model:* can the various explanations and incentives for participation and non-
  participation be combined into an overall statistical model?
- Why do those mature age people who become unemployed suffer long spells of
  unemployed? Why is it hard for them to get re-hired?
- What light can international evidence throw on how to increase mature age
  participation?
- What policy options are available to the Australian Government to increase
  participation?

Data sources

The main data source for the report is the HILDA (Household, Income and Labour
Dynamics Australia) Survey for 2001-04. This panel survey provides the first available
Australian data in which it is possible to follow a representative sample through various
employment transitions and then through to retirement. It is feasible to compare those
who remain in the labour force with those who exit ('retire') and then seek to account for
different employment outcomes.

HILDA data were benchmarked against Australian Bureau of Statistics surveys and
particularly the *Barriers to Labour Force Participation* and *Retirement and Retirement
Intentions* modules of the *Multi-Purpose Household Survey* (2004-05). It was found that,
for all variables relevant to this project, the HILDA data corresponded closely to ABS
data.

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[1] The trend towards declining workforce participation has modestly reversed since the mid-1980s, but
participation is still well below 1970 levels (see Part 2).

Main results

The labour force participation rate for mature age men has declined substantially over the last forty years, but there has been a recent reversal of the trend among men aged 54-69. For mature age women, participation rates have been increasing steadily since the mid-1980's. On average, mature age women were satisfied with the number of hours they worked per week. In particular, this was true of about two-thirds of those who worked part-time. However, around 40% of mature age men who were working full-time said they would prefer to work fewer hours, and 44% of mature age men who were working part-time said they would prefer to work more hours.

Mature age men and women who were not employed and not looking for work were mostly voluntarily retired and only a small proportion (10.1% of men and 8.7% of women) said they would prefer to have a job.

Model of continuation in paid work versus exit from the labour force

A model was developed to account for the decisions of some mature age people to continue in paid work and the decisions of others to exit the labour force ('retire').[2] The model drew on recent international literature on the impact of financial (dis)incentives to continue in paid work. The key financial (dis)incentive included here was the *accrual rate in the discounted present value of retirement income* due to continued work versus the accrual rate if one retired immediately. It was found that accrual rates were *negative* for most men and women and for most ages between 54 and 67. The model also included variables relating to human capital, marital status, whether one's partner still worked, home ownership and caring responsibilities.

The main focus of the model was on financial (dis)incentives because they are more open to policy intervention than most other variables affecting the decision to continue in paid work or exit the labour force.

Why do mature age people suffer longer spells of unemployment than younger people?

Although mature age people have relatively low rates of unemployment, they suffer long spells out of work if they do lose their job. For example, among men aged 45-54 in 2003 only 2.8% were unemployed, but 70.3% of them had been unemployed for a year or more.

A two-stage model was estimated to account for why some mature age people became unemployed, and secondly to account for why some succeed in returning to employment and some do not. In the model the latter outcome is viewed as potentially conditional on the first outcome. That is, the same reasons which account for becoming unemployed may partly account for not getting re-hired. In the event it was found that this kind of 'selectivity' affects the prospects of mature age men but not mature age women. The result for men is compatible with the view that employers may discriminate against them on grounds of age. However, this is only one fairly plausible possibility. With the present data conclusive results cannot be obtained.

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[2] Throughout the report 'retirement' is defined not in terms of self-classification, but in terms of exit from the labour force with no evidence or likelihood of returning to work.

International evidence and policy options

A review of international evidence, and particularly the experience of higher income OECD countries, showed that six countries – Iceland, Switzerland, Denmark, Ireland, the United States and New Zealand - have retained or regained high rates of mature age participation. Explanations of how these outcomes have been achieved were considered and some tentative conclusions drawn. The case of New Zealand was particularly instructive. New Zealand had rapidly rising participation rates in the 1990s due both to raising the pension eligibility age and not means testing the pension (or punitively taxing the earnings of pensioners).

Drawing on the international evidence, a range of possible policy options for Australian Government was considered. Most options were based on reducing financial disincentives against participation.

It is recommended that the model of mature age workforce participation, developed for this project, be extended and used to project/simulate the likely effects of recent policy changes and potential future changes which may affect workforce participation versus workforce exit/retirement.

PART 1
THE BRIEF, PREVIOUS RESEARCH, CONCEPTUAL FRAMEWORK

Issues raised in DEWR's brief to Melbourne Institute (MI)

The key aims of this Report, as defined in DEWR's brief to MI, are first to determine reasons for participation and non-participation in the labour force by mature age people, and secondly to suggest policy options which might induce more mature age people to continue working to an older age than they do now. Mature age people are defined as those 45 and over, but the focus will be primarily on those aged 55 to 64. Why? The group aged 55 to 64 are potential early retirees. They are the group whose workforce participation has declined most since about 1970,[3] and the group most likely to be responsive to policy interventions designed to increase participation. The Report also reviews the workforce participation of people aged 45-54 and those aged 65 to 70. The main issue of concern in relation to 45-54 year olds is neither a low rate of participation nor high unemployment, but their difficulty in getting rehired if they do lose their job (see Part 4). The 65-69 year olds are a group which the Australian Government, like other Western Governments, wants to encourage to work longer (Munnell, 2006).

Part 2 of the Report offers a detailed descriptive analysis of who, among mature aged people, participates in the labour force and who does not – and why. Part 3 extends the inquiry by developing a statistical model of factors affecting the decision mature age people face between continued workforce participation and retirement. As well as variables relating to human capital, health, caring responsibilities and a range of other factors, the model also quantifies specific *financial disincentives* which discourage continued work. Surprising as it may initially seem, these disincentives take the form of low and, in fact, mainly *negative* rates of accrual in prospective retirement income, if one continues in work. This means that there is an *implicit tax* on choosing to work rather than exit the labour force (Duval, 2004; Gruber and Wise, 2004). The model shows empirically that these disincentives significantly affect decisions to work or exit. For policy reasons it is important to identify the specific age ranges and circumstances of people most affected by work disincentives. Clearly, the evidence is needed to provide a basis for consideration of policy changes which could increase participation.

Part 4 looks at the specific issue of why, if mature age Australians become unemployed, they tend to have much longer spells out of the workforce than younger people. In Part 5, the concluding section, Australian experience is placed in international comparative perspective. The aim is to review international, especially OECD policy experience, focusing mainly on countries which have succeeded in maintaining high levels of mature age employment and/or have reversed a previous trend towards early retirement. Finally, policy options which might induce higher rates of mature age workforce participation are canvassed.

A valuable new data source, which this Report draws on extensively, is the Household, Income and Labour Dynamics Australia (HILDA) Survey. This is a panel survey in which the same 15,000 individuals in about 6,000 households are interviewed each year. To date four waves of data (2001-04) are available. Because HILDA is longitudinal, it is

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[3] The trend towards declining workforce participation modestly reversed since the mid-1980s, but participation is still well below 1970 levels (see Part 2).

possible to observe people who actually make decisions to continue working or to retire during the years of the survey. We can observe the 'starting characteristics', the attitudes and behaviours of those who continue working, and compare them with otherwise similar people who choose to reduce their participation or retire. We can observe, for example, how disposable incomes and satisfaction levels change during the 'retirement transition'.

Background concerns underlying the policy issues in the brief

The main policy concerns underlying the issues raised in the brief are so interrelated that it may be useful to put them all 'on the table' at the outset in the expectation that readers will bear them all in mind as they proceed. Four concerns are salient:

1. *Ageing population and future slowdown in economic growth*
   The Australian population is ageing and there is an increasing retired person dependency (RPD) ratio. This is almost certain to cause a slowdown in economic growth, although it is less clear that the rate of growth per capita is set to slow.

2. *Early retirement*
   The average age of retirement for men has fallen to 61.5 and for women to 58.3, despite increased longevity (ABS, 2006b). So a majority of both men and women now retire 'early' – before the statutory age for the pension. At present a man of 60 can expect to live for another 21.4 years and a woman for another 25.2 years (ABS, 2005). By 2040 the predicted age of death for 65 year old men will have risen to 84 and for women to 87 (OECD, 2005a). So if retirement ages were to remain unchanged, the average man in 2040 would be retired for about 23 years and the average woman for about 29 years.

3. *How are mature age Australians spending their time and what are their sources of income? What disincentives and barriers deter many of them from working?*
   It is important to get a detailed descriptive understanding of the alternative time uses – paid work and other time uses - and the alternative income sources (including Government income support payments) of mature age people. As background, it is helpful to recall that most older Australians either own their homes outright or are close to doing so, which makes it financially easier to retire early. Many also respond to incentives to arrange their affairs in order to receive the full pension as soon as they become eligible. In many cases they take their superannuation as a lump sum (66% of those with super take all or part of it as a lump sum) and pay off or improve their home. The strategy is to run down liquid assets in order not to be affected by means tests (mainly the income test) which would otherwise prevent them from receiving the full pension and would put them on a part-pension instead. Financial advisers often suggest this strategy and substantial numbers of respondents in surveys conducted by the Australian Bureau of Statistics appear to use it (ABS, 2006b).[4]

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[4] In the recent *Retirement and Retirement Intentions Survey (ABS, 2006)* only 44% of retired people reported a Government pension or allowance as their main income source immediately after retirement. However, 42% reported that their main income source had subsequently changed, and in most cases they had moved to a full pension. Many had used lump sums to pay off their house or clear other outstanding debts. By doing so they had reduced their assets and become eligible for a full pension. See pp. 4-5 of http://www.abs.gov.au/ausstats/abs@nsf/productsbyreleasedate/d85e2a6345a.

Currently the main source of income for about 67% of retired people is a Government pension or allowance, and in most cases it is a full Age Pension (ABS, 2006b). Largely due to reliance on the pension, retirement incomes are low in Australia compared with most OECD countries. For a man who was on average earnings, the net (after tax) replacement rate (i.e. the percentage of previous earnings) provided by the pension is only 52.4%, compared with an OECD average of 68.7% (OECD, 2005a).[5] Australian seniors (65+) in fact have the lowest equivalised incomes relative to the rest of the population of any OECD country (OECD, 2005b).[6]

4. *What policy options may be available to increase mature age participation?*
A key policy issue for the Australian Government is how to increase mature age participation. As noted above, the concluding part of this report draws on international policy experience to elicit policy options which might prove effective in increasing both the supply of older workers and employer demand for older workers.

Ageing population and slowdown in economic growth

The last three of these points are developed in detail in the main body of the Report, but it is useful to say more about the first here.

The RPD ratio is the ratio of persons aged 65+ to persons 15-64. In Australia in 2003-04 the ratio was 19.3%. The Productivity Commission (2005) projects it to rise to 41.1% by 2044-45, while the Treasurer (2007) projects it to rise to 42.4% by 2047. The main policy problem arising from this trend is a probable reduction in the rate of economic growth, and hence a lower increase in living standards. (It should be noted that Australia, unlike many OECD countries, does not have an incipient fiscal problem arising from the under-funding of a defined benefit (DB) public pension scheme.[7] The Public Sector Scheme accumulation plan (PSSap) is a fully funded defined contribution (DC) scheme).

The Productivity Commission (2005) has estimated that, due to ageing, the economic growth rate is likely to halve by the 2020s and stay lower than at present at least until 2044-45, although living standards will probably still double in the next forty years. Actually, the Commission points out that the key statistic for these issues is not labour force participation, but employment per capita or the employment-to-population ratio. This is *not* set to fall as far as labour force participation, in large part due to the decline in the number of children, which is an inevitable corollary of the ageing phenomenon. In fact, employment per capita for the total population, which is currently at an all time high, will only have fallen back to the level of the mid-1990s by 2044-45 (Productivity Commission, 2005). What has happened is that a fall in employment among men aged 45 and over – a decline which began in the mid-1960s and bottomed out in the mid-1980s

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[5] The OECD calculates the implied pension wealth of Australian men on average earnings at 6.7 times those earnings, compared with an OECD average of 8.9 (OECD, 2005a). Hence low earnings replacement rates.
[6] Equivalised incomes are household disposable incomes adjusted for household size, using the OECD equivalence scale of 1.0 for the first adult, 0.5 for other adults and 0.3 for children under 15.
[7] It may be, however, that a fiscal problem will occur due to rising health costs as a result of population ageing. This issue and possible remedies are discussed in the Inter-Generational Report and the Productivity Commission's report (2005) on the economics of population ageing.

– has been counterbalanced by increased work by married women in the same age group.[8]

This economic diagnosis of the ageing and RPD problems is endorsed by most analysts in governmental and international organisations and by most academics (Duval, 2004; OECD, 1998, 2004; Gruber and Wise, 1999, 2004; Barr, 2004). It is also underpinned by sophisticated modeling based on 'generational accounting' (Kotlikoff, 1999). This research is reviewed in the next section of the Report.

Previous research

In reviewing previous literature on mature age labour force participation, we focus on four main sets of issues (i) alternative definitions of labour force participation and 'retirement' and their empirical consequences (ii) frameworks for analysing decisions to continue full-time work, reduce participation or retire and (iii) specific incentives and disincentives affecting the *supply* of mature age workers and (iv) factors affecting employer *demand* for mature age workers.

Alternative definitions of labour force participation and retirement and their empirical consequences

As Borland (2004) points out, studies in the 1980s and early 1990s mostly accepted individuals' own self-classifications of whether they were 'working' or 'retired', whereas later studies have usually adopted a strictly behavioural definition based on whether they are still in the labour force (employed, or unemployed and actively seeking work) or not currently available for work. The problem with the earlier approach is that 'retirement' means different things to different people. Some mean that they have formally notified a superannuation scheme and the Australian Tax Office that they have retired, presumably in order to benefit from the favourable tax treatment of superannuation and pensions. Among these people, some in fact work part-time or even full-time. Others who classify themselves as retired mean that they have left their main career job and switched to some other paid employment which they consider a bridging job or transition job. Some of these people say they are 'partly retired' or 'semi-retired' or 'in transition to retirement'.

In this Report the distinction between paid work and retirement is based solely on behaviour. This approach is clearly preferable, given that the policy motivation behind the project is to develop proposals to increase labour force participation. The empirical consequence of this approach, in Australia as in the United States, is that many fewer people are found to be in bridging jobs or in transition to retirement than if a self-classification approach is adopted (Blau, 1994; Borland, 2004; Hurd, 1996; Ruhm, 1990; Rust, 1990).

Nevertheless, as Borland (2004) suggests, the concept of 'retirement transition' is useful because it enables us to analyse how many mature age people go through a transition phase rather than moving directly from full-time work to complete retirement. It is useful to describe the length of the transition phase, the age of workers at the start and end of the phase, the hours worked and types of jobs undertaken, location of employment (e.g.

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[8] The increase in female employment occurred mainly from the mid-980s onwards.

home versus office), and whether or not they are in receipt of retirement income in the form of a pension or superannuation. These topics are covered in Part 2 of the Report.

Utility maximisation framework

One standard economic approach is to view the labour supply decisions of mature age people in a lifetime context. Individuals are viewed as seeking to maximise utility (satisfaction) over their entire lifetimes.[9] They gain utility from both consumption and leisure, and consumption requires paid work. It should be recognised that the utility maximisation model, while useful as a basis for empirical analysis, is highly stylised. Formally, it takes no account of the utility/satisfaction which people derive from work itself; the model treats work as a necessary evil to fund consumption. It is clear that, in practice, many people enjoy their work, and that some, particularly the self-employed, continue working into old age, partly for the interest and stimulation gained (Diener et al, 1999). Also, the stylised model takes no account of social norms. For example, it might be suggested that a social norm accepted by some Australians is that they have an entitlement to an old Age Pension and a pension card. In some cases, they may seek to receive these benefits even if doing so does not maximise consumption or the consumption-leisure trade-off. Nevertheless, despite some inevitable 'distortions', the model provides a sensible framework for analysing work versus retirement decisions; decisions which, perhaps more than almost any other decisions in life, are essentially work versus leisure decisions.

Equation 1.1 provides a formal framework. U is the utility function which individuals (or households) are trying to maximise. C stands for total lifetime consumption, L for lifetime leisure, H for total hours of work, W for a person's expected hourly wage rate, and T for total time available. Additionally, individuals are assumed to inherit assets A and to want to leave a bequest B.

$$1.1 \qquad MaxU = U(C,L) \text{ subject to } C = HW + A - B = (T-L)W + A - B$$

It has been pointed out that this equation contains no rationale for retirement (Disney, 1986). If an individual's hourly wage rate and preference for leisure were both assumed to be constant, he/she would have no reason to divide up life between a period of (say) full-time work and a later period of (say) full retirement. In order to account for retirement, it makes sense to add both an employer's perspective and to make some assumptions about changing preferences for leisure. At some age the productivity of (most) employees and hence their hourly wage rate declines. It is also probably the case, and it is conventionally assumed, that the marginal value of leisure (in most people's eyes) tends to increase with age. Plainly, this is another stylised assumption. It may be noted that some older people strongly prefer to work and that individual differences in the preference for leisure probably depend heavily on the number of hours one is working at present. Some retirees find themselves with too much leisure and may welcome an opportunity to undertake some paid work, if the incentives are right (see Part 5 of this Report). In general, a person already working 60 hours a week would typically have a stronger preference for a few extra hours of leisure than if he/she were working for, say, 10 hours.

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[9] This account draws extensively on Disney (1986).

Figure 1 illustrates the framework. The marginal product of labour (MVP) and the marginal utility of leisure (MUL) are graphed against age.[10] MVP is shown as an inverted u-shape, reflecting standard assumptions, and MUL is assumed to rise at a constant rate with age.
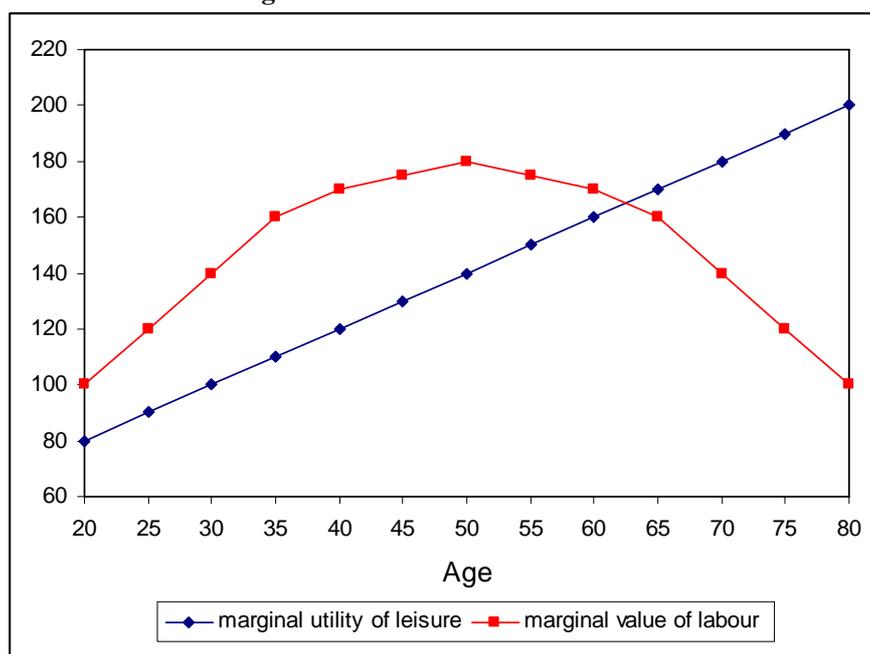
Figure 1: Model of the retirement decision

Figure 1 now gives a coherent account of work versus retirement decisions. Individuals are shown as working until their MVP falls below their MUL, at which point they retire. It may be noted that a possible policy implication is that increased incentives for either employees or employers to extend working lifetimes could be counter-productive from a national economic growth perspective. This would be the case *if* individuals were induced to work on past their years of high productivity, possibly substituting for more productive younger workers. This issue is addressed in Part 5 of the Report.

Supply side incentives

There are very extensive international and Australian literatures on issues affecting the supply of mature age workers, although it should be noted that the Australian literature is limited by dealing almost entirely with men, except for a recent paper on women's retirement decisions by Warren (2006). Until the advent of HILDA it was also limited by being based either on cross-sectional, or on aggregate time series data, rather than longitudinal research.

In the last fifteen years or so, the OECD Economics Department has undertaken a series of excellent analyses of mature age labour force participation, primarily focused on the

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[10] The scale on the vertical axis is completely arbitrary, representing both values of leisure and labour product.

issue of why so many men retire before the statutory pension age (Blondal and Scarpetta, 1998; OECD, 2002; Duval, 2004). The OECD's motivation is plain; most OECD countries have much older populations than Australia's, and, unlike Australia, face a fiscal problem due to under-funded national pension schemes, in addition to the threat to economic growth posed by high RPD ratios. OECD now issues an annual volume, *Pensions At A Glance,* which provides detailed international statistics on public and private pensions, the adequacy of pensions, the income replacement rates they provide and so forth. As already noted, Australia has low adequacy levels and replacement rates; but that partly explains why Australian pension schemes are not under-funded.

The OECD reports rest on an underlying utility maximisation framework, as described in the previous section. However, the detailed explanations offered by OECD economists for the fall in mature age workforce participation relate to the specific disincentives imposed by *high implicit tax rates* or *high effective marginal tax rates (EMTRs),* which employees face if they choose to continue work rather than taking an occupational pension (typically available at 55) or a state pension (typically available for men at 65). OECD publications have been based on calculating differences (expressed in terms of discounted present values) between the increase in your accrued pension wealth if you continue working versus two cost factors (1) the foregone pension you would have collected if you had retired and (2) continued pension contributions (which are made by employers in Australia, but which, from an economic standpoint, should just be seen as part of the employee's remuneration package).

The statistical models estimated by OECD, and by academic economists, have been designed to account for the differing ages at which people in Western countries retire. Approaches have varied slightly but an underlying common feature, broadly supported by model results, has been that individuals will choose their retirement date in order to maximise their savings for retirement, or pension wealth, or (in American parlance) their social security wealth. The following quotation precisely states the assumption underlying models aimed at accounting for differences in individual retirement ages:

> *People generally retire when they have the incentives to do so; i.e. when retirement income is high enough and when the financial incentive to continue working is matched by the disutility of continued working (OECD, 2002).*

In most countries, and at all ages from 55 upwards, employees who are eligible to collect a pension face *positive* marginal tax rates if they choose to continue to work. In other words, Governments all over the Western world are concerned about the ageing population and early retirement and have a stated policy aim of increasing workforce participation among mature age people. However, the actual incentive structures built into tax and retirement systems run counter to this policy aim.

The international comparative literature clearly shows that the higher a country's implicit taxes on continued work, the lower its actual average age of retirement (Duval, 2004; Gruber and Wise, 1999, 2004). The trend is linear except for spikes (bunching) at the ages at which people become eligible for particular types of occupational and state pension. In the last few years this line of research has been extended to include policy simulations in which the substantial effects of potential policy changes (e.g. increasing the statutory retirement age to 67) are estimated (Gruber and Wise, 2004). The emerging

simulation literature draws on concepts developed in 'generational accounting'; a framework developed to assess equity between generations (Kotlikoff, 1999).

To date simulations of this kind have not been conducted for Australia. However, Australia is included in some OECD studies and Australian economists have also undertaken analyses of the incentives faced by employees as they decide whether to continue working or retire (Woodland, 1987; Freebairn, Porter and Walsh, 1989; Atkinson, Creedy and Knox, 1995; Atkinson, Creedy and Knox, 1996; Atkinson and Creedy, 1996; Atkinson and Creedy, 1997; Bacon, 1999). Australia appears to be close to the OECD average in terms of the implicit taxes on the incomes and savings of mature age people (Duval, 2004).

Demand side incentives – do employers want older workers?

Most research has concentrated on the supply side, on employees' preferences and decisions. However, it is plain that the demand side – employer preferences – is also critical. Do employers think that older employees are worth hiring; does the marginal value of their product exceed costs (Disney, 1996).

Evidence on the recent employment and unemployment rates of mature age Australians could be interpreted as indicating that employers generally perceive older people as worth retaining in their current jobs, but not worth hiring as new employees (Borland, 2004). The official unemployment rate of Australians aged 45+ is below the national average and, among those aged 55+, unemployment has been below average ever since ABS monthly labour force surveys began in 1978.[11] However, if older workers are retrenched they have a high risk of long term unemployment. Borland (2004) notes that 48.5% of men aged 55+ who were unemployed in August 2003, and 43.7% of women, were out of work for over six months. Additionally, others dropped out of the labour force and classified themselves as 'retired'. Older workers generally believe that, if they lose their job, they have a low probability of finding a similar job, and that employers would perceive them as too old (Borland, 2004 and Section 4 of this Report). In partial contrast to this, OECD evidence shows that the share of new jobs going to mature age workers is actually higher in Australia than in any other OECD economy (OECD, 1998 cited in Borland, 2004).

There have been several studies of the attitudes of Australian employers to older workers (Pickersgill et al, 1996; Encel and Studencki, 1996; Encel, 1998; House of Representatives, 2000; Bittman et al, 2001; and see Borland, 2004). Older workers appear to suffer some discrimination in hiring, due to perceptions that their skills are out of date and that they are harder to retrain and less adaptable than younger people. On the other hand, mature age employees are perceived positively by employers for their loyalty, experience and work ethic. On the key issue of productivity, there is some evidence that employers regard older people as less productive and that this perception is generally incorrect (Pickersgill et al, 1996; Bennington and Tharenou, 1999).

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[11] Note, however, that people aged 55-64 have a much higher rate of being 'not in the labour force' than younger people. In some cases, although they would like work (and can be classified as 'marginally attached' to the labour force), they are not actively seeking it and so are not classified by the ABS as unemployed. In general, the distinction between 'unemployed' and 'not in the labour force' gets increasingly blurred among older age groups.

Research and ideas about how employers might make the workplace more attractive to older workers and so induce more of them to continue work will be considered in Part 5 Policy Options.

Conceptual framework for this Report

Based on the foregoing review, the conceptual framework adopted for this Report has three components:

1. A strictly behavioural definition of 'availability for work' versus retirement;
2. A approach which views the decision to continue working or to reduce participation or to retire in a utility maximisation (work-leisure trade-offs) framework;
3. Statistical models which focus on specific incentives and disincentives for work versus retirement (leisure), but also include the effects of human capital, health, work preference, caring responsibilities, marital status and partner characteristics.

