

## **Mature age employment in Australia – What is happening and what can policy do?**

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This paper is a revised and updated version of a report prepared for the Commonwealth Department of Health and Aging in 2002, and draws on preliminary research for a report for the Commonwealth Department of Family and Community Affairs on 'Transitions to retirement'. The contents of the paper solely reflect the work and opinions of the author, and cannot be in any manner attributed to either the Commonwealth Department of Health and Aging or Department of Family and Community Affairs.

## **Executive summary**

1. This report reviews evidence on mature age employment outcomes in Australia. It has two main objectives – first, to review data on trends in labour force participation and employment of mature age workers; and second, to review theory and empirical evidence on the main determinants of employment outcomes for mature age workers – focusing on the role of attitudinal, financial and structural factors.

2. Shifts in the age composition of the Australian population are likely to cause significant pressure on fiscal sustainability and reduce rates of growth in output. These pressures may create an imperative for higher rates of mature age employment – that is, of workers aged 45 years and above.

3. Review of trends –

a) The proportions of the mature age population in the labour force and employed declined from the mid-1970s to mid-1980s, and then increased from the mid-1980s onwards;

b) Declines in the rates of participation and employment between the mid-1970s and mid-1980s were driven by decreases over that period for males. Increases in the rates of participation and employment from the mid-1980s onwards have been due to a rise in female participation and employment during that period;

c) For the population aged 45 to 59 years there has been a strong growth in participation and employment rates for females, and some decline for males. For the population aged 60 years and above there has been a large decline in participation and employment rates for males, and little change for females;

b) Unemployment rates for the mature age population are not high by comparison with other age groups. However, mature age workers who become unemployed have a relatively low probability of re-employment, and hence spend long periods unemployed;

c) The main activity and desired labour force participation of the mature age population who are out of the labour force varies substantially by age. For those aged 45 to 59 years the main activity tends to be home duties (females), or illness/disability (males); but for the population 65 years and above the main activity is voluntary retirement. Relatively large proportions of the male population aged 55 to 64 years, and the female population aged 45 to 64 years, who are out of the labour force, express a desire to work; and

d) Comparison with a selected group of OECD countries shows that labour force participation rates in Australia have followed a similar trend to those other countries; however, at most times, and by comparison with most of the countries, the participation rate in Australia is below that in the other countries.

#### 4. Review of empirical evidence on determinants of mature age employment outcomes –

A wide range of factors have important effects on supply of, and demand for, mature age workers in Australia. Some of these factors are common to all age groups within the mature age population:

- Individual characteristics – For example, health condition; education attainment; family labour supply; and whether performing a carer role.
- Employer attitudes – Employer perceptions of the relative productivity, and of the scope for training mature age workers.
- Wealth and post-tax wages.

Other factors are likely to exert more specific influences on labour supply and labour demand for mature age workers in the phases prior to and after the ‘official’ retirement age (age of eligibility for the Age pension):

##### *Prior to official retirement age*

- Wealth – Age of access to, and level of, superannuation and earnings from private investments are the main potential private sources of income.
- Old age pension – Age of eligibility.
- Discouraged worker effect – For mature age workers who become unemployed, the difficulties in finding a new job may cause them to withdraw from the labour force.

##### *Post official retirement age*

- Old age pension – Level and structure of the Age pension.

5. A range of policy options for increasing employment rates of mature age workers are proposed and evaluated:

- Increase pension eligibility age;
- Increase age of preservation of superannuation payments or change in structure of superannuation payments;
- Decrease marginal tax rates on earnings from part-time work for retired persons;
- Reform of conditions on non-work payments;
- Skill development of mature age workers;
- Subsidy for costs of hiring mature age workers; and
- Changes to employer attitudes towards mature age workers.

## **1. Introduction**

This report reviews evidence on mature age employment outcomes in Australia. It has two main objectives – first, to review data on trends in labour force participation and employment of mature age workers; and second, to review theory and empirical evidence on the main determinants of employment outcomes for mature age workers – focusing on the role of attitudinal, financial and structural factors.