Main data sources

The main primary data sources for this Report are the HILDA Panel Survey and Australian Bureau of Statistics (ABS) surveys relating to mature age workforce participation and retirement.

The HILDA Survey 2001-04

The HILDA Survey is a nation-wide household panel survey with a focus on issues relating to employment, income and the family. It is funded by The Department of Family and Community Services and managed by the Melbourne Institute of Applied Economic and Social Research at Melbourne University. Described in more detail in Watson and Wooden (2004), the HILDA Survey began in 2001 with a large national probability sample of Australian households occupying private dwellings. All members of those responding households in wave 1 form the basis of the panel to be pursued in each subsequent wave, with each wave of interviewing being approximately one year apart.

After adjusting for out-of-scope dwellings (e.g., unoccupied, non-residential) and households (e.g., all occupants were overseas visitors) and for multiple households within dwellings, the total number of households identified as in-scope in wave 1 was 11,693. Interviews were completed with all eligible members at 6,872 of these households and with at least one eligible member at a further 810 households. The total household response rate was, therefore, 66 per cent. Within the 7,682 households at which interviews were conducted, there were 19,917 people, 4,790 of whom were under 15 years of age on the preceding 30 June and hence ineligible for interview. This left 15,127 persons of whom 13,969 were successfully interviewed. Of this group, 11,993 were re-interviewed in wave 2, 11,190 were re-interviewed in wave 3, and 10, 565 in wave 4. The total number of respondents in each wave, however, is considerably larger than this; in 2004, for example, 12,408 individuals were interviewed. There are three ways in which these 'extra' respondents are recruited. First, some non-respondents in wave 1 are

successfully interviewed in later waves. Second, interviews are sought in later waves with household members who turn 15 years of age. Third, additional people are added to the sample as a result of 'split-offs' from original households. So if, for example, a young person leaves home to set up his/her own household, all members of the new household aged 15 and over become part of the target group. Following 'split-offs' is the main way in which sample representativeness is maintained in national household panels.

In addition to standard questions asked every year in HILDA, the survey includes special modules which are included every few years. The module on wealth included in 2002 (to be repeated in 2006) and on retirement in 2003 (to be repeated in 2007) are of particular value to this project. The detailed wealth information - including measures of housing equity, managed fund and share values and superannuation holdings – enable us to get better estimates of the impact of assets and debts on labour force and retirement than were available in previous surveys. The retirement module is valuable for providing detailed information on retirement intentions and, from those have already retired, perceptions about the satisfactions and costs of retirement (see also Bender, 2004 and ABS 2004-05).

As noted above, the great merit of HILDA in the context of this Report is that we can observe individuals moving through the retirement transition. That is, we observe individuals who were working in, say, wave 1 and who have then dropped out of the labour force by, say, wave 4. So we can then analyse the 'starting characteristics' and attitudes (e.g. preferred retirement age) associated with subsequent 'retirement'. We are not forced to rely, as in cross-sectional surveys, on potentially biased retrospective information and rationales for exiting the labour force.

Given that considerable reliance is placed on HILDA, it is important to be reassured that the HILDA data are representative of the national population, particularly with respect to labour market behaviour. Watson and Wooden (2004) provide detailed evidence that, in overall terms, HILDA matches up well with Census data. Here we focus on benchmarking HILDA labour force data against recent ABS surveys. The ABS surveys are not longitudinal, but they certainly provide appropriate cross-sectional benchmarks because, as is well known, they have very large samples and exceptionally high response rates.

First, we benchmark HILDA data for 2004 against data in the ABS Survey of Barriers and Incentives to Labour Force Participation which was included as a segment of *The Multi-Purpose Household Survey* in 2004-05.   Table 1.1 gives a fairly detailed breakdown of labour force status and preferences in both surveys.

Table 1.1
Benchmarking HILDA Labour Force Data (2004) Against ABS 'Barriers and Incentives to Labour Force Participation' (2004-05): Population aged 18 and over

	ABS 'Barriers…' %	HILDA %
In labour force (lf)	68	66
Not in labour force (nlf)	22	24
(If lf) employed	95	96
(If lf) unemployed	5	4
(If employed) usually work 16 hours or more per week	90	91
(If employed) usually work 0-15 hours per week	10	9
(If under 16 hours) prefer more hours	34	39
(If under 16 hours) do not prefer more hours	66	61
(If nlf) would like a paid job	20	21
(If nlf) Would not like a paid job	80	79

It is clear from Table 1.1 that almost all HILDA labour force categories match up well with the ABS benchmark, being within plus or minus 2% of the ABS result. The only exception is for the small category of people who currently work less than sixteen hours a week (6.3% of the population aged 18 and over), who were subsequently asked if they would prefer more hours or not. 33.8% of ABS respondents compared with 39.4% of HILDA respondents said they would prefer more work.

Data on retirement – the obverse of labour force participation – are also relevant. Table 1.2 benchmarks HILDA results against the *Retirement and Retirement Intentions* module of *The Multi-Purpose Household Survey 2004-05* (ABS, 2006c). It should be noted that, in this instance, the two surveys were a year apart; the HILDA special retirement module was conducted in 2003, whereas the MPHS dates from 2004-05. The relevant population consists of those aged 45 and over who, in both surveys, were asked about their current retirement status and future retirement intentions.

Table 1.2
Benchmarking HILDA Retirement Data (2003) Against ABS 'Retirement and Retirement Intentions' (2004-05): Population aged 45 and over

	ABS 'Retirement…' %	HILDA %
Current retirement status		
Retired[a]	53	54
Not retired[a]	47	46
Age expect to retire (if not retired)[b]		
70 and over	8	11
65-69	39	37
60-64	31	31
55-59	19	18
Under 55	2	2

a. Only respondents who had previously undertaken some paid work are included.
b. Respondents who expected that they would never retire are excluded.

Again, the two sets of results match closely for all major categories. The only category in which HILDA is not close to the ABS benchmark is again a small one; people who expect to retire over the age of seventy.

Given the evidence that the HILDA cross-sectional results benchmark satisfactorily against ABS cross-sectional results, it is reasonable in this Report to rely heavily on HILDA's longitudinal evidence, making the plausible (although not foolproof) assumption that the longitudinal evidence will also be representative of national population trends.

In addition to HILDA, the surveys of which most use was made in this Report were the ABS surveys referred to above, plus the General Social Survey (2002) and ABS Labour Force Statistics (2006c).

Overview of contents

The Report is organised as follows. Part 2 describes recent historical trends in mature age labour force participation and attempts a precise description of the current *time uses* and *income sources* of people who remain in the labour force compared with those who do not. There is a particular focus on mature age HILDA respondents who did and did not exit the labour force in 2001-04.

The aim of Part 3 is to develop a multivariate statistical model of the determinants of who continues to work and who retires in the population aged 54-64 in 2001 (the first year of the HILDA Survey). The model incorporates variables relating to health, caring responsibilities, partner's labour force status, leisure preferences and also specific financial disincentives in the form of implicit taxes on work. The main data source for the model is HILDA 2001-04 and the main statistical method is pooled probit regression.

Part 4 deals with the somewhat separate topic of why so many more mature age people than people in younger age groups become long term unemployed. Why cannot those

who want another job find one? In this segment we report respondents' perceptions of their job prospects, but have no new data to offer on employer attitudes.

Part 5 addresses the policy implications of the project. It begins with a review of the experience of other Western countries with regard to mature age employment and early retirement. Particular attention is paid to countries and policies which have attempted, in some cases successfully, to maintain high rates of mature age workforce participation and/or to reverse the trend to early retirement. This leads on to a consideration of policy options which may be effective in Australia. How might tax (dis)incentives, income support payments, pension and superannuation entitlements be changed to increase labour supply? What steps could Governments and employers take to increase demand for older workers?

Part 5 also considers future research needs in this area, with particular focus on the value of simulations of the impact of recently announced policy changes, and also of alternative policy options.

PART 2
THE MATURE AGE POPULATION: WHO WORKS, WHO DOES NOT, AND WHY?

In Part 2 of this report the aim is to describe how many individuals aged 45 and older are in paid work, how many are unemployed and how many are 'not in the labour force'. How have the proportions changed in the last 30 years or so? We also review evidence from the special module on 'retirement intentions' in the HILDA Survey for 2003.

Labour force participation rates and other activities of mature age people

For people aged 45 years and above, participation rates were relatively steady from 1966 to 1973, declined from 1973 to 1985, and then grew steadily from 1985 onwards. Figure 1 shows that the participation rate of mature age men has declined substantially over the last forty years, and the participation rate of mature age women has been rising since the mid 1980's.[12] However, there has been a recent upswing in the participation rates of mature age workers – mostly due to increased labour force participation of older women - but the participation rates of older men have also increased slightly.
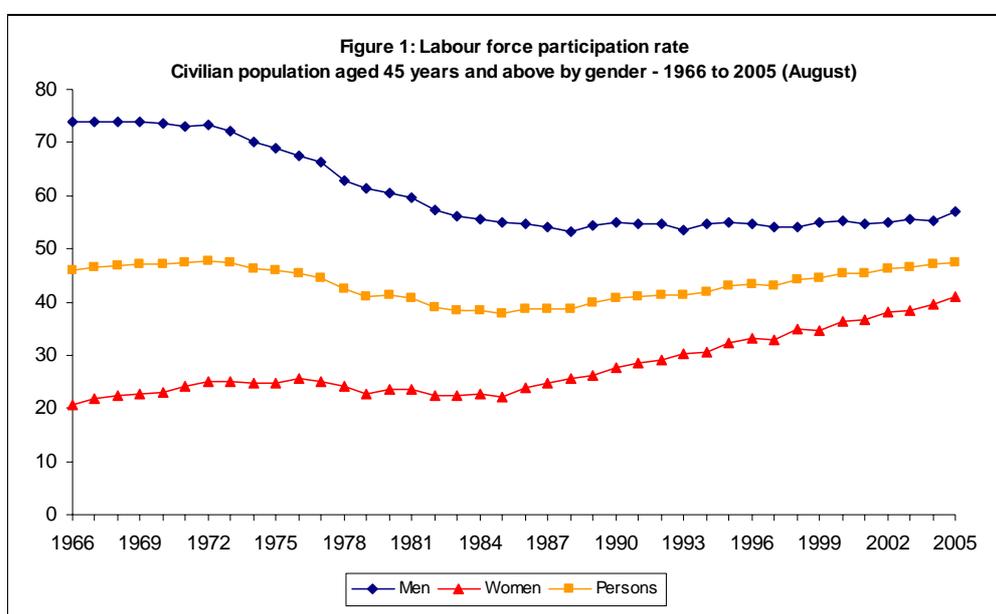
Figure 1: Labour force participation rate
Civilian population aged 45 years and above by gender - 1966 to 2005 (August)

Source: Australian Bureau of Statistics (ABS) 2006, 6291.0.55.001 Labour Force, Australia, Detailed.

Figure 2 shows that proportion of mature age men in full-time work has decreased substantially over the last 25 years - from just under 60% in 1978 to around 50% in the mid 1980's and 45% by the mid 1990's. At the same time, the proportion of mature age men who are not in the labour force has increased – from 35% in 1978 to just under 45% in 2005. There has been a slight increase in the proportion of mature age men undertaking part-time work – from less than 5% in 1978 to around 7% in 2006.

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[12] The labour force participation rate is the proportion of the population who are either working or looking for work.
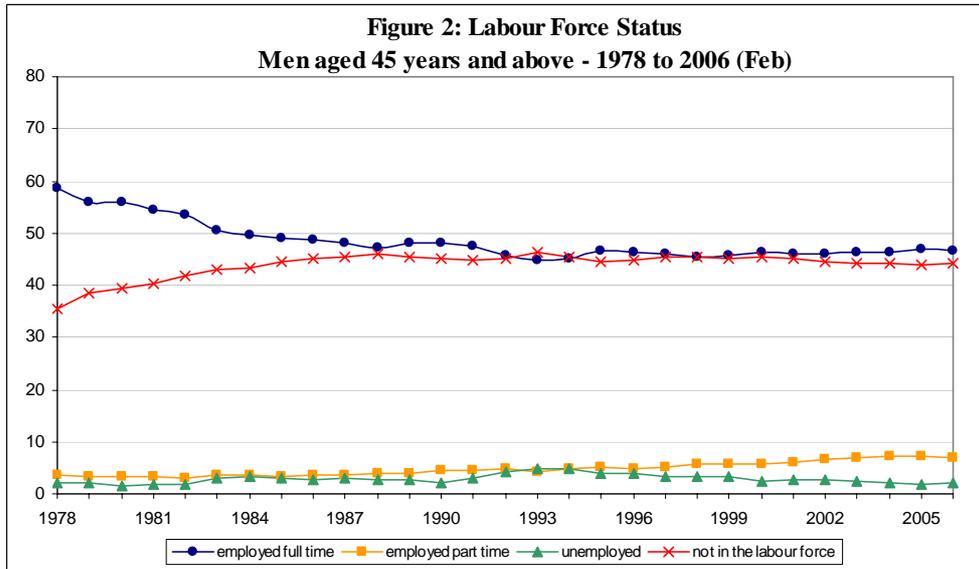
Figure 2: Labour Force Status
Men aged 45 years and above - 1978 to 2006 (Feb)

Source: Australian Bureau of Statistics (ABS) 2006, 6291.0.55.001 Labour Force, Australia, Detailed.

Conversely, the proportion of mature age women participating in the labour force has been increasing. Over the past two decades lifetime female participation in the labour force has increased substantially. Traditionally, women participated in the formal labour force until they got married, then never returned to a paid job. Now, with higher levels of education among women, and also greater availability of child care and maternity leave, fewer women withdraw completely from the workforce because of child care responsibilities. Figure 3 shows the labour force status of mature age women from 1978 to 2006.
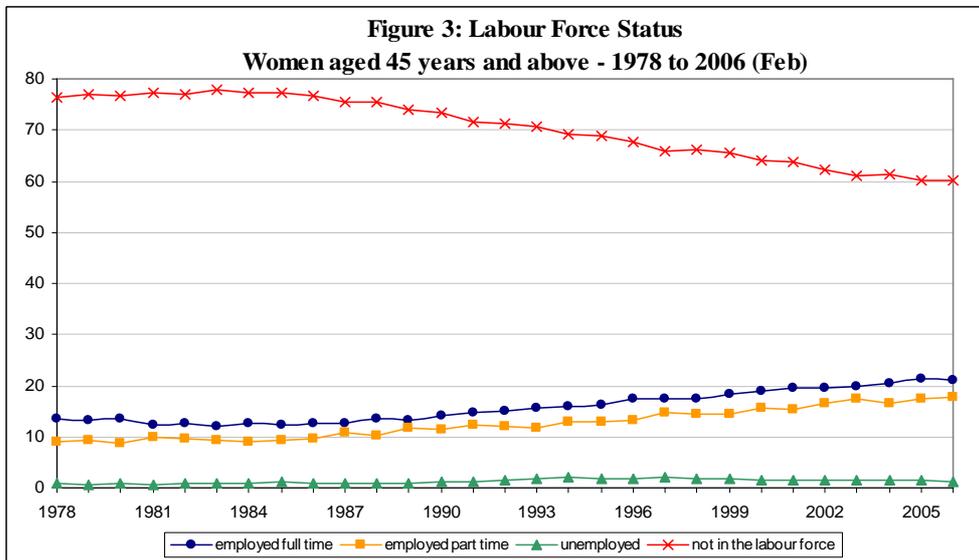
Figure 3: Labour Force Status
Women aged 45 years and above - 1978 to 2006 (Feb)

Source: Australian Bureau of Statistics (ABS) 2006, 6291.0.55.001 Labour Force, Australia, Detailed.

In the late 1970's and early 1980's the proportion of mature age women not participating in the labour force was around 75%. Since the late 1980's there has been a consistent increase in the proportion of mature age female participation so that by 2006 the proportion of non-participating mature age women had dropped to 60.1%.

While the previous figures provide us with information about labour force participation on specific dates, the HILDA Survey data allow us to examine transitions into and out of employment over the four year period from 2001 to 2004. [13]

Table 1: Number of years employed (at time of interview, 2001 to 2004) – persons aged 45+ in 2001

	Age Group (in 2001)					
	45-54	55-59	60-64	65-69	70+	Total
Men: Years employed (%)						
0	12.9	28.4	53.2	76.9	90.8	42.1
1	1.6[#]	9.1	6.7	6.2[#]	3.6[#]	4.3
2	3.3	5.7[#]	4.9[#]	-	1.6[#]	3.4
3	8.6	10.3	9.1	4.6[#]	2.4[#]	7.3
4	73.6	46.6	26.2	11.1	1.7[#]	42.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Women: Years employed (%)						
0	21.7	45.1	72.6	85.2	96.8	55.7
1	6.7	8.0[#]	5.1[#]	5.4[#]	1.8[#]	5.4
2	5.3	3.9	3.6[#]	-	-	3.3
3	7.6	7.3	3.7	3.5[#]	0.7[#]	5.0
4	58.7	35.6	15.0	4.6[#]	-	30.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 4495.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Table 1 shows that just over 40% of mature age men were employed at all four time points, 42.1% were not employed in any of the four years, and the remaining 15% were employed at least once but not at all four dates. Just over half the mature age women (55.7%) were not employed in any of the four years, 30.6% were employed in all four years and 13.7% were employed in one, two or three of the four years. For both men and women, the proportion of who were employed at all four time points decreased with age.

Despite a general picture of continuity, Table 2 nevertheless shows that among mature age men, 61.3% were in work at some stage during the four years from 2001 to 2004; 10.4% spent some time unemployed and looking for work, and 56.1% spent some time 'not in the labour force'. These last two estimates are both, perhaps, higher than expected.

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[13] This table shows the number of years that mature age people were employed, based on employment status at the time of their HILDA interview each year.

Table 2: Proportion who spent any time, employed, unemployed and not in the labour force (2001-2004)

	Age Group (in 2001)					
	45-54 (%)	55-59 (%)	60-64 (%)	65-69 (%)	70+ (%)	Total (%)
Men						
Some time employed 2001-04	89.8	74.7	53.7	31.5	10.0	61.3
Some time unemployed 2001-04	14.0	16.9	10.2	-	2.4#	10.4
Some time NLF 2001-04	25.3	52.9	69.7	90.0	98.1	56.1
Women						
Some time employed 2001-04	81.0	63.1	34.5	19.9	4.8	48.3
Some time unemployed 2001-04	15.1	9.6	4.0#	3.3#	1.4#	8.5
Some time NLF 2001-04	44.3	66.1	85.9	95.1	99.7	70.9

*Population weighted results, Sample N = 4495.
Cell size less than 20. Cells with less than 5 observations left blank.

Women's time uses are of course somewhat different, partly because of the demands of child-rearing. But, even so, 48.3% had spent some time in paid work, 8.5% had been unemployed, and 70.9% had spent time 'not in the labour force'.

Labour force status in 2004

How many work part-time and how many work full-time? Using the third wave of HILDA Survey Data, Borland and Warren (2005) found that whether a mature age person is employed appears to be primarily associated with health status, education and previous labour market experience, and, for those who were employed, being in full-time work is mainly associated with age, industry and job characteristics such as whether self-employed or working in a casual job. Table 3 shows the labour force status of mature age men and women in 2004.

Table 3: Labour force status by age and sex (2004)

	45-54 (%)	55-59 (%)	60-64 (%)	65-69 (%)	70+ (%)	Total (%)
Men						
Employed full-time	76.9	53.9	28.7	8.4	3.2	44.1
Employed part-time	7.6	13.0	19.5	10.2	3.0	9.3
Unemployed	2.1	2.1#	-	-	-	1.4
Not in the labour force	13.4	31.0	50.9	80.5	93.8	45.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Women						
Employed full-time	39.2	26.6	8.8	2.4#	-	20.0
Employed part-time	33.5	23.4	17.0	7.9	1.7#	19.3
Unemployed	2.0	1.2#	-	-	-	1.2
Not in the labour force	25.3	48.9	73.0	88.7	98.1	59.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 5675.
Cell size less than 20. Cells with less than 5 observations left blank.

The proportion of mature age men who work full-time decreases with age and the proportion who work part-time increases with age until the age of 65, when many men leave the labour force. For women, the proportion in both full-time and part-time work decreases with age.[14]

Does the presence of a spouse or partner have an impact on labour force status? Table 4 compares labour force status of single and partnered men and women aged 45 or older in 2004.

Table 4: Labour force status by age, sex and marital status (2004)

	45-54 (%)	55-59 (%)	60-64 (%)	65-69 (%)	70+ (%)	Total (%)
Partnered Men						
Employed full-time	82.6	56.1	32.4	9.9	3.7[#]	48.0
Employed part-time	7.0	13.4	20.7	9.7	3.1[#]	9.5
Unemployed	0.7[#]	2.3[#]	-	-	-	1.0[#]
Not in the labour force	9.4	28.2	45.9	79.7	93.3	41.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Single Men						
Employed full-time	56.6	44.3	9.9[#]	-	1.9[#]	30.2
Employed part-time	9.5	11.3	13.2[#]	12.3[#]	2.9[#]	8.5
Unemployed	6.5	-	-	-	-	2.9[#]
Not in the labour force	27.5	43.2	76.2	83.6	95.2	58.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Partnered Women						
Employed full-time	36.3	22.1	5.5[#]	-	-	20.4
Employed part-time	37.1	25.6	18.4	6.0[#]	1.8[#]	23.8
Unemployed	1.5[#]	-	-	-	-	1.1[#]
Not in the labour force	25.1	51.3	75.0	90.8	98.1	54.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Single Women						
Employed full-time	47.5	37.7	16.8	4.0[#]	-	19.3
Employed part-time	23.0	18.0	13.6[#]	11.5[#]	1.6[#]	11.4
Unemployed	3.6[#]	-	-	-	-	1.2[#]
Not in the labour force	25.9	43.0	68.2	84.4	98.2	68.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 5675.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Compared with single men, a higher proportion of partnered men were employed full-time, particularly in the 45-54 age group. The proportion of single men in this age group who were not in the labour force was strikingly high at 27.5%, compared to only 9.4% of partnered men. It appears that men with partners remain in the labour force longer than single men – 11.5% of partnered men aged 65 and over were still in the labour force, compared to 7.7% of single men.

Full-time work was more common for single women, and partnered women were more likely to work part-time, particularly in the 45-64 age group. By the age of 65 most

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[14] Similar figures were obtained from the ABS General Social Survey (2002).

women had left the labour force - less than 1% were working full-time and around 3.5% did some part-time work.

Reasons for working part-time

What is the main reason people work part-time? Table 5 shows that most mature age men and women who worked part-time did so because they preferred part-time work – 45% of mature age men and women who were working part-time said it was because they preferred part-time work, and a further 11.9% said they worked part-time because they enjoyed their job and part-time hours were a requirement of their job.

Table 5: Reason for working part-time – people employed part-time (2004)

	Men (%)	Women (%)	Total (%)
Prefer part-time work	42.4	46.2	45.0
Prefer job and part-time hours are a requirement of the job	8.9	13.3	11.9
Caring for children	1.5[#]	11.9	8.7
Could not find full-time work	9.6[#]	6.8	7.6
Own illness or disability	11.1	3.3	5.7
Other personal or family responsibilities	-	5.9	4.0
Welfare payments or pension may be affected by working full-time	1.8[#]	1.7[#]	1.8[#]
Getting business established	5.5[#]	-	1.8[#]
Caring for disabled or elderly relatives [not children]	-	1.9[#]	1.6[#]
Going to school, college, university etc.	-	-	0.6[#]
Involved in voluntary work	-	-	-
Attracted to pay premium attached to part-time / casual work	-	-	-
Other	16.5	8.2	10.8
Total	100.0	100.0	100.0

*Population weighted results, Sample N = 860.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

While a high proportion of mature age men and women worked part-time by choice, 7.6% of mature age people who were working part-time said they did so because they could not find full-time work. It was more common for men than women to say they worked part-time because of illness or disability – 11.1% of mature age men who worked part-time gave this reason, compared to only 3.3% of mature age women who worked part-time.

Very few men who worked part-time gave caring responsibilities as their reason for working part-time. On the other hand, 11.9% of mature age women said they worked part-time because they were caring for children and a further 5.9% said they worked part-time because of other personal or family responsibilities.[15]

While most mature age people who work part-time do so by choice, some work part-time because it is a requirement of their job, and others do so because they cannot find full-time work. Are mature age people actually working the hours they desire?

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[15] Women who gave this reason for working part-time were predominantly in the 45-54 age group.

Table 5: Preferred hours of work – employed persons aged 45+ (2004)

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men – employed full-time					
Fewer hours	44.4	42.7	37.9	33.0[#]	43.1
Same hours	49.1	55.4	61.0	67.0	52.0
More hours	6.5	-	-	-	4.9
Total	100.0	100.0	100.0	100.0	100.0
Men – employed part-time					
Fewer hours	11.7[#]	7.5[#]	-	-	8.7
Same hours	43.9	59.5	73.3	88.2	63.5
More hours	44.4	33.0	-	-	27.8
Total	100.0	100.0	100.0	100.0	100.0
Women – employed full-time					
Fewer hours	50.0	39.8	-	-	47.3
Same hours	46.8	59.8	59.9	-	50.3
More hours	3.2[#]	-	-	-	2.4
Total	100.0	100.0	100.0	100.0	100.0
Women – employed part-time					
Fewer hours	10.9	11.9[#]	-	-	11.6
Same hours	62.6	60.5	77.3	76.1	64.6
More hours	26.5	27.6	-	-	23.8
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2702.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Table 6 shows that most are content with the hours they are working. However, over 40% of men aged 45-59 who were working full-time said they would prefer to work fewer hours, and 44.4% of men aged 45-54 who worked part-time would like to work more hours. Mature aged women who worked part-time were the most satisfied with their working hours – over 60% of all 45-59 year old women, and more than three quarters of those over 60 who worked part-time said they would not want to change their working hours. On the other hand, half the women in the 45-54 age group who worked part-time said they would prefer to work fewer hours. This is particularly the case for women with a spouse or partner - 55.9% of partnered women aged 45-54 who worked full-time said they would prefer to work fewer hours. Conversely, a high proportion (47.7%) of single women aged 45-54 who worked part-time said they would prefer to work more hours.

Expectations for the future: what do mature age people want to be doing in one, five and ten years time?

People who were employed at the time of their 2003 HILDA survey interview were asked how they think their hours of work will change in one, five and ten years time; and also how well they would be able to make ends meet if they retired in one, five or ten years time. Table 6, 7 and 8 show the responses of mature age men and women, by age group and marital status.

Table 6: Compared with your current situation, how do you think your hours of paid work will change in 1 years time (persons aged 45+ in 2003)?

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Single Men					
More hours	12.0	-	-	-	9.9
Same hours	79.0	76.5	72.8	88.7	78.8
Less hours	8.6	19.3	-	-	10.6
No work at all	-	-	-	-	-
Total	100.0	100.0	100.0	100.0	100.0
Partnered Men					
More hours	13.6	5.8[#]	7.0[#]	-	10.6
Same hours	76.2	75.3	70.0	67.5	74.8
Less hours	9.4	16.2	12.9[#]	21.8[#]	12.0
No work at all	0.7[#]	2.8[#]	10.1[#]	6.7[#]	2.6
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
More hours	22.9	6.4[#]	-	-	16.0
Same hours	68.9	82.6	70.1[#]	65.1[#]	72.1
Less hours	7.4	7.4	26.1	13.7	9.5
No work at all	-	-	-	-	2.5[#]
Total	100.0	100.0	100.0	100.0	100.0
Partnered Women					
More hours	13.0	7.5[#]	-	-	11.3
Same hours	76.1	69.7	66.7	74.4	74.3
Less hours	10.1	13.3	15.1[#]	-	10.9
No work at all	0.8[#]	9.5[#]	14.1[#]	-	3.5
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2691.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Around 75% of mature age men and women who were employed at the time of their 2003 interview said they expected to be working the same hours as they did now, in 1 year's time. The proportion of men who said they would not be working was highest for the 60 to 64 age group, which may indicate that many thought they would retire close to the 'usual' retirement age of 65.

Table 7: Compared with your current situation, how do you think your hours of paid work will change in 5 years time (persons aged 45+ in 2003)?

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Single Men					
More hours	9.0#	-	-	-	7.8
Same hours	62.5	38.8#	-	39.6#	56.0
Less hours	26.3	45.5#	-	-	28.6
No work at all	2.2#	10.7#	45.0#	40.1#	7.7
Total	100.0	100.0	100.0	100.0	100.0
Partnered Men					
More hours	11.1	3.0#	3.9#	-	7.9
Same hours	54.5	39.3	17.2	33.2	45.7
Less hours	31.1	38.2	32.0	28.5	32.6
No work at all	3.3	19.5	47.0	37.7	13.8
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
More hours	13.8	-	-	-	8.8
Same hours	55.2	46.2	12.6#	-	46.1
Less hours	24.6	33.8	29.1#	36.3#	28.1
No work at all	6.4#	18.3#	58.3#	46.5#	16.9
Total	100.0	100.0	100.0	100.0	100.0
Partnered Women					
More hours	9.2	-	-	-	7.0
Same hours	47.6	26.1	17.9#	25.8#	41.1
Less hours	32.5	37.0	24.1#	42.9#	33.1
No work at all	10.7	35.9	56.1	31.3#	18.8
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2648.
Cell size less than 20. Cells with less than 5 observations left blank.

Around 30% of mature age men and women thought they would be working fewer hours in 5 years time. The proportion who thought they would not be working at all in 5 years time increased substantially with age, for example, among partnered men only 3.3% of 45-54 year olds thought they would not be working in 5 years, compared to 19.5% of 55-59 year olds and 47% of 60-64 year olds.

Table 8: Compared with your current situation, how do you think your hours of paid work will change in 10 years time (persons aged 45+ in 2003)?

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Single Men					
More hours	3.7[#]	-	-	-	3.1[#]
Same hours	39.5	17.0[#]	-	-	32.4
Fewer hours	42.5	41.1[#]	-	-	40.0
No work at all	14.3	41.9[#]	73.5[#]	67.8[#]	24.5
Total	100.0	100.0	100.0	100.0	100.0
Partnered Men					
More hours	4.1	-	-	-	2.9
Same hours	28.5	8.8	4.9[#]	13.4[#]	20.9
Fewer hours	42.8	27.2	14.8	19.8[#]	35.1
No work at all	24.5	62.5	79.7	66.8	41.1
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
More hours	7.1[#]	-	-	-	4.4
Same hours	33.1	22.4[#]	-	-	26.3
Fewer hours	39.0	19.9	13.9[#]	27.0[#]	31.0
No work at all	20.8	56.7	83.6	55.6[#]	38.2
Total	100.0	100.0	100.0	100.0	100.0
Partnered Women					
More hours	4.3	-	-	-	3.1
Same hours	18.2	7.6[#]	16.8[#]	-	16.1
Fewer hours	31.3	18.4	9.4[#]	-	26.9
No work at all	46.2	73.9	73.9	74.1	53.9
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2616.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

When asked about hours of work in 10 years time, most said they would be either working fewer hours or not working at all. Compared to partnered women, it was less common for single women aged between 45 and 59 to say they would not be working at all in 10 years time.

It was more common for men and women who were working part-time, particularly those aged between 45 and 54, to say thought they would work more hours in all three time frames. Compared to men and women who were not in transition jobs at the time of their 2003 interview, it was more common for men and women who were in transition to say that they would be working fewer hours, or not working at all in 1, 5 and 10 years time.

Men and women whose partners were not in paid work were more likely to say that they would not be in paid work in 5 years time – 24.2% of men whose partner was not in paid work said they thought they would no longer be working in 5 years time, compared to 10.5% of men whose partners were employed and 7.7% of single men (see table A10). This is also the case for mature age women – 16.9% of single women and 16.9% of

women whose partner was employed thought they would not be in paid work in 5 years time, compared to 34% of women whose partner was not in paid work.

The proportion of single women who thought they would not be in paid work in 5 years time was 16.9% - the same as for women whose partner was employed. Compared to single women and women with partners who were employed, a high proportion (34.0%) of women with partners who were not employed thought they would not be in paid work in 5 years time.

Respondents aged 45 and over who were in paid work in 2003 were also asked how well they would be able to make ends meet if they retired completely in one, five and ten years time. Tables 9, 10 and 11 show the pattern of responses.

Table 9: How well would you be able to make ends meet if you retired completely from work in 1 years time (persons aged 45+ in 2003)?

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Single Men					
Not enough to make ends meet	68.5	50.5	-	-	59.6
Just enough	23.2	41.6[#]	62.4[#]	54.3[#]	29.7
Enough to live comfortably	8.2[#]	7.9[#]	-	-	10.6
Total	100.0	100.0	100.0	100.0	100.0
Partnered Men					
Not enough to make ends meet	73.7	41.0	26.9	17.3[#]	57.9
Just enough	19.8	41.6	43.3	37.4	28.2
Enough to live comfortably	6.6	17.4	29.8	45.2	13.9
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
Not enough to make ends meet	80.5	60.6	34.5[#]	32.5[#]	68.0
Just enough	13.4	28.4	50.1[#]	32.0[#]	21.8
Enough to live comfortably	6.1[#]	11.0[#]	15.4[#]	35.5[#]	10.2
Total	100.0	100.0	100.0	100.0	100.0
Partnered Women					
Not enough to make ends meet	60.8	31.7	24.1[#]	-	51.6
Just enough	25.3	43.7	48.1	45.6[#]	30.7
Enough to live comfortably	13.9	24.6	27.8[#]	44.6[#]	17.7
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2698.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

It was quite common for men and women in the 45 to 54 age group to say they would not be able to make ends meet if they retired from work in one year's time. Of course most would not have been planning to retire within 1 year – the average expected retirement age for single men and women in the 45-54 age group was 63, for partnered men it was 62 and for partnered women 59.

Table 10: How well would you be able to make ends meet if you retired completely from work in 5 years time (persons aged 45+ in 2003)?

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Single Men					
Not enough to make ends meet	55.5	25.9#	-	-	45.8
Just enough	32.1	51.6	47.4#	55.7#	37.4
Enough to live comfortably	12.4	22.5#	-	-	16.9
Total	100.0	100.0	100.0	100.0	100.0
Partnered Men					
Not enough to make ends meet	48.7	16.5	11.5#	-	35.1
Just enough	36.3	55.1	50.1	44.2	42.3
Enough to live comfortably	15.1	28.4	38.4	48.8	22.6
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
Not enough to make ends meet	62.7	40.3	15.7#	27.8#	50.5
Just enough	29.0	44.7	56.3	31.7#	35.5
Enough to live comfortably	8.3#	15.0#	27.9#	40.5#	14.0
Total	100.0	100.0	100.0	100.0	100.0
Partnered Women					
Not enough to make ends meet	35.1	15.5	15.6#	-	29.3
Just enough	41.3	49.2	50.1	44.8#	43.4
Enough to live comfortably	23.6	35.3	34.3#	55.2#	27.3
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2663.
Cell size less than 20. Cells with less than 5 observations left blank.

Compared to the percentage of men and women who said they would not be able to make ends meet if they retired in one years time, the percentage of men and women aged 45-54 who said they would not be able to make ends meet if they retired in 5 years time was smaller, but still 62.7% of single women, 55.5% of single men and 48.7% of partnered men said they would not be able to make ends meet if they were to retire at that stage. Only 35.1% of partnered women aged 45-54 said they would not be able to make ends meet if they retired in 5 years time – presumably many thought they would rely on their spouse's income.

Table 11: How well would you be able to make ends meet if you retired completely from work in 10 years time (persons aged 45+ in 2003)?

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Single Men					
Not enough to make ends meet	35.0	13.9[#]	-	-	28.7
Just enough	40.8	48.0	37.6[#]	63.1[#]	43.1
Enough to live comfortably	24.2	38.2[#]	52.7[#]	29.5[#]	28.2
Total	100.0	100.0	100.0	100.0	100.0
Partnered Men					
Not enough to make ends meet	20.1	10.3	11.1[#]	-	16.3
Just enough	44.1	48.7	42.9	35.6	44.4
Enough to live comfortably	35.9	41.0	46.0	55.5	39.3
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
Not enough to make ends meet	39.4	26.9[#]	21.2[#]	30.3[#]	34.2
Just enough	41.9	51.9	43.0[#]	22.2[#]	43.1
Enough to live comfortably	18.7	21.3	35.8	47.5[#]	22.8
Total	100.0	100.0	100.0	100.0	100.0
Partnered Women					
Not enough to make ends meet	15.4	10.1[#]	8.7[#]	-	13.7
Just enough	43.6	43.5	47.8	39.2[#]	43.7
Enough to live comfortably	41.1	46.5	43.5	55.0[#]	42.6
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2615.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

While many people in the 45-54 age group were not prepared financially to retire within 5 years, only 20.1% of partnered men and 15.4% of partnered women in this age group said they would not be able to make ends meet if they were to retire in 10 years time. Compared to partnered men and women, the percentages of single people in this age group who said they would not be able to make ends meet if they retired in 10 years were considerably higher – 39.4% of single women and 35.0% of single men aged 45-54 said they would not be able to make ends meet if they retired at that stage.

Overall, single women were least prepared financially for retirement – 68.0% of single women aged 45 and over said they would not be able to make ends meet if they retired from work in 1 years time, 50.5% said they would not be able to make ends meet if they retired in 5 years time, and 34.2% said they would not be able to make ends meet if they retired in 10 years time (compared to 28.7% of single men, 16.3% of partnered men and 13.7% of partnered women).

Compared to partnered men and women, more single men and women think they will not be able to make ends meet when they retire. In fact, most single people expect the Age Pension to be the main source of funding for their retirement and evidently the Age Pension is not perceived by them as affording a satisfactory standard of living.

**Table 12a: What do you expect to be your main source for funding your retirement
- men who have not yet completely retired (2003)**

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Partnered Men					
Age Pension / Service pension	19.8	22.6	39.8	38.9	23.7
Lump sum superannuation payout	27.3	24.3	7.3#	3.6#	23.2
A pension or annuity purchased with superannuation or some other funds	25.9	31.8	23.4	24.0	26.8
Income from savings and investments	17.5	10.2	16.5	21.5#	16.0
Other government pension or allowance	2.6#	3.3#	4.9#	-	2.9
Income from a business	4.3	6.0#	6.7#	7.2#	5.1
Income or pension from your spouse / partner	1.0#	-	-	1.0#	0.7#
Financial support from family	-	-	-	1.5#	0.3#
Other source	1.3#	1.4#	1.4#	2.2#	1.3#
Total	100.0	100.0	100.0	100.0	100.0
Single Men					
Age Pension / Service pension	38.8	44.7	57.8#	41.9#	40.7
Lump sum superannuation payout	26.4	20.8#	0.0#	0.0#	23.4
A pension or annuity purchased with superannuation or some other funds	15.1	5.3#	22.3#	4.6#	13.6
Income from savings and investments	9.5	20.9#	5.3#	49.3#	12.3
Other government pension or allowance	4.3#	3.6#	-	-	3.9#
Income from a business	1.5#	4.7#	14.5#	-	2.6#
Income or pension from your spouse / partner	1.0#	-	-	-	0.7#
Financial support from family	2.6#	-	-	-	2.0#
Other source (Specify)	0.8#	-	-	4.1#	0.7#
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 1481.
Cell size less than 20. Cells with less than 5 observations left blank.

Just over 50% of partnered men aged 45 or more said the main source of funding for their retirement would be either a lump sum superannuation payment, or a pension or annuity purchased with superannuation or other funds. The proportion of single men who expected to fund their retirement with super (or an annuity) was only 37%. Compared to partnered men, it was more common for single men to say that their main source of funding in retirement would be the Age Pension – 40.7% of single men gave this answer, compared to only 23.7% of partnered men. For both single and partnered men between the ages of 45 and 64, the proportion who said they expected the Age Pension to be their main source of funding increased with age – this is probably because men in the younger age groups have the ability to accumulate more super, compared to men in the older age group, for whom the Superannuation Guarantee was not in place for most of their working lives.

Table 12b: What do you expect to be your main source for funding your retirement - women who have not yet completely retired (2003)

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Partnered Women					
Age Pension / Service pension / Widows pension / War widows pension	26.0	36.6	31.6#	20.5#	28.3
Other government pension or allowance	23.1	12.4	9.2#	0.0#	19.6
Lump sum superannuation payout	17.2	17.6	18.7#	8.6#	17.2
A pension or annuity purchased with superannuation or some other funds	17.3	14.0	28.9#	44.1#	18.0
Income from savings and investments	4.1	2.2#	1.4#	-	3.5
Income from a business	3.5	7.4#	1.7#	19.0#	4.6
Income or pension from your spouse / partner	7.9	9.4#	6.3#	7.8#	8.1
Financial support from family	0.5#	-	-	0.0#	0.4#
Other source	-	-	2.2#	0.0#	0.5#
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
Age Pension / Service pension / Widows pension / War widows pension	44.7	54.5	54.9#	60.2#	48.3
Lump sum superannuation payout	7.5	4.4#	2.9#	3.9#	6.4
A pension or annuity purchased with superannuation or some other funds	20.5	13.0#	10.6#	-	17.1
Income from savings and investments	14.3	12.3#	19.2#	11.8#	14.1
Other government pension or allowance	9.7	9.9#	12.3#	18.1#	10.3
Income from a business	1.9#	1.6#	-	-	1.6#
Income or pension from your spouse / partner	0.3#	-	-	-	0.2#
Financial support from family	0.8#	-	-	-	0.6#
Other source	-	4.3#	-	6.0#	1.4#
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 1331.
Cell size less than 20. Cells with less than 5 observations left blank.

Almost half the single women aged over 45 who were still in paid employment at the time of their 2003 interview expected the Age Pension to be their main source of funding in retirement, compared to only 28.3% of partnered women. As was the case with men, the proportion of single women who expected to fund their retirement through a superannuation payout or an annuity was much lower than that of women with partners – 23.5% of single women compared to 36.9% of partnered women.

Mature age people not in the workforce – why are they not participating?

The HILDA Survey indicates that 46.6% of mature age men and 60.7% of mature age women were not in paid work at the time of their 2004 interviews. There are many possible reasons, for example:

- some are looking for work – want to work but having trouble finding a job;
- some are happily retired – don't want to work;
- some want to work but are hampered by health problems;
- some want to work but cannot do so because of caring responsibilities (mostly women caring for children, or caring for ill or disabled family members), or they prefer to care for children/others rather than work.

How many are looking for work, and what problems are they having in finding a job?

A relatively small proportion of the mature age population who were not working in 2004 were actively seeking work. Table 13 shows that only 3.8% of mature age men and 2.9% of mature age women who were not in paid employment had looked for work in the four weeks before their 2004 interview. This proportion is much higher for men and women aged between 45 and 54, with 19.6% of men and 12.3% of women in this age group looking for a job.

Table 13: Proportion who looked for work in the last 4 weeks by age, sex and marital status (2004)

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men					
Single	25.6	2.5[#]	-	-	6.5
Partnered	12.9[#]	9.2[#]	2.5[#]	-	2.6
All	19.6	7.1[#]	2.9[#]	-	3.8
Women					
Single	18.2[#]	4.6[#]	-	-	3.1
Partnered	9.3[#]	3.3[#]	1.7[#]	-	2.8
All	12.3	3.7[#]	2.4[#]	-	2.9

*Population weighted results, Sample N = 2968.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Of those who had looked for work, the most common difficulty reported was that employers thought they were too old – 26.4% of mature age men and women who had looked for work reported this difficulty. Bad health was the second most common reason, with around 20% saying that health problems had made it difficult for them to get a job.

The majority of mature age people who were not in paid work were not looking for a job. People who were not in paid work and not seeking work were asked about their main activity since they last worked or looked for work. The results are summarised in Table 14.

Table 14: Main activity since last worked or looked for work – persons 45+ who have not looked for work in the last 4 weeks (2004)

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men					
Retired / Voluntarily Inactive	20.3	42.9	69.0	94.7	76.7
Own illness, injury or disability	53.6	40.9	21.6	1.3	14.7
Looking after ill or disabled person	6.5[#]	6.5[#]	1.2[#]	0.6[#]	2.0
Working in an unpaid voluntary job	-	-	3.8[#]	1.6[#]	1.9
Home duties / Childcare	9.0[#]	1.5[#]	-	0.3[#]	1.5
Travel / On holiday / Leisure activities	-	-	-	0.9[#]	1.4[#]
Study / Went to school, TAFE or university	3.6[#]	-	-	-	0.9[#]
Other activity	-	-	-	-	0.9[#]
Total	100.0	100.0	100.0	100.0	100.0
Women					
Retired / Voluntarily Inactive	13.8	42.5	64.0	78.5	61.8
Home duties / Childcare	53.5	34.5	23.5	15.0	24.7
Own illness, injury or disability	18.1	11.5	4.5[#]	1.1[#]	5.6
Looking after ill or disabled person	5.5[#]	5.8[#]	4.0[#]	1.6[#]	3.1
Working in an unpaid voluntary job	2.1[#]	2.6[#]	2.1[#]	1.9	2.1
Travel / On holiday / Leisure activities	1.6[#]	0.4[#]	1.0[#]	1.1[#]	1.1[#]
Study / Went to school, TAFE or university	4.8[#]	-	-	-	0.9[#]
Other activity	-	-	-	0.6[#]	0.8[#]
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2870.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

The proportion of men and women who were retired of course increased with age. For men between the ages of 45 and 59, the most common reason for not working and not looking for work was because they had an illness or disability. On the other hand, it was more common for women in the 45 to 54 age group to say they were not participating in the labour force because of home duties and child care responsibilities.

The proportion of single men who were not working because of injury or illness was higher than that of partnered men, particularly for men in the 55 to 59 age group, where 61.3% of single men said their main reason for not working was ill-health, compared to 33.7% of partnered men. In the 60-64 age group retirement or voluntary inactivity was much more common for partnered men (72.8%) than single men (57.4%). Compared to single women, a much higher proportion of partnered women said their main activity since they last worked was home duties or child care.

Do people who are not participating want to work?

How many of the non-participating mature age population report that they want work? Table 15 shows the proportion who said they would like a job, even though they were not looking for work at present.

Table 15: Even though you are not looking for work now, would you like a job, assuming suitable child care arrangements could be found? (2004)

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men					
Yes, would like a job	31.6	17.5	15.3	3.9	10.1
Maybe	7.7[#]	4.4[#]	6.4[#]	1.2[#]	3.1
No	60.8	78.2	78.3	94.9	86.8
Total	100.0	100.0	100.0	100.0	100.0
Partnered Men					
Yes, would like a job	26.3[#]	14.2[#]	15.6[#]	3.3[#]	8.4
Maybe	8.8[#]	-	3.9[#]	1.4[#]	2.6
No	64.8	83.1	80.5	95.3	89.0
Total	100.0	100.0	100.0	100.0	100.0
Single Men					
Yes, would like a job	38.2	26.5[#]	14.1[#]	5.3[#]	14.4
Maybe	-	-	14.4[#]	-	4.3[#]
No	55.6	64.7	71.5	93.8	81.3
Total	100.0	100.0	100.0	100.0	100.0
Women					
Yes, would like a job	30.0	12.5	8.8	2.1	8.7
Maybe	5.4[#]	2.8[#]	-	1.2[#]	2.0
No	64.6	84.7	90.1	96.7	89.3
Total	100.0	100.0	100.0	100.0	100.0
Partnered Women					
Yes, would like a job	26.1	11.6[#]	6.8[#]	1.4[#]	8.8
Maybe	4.6[#]	-	-	-	1.5[#]
No	69.3	87.7	92.6	97.8	89.7
Total	100.0	100.0	100.0	100.0	100.0
Single Women					
Yes, would like a job	41.0	15.0[#]	14.2[#]	2.8[#]	8.6
Maybe	8.0[#]	9.3[#]	-	1.4[#]	2.7
No	51.0	75.6	83.8	95.8	88.7
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 2870.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

For mature age people who were not looking for work but said they would like to work, the most common reason for not looking for work was an illness or disability – 46.6% of men and 34.2% of women gave this reason. For 11.9% of women aged 45 or over who were not working, but would like to work, caring responsibilities (ill-health of someone other than self/other family reasons) was the reason they had not looked for a job.

Table 16 shows that most mature age men and women who were not looking for work, but would like to work, said they would be able to start work in the next four weeks if they were offered a suitable job.

Table 16: Proportion who could start work in the next four weeks if offered a suitable job (and suitable child care was available) – mature age men and women who are not in paid employment, not looking for work, but would like to work

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men	73.1	59.8[#]	83.5	80.8	74.7
Women	77.6	77.1	87.5	78.4	79.0
Total	76.1	68.6	85.1	79.7	77.0

*Population weighted results, Sample N = 322.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

So it appears that there are people who would like to work, but are not currently looking for work, who would be willing to start almost immediately if they were offered a suitable job. Many report that they have a health problem but imply that they could work if a suitable job could be found.

Both this group of people and those actively seeking work were asked to give their opinion of their employment prospects. The responses to the question "What do you think is the *per cent chance* that you will find a suitable job in the next 12 months?" are shown in Table 17.

Table 17: Employment prospects (% chance of finding a suitable job) in the next 12 months

	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men – looking for work					
0	5.3[#]	49.0[#]	-	-	13.5[#]
1-49	27.3[#]	14.1[#]	69.4	48.3[#]	29.7[#]
50+	67.4	36.9[#]	30.6[#]	51.7[#]	56.8
Total	100.0	100.0	100.0	100.0	100.0
Men – not looking for work					
0	25.9[#]	-	-	-	43.5
1-49	29.8[#]	16.2[#]	-	-	35.0
50+	44.3	-	-	-	21.5
Total	100.0	100.0	100.0	100.0	100.0
Women – looking for work					
0	7.7[#]	10.7[#]	14.2[#]	0.0[#]	8.5[#]
1-49	31.7[#]	57.7[#]	26.0[#]	0.0[#]	33.5[#]
50+	60.6	31.6[#]	59.7[#]	100.0[#]	58.0
Total	100.0	100.0	100.0	100.0	100.0
Women – not looking for work					
0	20.3	44.7[#]	51.6[#]	61.0[#]	35.9
1-49	23.2	-	-	-	24.1
50+	56.4	40.5[#]	-	-	39.9
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 425.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

A majority of the men and women aged between 45 and 54 who were currently looking for work were quite positive about their employment prospects – 67.4% of men and 60.6% of women said the chance they would find a suitable job in the next 12 months was 50% or higher. By contrast, 43.5% of mature age men and 35.9% of mature age

women who were not currently looking for work (but reported that they would like to work) said there was a 0% chance that they would find a suitable job in the next 12 months. 21.5% of these men and 39.9% of the women who were not currently looking for work said there was a higher than 50% chance that they would find a suitable job in the next 12 months.

People who were not employed but who wanted to work were asked the lowest hourly wage they would accept, as well as the number of hours they would work if they were paid their desired hourly wage. The responses are shown in Tables 18 and 19.[16]

Table 18: What would be the lowest wage per hour (before any tax is taken out) that you would accept – mature age men and women (2004)

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men					
Less than 15	26.1[#]	14.9[#]	24.4[#]	26.8[#]	23.5
$15 to <$19	47.6	48.1[#]	48.0[#]	42.7[#]	46.8
$20 to <$25	11.7	26.0[#]	-	21.3[#]	15.5
$25+	14.7	-	21.4[#]	9.3[#]	14.2
Total	100.0	100.0	100.0	100.0	100.0
Women					
Less than 15	37.3	36.7[#]	23.2[#]	65.0[#]	38.9
$15 to <$19	39.5	48.7[#]	39.4[#]	18.9[#]	38.5
$20 to <$25	11.6[#]	-	-	-	12.1
$25+	11.5[#]	9.1[#]	-	-	10.6
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 395.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Almost half (46.8%) of the mature age men who were not working but wanted work said they were willing to work for an hourly wage of between $15 and $19. Compared to mature age men, a higher proportion of mature age women were willing to work for less than $15 per hour – close to minimum wage.[17]

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[16] This group includes people who were unemployed and looking for work, as well as those who were not employed and not looking for work, but said they would like a job.
[17] Minimum wage in Australia in 2004 was $12.30 per hour. See http://www.actu.asn.au/public/about/minimumwage.html

Table 19: If you were offered a job (paying the minimum amount you would work for) how many hours per week would you prefer to work in that job – mature age men and women (2004)

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men					
Less than 35 hours	35.5	45.9#	57.1	79.7	50.5
35 to 44 hours	61.2	51.1#	39.4#	17.4#	46.3
45+ hours	-	-	-	-	3.2#
Total	100.0	100.0	100.0	100.0	100.0
Women					
Less than 35 hours	78.3	75.0	84.3	96.2	80.8
35 to 44 hours	20.2	23.1#	15.7#	3.8#	18.0
45+ hours	-	-	-	-	1.1#
Total	100.0	100.0	100.0	100.0	100.0

*Population weighted results, Sample N = 395.
Cell size less than 20. Cells with less than 5 observations left blank.