The context for the report is shifts in the age composition of the Australian population that – in the absence of changes to workforce participation – are likely to create significant pressure on fiscal sustainability and reduce rates of growth in output (Commonwealth of Australia, 2002). Projections of the Australian population suggest there will be a substantially lower proportion of the population of workforce age (15 to 64 years) or ‘prime’ workforce age (25 to 54 years) over the next 50 years. Other things equal, this shift in population composition will increase the dependency ratio and lower the rate of growth in GDP in Australia. (The ratio of people of working age to people over 65 is expected to decline from 5.6 to 2.5 between 1997 and 2051; and real growth in GDP per capita is forecast to decrease to 1 per cent per annum for the period between 2010 and 2040 – Carey, 1999, pp.7, 18.) These pressures may create an imperative for higher rates of mature age employment.

In this report mature age employment is defined as employment of workers aged above 45 years. These mature age workers will generally be considered in three separate age groups: 45 to 54 years; 55 to 64 years; and 65 years and above. (On occasions a further distinction will be made between workers aged 55 to 59 years, and 60 to 64 years.)

Section 2 of the report reviews data on trends in labour force participation and employment of mature age workers. Section 3 reviews the determinants of mature age employment outcomes in three main parts. First, a simple conceptual framework for understanding the main types of potential determinants of mature age employment is presented. Second, empirical evidence on the determinants is reviewed,

distinguishing between labour supply and labour demand influences. Third, policy options are evaluated.

## **2. Trends in labour force participation and employment**

This section seeks to identify the main trends in labour force participation and employment of mature age workers. A country's population can be divided between labour force participants and persons who are out of the labour force. Persons who are engaged in work or actively seeking work are classified as being in the labour force. Labour force participants are divided between employed and unemployed. The Australian Bureau of Statistics (ABS), the main source of data for this section, defines a person to be employed if they work for one hour or more in a week; and to be unemployed if not employed but actively seeking work in the previous four weeks.

The key measures of labour force participation and employment that will be presented in this report are (respectively) the labour force participation rate (LFPR) and the employment/population rate. The LFPR is equal to the fraction of the population who are in the labour force. The employment/population rate is equal to the fraction of the population who are employed. In rough terms it is possible to think of the LFPR as the proportion of the population willing to supply their labour services; and the employment/population rate as the proportion of the population for whom there is a demand for their labour services. Where the LFPR is above the employment/population rate, this implies that labour demand is less than labour supply; in other words, unemployment exists.

The first sub-section describes trends in the age composition of the Australian population. The second sub-section provides a perspective on labour supply of and labour demand for mature age workers - Data is presented on the labour force participation rate, and employment/population rate. The third sub-section looks in detail at mature age labour force participants who are unemployed, and that group of unemployed who have been retrenched. The fourth sub-section describes the mature age population who are out of the labour force – for example, trends in retirement. The fifth sub-section describes mobility between the possible labour force states. The

sixth sub-section describes job characteristics of mature age workers – hours of work, industry, and occupation. The seventh sub-section presents forecasts of labour force participation for the mature age population. The eighth sub-section compares trends in labour force participation of the mature age population between Australian and other selected OECD countries.

### ***a. Population***

The evolution of the age composition of the Australian population is shown in Tables 1a and 1b. The ‘ageing’ of the Australian population is clearly evident. From 1967 to 2002 the share of the population aged 15 years and above accounted for by persons aged 45 years and above rose from 40.4 per cent to 44.9 per cent; and from 2001 to 2051 is predicted to grow from 44.3 per cent to 57.4 per cent. The increase in the share of the population accounted for by persons aged 65 years and above is equally dramatic. From 1967 to 2002 the share of that group rose from 11.9 per cent to 15.6 per cent; and from 2001 to 2051 is predicted to increase from 15.5 per cent to 28.8 per cent.

### ***b. LFPR and Employment/population rate***

In the period from the mid-1960s to the present, for the civilian population aged 15 years and over, the LFPR has shown a slow upward trend, and the employment/population rate has remained relatively steady. Figure 1a shows that the LFPR was 59.4 per cent in 1966 and had increased to 63.0 per cent in 2003; and the employment/population rate was 59.0 per cent in 1966 and 59.5 per cent in 2003. Cyclical fluctuations in the employment/population rate (and to a lesser extent) the LFPR are evident. During periods of more rapid expansion in output, the employment/population rate increases, and where there is a relatively slower rate of growth in output, the employment/population rate declines.