Over 50% of mature age men and 80% of mature age women who were not working but wanted to work said they would prefer to work part-time. The proportion of men and women who wanted to work part-time increased with age. Only 35.5% of men in the 45 to 54 age said they wanted to work part-time, compared to 57.1% of men aged between 60 and 64, and 79.7% of men over the age of 65.

Men and women who were not in paid work at the time of their 2004 interview were asked the reasons they had stopped working in their most recent job. The reasons, broken down by age and gender, are shown in Table 20.

Table 20: Main reason stopped working in last job – men and women aged 45+ and not in paid work (2004)

	Men (%)	Women (%)	Total (%)
Job was temporary or seasonal	24.0	17.2	20.5
Retired/Did not want to work any longer	22.7	14.7	18.6
Own sickness, disability or injury	20.3	16.2	18.2
Got laid off/Retrenched/Made redundant	15.2	14.6	14.9
To stay at home to look after children, house or someone else	2.1#	12.5#	7.5
Not satisfied with job (e.g. unhappy with hours, pay etc)	9.4#	4.4#	6.9
Self employed Business closed down or sold for other reasons	1.9#	2.6#	2.2#
Self employed Business closed down for economic reasons	0.8#	2.8#	1.8#
To obtain a better job/Just wanted a change/To start a business	-	-	1.2#
Returned to study/Started study/Needed more time to study	-	-	1.2#
Spouse/partner transferred	-	-	0.9#
Travel/Have a holiday	-	-	0.7#
Pregnancy/To have children	-	-	0.7#
Other	3.0#	5.8#	4.4#
Total	100.0	100.0	100.0

*Population weighted results, Sample N = 320.
Cell size less than 20. Cells with less than 5 observations left blank.

For men and women who were not in paid work at the time of their 2004 interview, the most common reason for leaving their most recent job was that the job was temporary or seasonal – possibly indicating that, for some of these people, their last job was not their 'career job', but rather a 'bridging job' before leaving the workforce. For men, the second most common reason for leaving their last job was retirement (22.7%), and 20.3% said they left their last job because of sickness, injury or disability. Approximately 16% of mature age women who were no longer working said they left their last job because of sickness, injury or disability; and 14.7% left their last job because they retired. Around 15% of mature aged men and women left their last job because they were retrenched or made redundant.

Sources of income in the mature age population

What are the sources and levels of income for mature age people? Evidence is given relating to both individual wages and household disposable income. Table 21 shows the mean and median weekly wage for mature age men and women who were in paid work at the time of their 2004 interview, and Table 22 shows their mean and median wage income for Financial Year 2003-04.

Table 21: Weekly wage ($, gross) – means, medians in brackets - employed persons aged 45 and over (2004)

	Age Group				
	45-54	55-59	60-64	65+	Total
Men					
Employed part-time	397 (317)	373 (292)	490 (250)	214 (90)	397 (317)
Employed full-time	1003 (900)	972 (842)	816 (744)	404 (0)	970 (874)
All	948 (860)	829 (671)	670 (545)	315 (77)	867 (799)
Women					
Employed part-time	405 (375)	331 (307)	301 (268)	120 (31)	376 (346)
Employed full-time	771 (727)	810 (698)	627 (690)	396 (40)	768 (706)
All	605 (560)	567 (480)	410 (345)	178 (38)	576 (520)

*Population weighted results, Sample N = 2620.
#Cell size less than 20. Cells with less than 5 observations left blank.

For mature age men working full-time, average weekly wages range from $1003 per week for men aged between 45 and 54 to $404 per week for men aged 65 and over. The average weekly wages for mature age women were lower than that of men's, and ranged from $120 per week for women aged 65 and over who worked part-time, to $810 per week for women aged between 55 and 59 and working full-time. As Table 12 shows, there is a negative relationship between age and income within the 45-64 age cohort.

Table 22: Gross wage and salary income ($, 2003-04 financial year) – means, medians in brackets - employed persons aged 45 and over

	Age Group				
	45-54	55-59	60-64	65+	Total
Men					
Employed part-time	20161 (15000)	24084 (15942)	25591 (13000)	13378 (5000)	21358 (13091)
Employed full-time	52552 (48000)	52044 (45000)	45222 (38000)	24134 (21000)	51434 (45942)
All	49629 (45000)	45394 (38500)	36450 (26000)	19075 (5300)	46191 (41165)
Women					
Employed part-time	20779 (19680)	21777 (17853)	15885 (15600)	7356 (2000)	20050 (18300)
Employed full-time	39667 (39146)	36152 (36000)	31133 (38000)	32755 (38000)	38464 (38000)
All	31065 (28600)	28867 (25000)	20967 (19000)	12737 (3000)	29442 (27000)

*Population weighted results, Sample N = 2620.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Average wage and salary income for the 2003-03 financial year ranged from $7356 for women aged 65 and over and working part-time, to $52552 for men in the 45 to 54 age group who worked full-time.

Household disposable income for the mature age population

One useful measure of the material standard of living of the mature age population is household disposable income - how much money they have available to spend. Table 23 shows the average household disposable income for couple households and single person households[18] in which the household reference person[19] is aged 45 or over.

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[18] Excluding households with resident children or other household members.
[19] In couple households, the household reference person was the highest income earner. If the incomes were equal, the older person was selected as the household reference person.

Table 23: Average household disposable income ($'000, medians in brackets), 2003-04 financial year – household reference person aged 45+

Household Type	Age of household reference person				
	45-54	55-59	60-64	65+	All 45+
Couple - woman working FT, man PT	81 (82)[#]	82 (70)[#]	66 (68)[#]	-	78 (76)
Couple - both working full-time	78 (73)	83 (71)	71 (74)[#]	41 (39)[#]	78 (72)
Couple - man working FT, woman PT	65 (60)	76 (73)	76 (47)	77 (61)[#]	71 (61)
Couple - man working PT, woman not working	48 (52)[#]	93 (56)[#]	90 (76)[#]	48 (40)	70 (55)
Couple - woman working FT, man not working	58 (54)[#]	78 (46)[#]	-	-	67 (54)
Couple - man working FT, woman not working	65 (47)	76 (64)	54 (49)	45 (48)[#]	64 (53)
Couple - both working part-time	57 (58)[#]	71 (42)[#]	59 (63)[#]	35 (35)[#]	57 (51)
Couple - woman working PT, man not working	35 (24)[#]	54 (30)[#]	49 (48)[#]	37 (33)[#]	45 (34)
Single man - working full-time	41 (40)	36 (38)	31 (27)[#]	60 (53)[#]	41 (38)
Single woman - working full-time	34 (35)	39 (34)	28 (26)[#]	41 (37)[#]	35 (34)
Couple - both not working	26 (23)[#]	41 (36)	41 (25)	32 (26)	34 (26)
Single man - working part-time	22 (18)[#]	27 (26)[#]	26 (22)[#]	25 (23)[#]	25 (22)
Single woman -working part-time	23 (19)	30 (22)	35 (37)[#]	25 (18)[#]	28 (21)
Single man - not working	17 (13)	26 (15)	18 (14)	18 (13)	18 (13)
Single woman - not working	12 (11)	14 (12)	26 (14)	15 (13)	16 (13)

*Population weighted results, Sample N = 2399 households.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Couple households where either both partners were working, or at least one was working full-time, had the highest mean disposable incomes. The median household disposable income for single retired men and women in the 2003-04 financial year was around $14000, suggesting that a high proportion rely solely on the Age Pension[20] or other types of Government income support payment[21]. Table 24 shows the percentages of households where some type of income support was received in Financial Year 2003-04.

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[20] The Age Pension in March 2003 was $11447.80 per annum for singles, and $9555.00 per person for couples.
[21] The ABS General Social Survey (2002) found that, for 60.2% of retirees the main source of household income was government pensions or benefits, 21.5% of retirees relied on other non employment related income (e.g. superannuation, annuities and investments), and for the remaining 13.6% the main source of household income was another household members wage/salary income.

Table 24: Proportion of households who received government pensions or benefits (excluding family benefits) in the 2003-04 financial year – household reference person aged 45+ *

Household Type	Age of household reference person				
	45-54	55-59	60-64	65+	45+
Single woman – not working	82.5	83.6	72.6	90.6	88.0
Single man – not working	75.2	84.4	66.3	93.2	85.3
Couple – both not working	-	83.3	71.2	86.4	84.1
Couple – woman working PT, man not working	89.6#	43.2#	51.8#	42.9#	53.4
Single woman – working part-time	42.5#	26.3#	47.5#	84.7#	47.4
Couple – man working PT, woman not working	-	-	-	57.9#	45.2
Couple – woman working FT, man not working	-	-	-	-	38.1#
Single man – working part-time	36.6#	-	-	50.0#	37.5#
Couple – both working part-time	-	-	-	38.7#	22.6#
Couple – man working FT, woman not working	25.9#	-	20.6#	30.4#	19.6
Couple – woman working FT, man PT	-	-	-	-	10.0#
Single woman – working full-time	-	-	-	-	8.5#
Single man – working full-time	8.1#	-	-	-	7.4#
Couple – man working FT, woman PT	-	-	-	-	6.2#
Couple – both working full-time	-	-	-	-	6.0#

*Population weighted results, Sample N = 2399 households.
#Cell size less than 20. Cells with less than 5 observations left blank.

Almost 90% of single women aged 45 and over who were not in paid work received some government income support, as did 85.3% of single men who were not working and 84.1% of couple households where both people were not in paid work. Income support was also relatively common in households where there was only one person working, and that person worked part-time. Table 25 shows the types of income support received by men and women aged 45 and over.

Table 25: Type of income support received – mature age men and women who received a government pension or benefit in the 2003-04 financial year.

	Age Group				
	45-54 (%)	55-59 (%)	60-64 (%)	65+ (%)	Total (%)
Men					
Age Pension	n.a.	n.a.	n.a.	85.7	n.a.
Disability support pension (paid by Centrelink)	45.2	39.5	49.4	-	17.3
Service pension (paid by DVA)	8.1[#]	20.0	-	8.9	9.4
Disability pension (paid by DVA)	6.3[#]	20.6	4.0[#]	8.8	9.3
Newstart allowance	26.0	16.9[#]	7.0[#]	n.a.	6.6
Mature age allowance	-	-	27.6	1.3[#]	4.2
Carer payment	7.9[#]	9.9[#]	-	2.2[#]	4.1
Pensions or benefits paid by overseas governments	-	-	-	2.7[#]	2.0
Carer allowance (Child disability allowance)	3.0[#]	6.7[#]	-	-	1.6[#]
Special benefit	-	-	-	-	0.9[#]
Parenting payment (not Family tax benefit)	5.0[#]	-	-	-	0.7[#]
Partner allowance	-	-	-	-	0.6[#]
Mature age partner allowance	-	-	-	-	-
Sickness allowance	-	-	-	-	-
Other government pensions	-	6.0[#]	-	2.1[#]	2.6
Women					
Age Pension	n.a.	n.a.	56.6	85.6	n.a.
Disability support pension (paid by Centrelink)	29.0	36.2	13.6	-	9.9
Carer payment	16.4	12.6[#]	6.0[#]	2.4[#]	6.0
War widows pension (paid by DVA)	-	-	-	8.5	5.5
Service pension (paid by DVA)	5.3[#]	3.6[#]	4.0[#]	4.9	4.7
Partner allowance	4.5[#]	19.0	7.3[#]	-	3.8
Parenting payment (not Family tax benefit)	21.3	-	-	-	3.3
Newstart allowance	12.4	6.9[#]	3.4[#]	n.a.	3.0
Carer allowance (Child disability allowance)	6.0[#]	6.2[#]	-	0.8[#]	2.3
Wife pension	2.6[#]	9.2[#]	-	0.6[#]	2.2
Widow allowance (including Widow B pension)	-	7.8[#]	4.8[#]	-	1.9
Pensions or benefits paid by overseas governments	-	-	-	2.5	1.7
Mature age allowance	-	-	3.2[#]	0.8[#]	1.2
Mature age partner allowance	-	4.5[#]	-	-	0.8[#]
Disability pension (paid by DVA)	-	-	-	0.4[#]	0.4[#]
Special benefit	-	-	-	-	0.3[#]
Sickness allowance	-	-	-	-	0.2[#]
Other government pensions	2.6[#]	-	-	1.6[#]	1.5

*Population weighted results, Sample N = 2525. Multiple response question – columns add to more than 100.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Most men and women aged 65 and over who received income support in fact received the Age Pension. Around 9% of male income support recipients aged 65 and over received a service pension, paid by the Department of Veteran's Affairs (DVA), and a further 9% received a disability pension, also from the DVA. 8.5% of female income support recipients aged 65 or older received a war widow's pension from the DVA, and 4.9% received a service pension.

The most common type of income support for men and women aged between 45 and 64 was Disability Support Pension (DSP) – 49.4% of men aged 60-64 who received income support received DSP. While the proportion of women who received DSP was less than that of men, a substantial proportion of female income support recipients received DSP – 29.0% of women in the 45-54 age group and 36.2% of women aged 55-59 who received income support received DSP.

Data from the ABS General Social Survey (2002) indicates that the proportion of mature age men and women whose main source of income is a government pension or benefit increases with age. Looking at men and women in the 45 to 54 age group, it appears that 8.8% of men and 13.2% of women had relied on government pensions or benefits as their main source of income for at least 2 years. These figures rise to 16.4% and 28.3% respectively for men and women aged 55 to 64, and to 58.6% for men and 64.5% for women aged between 65 and 75.

A major policy concern in Australia, as in other OECD countries (OECD, 2002), is whether mature age people who cannot get a job or who no longer want to work stay on government benefits such as DSP and Newstart until they become eligible for the Age Pension. This issue is considered more fully in Part 3 of this Report, but some preliminary descriptive information is given here. Table 26 compares the labour force and income support status in 2001 and 2004 of men and women who reached the Age Pension eligibility age during this period.

Table 26: Labour force/income support status – men and women who reached Age Pension eligibility age since 2001.

2001 labour force/income support status	2004 labour force/income support status							
	Working full time (%)	Working part-time (%)	Unem-ployed (%)	NLF-Age Pension (%)	NLF-DSP (%)	NLF-other pension (%)	NLF-no income support (%)	Total (%)
Men								
Working full-time	40.5[#]	12.8[#]	-	34.7	-	-	-	100.0
Working part-time	-	52.2	-	24.2[#]	-	-	-	100.0
Unemployed	-	-	-	-	-	-	-	100.0
NLF - DSP	-	-	-	93.6	-	-	-	100.0
NLF - other pension	-	-	-	70.1	-	-	18.7[#]	100.0
NLF - no income support	-	-	-	68.1	-	-	24.5	100.0
Total	8.4	11.6	1.3[#]	61.0	-	3.4[#]	14.3	100.0
Women								
Working full-time	51.8[#]	31.3[#]	-	-	-	-	8.3[#]	100.0
Working part-time	-	53.6	-	22.5[#]	-	-	10.8[#]	100.0
Unemployed	-	-	-	-	-	-	-	100.0
NLF - DSP	-	-	-	90.4[#]	-	-	-	100.0
NLF - other pension	-	-	-	61.8	-	19.1[#]	14.6[#]	100.0
NLF - no income support	-	-	-	54.9	-	4.1[#]	37.0	100.0
Total	7.6[#]	15.8	0.2[#]	47.2	0.8	5.8[#]	22.6	100.0

*Population weighted results, Sample N = 495.
[#] Cell size less than 20. Cells with less than 5 observations left blank.

Focusing on the group of men and women who had reached Age Pension eligibility age since 2001, almost all the men and women who were receiving DSP in 2001 were receiving the Age Pension in 2004. Many men and women who were receiving other types of income support in 2001 had also moved to the Age Pension, and 68.1% of men and 54.9% of women who were not in the labour force in 2001, and not receiving any kind of income support, were receiving the full Age Pension in 2004. Of the men and women who were working part-time in 2001 and had reached Age Pension eligibility age by 2004, more than half (52.2% of men and 53.6% of women) were still working part-time in 2004.

Who stopped working between 2001 and 2004?

A particularly interesting group, which we are able to focus on using the HILDA longitudinal data, are mature age people who were working in 2001, but were no longer in the labour force in 2004. What are the personal characteristics and job characteristics of these people, and how do they compare with people who continued working? Table 27 compares the personal characteristics of men and women aged 50 and over who stopped paid work since 2001 with those who continued working.

Table 27: Comparing the personal characteristics of those who stopped working with those who continued in paid work, 2001-04 (aged 50+ in 2001)

	Men		Women	
	No longer employed (%)	Still employed (%)	No longer employed (%)	Still employed (%)
Age group (in 2001)				
50-54	7.3	92.7	14.7	85.3
55-59	20.0	80.0	22.1	77.9
60-64	31.7	68.3	31.5	68.5
65-69	34.5$^\#$	65.5	54.8$^\#$	45.2$^\#$
70+	66.4	33.6$^\#$	83.1$^\#$	16.9$^\#$
Marital Status				
Married	18.8	81.2	25.1	74.9
De facto	15.9$^\#$	84.1	3.2$^\#$	96.8
Separated	8.8$^\#$	91.2	16.5$^\#$	83.5
Divorced	15.5$^\#$	84.5	19.8$^\#$	80.2
Widowed	32.8$^\#$	67.2	20.1$^\#$	79.9
Never married & not de facto	15.9$^\#$	84.1	8.0$^\#$	92.0
Education Level				
Postgraduate degree	10.4$^\#$	89.6	14.7$^\#$	85.3
Bachelor degree	20.0$^\#$	80.0	21.6$^\#$	78.4
Diploma	6.0$^\#$	94.0	27.6$^\#$	72.4
Certificate	20.6	79.4	24.1	75.9
Year 12	16.3$^\#$	83.7	22.8$^\#$	77.2
Year 11 and below	21.7	78.3	21.8	78.2
Country of Birth				
Australia	18.7	81.3	22.8	77.2
English speaking country	16.5	83.5	22.8	77.2
Other country	17.9	82.1	16.1$^\#$	83.9
Location				
Major city	17.4	82.6	19.8	80.2
Inner regional	19.7	80.3	24.7	75.3
Outer regional	23.2	76.8	27.5	72.5
Remote	2.3$^\#$	97.7	28.7$^\#$	71.3$^\#$
Employment Status of Partner				
Employed	13.3	86.7	24.5	75.5
Unemployed	$^\#$31.8	$^\#$68.2	$^\#$36.2	$^\#$63.8
Not in the labour force	29.9	70.1	26.4	73.6
No partner	14.1	85.9	17.6	82.4

*Population weighted results. Sample N = 1393. $^\#$Cell size less than 20.

The evidence in this table shows that the people who stopped working between 2001 and 2004 were differentially those who were already over 60 in 2001, who were partnered, had a partner who also did not work, and were not highly educated. By contrast, individuals were more likely to have remained in paid work the younger they were, if

they were already separated or divorced in 2001, had a partner who also worked, and were better educated.

The next issue to be considered is whether job characteristics - the type of occupation and industry individuals work in, has an impact on whether they continue to work or decide to leave the labour force? Table 28 compares the (2001) job characteristics of people who are no longer in paid work with those who continued working.

Table 28: Job characteristics (2001) of people who by 2004 had stopped working, compared with those who continued working (aged 45+ in 2001)

	Men		Women	
	No longer employed	Still employed	No longer employed	Still employed
Occupation				
Managers and administrators	11.0	89.0	22.0#	78.0
Professionals	15.2	84.8	18.5	81.5
Associate professionals	22.2	77.8	27.1	72.9
Tradespersons and related workers	17.7	82.3	22.5#	77.5#
Advanced clerical and service workers	26.6#	73.4#	12.3	87.7
Intermediate clerical workers	9.1#	90.9	20.8	79.2
Intermediate production and transport	22.6	77.4	10.3#	89.7#
Elementary clerical, sales and service	26.3#	73.7	32.0#	68.0
Labourers and related workers	34.6	65.4	32.9	67.1
Industry				
Agriculture, Forestry and Fishing	18.4	81.6	41.1#	58.9
Mining	21.3#	78.7#	67.5#	32.5#
Manufacturing	13.1#	86.9	25.0#	75.0
Electricity, Gas and Water Supply	21.3#	78.7#	72.0#	28.0#
Construction	18.3#	81.7	10.8#	89.2#
Wholesale Trade	8.4#	91.6	17.5	82.5
Retail Trade	20.5#	79.5	30.0	70.0
Accommodation, Cafes and Restaurants	44.9#	55.1#	16.3#	83.7#
Transport and Storage	23.4#	76.6	24.8#	75.2#
Communication Services	30.6#	69.4#	28.9#	71.1#
Finance and Insurance	18.0#	82.0#	6.6#	93.4#
Property and Business Services	11.8#	88.2	21.1#	78.9
Government Administration and Defence	14.8#	85.2	11.9#	88.1#
Education	20.2#	79.8	19.5	80.5
Health and Community Services	12.4#	87.6	15.9	84.1
Cultural and Recreational Services	14.6#	85.4#	38.0#	62.0#
Personal and Other Services	25.4#	74.6	31.6#	68.4#
Work Schedule				
A regular day or evening schedule	17.4	82.6	20.6	79.4
A regular night shift	9.5#	90.5#	37.3#	62.7#
A rotating shift	22.5#	77.5	12.0#	88.0
Split shift	22.1#	77.9#	37.8#	62.2#
On call	27.7#	72.3	36.2#	63.8#
Irregular schedule	17.6	82.4	26.3	73.7
Contract of Employment				
Fixed term contract	11.7#	88.3	14.9#	85.1
Casual	28.7	71.3	27.8	72.2
Permanent	18.0	82.0	17.9	82.1
Self employed	16.4	83.6	28.4	71.6

*Population weighted results. Sample N = 1393. # Cell size less than 20.

Manual labourers and casual workers were the two occupational groups most likely to cease paid work between 2001 and 2004. Those who remained in employment were disproportionately high status managers and professionals, intermediate clerical employees, and those in manufacturing, wholesale, property and business services, or health and community services.
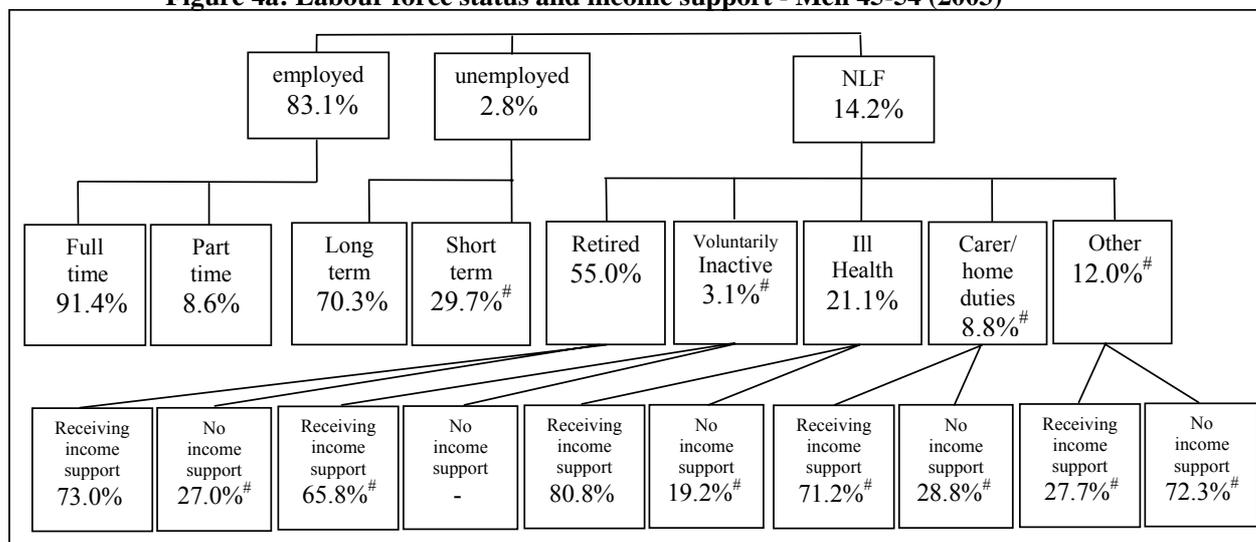
Quantitative summary of the labour force status and income sources of mature age people

The aim of this short section is to provide a quantitative summary of the labour force status and income sources of the mature age population. The summary deals with six groups: men and women aged 45 to 54, 55 to 64 and 65 and over.

The data source is the HILDA Survey for 2003 because that was the year in which a special retirement module was included, asking people who had retired what their reasons were. Figures 4a to 4f aim to describe the labour force status of mature age men and women, as well as the current activities of men and women who were not in the labour force. Also listed are proportions who were receiving income support from the Government.

Men

Figure 4a: Labour force status and income support - Men 45-54 (2003)
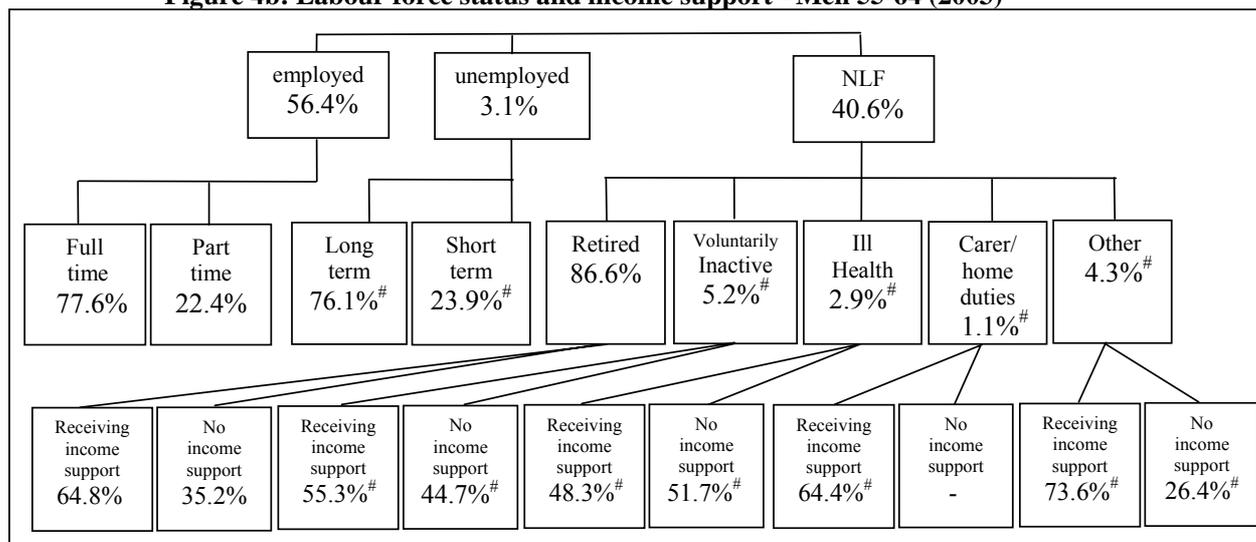
employed 83.1%		unemployed 2.8%		NLF 14.2%					
Full time 91.4%	Part time 8.6%	Long term 70.3%	Short term 29.7%[#]	Retired 55.0%	Voluntarily Inactive 3.1%[#]	Ill Health 21.1%	Carer/ home duties 8.8%[#]	Other 12.0%[#]	
Receiving income support 73.0%	No income support 27.0%[#]	Receiving income support 65.8%[#]	No income support -	Receiving income support 80.8%	No income support 19.2%[#]	Receiving income support 71.2%[#]	No income support 28.8%[#]	Receiving income support 27.7%[#]	No income support 72.3%[#]

N = 1063. [#] Cell size less than 20. Cells with less than 5 observations left blank.

Among men between the ages of 45 and 54, 83.1% were employed, and of those who were employed, 91.4% were working full-time. Only 2.8% were unemployed and the majority of men in this age group who were unemployed had been unemployed for 12 months or more. Of the 14.2% who were not in the labour force, 55.0% considered themselves retired, and 21.1% said they were not in the labour force because of health problems. Of the men in this age group who had been unemployed for one year or more, 76.3% were receiving income support, compared to 25.2% of men who had been unemployed for less than a year. Around 16% of men who were working part-time were also receiving some type of income support, as were 2.2% of men who were working full-time. Just over 80% of men who were not working because of ill health were receiving income support from Government, as were 73.0% of men in this age group who considered themselves to be retired. The most common type of income support received was DSP – 74.5% of men who were not working because of ill health and 69.8% of men who considered themselves retired were on DSP.

Figure 4b gives parallel information for men aged 55 to 64.

Figure 4b: Labour force status and income support - Men 55-64 (2003)

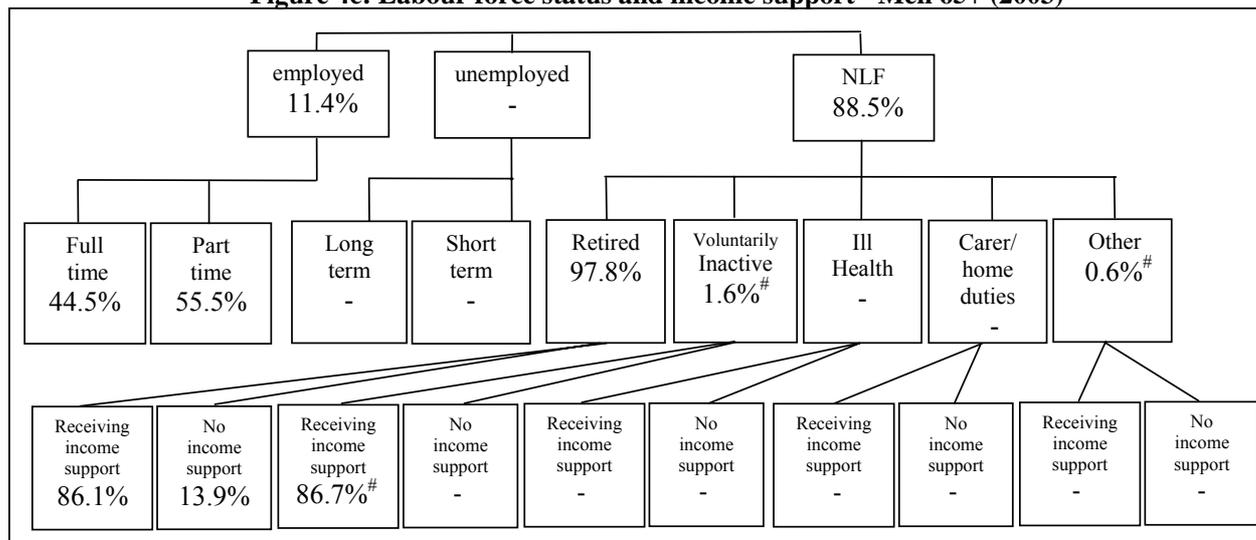|									
employed 56.4%		unemployed 3.1%		NLF 40.6%					
Full time 77.6%	Part time 22.4%	Long term 76.1%#	Short term 23.9%#	Retired 86.6%	Voluntarily Inactive 5.2%#	Ill Health 2.9%#	Carer/ home duties 1.1%#	Other 4.3%#	
Receiving income support 64.8%	No income support 35.2%	Receiving income support 55.3%#	No income support 44.7%#	Receiving income support 48.3%#	No income support 51.7%#	Receiving income support 64.4%#	No income support -	Receiving income support 73.6%#	No income support 26.4%#

N = 787. #Cell size less than 20.

Compared to men in the 45 to 54 age group, fewer men aged between 55 and 64 were employed (56.4%) and more were no longer labour force participants (40.6%). Of the men in this age group who were employed, 77.6% were working full-time and 22.4% were working part-time. Most of the men who were not in the labour force considered themselves retired, and 64.8% of the men who considered themselves retired were receiving income support.

Of the men in this age group who were working part time, 21.8% were receiving some type of income support, compared to 3.5% of men who were working full time. The most common type of income support for men in this age group who considered themselves retired was DSP – 58.5% of men who said they were retired and were receiving income support were on DSP, 14.2% were receiving a disability allowance from the Department of Veteran's Affairs, 13.5% were receiving Mature Age Allowance and 11.9% were receiving a service pension.

Figure 4c summarises the labour force status and income sources of men aged 65 and over.

Figure 4c: Labour force status and income support - Men 65+ (2003)

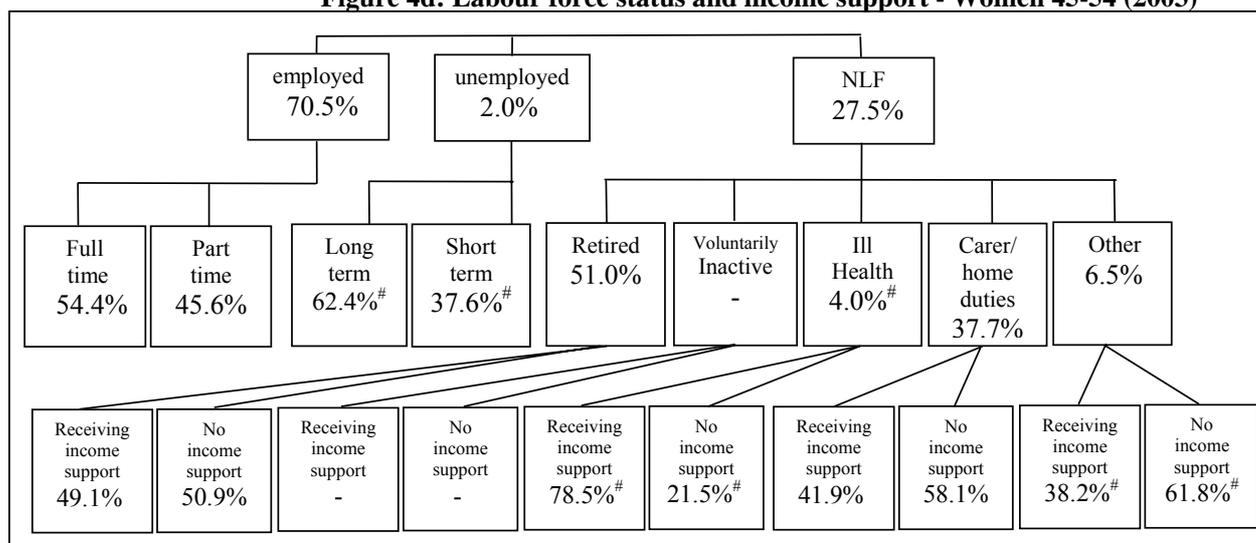| employed 11.4%		unemployed -		NLF 88.5%				
Full time 44.5%	Part time 55.5%	Long term -	Short term -	Retired 97.8%	Voluntarily Inactive 1.6%#	Ill Health -	Carer/home duties -	Other 0.6%#
Receiving income support 86.1% / No income support 13.9%	Receiving income support 86.7%# / No income support -			Receiving income support - / No income support -	Receiving income support - / No income support -		Receiving income support - / No income support -	Receiving income support - / No income support -

N = 854. # Cell size less than 20. Cells with less than 5 observations left blank.

Only 11.4% of men aged 65 and over in 2003 were employed, and 55.5% those who were employed were working part-time. Almost half the men in this age group (48.2%) who were working part-time, and 13.7% of the men aged 65 and over who were working full-time were receiving income support. Most men in this age group were no longer in the labour force, and of those who were not in the labour force almost all (97.8%) considered themselves retired. A high proportion (74.5%) were retired and receiving income support from Government. Most men in this age group who were retired and receiving income support were on Age Pension.

Women

We now give similar information about women in these three mature age groups. In general we will find that the time uses of women will be more affected by caring responsibilities than was the case for men.

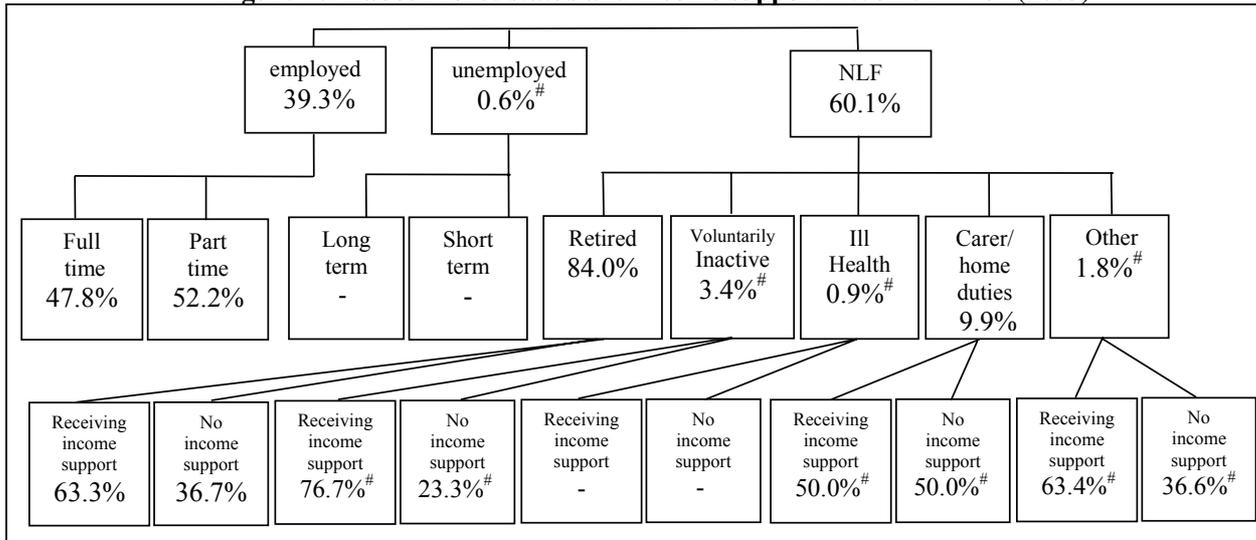**Figure 4d: Labour force status and income support - Women 45-54 (2003)**

		employed 70.5%	unemployed 2.0%		NLF 27.5%				
Full time 54.4%	Part time 45.6%	Long term 62.4%[#]	Short term 37.6%[#]	Retired 51.0%	Voluntarily Inactive -	Ill Health 4.0%[#]	Carer/ home duties 37.7%	Other 6.5%	
Receiving income support 49.1%	No income support 50.9%	Receiving income support -	No income support -	Receiving income support 78.5%[#]	No income support 21.5%[#]	Receiving income support 41.9%	No income support 58.1%	Receiving income support 38.2%[#]	No income support 61.8%[#]

N = 1161. [#] Cell size less than 20. Cells with less than 5 observations left blank.

Of the 70.5% of women aged 45 to 54 who were employed, 54.4% worked full-time. 26.3% of women in this age group who were working part-time and 3.9% of those who were working full-time were receiving some type government income support.

Just over half of the women who were not in the labour force considered themselves retired, and another 37.7% said their main activity was either caring (for children or sick or elderly adult relatives) or home duties. Of the women in this age group who considered themselves retired, 49.1% were receiving income support from the Government, and the most common type of income support was DSP – 42.1% of women who considered themselves retired and were receiving income support received DSP. More than 40% of women who were not in the labour force and were caregivers were receiving a government pension or benefit. For this group of women the most common type of income support received was parenting payment.

Figure 4e considers the main activities of women between the ages of 55 and 64.

53

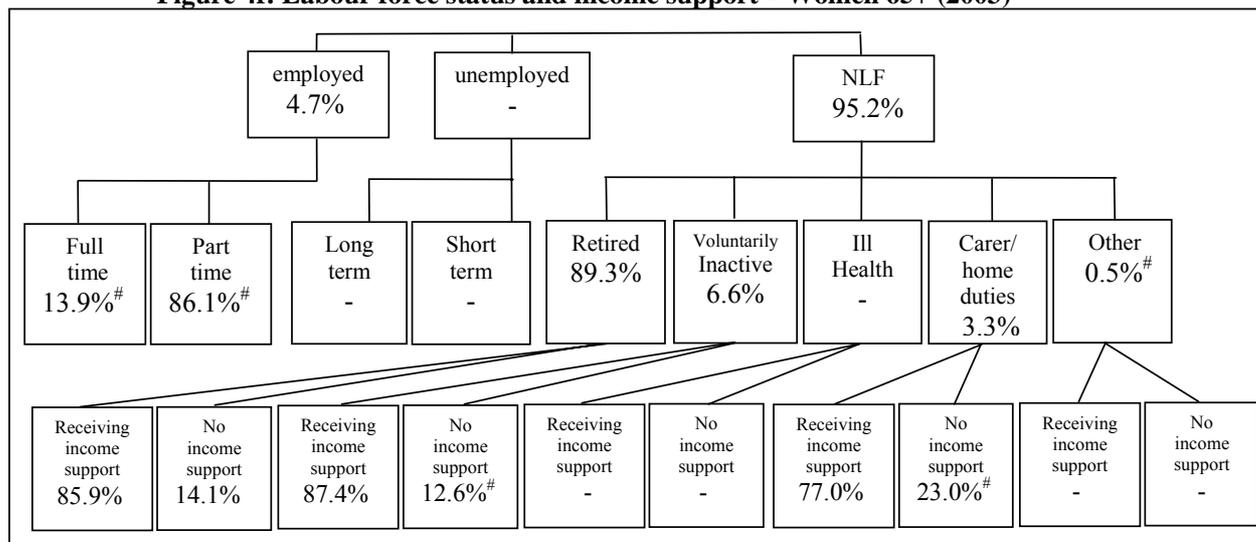**Figure 4e: Labour force status and income support - Women 55-64 (2003)**

employed 39.3%		unemployed 0.6%[#]		NLF 60.1%					
Full time 47.8%	Part time 52.2%	Long term -	Short term -	Retired 84.0%	Voluntarily Inactive 3.4%[#]	Ill Health 0.9%[#]	Carer/ home duties 9.9%	Other 1.8%[#]	
Receiving income support 63.3%	No income support 36.7%	Receiving income support 76.7%[#]	No income support 23.3%[#]	Receiving income support -	No income support -	Receiving income support 50.0%[#]	No income support 50.0%[#]	Receiving income support 63.4%[#]	No income support 36.6%[#]

N = 830. [#] Cell size less than 20. Cells with less than 5 observations left blank.

Less than 40% of women aged between 55 and 64 were employed at the time of their 2003 interview. Of those who were employed, 47.8% worked full-time and 52.2% worked part-time. A small proportion (3.7%) were working full-time and receiving income support, and 22.8% worked part-time and received income support.

A high proportion of women in this age group who were not in the labour force considered themselves retired, and of those who said they were retired, 63.3% received income support. The most common types of income support for retired women in this group were the Age Pension (44.6%), DSP (22.8%) and Partner Allowance (12.4%).

Figure 4f shows the main activities for women aged 65 and over.

Figure 4f: Labour force status and income support – Women 65+ (2003)

	employed 4.7%	unemployed -		NLF 95.2%				
Full time 13.9%#	Part time 86.1%#	Long term -	Short term -	Retired 89.3%	Voluntarily Inactive 6.6%	Ill Health -	Carer/ home duties 3.3%	Other 0.5%#
Receiving income support 85.9%	No income support 14.1%	Receiving income support 87.4%	No income support 12.6%#	Receiving income support -	No income support -	Receiving income support 77.0%	No income support 23.0%#	Receiving income support -	No income support -

N = 1061. # Cell size less than 20. Cells with less than 5 observations left blank.

Most women had left the labour force by the age of 65. Of the 96.2% of women in this age group who were no longer in the labour force, 89.3% considered themselves retired, 6.6% said they were voluntarily inactive and 3.3% said their main activity was care-giving or home duties. Women in this age group who were receiving income support were mainly receiving the Age Pension.

Conclusion

This chapter has provided a mainly descriptive account of mature age labour force participation, the main activities (time uses) mature age people are engaged in, and their sources of income. In the next two chapters we estimate models to account for differences in workforce participation.

PART 3: A MODEL OF FINANCIAL INCENTIVES AFFECTING DECISIONS OF MATURE AGE AUSTRALIANS TO CONTINUE IN WORK OR RETIRE

The purpose of this section is to present calculations about the financial incentives facing mature age Australians who are deciding whether to continue in paid work or to exit the labour force ('retire').[22] The calculations are first presented for *stylised cases;* individuals with 'typical' income and savings profiles. Then, using HILDA data for 2001-04, incentives are calculated for a representative sample of Australians. Multivariate models are estimated which show the *net effect* of financial incentives on decisions to continue in work or retire. These models also take account of other variables which affect decisions, including human capital, marital status, health and caring responsibilities.

The preliminary models that we have developed for this project extend to Australia an influential line of research initiated by the American economists, Jonathan Gruber and David A. Wise (1999, 2004). Models of this type have been developed for twelve industrialised countries, which in all cases have workforce conditions and particularly retirement income arrangements quite different from Australia's. In ten of the twelve countries there were disincentives against continued work, or, put the other way round, incentives to exit the labour force early.

In most Western countries there is a direct and obvious linkage between undertaking extra years of paid work and one's later retirement income. The linkage is spelled out in the rules of defined benefit (DB) social security schemes, which directly state that extra years of earnings will be related in a fixed way to extra retirement income. So the issue for individual decision becomes, 'Will the additional retirement income which I will finally receive if I continue in work be enough to compensate me for the year(s) of retirement income I am choosing to forego, plus the cost of the pension/superannuation fund contributions which I will have to keep on making?' (This decision is spelled out in more detail below).

In Australia the 'system' is quite different. Most retirees still rely on the Age Pension as their main source of income, and many employees are in a defined contribution (DC) scheme with their main contributions funded by employers at 9 per cent of their salaries in response to the Superannuation Guarantee. In DC schemes there is no simple direct relationship between years of earnings and retirement income. Retirement income depends on how your superannuation funds are invested and what rate of return they achieve.

> **Comment [GC00881]:** The Australian Superannuation Guarantee is a way of making employers provide for their employees' superannuation by penalizing them through the tax system if they don't provide it without compulsion.

So, when we began to develop an Australian model, it was an open question whether we would find similar disincentives to continued work as were found in Europe and the United States, or whether we would get completely different results (e.g. positive incentives, or perhaps greatly varying incentives for Australians at different ages).

The data requirements for Australian modelling, compared with European or North American models, are markedly different and are in fact very substantially met by the HILDA Survey. For Australian research we need to know what people's superannuation and total wealth portfolios are (both the types of assets and their value) because these are what determine retirement income. In 2002 the HILDA Survey collected superannuation

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[22] Recall that throughout the Report a behavioural definition of retirement is used, not self-classification.

and wealth data (and will do so again in 2006). In Europe and North America, by contrast, the data requirements for models include individual lifetime earnings profiles, since these are what determine final retirement income.[23] In Australia such earnings profiles are not needed, except for individuals in defined benefit schemes, and even for them the HILDA data about superannuation and wealth holdings in 2002 give us enough information to make reasonable estimates of future retirement income under different scenarios of continued work versus labour force exit.

The decision to continue in paid work or exit the labour force

When deciding whether to continue working, rational mature age people would consider not only their current earnings from employment but also the effect of continued employment on future retirement income. So, in addition to human capital and demographic variables that are usually included in labour force participation models, analysis of the labour force participation decisions of the mature age population requires additional information about financial incentives to remain in work or to exit the labour force.

Mature age workers face two competing sets of incentives: the longer they remain in the labour force, the larger their retirement income will usually be when they do retire, but more years of work also mean fewer years of retirement. If the increase in annual retirement income due to postponement of retirement is not large enough to offset the shorter period of retirement income receipt, they have a financial incentive to exit the labour force ('retire early').

It should be understood that the models presented here required intensive development and should be regarded as preliminary. That is, current results should be regarded as indicative rather than conclusive. It is proposed that further development be undertaken to make the models capable of simulating the effects of recently adopted and possible future policy changes (see Part 5).

HILDA data

The data used in this section come from the first four waves of the HILDA Survey. The HILDA Survey contains detailed information on individual earnings, wealth and labour force status. A crucial feature of HILDA, noted above, is the special wealth module in 2002. Detailed information was collected on individual and household level wealth (assets and debts), including superannuation holdings.

The sample used for modelling consists of men and women who were aged 54 to 64 when HILDA began in 2001. It is in this age range that individuals most directly face the decision to continue in work or exit the labour force. Younger people mostly cannot afford to retire, in part because their superannuation would be punitively taxed if they retired before 55. Older people (65+) are mostly in fact retired and we would have too few cases to work with if we included them in the analysis. The final 2001-04 sample consists of 6348 observations from 1929 individuals (950 men and 979 women).

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[23] Note that the models for most overseas countries lack wealth data, which is quite a serious defect, given the importance of property and share holdings to many people's total income in retirement.

Financial incentives to leave the labour force

The main hypothesis is that, in each observed period, the probability of mature age people working will be influenced by the strength of financial incentives to do so.

Following Gruber and Wise (2004), our first very simple (really too simple) measure of financial incentives compares potential annual retirement income if a person chooses to retire now with potential annual retirement income if the person chooses to continue to work for one more year. Potential retirement income if a person chooses to work for an extra year is adjusted to account for two components which are foregone during that year. One is the pension income that would otherwise have been received, and the other is the additional superannuation contributions (9% of earnings for most people) paid during the extra year. (The fact that in Australia superannuation contributions are paid by employers is immaterial. They are part of an employee's remuneration package and so, in this context, should be counted as income foregone (Gruber and Wise, 1999, 2004). Our computations of expected retirement income are described in more detail in Appendix A3.

Social Security Wealth – The present value of expected total lifetime retirement income

The starting point for Gruber and Wise's (2004) calculations of financial incentives to retire rather than work is their concept of 'social security wealth' (SSW). The concept of SSW is not quite appropriate for Australia. In the Australian context, SSW can be thought of as the present value of expected total lifetime retirement income, which can be a combination of income from the old Age Pension, and/or from superannuation, and/or from other private savings.[24] In calculating this income it is essential to use weights to allow for gender specific survival probabilities.

As noted above, one year of pension income is foregone for every extra year worked.[25] A further loss is the contributions that are levied on gross earnings (i.e. superannuation contributions) if the individual continues to work.[26] The key idea is that if the increase in retirement income due to postponement of retirement is not large enough to offset the shorter time of pension income receipt, then there is a financial incentive to retire earlier.

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[24] Only liquid savings and properties other than the family home are included. This implies that people generally prefer to leave the family home as a bequest.
[25] However, income from private savings is *not* foregone if one continues in work. The assumption is that this income is unaffected by the decision to continue in work or retire.
[26] All incomes are expressed in present values discounted back to 2002.

For a worker who is S years old and plans to retire at age R, SSW is defined as:

$$SSW_s(R) = \sum_{t=R}^{\infty} YRET_t.a_t.\delta^{t-S} - \sum_{t=S}^{R-1}(c.YLAB_t).a_t.\delta^{t-S}$$

Where S = age now.

R = retirement age.

$YLAB_t$ = gross labour income at time t.

$YRET_t$ = net retirement income at age t (from all sources – see appendix A3a).

c = contribution rate to superannuation (assumed to be 9% for everyone).

a_t = probability of surviving until at least age t, given survival until age S.[27]

δ = discount factor.[28]

Alternative measures of financial incentives affecting the retire versus work decision

Gruber and Wise (2004) propose several alternative measures of the financial incentives affecting the decision to continue in work or to retire. However, they all stem from the definition of SSW given above. We now describe the three measures used in this report, namely the accrual rate in SSW, the SSW peak value and the option value.