A gap between the LFPR and employment/population rate represents the incidence of unemployment. (In this graph the gap represents unemployment as a fraction of the total population – Note that this is not what is commonly referred to as the rate of unemployment which is defined as unemployment as a proportion of the labour

force.) It is evident that the existence of high levels of unemployment – a gap between LFPR and the employment/population rate - emerges from the mid-1970s onwards in Australia.

Underlying the relatively steady aggregate LFPR and employment/population rate, are quite divergent trends by gender. Figure 1b shows that both the LFPR and employment/population rate have trended downwards for males, and upwards for females. For males the LFPR has decreased from 83.8 per cent to 71.0 per cent between 1966 and 2003, and the employment/population rate has declined from 83.0 per cent to 67.1 per cent. It is notable that almost all that decline occurs during the recessions of 1974 to 1978 and 1981 to 1983. For females the LFPR has grown from 35.3 per cent to 55.2 per cent from 1966 to 2003, and the employment/population rate has increased from 35.2 per cent to 52.0 per cent. Most growth in female participation and employment is accounted for by married females – for example, Borland (1997) estimates that the whole of the increase in female LFPR between 1966 and 1996 is due to higher participation by married females.

For the mature age population, trends in the LFPR and employment/population rate have been somewhat different to those for the whole civilian population. Figure 1a shows that – for the populations aged 45 years and above, and 55 years and above – both participation and employment rates were relatively steady from 1966 to 1973, declined from 1973 to 1985, and then grew steadily from 1985 onwards. For the 45 years and above group, the employment/population rate is almost back at its level of the mid-1960s by 2003; but for the 55 years and above group, the employment/population rate remains about 8 percentage points lower in 2003 than the mid-1960s.

Differences in the LFPR and employment/population rate by gender for the mature age population are similar to those for the whole civilian population. Figure 1c shows LFPR and employment/population rate for males and females aged 45 years and over. For males the LFPR has declined from 73.9 per cent to 55.5 per cent between 1966 and 2003; and the employment/population rate decreased from 72.9 per cent to 53.4 per cent. The decline in the employment/population rate is largely concentrated between 1974 and 1983. For females the LFPR rises from 20.7 per cent to 38.4 per

cent between 1966 and 2003, and the employment/population rate grows from 21.1 per cent to 38.0 per cent. Growth in employment for females has been concentrated in the period after the mid-1980s. For mature age females, it has also been growth in the LFPR and employment/population rate of married females that have mainly driven the overall increase.

Trends in the LFPR and employment/population rate in disaggregated age groups - within the category of the mature age population - have been broadly similar to those evident for the whole mature age population. The LFPR and employment/population rate for groups aged 45 to 54 years, 55 to 59 years, 60 to 64 years, and 65 years and above, are shown in Figures 2a to 2d.

Amongst males, declines in participation and employment rates occurred in all age groups, but have been most pronounced for the 55 to 64 year age group. Between 1966 and 2002 the employment/population rate decreased by 11.1, 19.6, 30.2, and 13.6 percentage points respectively for the age groups 45 to 54 years, 55 to 59 years, 60 to 64 years, and 65 years and above. Declines in participation have occurred fairly steadily for males aged 45 to 59 years, but are concentrated in the period between 1974 and 1983 for males aged 60 years and above. Declines in the employment/population rate for all age groups occur primarily between 1974 and 1983.

Amongst females, increases in participation and employment rates have been largest for the age groups 45 to 54 years, and 55 to 59 years. Little change occurred for females aged 65 years and over. Between 1966 and 2002 the employment/population rate grew by 34.6, 23.4, and 11.7 percentage points respectively for the age groups 45 to 54 years, 55 to 59 years, and 60 to 64 years, and decreased by 1.6 percentage points for females 65 years and above. Increases for the 45 to 54 year age group have occurred steadily throughout the period since the mid-1960s, but for the 55 to 59 years and 60 to 64 years age groups, appear to have been concentrated in the period after the mid-1980s.