SSW Accrual Rate

The accrual rate is the proportional change in SSW if a person chooses to retire now, compared to their SSW if they postpone retirement for one year. That is,

$$\text{Accrual Rate} = \frac{SSW_t - SSW_{t-1}}{SSW_{t-1}}$$

In order for the accrual measure to be positive the increase in the future benefits due to postponement of retirement would need to offset the fact that the individual will receive the benefit for one less year. If the accrual rate is positive, there is a financial incentive to continue working. However, if social security wealth in one year's time is lower than social security wealth if the person retires now (i.e. a negative accrual), then there is a disincentive to remain in the labour force – the person gives up an extra year of retirement and their total expected social security wealth over the rest of their lifetime is less than if they had retired one year earlier.

As Gruber and Wise (2004) noted, it is natural to think of the accrual rate as positive, or at least not negative. That is, if a person works for another year and thus foregoes one year of retirement income, it might be expected that the flow of retirement income which began one year later would be large enough to offset the fact that receipt was postponed for a year. However, in most countries, the accrual rate is *significantly negative* (Gruber and Wise, 2004).

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[27] The conditional probabilities that are required for these calculations were derived from gender specific Australian Life Tables (ABS Catalogue 3302.0).
[28] A standard discount rate of 3% is used.

SSW Peak Value

SSW accrual rate is really too simple a measure, because it only takes account of the immediate benefit of working one extra year versus retiring immediately. In practice we would expect mature age people to have longer time horizons. Our two remaining measures – SSW peak value and option value – are based on alternative ways of determining the optimum age of retirement. Peak value optimises lifetime income and option value optimises lifetime utility.

The peak value is the difference between the maximum possible value of expected social security wealth and expected social security wealth if the person retires now.[29] The peak value can be defined by following equation:

$$Peak = \max(SSW_R) - SSW_t, R > t$$

Investigating all possible future retirement ages allows us to identify non-linearities in the accrual profile, which would not be apparent when only one extra year of work is considered. For example, a small negative accrual in year *t* may be followed by a small positive accrual in year *t+1*, and an even larger positive accrual in year *t+5*. Therefore it may be misleading to focus only on one-year accrual measures.

Option Value

Our final measure, option value, is based on the idea that individuals' decisions about when to retire may be based on a desire to maximise utility during their remaining lifetime. They are thought of as balancing the utility gained from leisure in retirement, coupled with a certain retirement income, against the disutility of working coupled with a certain labour income.

Following Gruber and Wise (2004), we first give an equation which expresses the utility gained from work, or, as a proxy, the utility assumed to be derived from labour income:

$$U_w(LABY_s) = LABY_s^{\gamma}$$

where $LABY_s$ = labour income at age S, and
γ = degree of risk aversion

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[29] It should also be noted that if SSW for an individual is maximum at time *t*, then the peak of the SSW process will be attained with immediate retirement, and the peak value will be exactly the same as the dollar accrual value. Also, beyond the optimal retirement age (after SSW has peaked) the peak value calculation also collapses to the one-year accrual measure.

Next is an equation to express the utility of retirement, including leisure in one's retirement years. The proxy here is the disutility of labour; individuals are assumed to weight (prefer) retirement income more than labour income. Hence, the indirect utility of retirement income is:

$$U_R(RETY_s) = (\kappa RETY_s)^\gamma, \text{ where } \kappa > 1.$$

where $RETY_s$ = retirement income at age S

γ = degree of risk aversion, and

κ = a measure of the disutility of labour

The parameter γ represents an individual's degree of risk aversion; his/her fear that retirement income is in the future and may or may not be collected.[30] For example $\gamma = 0$ implies a logarithmic utility function with an underlying assumption of high risk aversion (i.e. a strong fear that retirement income may not eventuate). On the other hand $\gamma = 1$ yields a linear utility function and assumes that retirement income is no more at risk than labour income.[31] Stock & Wise (1990) statistically reject the logarithmic utility function for their model using U.S data. We follow their lead in assuming a linear function.

Overall, the option value is the expected gain in utility from postponing retirement to the optimal retirement age, or, in other words, the option value is the maximum utility difference between retiring at any future age and retiring now. Option value can be expressed as:

$$OV_a = \max_h (V_h - V_a), \quad h = a + 1, ..., R$$

where V_a is the total expected utility of retiring at age a, and

V_h is the total utility of retiring at age h ($h > a$)

The total expected utility of retiring at age a is defined as:

$$V_a = \sum_{t=a+1}^{T} \alpha_t \, \delta^{t-a} [\kappa RETY_t]^\gamma$$

and the utility drawn from retiring at a later age, h, is defined as:

$$V_h = \sum_{t=a+1}^{h} \alpha_t \delta^{t-a} LABY_t^\gamma + \sum_{t=h+1}^{T} \alpha_t \, \delta^{t-a} [\kappa RETY_t]^\gamma$$

where $RETY_t$ = Expected annual retirement income at age t

$LABY_t^\gamma$ = expected after-tax wage at age t

α_t = probability of surviving at least until age t given survival until age $t-1$

δ = discount factor = $1/(1+r)$, r = 0.03

T = age of certain death (here assumed to be 102)

k = parameter to account for the disutility of labour, and

γ = degree of risk aversion

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[30] The two main risks are death and a fall in returns on savings.

[31] For example an individual is indifferent between receiving $5000 with certainty and receiving $10000 with 50% chance.

Following Boldrin et al (2004) we set $k = 1.25$ and $\gamma = 1$. [32]

Under these assumptions, $V_a = 1.25(SSW_a)$ and $V_h = \sum_{t=a+1}^{h} \alpha_t \delta^{t-a} W_t^{\gamma} + 1.25(SSW_h)$, and

the option value equation becomes:

$$OV_a = \max_h (\sum_{t=a+1}^{h} \alpha_t \delta^{t-a} W_t^{\gamma} + 1.25(SSW_h - SSW_a)).$$

Stylised Cases

The following stylised cases are provided to give a straightforward account of how the financial incentives previously described work out in practice. The calculations given below are very similar to those provided by financial advisers for individuals and couples contemplating retirement. All components of retirement income are expressed in 2002 dollars. [33]

The first case is that of a single 60 year old woman, who would be reliant on income support/Age Pension in retirement. It should be remembered that most Australians still rely almost entirely on the Age Pension. The reason for selecting a single person for our first stylised case is that, in such cases, the complications arising from taking into account partner's income and tax position do not arise. It may be noted that many previous studies, both in Australia and OECD, have implicitly abolished marriage and rather unrealistically relied entirely on simulating the retirement incomes and incentives of single persons (Atkinson and Creedy, 1996; Duval, 2004).

Cases 2 to 4 are all people living in couples. Case 2 is a partnered man who will rely primarily on the Age Pension in retirement. Case 3 is a woman in a middle-income couple who will receive a part-pension, but also substantially contribute to the funding of her own retirement. Case 4 are a well-off couple who will be entirely self-funding in retirement.

Case 1 Single woman, age 60, non-homeowner
Current annual wage (before tax) = $40000
Current superannuation balance = $50000, Other Assets = $5000

If retire now:	Annual income from super	4213
	Annual income from other assets	421
	Income support	9568
	Total annual retirement income	14202

If retire in 1 year:	Annual income from super	4768
	Annual income from other assets	444
	Income support	9614
	Total annual retirement income	14826

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[32] Evidence in the literature (Boldrin et. Al., 2004) shows that the results are not sensitive to sensible variations in these parameters.

[33] These figures are achieved by running the financial incentive calculations (as used in the multivariate analysis) for only one person with the particular characteristics described in each stylized case.

Measures of financial incentives:

Retire now: SSW_0 ($)	Retire in 1 year: SSW_1 ($)	Gain (loss) from working an extra year ($)	1 year accrual rate (%)	Peak value ($)	Option value (utility)
322510	310378	-12132	-3.76	373917	1043283

This person has very little in the way of superannuation or other assets and the Age Pension will be the main source of retirement income. If she chose to stop working before the age of 62, she would have to rely on some other type of government income support (e.g. DSP or Newstart). Her expected annual retirement income if she chose to stop working at the age of 60 would be $14202, made up of $4213 from superannuation, $421 income from other assets and $9568 in income support.[34] If she continued to work for another year, her expected annual retirement income would be slightly higher, as a result of additional superannuation contributions, interest on her existing superannuation balance and other assets, and the fact that there is one less year of retirement. If she retired at the age of 61, her expected annual retirement income would be $14826, only $624 a year more than if she had stopped working at the age of 60.

In terms of social security wealth, this person is actually better off to stop working at the age of 60. Her SSW if she retired at 60 would be $322510, compared to $310378 if she retired at the age of 61, resulting in a negative accrual of $12132, which implies an accrual rate of -3.76%. Her peak SSW value is 373917, which means that maximum SSW will be achieved if she continues to work past the age of 61. Taking labour income and the labour to leisure trade-off into consideration, keeping the option to work open (option value) is worth $1043283. It should be recognised that, useful as the option value measure proves to be in a multivariate context, it has no intuitively clear interpretation for the stylised cases.[35] One point that is clear, however, is that option values are much higher for people headed towards self-funding in retirement than for those who will mainly rely on the Age Pension.

Case 2   Partnered man, age 65, homeowner
    Current annual wage (before tax) = $50000
    Current superannuation balance = $60000
    Other household assets = $15000, wife not working

If retire now:	Annual income from super	5655
	Annual income from other assets	707
	Annual pension income	9318
	Total annual retirement income	15680

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[34] All these estimates are annualized and depend on an assumption that all liquid assets will be exhausted by (assumed) age of death.

[35] Option value is a measure of utility rather than an actual (possibly achievable) dollar value, so cannot be compared directly to other measures such as peak value. If the parameter which accounts for disutility of labour is increased/decreased, this will change the option value and possibly the optimal retirement age according to the option value.

	If retire in 1 year:	Annual income from super	6485
		Annual income from other assets	753
		Annual pension income	9318
		Total annual retirement income	16557

Measures of financial incentives:

Retire now: SSW_0 ($)	Retire in 1 year: SSW_1 ($)	Gain (loss) from working an extra year ($)	1 year accrual rate (%)	Peak value ($)	Option value ($)
242459	234182	-8277	-3.41	-8277	431128

For a 65 year old married man, who currently earns $50000 per year and has a superannuation balance of $60000 and other assets (excluding the home they live in) with a value of $15000, potential retirement income if he chose to retire now would consist of $5655 from superannuation, $707 from other assets and Age Pension of $9318, a total of $15680 per year.

If he chose to continue working for another year and retire at age 66, he would receive $6485 per year from superannuation, $753 from other assets and still receive the full (couple) Age Pension of $9318, making a total expected annual retirement income of $16557, an increase of $877 compared to retiring at age 65.

In terms of total social security wealth, this person would be better off to stop working at the age of 65 rather than 66. In this case the accrual rate from working one more year is -3.41%. In this case the peak value is the same as the one year accrual, which means that maximum social security wealth would be achieved by retiring immediately.

Case 3 Partnered woman, age 59, homeowner
    Current annual wage (before tax) = $60000
    Current superannuation balance = $30000
    Other household assets = $450000, husband earns $90000 per year

	If retire now:	Annual income from super	2306
		Annual income from other assets	17294
		Annual pension income	0
		Total annual retirement income, after tax	19600

	If retire in 1 year:	Annual income from super	2855
		Annual income from other assets	18104
		Annual pension income	0
		Total annual retirement income, after tax	20959

Measures of financial incentives:

Retire now: SSW_0 ($)	Retire in 1 year: SSW_1 ($)	Gain (loss) from working an extra year ($)	1 year accrual rate (%)	Peak value ($)	Option value ($)
462550	467070	4521	0.98	9447787	12647708

64

This woman has only $30000 in superannuation herself, but a substantial amount of other household assets, which will be the source of most of her retirement income. In her present circumstances she would not be eligible for any income support because of her high household income and household assets. If she chose to stop working now, her expected annual retirement income would be $19600 per year after tax. If she decided to postpone retirement for one year, her expected annual retirement income would increase by $1359 to $20959 per year.

In this case, the change in her social security wealth due to working one more year would be positive ($4521) and her accrual rate would be 0.98%. The peak value and option value figures are very high, so in terms of social security wealth too this person would be better off to continue working for at least one more year.

Case 4 Partnered man, age 62, homeowner
   Current annual wage (before tax) = $120000
   Current superannuation balance = $400000
   Other household assets = $500000, wife earns $60000 per year

If retire now:	Annual income from super	35126
	Annual income from other assets	21954
	Annual pension income	0
	Total annual retirement income, after tax	48299

If retire in 1 year:	Annual income from super	38203
	Annual income from other assets	23240
	Annual pension income	0
	Total annual retirement income, after tax	52095

Measures of financial incentives:

Retire now: SSW_0 ($)	Retire in 1 year: SSW_1 ($)	Gain (loss) from working an extra year ($)	1 year accrual rate (%)	Peak value ($)	Option value ($)
818320	817435	-885	-0.11	-885	645062

This is the case of a couple who will be self-funding in retirement. They have a substantial amount of assets and a high household income. If the man continues working for another year, expected retirement income will increase from $48299 per year after tax to $52095 per year after tax. Even though this person will not be entitled to any income support, the accrual rate is still negative (-0.11%) and working for an additional year would actually reduce social security wealth in retirement by $885.

Multivariate analysis using data from HILDA 2001-04

We now move from stylised cases to analysis of the incentives facing a representative sample of Australians – the HILDA sample of 54-64 year olds - who in recent years have actually faced the decision to work or retire.[36] So here we are modelling recent real

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[36] Our sample is men and women who were aged between 54 and 64 in 2001. Therefore, when all four waves of data are used, age ranges from 54 to 67.

behaviour rather than relying on stylised cases. The aim is to see how strongly financial incentives actually affected the decisions of sample members in 2001-04.

The dependent (outcome) variable is a decision to work full-time (score 2), to work part-time (score 1), or to exit the labour force (score 0). The explanatory variables included in our models are shown in Table 3.1.

Table 3.1: Variables included in multivariate analyses – men and women aged 54 to 64 in 2001

		Men		Women	
		Mean	S.D.	Mean	S.D.
peak value[a]		742067	3051215	795100	4157286
option value[a]		1285964	3913059	1283126	5240461
SSW0	Expected social security wealth if retire now	544053	602451	460025	449244
age	Age at time of interview	59.67	3.52	59.52	3.54
reskids	Has resident dependent children	0.24	0.43	0.18	0.38
ownhome	Owns home outright	0.69	0.46	0.71	0.45
lthealth	Long term health condition or disability (self-reported)	0.41	0.49	0.34	0.48
ozborn	Born in Australia	0.67	0.47	0.71	0.45
yrseduc	Years of education, e.g. year 12 education = 12, bachelor degree = 15	12.43	1.86	12.06	1.72
workexp	Percentage of years in paid work since leaving full time education	0.91	0.13	0.62	0.29
partwork	Partner/spouse currently employed	0.39	0.49	0.33	0.47
partnowork	Partner/spouse not currently employed	0.42	0.49	0.37	0.48

    a.   Note that peak value and option value are measured in units of $10000 in the regressions below.

Peak value and option value have already been defined. The key hypothesis to be tested is that the higher an individual's estimated peak value (or option value) due to continuation in paid work, rather than taking retirement, the more likely it is that he/she actually remained in work in 2001-04. So we 'predict' (or really 'postdict') positive and statistically significant coefficients for the effects of peak value and option value on the likelihood of continued employment.

The first variable listed in Table 3.1 is SSW0. This refers to the social security wealth of the individual if he/she retired immediately (time zero). It is sensible to control for this variable because it seems possible that the decision to continue in work or retire may be influenced by the current value of SSW at time of decision. One might expect those with higher SSW to be more likely to decide to exit the labour force.[37]

The reasons for including the remaining explanatory variables are more straightforward. First, age; it was expected that the older individuals were, the less likely they would be to remain in work. Next, it was hypothesised that mature age people with resident children

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[37] This hypothesis is only moderately plausible. It seems equally or more likely that people would aim to have a retirement income which was a certain proportion of their pre-retirement income. If this 'replacement income' approach was adopted, a quite different type of model would be required (see Duval, 2004).

would be more likely to continue in work, as they need more income than people who do not have children to support. People who own their home outright would be less likely to remain in work as they require less cash income to achieve any given standard of living, once their mortgage has been paid off. People with a long term health condition or disability would be less likely to be employed – many would be unable to work or have difficulty finding jobs. People with higher levels of education and higher levels of work experience are hypothesised to be more likely to remain in work, because they could presumably earn higher wages. However, some of those able to earn high wages might have decided that they had saved enough for a comfortable retirement and so decided to leave the labour force. Finally, it was expected that those whose partner remained in work were more likely to have kept working themselves. The idea here is that many couples presumably choose to coordinate their activities and retire at the same time.

Our approach is to estimate ordered probit regressions, pooling all four years of HILDA data (2001-04). Regressions are estimated separately for men and women.

In the main text results are given only for the two more sophisticated incentive measures, namely peak value and option value. These two measures are based on an assumption that individuals and couples considering work versus retirement have a lifetime perspective, rather than (unrealistically) basing their decision only on the year ahead.

Table 3.2 provides estimates of the effect of the peak value incentive measure, together with other influences on the work versus retirement decision. Results are shown separately for men and women.

Table 3.2: Decisions to Continue Working or Retire: Ordered Probit Regressions using the Peak Value Financial Incentive Measure

	Men	Women
Peak value	**0.00018***	**-0.00005**
	(0.00008)	(0.00006)
SSW0	3.48e-08	1.55e-07
	(7.61e-08)	(1.01e-07)
Age	-0.10682**	-0.10648**
	(0.01218)	(0.01211)
Resident children	0.07702	0.24233*
	(0.09526)	(0.09968)
Own home outright	-0. 22648*	-0.09573
	(0.08995)	(0.08852)
Long term health condition	-0.76118**	-0.57154**
	(0.08240)	(0.07968)
Australian born	0.02468	0.28484**
	(0.08946)	(0.09471)
Education (years)	0.06704**	0.06875**
	(0.02187)	(0.02296)
Work experience (%)	5.66541**	2.19532**
	(1.13657)	(0.18437)
Partner Status (No Partner is omitted category)		
Partner works	0.80315**	-0.03085
	(0.10940)	(0.09723)
Partner doesn't work	0.11236	-0.72847**
	(0.10827)	(0.11218)
Cut-point 1	-0.49070	-3.87501
	(1.51613)	(0.77081)
Cut-point 2	0.38273	-3.03305
	(1.52790)	(0.77093)
Observations	2960	3236
Pseudo R2	0.3055	0.2512

Notes: Robust standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%.

It can be seen that the effect of the financial incentive variable, peak value, on the decision to work rather than retire is statistically significant (at the 0.05 level) for men, but not significant for women. In other words, for men but not women, the desire to maximise (remaining) lifetime income appears to have a significant effect on decision-making. This Australian result is parallel to Gruber and Wise's (2004) results for most of the 12 countries they studied. In seeking to understand the gender difference, it is reasonable to point out that in most households men are still the main earners, so that it is their continuation or exit from the workforce which is going to make most difference to the household's lifetime income. Women are less likely to be in work, and on average their incomes are lower. There is also a great deal of international evidence that, compared with men, they are more influenced by non-monetary factors, including whether their partner continues in work and whether they have continuing caring responsibilities, including responsibility for children still living at home (Gruber and Wise, 2004). In Australia, Warren (2006) confirmed that the factors influencing women's retirement decisions were substantially different from men's, and were more commonly based on family considerations rather than financial incentives.

Turning to non-financial variables, the most striking result concerns the effect of health. Having a long term health condition or disability which has lasted for six months or more is the variable most strongly related to the decision to exit the labour force (b=-0.76; t-value=-9.24). In this context it is important to record that around 30% of HILDA respondents who answered detailed questions about their reasons for retirement in a special survey module included in the 2003 questionnaire reported that health was a major reason for exiting the labour force. In taking their decisions they were in many cases influenced by their doctors and partners, as well as by their own concerns.

Unsurprisingly, age was also related to retirement, with older people being substantially more likely to retire (net of the effects of all other variables included in the analysis). This result tends to confirm that, net of other considerations, older people have a stronger preference for leisure (or a greater aversion to work) than younger people.

The evidence in Table 3.2 also indicates that men are strongly influenced in their decision to continue in work or retire by their partner's employment status. Men whose partners are still working are much more likely than those with non-working partners to decide to stay in employment themselves. It is also the case that better educated men and those with more years of work experience tend to stay in work longer than those who have less formal education and less work experience. This is likely to be because they earn more, and perhaps because they enjoy their work more.

Table 3.3 gives similar results for the 'option value' measure of financial incentives. Overall, option value is our preferred measure because it embodies the most sophisticated and plausible account of individual motivation in making work versus retirement decisions (Gruber and Wise, 2004). It seems to us entirely plausible that individuals would take account of the value of utility gained from leisure, and not just from income. However readers who do not agree with this viewpoint – or who think that the form of the utility function may be misspecified – may prefer to accept the peak value results given above. The two sets of results are, in any event, very similar.

Table 3.3: Decisions to Continue Working or Retire: Ordered Probit Regressions using the Option Value Financial Incentive Measure

	Men	Women
Option value	**0.00018****	**-0.00004**
	(0.00007)	(0.00005)
SSW0	2.81e-08	1.55e-07
	(7.54e-08)	(9.1.02e-07)
Age	-0.10633**	-0.10651**
	(0.01217)	(0.01211)
Resident children	0.07696	0.24231**
	(0.09529)	(0.09968)
Own home outright	-0.22671*	-0. 09562
	(0.08993)	(0.08851)
Long term health condition	-0.75997**	-0. 57152**
	(0.08239)	(0.07969)
Australian born	0.02380	0.28487**
	(0.08942)	(0.09472)
Education (years)	0.06618**	0.06892**
	(0.02185)	(0.02297)
Work experience (%)	5.66077**	2.19547**
	(1.13642)	(0.18435)
Partner Status (No Partner is omitted category)		
Partner works	0.80222**	-0.03089
	(0. 10827)	(0.09723)
Partner doesn't work	0.11069	-0.72846**
	(0.11220)	(0.11218)
Cut-point 1	-0.47215	-3.87539
	(1.51589)	(0.77083)
Cut-point 2	0.05718	-3.03345
	(1.57269)	(0.77096)
Observations	2960	3236
Pseudo R2	0.3059	0.2512

Notes: Robust standard errors in parentheses. [+] significant at 10%; [*] significant at 5%; [**] significant at 1%.

Again, the financial incentive variable, option value, is statistically significant for men but not women. In fact, for men the option value result is slightly stronger than the peak value result. The coefficient is slightly larger and it is significant at the 0.01 level, rather than the 0.05 level. This lends some confirmation to the view that the option value model gives a better account of the motivation behind the work versus retire decisions of mature age people than the peak value model (or the single year models for which results are not shown here).

The option value model is perhaps particularly valuable for the account it implicitly takes of health status, which we have found to be crucial in determining decisions. It may be that people of mature age value their health over and above any monetary factors included in the models.[38] Naturally, the prevalence of new ill-health conditions (or the worsening of existing ones) makes employment harder to maintain from both the employer's and employee's point of view. For individuals whose health is compromised a dollar received from retirement income is likely to have considerably more utility than a

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[38] This may be also true for other age groups. However, we expect the health effect to be more pronounced for the mature age.

dollar earned from work. The option value model probably partly reflects health related differences in the utility functions of mature age people. However, it should also be noted that disability status included as a separate variable was also highly significant for both men and women.[39]

Results for the remaining explanatory variables included in the option value model run parallel to those for the peak value model. For men, as for women, age was negatively related to the probability of continuing in work. High levels of human capital (education and work experience) led to continued employment on the part of both men and women. For women, confirming earlier results, 'family' variables appeared to be more important than for men. Having children still at home made women more likely to continue in work. Women whose partners had quit the labour force had mostly quit themselves; a result than lends credence to the view that couples often coordinate their retirement decisions, with women rarely working on after their partners have retired.

Alternative model specifications

In preparing the statistical models given above, we tried a range of alternative specifications. By and large they made little substantive difference to results. One alternative of particular interest involved including dummy variables for age (i.e. a variable for people aged 54, 55 etc) on the right hand side of equations, instead of a single (linear) age variable. This is sensible in principle because of the policy interest in knowing the strength of the incentive to continue in work (or retire) for individuals at each specific age. In practice, however, the sample size for this exercise is not quite large enough. So the numbers at some specific ages are small, resulting in high standard errors. In future work, when bigger samples become available (as will be the case for the HILDA panel data), it will be desirable to develop models with age dummies.

Overall, the results in this section confirm the value of the Gruber and Wise approach to modeling the effects of financial incentives on the workforce decisions of mature age people. The benefits of further research in this area are discussed in Part 5 of the report.

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[39] It follows that the option value utility function does not fully capture the effects of health status on the retirement decision.

Appendix A3

Calculations of expected retirement income

For each individual, expected annual retirement income is calculated for each remaining year of life. Life expectancy tables are used to predict survival rates and age of death. Expected retirement income is defined as the sum of pension income, income from superannuation and income from other assets. All incomes are discounted back to present values (2002 prices), using a standard discount rate of 3%.

It is assumed that before retirement superannuation and other assets (excluding the family home) are invested at a rate of 6% (real), and that other assets are not run down until the individual retires. It is also assumed that when an individual eventually retires, assets are invested at the same rate as before retirement (6% real), and that these assets are drawn down in equal amounts each year for the rest of the person's life (i.e. financial assets are exactly exhausted at death, if the person lives to exactly his/her predicted age).[40] Use of an alternative rate of return of 4% did not substantially change interpretation of the key results relating to financial incentives.

For couples, income from assets is calculated separately for both partners, using the individual's superannuation balance and half of the couple's other assets. For people with potential annual retirement incomes of more than $24000, superannuation income is assumed to be taxed at 5% (a figure intended to reflect average actual rates), and income from other assets is assumed to be taxed at 32% (the marginal rate of tax for middle range incomes). [41]

Pension income

Potential Age Pension income is calculated based on 2002 payment rates. In 2002, the full Age Pension was $429.40 per fortnight for a single person and $358.40 (each) for couples. For each person, Age Pension eligibility was checked against both the income test and the assets test, and the amount of Age Pension then allocated according to whichever test gave the lower amount of pension. For most people, this was the income test.

Under the income test in 2002, the first $34000 ($57400 for pensioner couples) of financial assets were deemed to earn 2.5%, and financial assets over these amounts were deemed to earn 4% - actual income from financial assets was not counted. Single people could earn up to $116 per fortnight and still receive the full pension, and for each dollar over this amount, the pension was reduced by 40 cents. Couples could earn a combined amount of $204 before their pension was affected, but for each dollar over this amount their combined pension was reduced by 40 cents.

Under the assets test in 2002, the Age Pension was reduced by $3 per fortnight according to home ownership and marital status, as shown in Table 3A.1.

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[40] People are assumed to live until the average life expectancy, as determined in ABS Life Tables. If the individual lives longer than average life expectancy, they are assumed to rely solely on the Age Pension for those additional years.

[41] These rates are scheduled to change on July 1 2007, following announcements in the 2006 budget.

Table 3A.1
Asset test thresholds for Age Pension in 2002

Family Situation	For full pension	For part pension
Single homeowner	Up to $145250	Less than $290500
Couple homeowners (combined)	Up to $206500	Less than $447500
Single non-homeowner	Up to $249750	Less than $395000
Couple non-homeowners (combined)	Up to $311000	Less than $552000

For people under Age Pension eligibility age, it is assumed that, if they were not working, they would be eligible for another type of government income support (e.g. Newstart payments, mature age allowance, or disability support pension) subject to appropriate means tests, until they reached Age Pension eligibility age.

For men under the age of 65 and women under the age of 62, potential income support from each of the three sources mentioned above is calculated in 2002 values, using the income and assets tests appropriate for that year. Potential income from government pensions is then allocated to the individual by multiplying the probability of receiving that type of income support for a person of that age and gender. The amount of income support that would be received is then allocated, subject to means tests based on individual circumstances.[42]

For disability support pension, the payment rates and means tests are the same as for the Age Pension. However, the payment rates for Newstart allowance and mature age allowance are slightly lower, and, while the assets test is the same for all pensions, the income test for Newstart and mature age allowance are stricter than those for Age Pension and DSP. As a result, our calculations of expected pension incomes for people under Age Pension age usually result in lower values than expected pension income once Age Pension age is reached.

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[42] Probabilities by age and gender were calculated using HILDA income support data.

Table 3A.2 Decisions to Continue Working or Retire: Ordered Probit Regressions using the Accrual Rate Financial Incentive Measure

	Men	Women
Accrual Rate	**0.0008**	**0.0004**
	(0.0018)	(0.0023)
SSW0	5.73e-08	1.39e-07
	(7.59e-08)	(9.73e-08)
Age	-0.1074**	-0.1066**
	(0.0123)	(0.0121)
Resident children	0.0772	0.2431
	(0.0953)	(0.0997)
Own home outright	-0.2250*	-0.0964
	(0.0902)	(0.0886)
Long term health condition	-0.7634**	-0.5727**
	(0.0825)	(0.0796)
Australian born	0.0286	0.2844**
	(0.0897)	(0.0947)
Education (years)	0.0677**	2.1942**
	(0.0219)	(0.1844)
Work experience (%)	5.6670**	0.0686**
	(1.1341)	(0.0230)
Partner Status (No Partner is omitted category)		
Partner works	0.8005**	-0.0304
	(0.1094)	(0.0975)
Partner doesn't work	0.1108	-0.7290**
	(0.1084)	(0.1123)
Cut-point 1	-0.5138	-3. 8878
	(1.5191)	(0.7708)
Cut-point 2	0.0146	-3.0460
	(1.5308)	(0.7710)
Observations	2960	3236
Pseudo R2	0.3049	0.2511

Notes: Robust standard errors in parentheses.   [+] significant at 10%; [*] significant at 5%; [**] significant at 1%.

PART 4: DO MATURE AGE WORKERS HAVE LESS CHANCE OF RE-EMPLOYMENT THAN THEIR YOUNGER COUNTERPARTS? IF SO, WHY?

Introduction

Part 4 of this Report addresses the question of whether older workers who are not in employment have a lower probability of returning to work than their younger counterparts.[43] If they do, why? Is it because they have less human capital and so are less productive or cost too much compared with younger workers, or is there evidence of discrimination by employers against older applicants?

The probability of returning to employment after a period without paid work is our preferred outcome measure. It is a good measure for understanding the duration of spells out of work, because a lower probability of re-employment necessarily implies longer spells. Given that our data source is a four-year panel, this measure is actually preferable to more obvious measures of duration like the percentage of total months not employed in 2001-04. The reason is that in a period as short as four years many spells of non-employment would be 'censored'. That is, we would not know exactly when they started (because some spells would have begun before the first HILDA interview) and some would still be continuing in 2004. In general, the effect of censoring is to bias statistical estimates; a problem which is avoided by using our preferred measure of probability of returning to employment.

The HILDA data confirm that older and younger workers leave employment at roughly the same rates: about 6% of those who are in employment in one year are not in employment in the next year. However, the data also suggest that the probability of return to employment in the next year is considerably lower for workers of 45 and over. Taking HILDA data for three consecutive years, we can see that about half of the younger workers who left employment between year one and two returned to employment by year three, against 30% of those over the age of 45. This difference is large and clearly suggests that older workers stay out of work longer than younger workers.

There are competing interpretations of this observation. It is quite likely that the process of leaving employment is non-random and 'selects' those who also have lower re-entry probabilities. These could be workers with low productivity and/or workers who do not wish to return to employment. However, it is also a possibility that the process of leaving employment *is* random, but that the process of returning to employment is non-random and favors younger workers versus older workers. It is important to distinguish between these competing explanations because they would reflect different behavioral structures which would respond to different policy incentives. It could, of course, be the case that outcomes are due to a combination of the explanations just outlined. In these circumstances we would wish to establish which of the competing explanations are empirically important and which have only minor effects.

In order to tackle these issues we build and estimate a two-stage econometric model of labour market participation which accounts explicitly for the possibility of non-random selection out of employment and investigates the role of age and selection simultaneously. The model is simple and informative. We shall find that selection out of

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[43] Individuals with a long term disability were omitted from the analysis.

employment differs by gender. We also find that selection out of employment only influences subsequent selection into re-employment for men but not women.

We present results with strong caveats due to limitations of the data and recommend that similar research be carried out again when two more waves of HILDA data become available. The main problem is sample size. Only 584 cases are available for the crucial second stage of the econometric model. So the need to preserve degrees of freedom for statistical analysis restricts the number of variables that can sensibly be included on the right hand side of equations, and virtually precludes the inclusion of interaction terms (which also add to the number of variables on the right hand side). It should also be noted that the sub-sample of 584 probably includes a few individuals, almost all in the 55-59 age group, whose exit from the labour force may not have been entirely involuntary, or who, having exited, may not have been as keen as younger people to be rehired. As noted earlier in this report, it is extremely difficult to assess the extent to which non-employment is voluntary or involuntary in the case of people in this age group who have a strong previous employment record.

The model

A two-stage model is estimated. The first stage estimates the probability of an exit out of employment for all those in employment. The second stage samples only those who left employment in the first stage and estimates their probability of returning to employment. In essence the model utilises information from three consecutive periods. A crucial property is that what happens at the second stage is explicitly conditioned on what already happened at the first stage. This conditioning makes both econometric and economic sense, as is explained below. The remainder of this section presents the formal model and then discusses its behavioral interpretation.

All individuals in employment at time t constitute the sample under investigation. The model uses data which cover three time periods, $t = 1,2,3$. The probability of exiting employment between time $t = 1$ and $t = 2$ can be written as

$$(1) \qquad L = Z'\gamma + u$$

with L the (unobservable) probability of exiting employment, Z the observable characteristics of individuals, u is the error term, and γ the market (demand side) and/or personal (supply side) valuation of the impact of Z on this probability. When we compare employment status observed in labour market data (in this case comparing two subsequent HILDA waves), only the binary outcome of the labour market participation process is observed: an employed individual either *has left employment* or *is still in employment*. The discrete nature of the data imposes this structure on the model, as there are no continuous data which would allow the use of duration analysis.[44] Replacing L with $L* = 1$ if $L > 0$ (if the individual has left employment), and $L* = 0$ otherwise (if still employed), a probit estimation of equation (1) will yield

$$(2) \qquad \hat{L}* = Z'\hat{\gamma}$$

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[44] Although HILDA contains an employment calendar, the value of most conditioning variables is only recorded once a year. This imposes limits on the type of estimation methods that can be used.

The probit estimation has the attractive property of assuming that the error term follows the normal distribution, thus allowing the incorporation of a Heckman non-random selectivity correction in the second stage of the model. This is a method widely used in labour microeconometrics for situations in which non-random selection may be present in the estimation of a sequential process, like the one studied here. After estimation of Equation (2), using the probit method, we derive the selection correction term λ.

$$(3) \qquad \lambda_i = \varphi(Z'\hat{\gamma})/\Phi(Z'\hat{\gamma}) > 0$$

This term is then included on the right hand side of the main equation of interest, namely the equation that estimates re-employment probabilities.[45] Following the same logic as in the construction of Equation (2), probit estimation of the re-employment equation can be written as follows:

$$(4) \qquad \hat{Y}* = X'\hat{\beta} + \hat{\sigma}\lambda$$

where $Y*$ is one if the individual returns to employment at $t = 3$, and zero otherwise, X are the individual characteristics, β their coefficients, λ is the estimated selectivity term from stage one and σ is its coefficient.[46]

The behavioral interpretation of the selection correction term λ is crucial in the modeling of the two-stage labour market participation process. Note that, by definition, estimated $\hat{\lambda}_i$ takes a positive value for all those who are sampled for the second stage estimation.[47] The value of $\hat{\lambda}_i$ is a measure of how close an individual i, who has left employment, is to being a perfectly representative individual within the total sample. The higher the value $\hat{\lambda}_i$ is, the less similar individual i is to the typical person who left employment and the more similar to the typical person who did not leave employment. This can be best understood by looking at the extremes of the distribution of $\hat{\lambda}_i$. For those with a low (predicted) probability of leaving employment who, nevertheless, are observed to have actually left employment, $\hat{\lambda}_i$ will take high values, as they are not representative of those who leave employment. For those with a low (predicted) probability of leaving employment, who are not observed to have left employment, $\hat{\lambda}_i$ will take low values as they are representative of those who do not leave employment. In the extreme case of someone with zero predicted probability of leaving employment, $\hat{\lambda}_i$ would also be zero.

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[45] This term is often called the Inverse Mills Ratio (IMR) where $\varphi(.)$ and $\Phi(.)$ denote the normal distribution and cumulative functions respectively. Its inclusion on the right hand side of the second stage estimation removes any selection bias that may be present from the first stage non-random construction of the sample. Hats over parameters are used in the conventional manner to denote estimates.
[46] The error terms of Equations (2) and (4) are assumed to be jointly distributed following the bivariate normal distribution.
[47] Care should be applied here. The IMR will have a different sign for those who record different outcomes of the binary process. For those who remained in employment at the end of stage one (dependent variable in the first stage probit equals zero) the IMR will take negative values. For those who left employment at the end of stage one (dependent variable in the first stage probit equals one) the IMR will take positive values.

The last important observation that has to be made at this juncture relates to whether the coefficient σ is statistically significant in the estimation of Equation (4). A significant coefficient σ implies that where and when there is any non-random selection out of employment, then this non-random selection out of employment *in itself influences* (that is, over and above all other observed/measured factors), *selection back* into employment.

Finally, the model is extended to incorporate the distinction between younger and older workers. There is only limited scope for making this distinction at the empirical level because of sample size limitations. Trial runs with several two-stage models reinforced this point and led to the adoption of the simple method of using an indicator variable ('Older') which takes the value of 1 for those aged 45 to 59 and zero for those 30-44.

Experimentation with more advanced methods such as interaction variables and separate samples did not bear fruit, probably due to sample size constraints. We then re-write and re-estimate Equation (4) as follows

$$(5) \qquad \hat{Y}^* = X'\hat{\beta} + \hat{\sigma}\lambda + \hat{\delta}Older$$

The coefficient for Older will give us an indication of any possible employer discrimination against older job applicants, and the coefficient for the selection correction term will tell us whether the same unobserved variables which may have affected exit from employment also affect re-hiring.

Data preparation

Equations (2), (4) and (5) were estimated using the econometric package LIMDEP. The first four waves of the HILDA Survey were the data source. It was clear from the outset that, in order to estimate this type of process, certain compromises would have to be made in terms of modeling and data. The first problem was that, when we considered the estimation of the second stage, the sample size was already small. To utilise the small number of observations in the best way and increase the efficiency of subsequent estimations, the data were split into two parts, each of three year length, and the sample was split into two parts: HILDA waves 1, 2 and 3 constituted the first part and waves 2, 3 and 4 were the second part. These two sub-samples were treated as independent and were concatenated to form a larger sample of three periods, denoted by $t = 1,2,3$.[48] Next, all individuals who were not in employment at t were excluded from the sample. The resulting sample contains 9,135 observations of individuals who were in employment at $t = 1$ and who form the sample used for the estimation of first stage Equation (2).[49] Out of those 9,135 individuals, 584 were not in employment in the second period ($t = 2$), a proportion of about 6 percent. These 584 individuals form the sample used in Equation (4) for the second stage of the analysis. In period three 261 individuals returned to employment, about 50 percent of those below the age of 45 and 30 percent of those above

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[48] In doing so we have had to assume that there is no trend in the data which would make what happened within years 2001-2003 different to what happened between 2002-2004. There is no obvious reason why such an assumption would be wrong as the processes under investigation typically show very little change in the short run.

[49] Unlike descriptive analysis, where observations on individual variables are independent, the multivariate context of regression necessitates that all variables have valid observations for all individuals in the sample. Depending on the data set, this can cause serious reduction in sample sizes. This is not the case with HILDA as the item response rate is very high.

45. With sample sizes as low as these, multivariate regression results are limited in their ability to estimate structural processes (including the two-stage selection process presented here) with any great precision. This caveat is important and should be read in the following manner. Where the estimates reject the null hypothesis that there is no relationship between two variables, considerable confidence can be placed in the result. By contrast, where estimates cannot reject the null hypothesis, then not a great deal of confidence can be placed in the result. Put simply, where a significant coefficient is estimated, the result can be trusted. Where a coefficient is found to be not significant, then the result can be questioned because the lack of significance can be due to either (i) the small sample size (hence the result is wrong) or (ii) the lack of an effect to be traced (in which case the result is right).

Estimation results

Of the several models and specifications that were tried out and estimated, we present in Table 4.1 a model which conveys the tenor of the main results. The dependent variables for the first and second stage equations have already been described. The explanatory variables are mostly standard demographic and human capital variables, including gender (female=1, male=0), marital/partnership status, country of birth, years of education, type of industry (manufacturing, trade and services),[50] occupational groupings[51] and years of experience (tenure) with one's current employer. Also included were variables measuring whether one lived in a disadvantaged area (1=disadvantaged, 0=not disadvantaged)[52] and job satisfaction (the hypothesis being that those with higher job satisfaction would be less likely to leave their jobs).[53]

In the second-stage equation ('returning to employment'), the variable of key interest is age (1=45 and over, 0=under 45). If the coefficient for age proves to be statistically significant, we will know that older people do find it harder to get rehired, net of ('controlling for') human capital and other 'meritocratic' characteristics, and also net of demand side variables, including the industry in which they are trying to find work. Also included was a measure of years of occupational experience, the hypothesis being that individuals with more experience would have a better chance of being re-hired. Net worth (total household assets minus debts) was added because it was thought that wealthy people might be less likely to want (or need) a job.[54] Finally, the selection correction factor was included on the right hand side of the equation for reasons explained above.

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[50] Only a 3-way split was made in order to preserve degrees of freedom in the statistical estimation; the three categories being Manufacturing, Trade and Services.

[51] Again, only a three-way split was made in order to preserve degrees of freedom. The top occupational grouping contained managers, administrators and professionals. The middle grouping comprised associate professionals, tradespersons, and advanced clerical and service workers. The third category comprised intermediate clerical workers, intermediate production and transport workers, elementary clerical, sales and service workers, and labourers and related workers.

[52] This is a dummy variable (1=lives in an area in the bottom two deciles of the ABS's Index of Relative Socio-Economic Disadvantage, 0=other areas). The 2001 measure of 'disadvantaged area' was used for the first stage equation (leaving employment) and the corresponding 2003 measure for the second stage equation (returning to employment). The measures are described in ABS (2001).

[53] This was measured on a 0-10 scale where 0 meant 'totally dissatisfied' and 10 meant 'totally satisfied'.

[54] The net worth variable was split 3 ways: under $200,000, $200,000 to $600,000 (the reference group) and over $600,000.

Table 4.1:
Estimations of leaving and returning to employment: two-stage probit regression model

Model	First Stage: Leaving Employment		Second Stage: Returning to Employment	
Column 1	Column 2 Coefficient	Column 3 t-ratio	Column 4 Coefficient	Column 5 t-ratio
Female	0.39**	8.26	-0.40	1.84
Married/de facto	-0.03	0.61	-0.10	0.77
Born in Australia	-0.06	1.17	0.05	0.34
Years of Education	-0.04*	3.12	0.04	1.06
Manufacturing	0.08	1.48	0.01	0.04
Trade	0.10	1.78	-0.16	1.08
Higher Occupational Group	-0.17*	2.88	0.46*	2.64
Middle Occupational Group	-0.23**	4.29	0.28	1.62
Work Experience with Employer	0.003	1.15	-	-
Job Satisfaction	-0.05**	4.85	-	-
Disadvantaged Area at t = 1	0.00	0.44	-	-
Disadvantaged Area at t = 3	-	-	-0.01	0.49
Net Wealth < $200,000	-	-	-0.14	1.04
Net Wealth > $600,000	-	-	0.13	0.92
Occupational Experience	-	-	-0.02*	2.69
Selectivity term λ	-	-	-0.38	0.68
***Older** (Age 45 and over)*	**-**	**-**	**-0.49***	**3.98**
Restricted log Likelihood	-2170.90		-401.50	
Unrestricted log Likelihood	-2083.68		-373.58	
Sample size	9135		584	
Chi square	174.45		55.83	

Note: The dependent variable in stage one is 1 for leaving employment between the 1st and 2nd periods, and zero for staying in employment. The dependent variable in stage two is 1 for returning to employment and 0 otherwise. LIMDEP was used for all probit estimations.
** Significant at the 0.001 level; * significant at the 0.05 level.

The key finding is that age has a negative and statistically significant effect on the probability of returning to employment. There are two points that are important regarding this result. First, in the context of multivariate regression, the result indicates that, after all the demand and supply factors included in the equation have been accounted for, there is still a negative association between being older and one's chances of returning to employment. There are several alternative reasons which may be responsible for this finding: (i) it could be age discrimination - older workers who leave employment may subsequently be penalised by employers for no reason other than age, or (ii) it could be that older workers who leave employment have lower productivity and for that reason face more difficulties in returning to employment than their younger counterparts, or (iii) it could be that, in a few cases, older workers left employment less involuntarily than their younger counterparts, or perhaps did not have as strong a desire to be rehired. Although the model presented here cannot distinguish as clearly as one would wish

between these competing explanations, the results do offer some useful hints and directions for future research and thinking (see below).

Turning now to other results in Table 4.1, columns 2 and 3 show that women leave employment much more frequently than men. Columns 4 and 5 suggest that they also return to employment less frequently. (Note, however, that while the size of the effect at the second stage is much the same as at the first, the result is less precise in the sense that the standard error is much larger). Manufacturing and Trade employees appear to have a higher probability of leaving employment than those employed in Services (the reference category), but the estimates are rather imprecise.[55] Years of Education are negatively associated with the probability of leaving employment, but apparently have no impact on the probability of returning to employment.

The value of the two-stage model becomes clear when we look at the impact of occupation on transitions out of and into employment. Belonging to the top occupational or middle occupational groupings, as opposed to the lower occupational grouping (the reference category), both reduces the probability of leaving employment and also increases the probability of being re-hired. However these transitions occur at different rates for the top and the middle occupational groupings.[56] The top group leaves employment at a rate which is about the same as that of the middle group (see Column 2 coefficients –0.17 as against –0.23). However, the top grouping returns to employment (once out of employment) at a rate which is almost double that of the middle group (see Column 4 coefficients 0.46 as against 0.28). As expected, job satisfaction is inversely associated with the probability of leaving employment. Estimations did not reveal any statistically significant associations with living in a disadvantaged area, marital status, length of tenure (1st stage only), general occupational experience (2nd stage only), and net wealth.

Results relating to selectivity (at the second stage of the estimation) are not easy to interpret, but there may be an important gender difference. This possibility is explored in Table 4.2, which gives second-stage results separately for men and women.[57]

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[55] This is a good example of not knowing whether the data are just tracing a weak effect, or whether there is a strong effect which would become more precise if we were to use a larger sample. As can be seen, the p-value of both coefficients is around the 9-12% area, so that the precision of these estimates can be questioned.

[56] Only a rough split of the data has been carried out to preserve degrees of freedom for the estimation. The top occupational group contains managers, administrators and professionals. The middle occupational group contains associate professionals, tradespersons and related workers, and advanced clerical and service workers. The remaining reference category contains intermediate clerical workers, intermediate production and transport workers, elementary clerical, sales and service workers, and labourers and related workers.

[57] The first stage results for men and women separately were similar to the combined results given in Table 4.1.

Table 4.2
**Estimations of the probability of returning to employment for men and women
separately: second stage of two-stage probit regression model**

Model	Second Stage: Returning to Employment - Men		Second Stage: Returning to Employment - Women	
Column 1	*Column 2* *Coefficient*	*Column 3* *t-ratio*	*Column 4* *Coefficient*	*Column 5* *t-ratio*
Married/de facto	0.00	0.00	-0.48*	2.58
Born in Australia	0.25	1.11	-0.73	0.44
Years of Education	-0.03	0.51	0.06	0.19
Manufacturing	0.12	0.53	-0.17	0.78
Trade	0.11	0.41	-0.29	1.66
Higher Occupational Group	0.24	0.77	0.48*	2.36
Middle Occupational Group	-0.07	0.24	0.23	1.19
Disadvantaged Area at t = 3	-0.00	0.11	-0.01	0.35
Net Wealth < $200,000	-0.16	0.65	-0.23	1.33
Net Wealth > $600,000	-0.22	0.85	0.28	1.50
Occupational Experience	-0.02	1.68	-0.01	1.12
Selectivity term λ	1.45*	2.02	-0.67	1.18
Older (Age 45 and over)	**-0.26**	**1.07**	-0.41*	2.46
Restricted log Likelihood	-141.36		-258.95	
Unrestricted log Likelihood	-126.20		-238.15	
Sample size	204		380	
Chi Square	30.33		41.61	

Note: The dependent variable in stage two is 1 for returning to employment and 0 otherwise. LIMDEP was used for probit estimations.
* significant at the 0.05 level.

The separate estimations for men and women in Table 4.2 show an apparent gender difference in that selection appears to matter for men but not women. For men the relationship between the selection correction term and the probability of being re-hired is positive and significant at the 0.05 level. A tentative explanation for this result would be that it is quite often the case that men leave employment for reasons related to employer demand (or lack of demand) for their labour, and that these reasons are still present in their subsequent attempts to return to employment. By comparison, it appears that women with similar characteristics may face less risk. They may be able to leave work and later have a relatively good chance of being re-hired.

A final technical point. Discrimination by employers against older workers can certainly not be ruled out on the basis of these results. However, it was found that an interaction term between age and the selectivity correction variable was *not* statistically significant. This result does not have an unambiguous interpretation, but it could mean that apparent discriminatory behaviour by employers is not really due to age as such, but due perhaps to productivity related variables (e.g. lack of flexible adaptation to new technology) which are not included in (or proxied by variables included in) our equations.

Discussion

The results presented here have to be read with a number of caveats. First, the size of the sample is small for the estimation of a model which has a fair degree of behavioral structure in it. Using further HILDA waves of data will be necessary in order to clarify some of the issues raised. This will soon be possible because each extra wave will add another 50% more data, if one retains the three period concatenation used here. Second, the use of the Heckman selection has clarified some issues, but it is the view of the authors that results are not as clear as would be desired. Again, more waves of data will help. Third, the model has been kept as parsimonious as possible, in order to preserve degrees of freedom for the estimation. With more data this restriction will be lifted and more informative specifications will become feasible, which will enrich estimation results. Finally, an increased number of observations will allow the use of split samples for estimations and enable us to carry out necessary counterfactual analyses.

PART 5
INTERNATIONAL EVIDENCE ON FACTORS AFFECTING MATURE AGE WORKFORCE PARTICIPATION AND DISCUSSION OF POLICY OPTIONS FOR AUSTRALIA

This section of the report can be read as a relatively separate or 'independent' policy discussion, based on reviewing overseas experience in reducing early retirement and encouraging mature age workforce participation. It is not claimed that the policy options discussed here derive in any direct way from the Australian data and statistical analyses presented in Parts 2-4. These analyses to some extent inform the policy discussion, but one can never logically derive an 'ought' (e.g. a policy recommendation) from an 'is' (e.g. a statistical estimate), and some of the statistical results given earlier have been presented with strong caveats.

The international literature review in Part 1 of this Report showed that, although many other factors including health and caring responsibilities also matter, it is nevertheless the case that financial incentives measured by accrual rates of retirement assets substantially affect mature age labour supply. Mature age people work more in countries where accrual rates are relatively high and less in countries where accrual rates are low. The international studies of accrual rates have never included Australia, so we developed a preliminary model, presented in Part 3, which confirms that, in this country too, financial incentives matter a great deal. This holds despite the fact that Australia has a retirement income 'system' which differs sharply from that of most other Western countries. Australian retirees rely heavily on the basic non-contributory State pension, which is still the main source of income for the majority. It might have been thought that, in this system, the rate of accrual in retirement assets would have had a lesser impact than in systems where extra retirement income appears more directly related to extra years of work.

From a policy perspective the key point about financial incentives affecting mature age participation is that they are readily amenable to policy intervention. Governments can change incentives. By contrast, it is much harder for them to change most other things which affect mature age labour supply, like health, spouse preferences and education.

This section presents further evidence on international differences in the workforce participation rates of mature age people. The main focus is on countries with high participation rates. We are searching for policy options which are worth considering for Australia. It is well understood that Australian institutional arrangements covering wages, workplace relations and retirement provisions are unique (although the natives say the same in every country) and that policy proposals cannot simply be imported from overseas. Potential reforms gleaned from overseas experience of course need adapting to Australian conditions and some may not be suitable at all. Nevertheless, much can potentially be learned by broadening our database and seeking to understand how some countries have maintained higher mature age workforce participation rates than Australia, while others have reversed a previous trend towards early retirement.

Table 5.1 gives OECD data on the average (mean) ages at which men and women exited the labour force in 19 affluent Western countries in 1997-2002. It should be noted that OECD uses a behavioural definition (not a self-classification) of labour force exit ('retirement') as preferred in this Report.

Table 5.1
Effective Workforce Exit Ages for Men and Women 1997-2002: 19 Industrialised Countries (descending order of male exit age*

	Men	*Women*
Iceland	69.6	67.8
Switzerland	66.6	63.2
Denmark	65.3	62.1
Ireland	65.2	66.2
United States	65.0	62.9
New Zealand	64.3	61.3
Norway	63.7	62.3
Sweden	63.5	62.0
Australia	*63.2*	*60.6*
Canada	63.1	61.4
U.K.	63.1	61.2
Italy	61.2	60.5
Netherlands	61.0	59.1
Finland	60.8	59.3
Germany	60.0	60.2
Luxembourg	59.8	59.8
France	59.3	59.4
Austria	59.0	58.9
Belgium	58.5	56.8
OECD average	*63.3*	*61.4*

*Source: OECD (2005b). The OECD method of calculating effective retirement ages is a little unusual and yields results which differ from the Australian results given earlier. OECD derives its averages from observed changes in participation over 5-year periods for successive cohorts aged 40 and over.

It can be seen that Australian men's typical age of labour force exit is virtually at the OECD average, whereas Australian women retire about a year younger than the OECD average. From a policy standpoint, the countries we need to look most closely at are the six with high male exit ages. These are Iceland, Switzerland, Ireland, the U.S., Denmark and New Zealand. Also of policy interest are six countries which have managed to reverse or at least stabilise their previous trend towards earlier retirement. These are Australia and also New Zealand, the U.K., Finland and Italy (but the last two were coming off very low bases). The U.S. has stabilised its average male exit age at the higher than average rate of 65.

Making the working assumption that later male exit is desirable, how have these relative policy 'successes' been achieved? Our inferences have to be speculative because, so far as we know, no research has modeled *changes* in effective retirement ages, using international comparative data over time. All previous research (reviewed above) has been based on cross-sectional (static) not longitudinal (dynamic) data.[58]

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[58] It is not particularly unusual in social science research to find that international comparative longitudinal results do not replicate – or lead to the same inferences – as comparative static results. For a recent example, see Easterlin (2005) who shows that the comparative static results relating to the effect of higher incomes on life satisfaction are contradicted by comparative longitudinal results for the only two countries (Japan and the US) for which long term longitudinal data are available.

In the case of Australia, the increase in the overall labour force participation rate for those aged 45 and over was entirely due to women. Between 1983-84 and 2003-04 the participation rate of women aged 45-54 rose 47.0% and the rate for women aged 55-64 rose 100.3% (ABS, 2005). In the same period the rate for men aged 45-54 declined from 91.0% to 87.2%, although for men aged 55-64 it actually rose slightly from 62.7% to 64.2%. This last small increase seems to be concentrated among middle and higher income earners, although whether due to supply or demand factors (or both) is not clear. We speculated that extra supply could be due to improved incentives for continued participation due to increasingly generous tax treatment of superannuation contributions and earnings, and the introduction of the Superannuation Guarantee (see Part 2 of this Report). These incentives have meant that middle and higher earners can considerably augment their future retirement incomes by working for extra years.[59]

Raising the pension eligibility age

Among overseas countries, the case of New Zealand is particularly instructive. New Zealand plainly has institutional arrangements for wage determination, workplace relations and retirement which are more similar to Australia's than any other Western country. One big difference, however, was that in New Zealand before 1991 the age of pension eligibility for both men and women was 60, whereas in Australia it was 60 for women and 65 for men. In that year the New Zealand Government began a phased increase to a pension age of 65 for both sexes which was completed by 2001. By 2001 the male participation rate for 60-64 year olds had risen by 20% and the female rate rose sharply too (Banks, 2005). Participation among 55-59 year olds also rose and it is reasonable to speculate that this was because it no longer made sense for people in this age group to do what some Australians in the pre-pension age group also do; that is, run down their assets in order to collect the full State pension as soon as they become eligible (Banks, 2005).

So New Zealand has conducted a natural experiment on the effects of raising the State pension age. Does evidence from other countries provide corroboration? In the event, the international evidence clearly shows that the official age of access to basic State pension entitlements is strongly related to the average age of effective workforce exit. Countries where a basic pension can be collected at 60 have earlier average exit ages than those where the pension age is 65, and the few countries in which the age is already 67 (Iceland and Norway), or is being increased to 67 (U.S.) or is 67 for a section of the population (Denmark),[60] all have high average workforce exit ages (see Table 5.1 above).

So the overseas evidence suggests that a very simple and almost certainly effective method of increasing mature age participation is to increase the basic pension eligibility age. Simulations conducted for many countries confirm the point (Gruber and Wise, 2004). However, it should be noted that if an Australian Government were to consider this option, the incentive effect would apply to middle and low income people who rely on the Age Pension, and would not apply to higher income people who rely mainly on superannuation and private assets. A possible negative side-effect of inducing more low skill people to continue working would be to displace younger people who might otherwise take 'their' jobs. This trade-off would need careful consideration.

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[59] Gross incomes can be considerably augmented. This does not gainsay points made in relation to the model in Part 3. These points related to the net present value of working for an extra year versus retiring.
[60] Only people born before 1939.

Raising the superannuation preservation age and making later withdrawal of funds more attractive than earlier withdrawal

A parallel change in incentives to induce later workforce exit among high skill, high earning individuals, who will later mainly rely on superannuation (and private assets) in retirement, is to increase the preservation age for superannuation. This is at present 55 and is being raised progressively to 60 in 2025. At present, generous tax concessions apply to superannuation withdrawn from age 55 onwards. The top tax rate on withdrawals is 15%, but in practice most people pay much less.[61] In the 2006 Budget, the Treasurer altered the balance. This was not done by removing tax concessions at 55, which remain unchanged, but instead by completely abolishing tax on withdrawals at age 60 or above. This made retirement at 60 even more attractive than 55, and so may be expected to increase labour supply among people between 55 and 59. However, it could have the opposite effect on individuals who were planning to work after 60 in order to achieve, in their eyes, an adequate retirement income.[62] Some of these people may now judge that they have enough money to retire on their 60th birthday.

The effect of the changes is, by implication, to increase the accrual rate of future superannuation income *if* one continues to work to a later age. In some Western countries, including three with high or increasing average exit ages, this aim is pursued even more explicitly by directly tying pension accrual rates to the age of individual earners and even to the hours they work in an average week. In the U.S. a person who works on after 62, which is the age of first eligibility for social security retirement benefits, his/her future retirement income is automatically increased by 6.67% (Gruber and Wise, 2004). This is directly intended as compensation for the fact that, by continuing in work, the person is foregoing a year of retirement income (plus paying a year's social security contributions) that could otherwise have been received. The effect of this specific measure is completely to remove the implicit tax on continued work which would otherwise apply.

Similarly in Switzerland people who work on after 60 get a higher percentage of their earnings credited to their State pension accounts than people under 60 (OECD, 2005a). In Finland higher pension accrual rates are legislated for earners aged 63-67, compared to earners aged 53-62, who in turn have higher accrual rates than those under 53 (OECD, 2005a). In Denmark the focus is on average hours worked per week; the more hours you work the higher the percentage of earnings contributed to your pension fund (OECD, 2005a).

If an Australian Government were to consider these lines of policy development, it would need to recognise that they would not make sense without considerable adaptation to Australian conditions. So, if contributions to the Superannuation Guarantee were increased for older earners and/or those who worked longer hours, the effect would simply be that employers would hire fewer older (or long hours) employees. They would make this change in order to avoid the higher total wage bill (i.e. the bill including

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[61] This is in part due to non-taxation of superannuation contributions made before 1983.
[62] The implied model here is one of retirement income 'satisficing' (achieving a satisfactory level) rather than maximising. However, the same conclusion could be reached by a utility maximising framework by assuming that the preference for leisure rises with age (see Part 1).

employer contributions to the Superannuation Guarantee) that they would otherwise have to pay. But the Australian Government could, perhaps, introduce changes which would have the same effect, but bear the cost itself. It might choose to make special co-contributions just for mature age earners, so topping up their superannuation and inducing them to work extra years. This could be viewed as an extension of the current co-contribution arrangements under which Government tops up the contributions of those moderate and low earners who themselves manage to make contributions to superannuation out of their after-tax income.

Special tax concessions for pension and superannuation income – decreases labour supply?

A feature on which countries differ markedly is the extent to which they offer special tax concessions for retirement income. Nine of the Western countries in the full list of 19 in Table 5.1 offer substantial concessions. These are Australia, Canada, Germany, Ireland, Italy, the Netherlands, Norway, the U.K. and the U.S (OECD, 2005a). Ten countries appear to offer no concessions or only minor concessions (e.g. just for local taxes not national taxes). These are Denmark, Austria, Belgium, Finland, France, Iceland, Luxembourg, New Zealand, Sweden and Switzerland.[63] All else equal, one would expect that the availability of tax concessions for retirees would increase the incentive to retire earlier rather than later. However, it is possible that the effect is quite limited. This may be very tentatively inferred from comparing the two lists of countries above. Four of the six late exit countries offer no (or minor) tax concessions,[64] while two offer substantial concessions.[65]

Again, any move towards reducing (let alone abolishing) tax concessions on retirement incomes would have to be adapted to the Australian context. For many years Australia has built up a 'system' based, inter alia, on paying a low minimum old Age Pension by international standards, but then not taxing it (OECD, 2005b). Plainly, if current old Age Pensions were taxed at standard rates, many individuals and couples would be in serious hardship.

A related proposal would be to remove or further reduce cuts in the Age Pension which at present occur if pensioners undertake paid work. At present, the taper rate on the earnings of pensioners is 40 cents per dollar earned.[66] This is a higher marginal tax rate than applies to non-retirees with the same labour income. Its reduction might have a non-trivial impact on labour supply, especially among men just above the pension eligibility age. In this context, it should be recalled that, at present, about 10-11% of men aged 65-69 work full-time and another 8-9% work part-time. If they were taxed less, men in this age group would presumably work more.[67] Unfortunately, it is hard to compile corroborative international evidence. Even OECD appears daunted by the task of recording and comparing effective marginal tax rates on the earnings of different categories of pensioners and superannuants. However, the case of New Zealand is again

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[63] However, Switzerland offers higher pensions after retirement is finally taken (see below).

[64] Denmark, Iceland, New Zealand and Switzerland.

[65] Ireland and the U.S.

[66] 40 cents for a single pensioner, and 20 cents each for a couple.

[67] It is worth noting that the 2006 Budget substantially reduced the impact of the asset test on pension incomes (commencing 20. 9. 07). However, it is the income test which reduces the pension of nearly all those currently on part-pension.

instructive. The pension is not reduced at all if pensioners undertake paid work, and earned income is just taxed at standard rates. The apparent effect is that about 11% of people aged 65 and over work in New Zealand, compared to about 6% in Australia (ABS, 2005; Statistics New Zealand, 2005).

The Australian Government did introduce a potentially major innovation in the 2004 Budget, which affected not the earnings of pensioners, but earnings of superannuants. Before 2004, tax regulations governing the earnings of those who had already taken superannuation (formally notifying the Tax Office of their 'retirement') were complicated and open to dispute. In general, fake retirements in which people appeared to retire, collected superannuation and then went back to work in more or less the same job, were supposedly disallowed in the sense that they could attract heavy retrospective penalty taxes on superannuation.[68] The 2004 Budget maintained the existing situation for people withdrawing their superannuation as a lump sum, but allowed people who took their superannuation as a income stream to work as much as they want and just pay taxes at standard rates.[69]

Concluding overview of options to increase mature age employment

Four economic principles:-

It may be useful to preface this concluding overview of the types of policy options available to Government by suggesting four principles which an economist familiar with the fields of public finance and optimal tax theory might seek to follow (Mirrlees, 2005). The economist would need to recognise that, in relation to the mature age population, the Government has one additional stated objective besides the one central to this Report. As well as increasing workforce participation/employment, the Government also wants to encourage households to save for retirement, so that in future middle income households, and not just higher income households, become self-funding (or partly self-funding) in retirement.

The economist should first recall that the main reason for wanting to increase mature age employment is to maintain high levels of economic growth. Current growth rates probably cannot be maintained in a demographic situation in which the overall employment-to-population ratio is bound to decline unless mature age people postpone complete retirement and continue working (at least part-time) for more years than they do now. Life expectancy keeps rising – it will rise by about another three years for men and two years for women by 2045 - so the pension eligibility age and the superannuation preservation age need to rise in parallel.

A second point an economist might make is that, if one wants mature age people *both to work more and to save more,* then the incentive structure to induce these behaviours should logically be based on not taxing (or lightly taxing) superannuation contributions at the time they are made, not taxing (or lightly taxing) the earnings of superannuation funds held by employed people, and then taxing them normally (at full standard rates) at

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[68] Anecdotal evidence suggests that, in practice, the ATO made little attempt to penalise superannuants who took new jobs or even similar jobs to their pre-retirement positions. This may, implicitly, have been in line with the Government's general policy of increasing mature age labour supply.

[69] For tax purposes earnings are added to pension/annuity income and then the appropriate marginal rates of tax are levied.

the time funds are withdrawn to provide current income. Also, individual levels of saving and superannuation income should be linked in a transparent way, so that it is clear to individuals how their own decisions are likely to affect their standard of living in retirement. An overall design of this kind would encourage initial contributions (savings), encourage retention of savings, and encourage continued work or, same thing, postponement of retirement.

A third and obvious point an economist might make is that it is always important to consider the demand side as well as a supply side. This leads to recognition that many mature age individuals, who find themselves out of work and search for a new job, claim that employers do not want them and prefer to recruit younger people. There is empirical support for their claims (Parts 1 and 4 of this Report). If accepted, the evidence should lead to consideration of options to induce employers to offer more work to mature age people.

Finally the economist, losing all remnants of humility, might question the Government's stated objectives. Is it really desirable that all mature age people should be induced to work more? Optimal tax theory is usually taken to imply that incentives for increased labour supply should be confined to high skill, high earning individuals. Incentives directed at them do most to increase both GDP and to maximise individual utility (Mirrlees, 2005).[70] By comparison, incentives which have the effect of increasing the labour supply of low skill individuals may well not increase GDP, nor increase utility, but have the negative effect of substituting lower skill mature age people for equally skilled, or even higher skilled, younger people. So the economist would advise that policy options to increase labour supply should, at very least, be classified according to whether their impact would mainly be on high skill or low skill supply. The Government could then, if it wished, select options biased towards high skill supply.

Possible policy options derived from the review of international experience

We now try and apply these principles, together with evidence about international experience, in a concluding overview of policy options to combine increased mature age workforce participation with high levels of saving for retirement. In approaching this task, it is acknowledged that policy makers almost never have the luxury of designing policy programs from scratch. The question they face is never 'What is the best policy design?' It is always 'Where do we go from here?' So practical policy options are usually incremental changes which fit more or less well with existing programs.

The Australian Government is already moving in directions implied by the first principles outlined above. It is gradually raising the pension eligibility age for women to the same as for men. It will be 65 by 2013. It is also raising the superannuation preservation from 55 now to 60 in 2025. These changes are phased in gradually in order not to cut unfairly across people's plans by causing them 'suddenly' to have to postpone retirement in order to achieve a target level of subsequent income. Also, any announcement that the pension age would be increased at once by, say, two years from 65 to 67 might well lead to a sudden fall in workforce participation as people retired earlier than they previously planned in order to get out before the deadline.

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[70] Assuming a budget ceiling. It is also assumed that, all else equal, high skill individuals gain more utility from work than low skill individuals.

As a matter of logic, an appropriate way of dealing with the decline in the employment-to-population ratio caused by population ageing would be to *index* both the age of pension eligibility and the superannuation preservation age to *life expectancy.* This would provide a transparent basis for the politically difficult step of regularly raising eligibility ages. To avoid discrimination against women, who live longer, unisex life expectancy tables could be used, as occurs in some Western European countries.[71]

In the last twenty years or so the Australian Government has made many changes in line with the second economic principle outlined above, but also some moves in the opposite direction. In the 1980s the Wages Accords included wage-superannuation trade-offs in which increases in current wages were foregone in favour of superannuation savings, which benefited from tax concessions. In the 1990s the Superannuation Guarantee (introduced 1992) has become the biggest retirement contribution scheme in OECD (OECD, 2005a). Contributions are transparently linked to future retirement income, with strong incentives for individuals to decide to invest extra amounts via both salary sacrifice and after-tax contributions. In the case of low and moderate earners, after-tax contributions attract additional Government co-contributions. Further, individuals can now choose the risk profile of their own superannuation investments; an arrangement which may further tighten the link between personal decisions and retirement living standards.

In all these respects the Australian Government has been in line with or ahead of international trends. However, it has bucked international trends in also increasing tax concessions applying to *withdrawals* from superannuation funds. This was done again in the 2006 Budget. The precise effect of any given change in this direction is hard to estimate but, in general, an increase in incentives to withdraw superannuation funds may have the effect of decreasing not increasing mature age labour supply. If large lump sum withdrawals are permitted, there is also a risk that some superannuants will exhaust their funds and fall back on the pension. The change to not taxing lump sum withdrawals from age 60 onwards, introduced in the 2006 Budget, ran counter to recent Australian policy, which in line with the practice of most Western countries, had previously been to provide incentives for taking superannuation as an income stream, not as a lump sum.

The demand side: increasing employer demand for mature age employees

The focus of this Report has been mainly on Government and public policy interventions to increase the supply of mature age labour. But employers face a huge problem. If all baby boomers who are 'scheduled' to leave the workforce at what are now regarded as standard retirement ages actually do so, the consequence will be that employers will face a huge deficit of skilled labour from about 2010 onwards. Some industries, especially those based on engineering, like the car and defence industries, will be particularly hard hit (DEWR, 2005; Dychtwald, Erickson and Morison, 2006 forthcoming).[72]

So what can employers do? In some respects they could just extend what they are already doing under gender and diversity programs. That is, they could increase opportunities for part-time and flexible work. Australia already has more part-time

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[71] Unisex tables can be regarded as a device to redistribute retirement income from shorter lived people (mainly men) to longer lived people (mainly women).

[72] Numbers of engineering graduates have fallen off sharply in recent years in most Western countries.

employees than any Western country except the Netherlands, with most part-time jobs held by women. To make these jobs more attractive to skilled mature age employees, it would be useful to think about how to adapt offices and workstations to make them ergonomically easier for older people. A number of companies, including Toyota, Deere and Co, and BMW are reported to have taken steps in this direction (Dychtwald, Erickson and Morison, 2006 forthcoming; Economist, 2006).

Employers could also keep portfolios of their retired former skilled employees for use on special projects and in emergencies. IBM already does this in a systematic way (Economist, 2006). French companies are reported to do the same on quite a large scale and also offer bridging jobs to employees who want to make a gradual transition to retirement (Banks, 2005; OECD, 2005a).

A problem which employers in many Western countries face, if and when they consider retaining or hiring older workers, is that they cost too much. Seniority conventions affecting pay sometimes mean that older employees are paid much more than younger, and more than any difference in productivity would justify. If they were to continue in work past normal retirement ages, older Europeans might need to accept pay cuts in line with their (on average) declining productivity. However, Australia appears not to have this problem to any large extent. While in some European countries the difference between the average pay of employees in their late twenties and those in the 50-64 range is 60-70% (Economist, 2006), in Australia it is under 20%.[73] Nevertheless, it is reasonable to assume that in Australia too, many older employees, if they want to continue work, will face difficulties in adjusting to less pay and also, perhaps, to bosses younger than themselves.

Policy options affecting (a) high skill and (b) low skill employees

In this section we differentiate between policy options mainly affecting high skill employees and those mainly affecting low skill employees.

In general, recent changes to superannuation withdrawal rules may be regarded as being directed at high skill employees. (Low skill people usually have little superannuation and so have not been much affected by the changes). The 2004 change which allowed people to withdraw superannuation as a complying income stream and then work on for the same employer may well prove to be a major step towards increasing skilled labour supply. As noted earlier, the 2006 change which abolishes the withdrawal tax for people who take their superannuation from age 60 onwards may have mixed effects, at least in the short term. It should increase labour supply among those aged 55-59, but possibly reduce it among 60-64 year olds. In the longer term, as the preservation age rises to 60 by 2025, the abolition of the tax on withdrawal can only reduce labour supply.

A radical measure to increase high skill labour supply would be to treat an individual who collects superannuation and continues to work as two tax persons rather than one.[74] At the moment, superannuation income and earned income are added together for tax purposes. Tax is levied at highly concessional rates on superannuation income, then

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[73] HILDA Survey, 2004. Estimates refer to medians not means.
[74] Subsequent to the drafting of this Report, the Treasurer appears to have adopted a proposal on these lines. See http:/simplersuper.treasury.gov.au (Sept. 5, 2006) and
http:/www.treasurer.gov.au/tsr/content/transcripts/2006/131.asp.

levied at standard marginal rates on earned income. If a second notional tax person were created – the person with the earned income – then that person could earn $6000 tax free (the tax free threshold), and also pay lower marginal rates than now on further earnings. Clearly, there would be gains and losses to tax revenue, which would need to be calculated. Gains would accrue because of increased labour supply. Losses would be due to lower taxes collected from those who would have undertaken paid work anyway.[75]

Reforms to increase low skill labour supply among mature age workers have also been undertaken in recent years. In particular, eligibility requirements for those income support programs which have, in practice, become substitutes for early retirement have been tightened up. The Mature Age Allowance was closed to new entrants in 2003, Newstart Allowance job search requirements have been tightened, and efforts are being made to scrutinise applicants for the Disability Support Pension more carefully. As is well known, it is the last of these programs that has grown substantially in recent times.

The most effective reform would probably be either to abolish all means tests on the Age Pension, or just the income test on the pensions of those who undertake paid work. At present, above a tax free area, the pension is reduced at 40 cents for every dollar earned.

Abolishing means tests completely is so contrary to years of development in Australian income support policy that it would probably not be contemplated. It should be noted, however, that researchers have regularly calculated that the effect of these means tests is to induce early retirement *and* dissipation of (modest) superannuation holdings prior to the age of pension eligibility in order to qualify for the full pension (e.g. Atkinson and Creedy, 1997; Woodland, 1987; and see survey evidence in ABS, 2006b, pp4-5).[76] In fact, it is fairly obvious from the small numbers receiving part-pension (about 15% of retirees at present) that many people must have deliberately run down their assets in order to avoid the means tests.[77] Abolishing the means tests would in all likelihood completely fix this special Australian problem.

In the 2006 Budget the Government substantially reduced the assets test on pensions, but made no major change to the income test. It is the income test that affects most people who face a choice between continued paid work and retirement.

A more incremental change designed to increase low and moderate skill labour supply would be to increase the Pension Bonus Scheme which can already provide provides a (once-off) lump sum pay-out of up to about $30,000 for individuals who work on five years past 65.[78] Another possibility would be to increase the Mature Age Workers Tax Offset, which has a current maximum of $500. More generous would be an adaptation of the Swiss scheme, which now makes it possible for those who continue in work to

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[75] Drastic as this proposal may seem, it may transpire that the Government already moved a considerable way in this direction in the 2006 Budget. At the time of writing, it is not entirely clear what tax rates superannuants will pay on earnings after July 1 2007, and whether the same rules will apply to those who took a lump sum and those who took a complying annuity.

[76] See the footnote on p. 7 of this Report for more detail.

[77] If one assumes that, in the absence of special (dis)incentives, retirement incomes would form a lognormal curve, then it is clear that there is an otherwise strange lack of incomes in the range that would have fallen foul of the income (means) test and resulted in a part-pension.

[78] This is the rate for non-partnered individuals and assumes eligibility for the full pension. Rates for a couple are somewhat less than double those for individuals.

receive an annual pension up to about $5000 higher than normal from the date they finally retire until they die.

All of which is not to lose sight of the point that incentives which made mature age employees more attractive to employers than younger people with similar skills would be (a) inequitable (b) distortionary and (c) would be bad for the economy in the long run, since younger people have longer careers ahead of them than older people.

Further research

Policy makers can rarely focus on a single objective. They usually need to balance several objectives or, same point, keep several outcomes within desirable ranges. The options just canvassed relate to two objectives: increasing mature age labour supply both well before and just prior to conventional retirement age, and increasing levels of saving for old age. Further, these public policy aims have to be viewed in the context of the goals of individual citizens who may be assumed to be seeking to maximise utility by striking their own preferred balance between work (income, consumption) and leisure.

Plainly, the policy options discussed above section have not been costed and no projections/simulations have been undertaken to estimate their probable effects on the two public policy objectives and on individual utility. So an essential next step is to estimate costs, simulate both the direct (first order) effects and longer term indirect (second, third order) effects of the options. Ideally, this should be done in the context of a model which explicitly incorporates a utility framework.[79]

In order to produce valuable simulations, it is necessary to greatly extend the preliminary model of mature age labour supply versus retirement, which was presented in Part 3 of this Report. The model needs to be made sophisticated enough to handle complicated issues such as the effects of potential policy changes on the propensity of individuals and couples to dissipate their superannuation and other assets in order to get the full pension. As the HILDA Survey continues, it will become increasingly valuable for testing out policy options.

Prior to simulating possible future options, it would be worthwhile to try and develop a fuller account of how Australia managed to reverse the national trend towards earlier retirement from the mid-1980s onwards. This should provide essential parameter estimates for next modeling the effects of the major policy changes affecting mature age labour supply announced in the 2004 and 2006 Budgets. A final step would be modeling of promising future options.

In addition to modeling, two further areas of research suggest themselves. Much remains to be learned from overseas experience, and particularly from the effects of recent policy changes in New Zealand. Finally, there is serious lack of information about the demand side, about employer attitudes to mature age employees and about steps which could be taken to enhance the employability of older people in the eyes of their potential bosses.

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[79] The preliminary model set out in Part 3 can be adapted to incorporate embody work-leisure (utility) trade-offs.

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