How important have been changes in employment rates within each age and gender group in the overall change in the mature age employment/population rate? In order

to understand the relative contribution of changes in the employment/population rate of each gender/age category to the change in the employment/population rate for all mature age workers, a decomposition analysis was undertaken. The findings are presented in Table 2. Two main periods are considered – first, between 1966 and 1985 where the employment/population rate for mature age workers decreased by 9.9 percentage points; and second the period from 1985 to 2002 where the employment/population rate for mature age workers rose by 9.1 percentage points. In the first period between 1966 and 1985 the dominant influence was declining male employment rates – the negative effect being due to a decrease in employment/population rates in all male age groups, with the largest negative effect from the decline in the employment rate within the 60 to 64 years age group. In the second period between 1985 and 2002 the increase in the employment/population was primarily due to increases in employment rates for females aged 45 to 59 years. Changes in male employment rates have virtually no effect on the overall employment/population rate for mature age workers during this latter period.

Apart from age, a significant dimension of variation in the LFPR is by education attainment. Table 3 (Panel A) shows the LFPR by education attainment for the male population aged 35 to 44 years, and 55 to 64 years. For both age groups there is large variation by education attainment. Higher levels of education attainment are associated with substantially higher rates of labour force participation and employment. It is notable that the variation in LFPR and employment/population rate associated with education attainment is more pronounced in the older age group. Table 3 (Panel B) shows changes in labour force participation by education attainment between 1981 and 2001. For males, decreases have occurred for all education groups, but have been somewhat larger for less educated group; whereas for females, increases have occurred for all education groups, and are not ordered by level of education. From these data it appears that the relative decline in labour force participation for older males is partly due to decreased participation within education groups, but also to some degree due to the larger proportion of the older male population without a post-school qualification.

An issue that arises in describing trends in LFPR and the employment/population rate by age is the relative importance of ‘age’ and ‘cohort’ effects in causing those trends.

As an example, suppose that the LFPR for females aged 45 to 54 years has been observed to increase 10 percentage points between 1990 and 2000. There are two possible explanations. One is that the cohort born between 1936 and 1945 have a LFPR that at all ages is 10 percentage points below the LFPR of the cohort born between 1946 and 1955. This would be described as a cohort effect; a possible source of the cohort effect would be changing social attitudes to work by women that have increased the scope for labour force participation by females born at later dates. The other possible explanation is that the pattern of LFPR by age has shifted so that females aged 45 to 54 years from any birth cohort would have a LFPR that is 10 percentage points higher in 2000 than in 1990. This would be described as an age effect; a possible source of the age effect would be a government policy that specifically targeted females aged 45 to 54 years. (Of course, some combination of these effects could also explain the change.)

Bacon (1999, p.83) presents a graphical representation of the relative influence of cohort and age effects on changes in LFPR of males and females. Examining the period between 1978 and 1996 it appears that for males, the main factor underlying the decline in LFPR at ages above 55 years has been age effects (although cohort effects do seem to play some role); whereas for females, the main factor in explaining the rise in LFPR for ages 45 to 59 years has been cohort effects. This analysis implies that for males – evolution of the LFPR for mature age workers must be understood as being to do with supply and or/demand factors that have had different effects on mature age and younger age workers. In other words, the relative decline in male mature age employment reflects factors that have caused a relative decline in supply and/or demand for mature age workers compared to younger male workers. But for females – the evolution of the LFPR for mature age workers is primarily being driven by supply and/or demand factors that affect all age groups in a similar way. In other words, the growth in female mature age employment reflects factors that have caused a relative increase in supply and/or demand for successive birth cohorts of females.

### *c. Unemployment*

The incidence of unemployment reflects the degree of balance between labour supply and labour demand. The main measure of unemployment is the 'rate of

unemployment' – equal to the number of unemployed persons as a fraction of labour force participants.

The rate of unemployment for mature age labour force participants has exhibited an increasing trend since the mid-1970s, with significant cyclical variation. Figure 3 shows the rate of unemployment for disaggregated age groups between 1966 and 2003. Unemployment for persons aged 45 to 54 years has been lower than for other age groups throughout almost this whole period, and has never been much above 5 per cent. For persons aged 55 to 64 years the rate of unemployment has on average been somewhat higher – especially from the 1980s onwards and during periods of recession. The rate of unemployment for both groups has followed a similar cyclical pattern, but with greater variability exhibited by the rate for the 55 to 64 year age group than the 45 to 54 year age group.

A further perspective on unemployment is to describe the duration of unemployment spells. The duration of unemployment spells is one of the two factors that determine the rate of unemployment. The rate of unemployment at a point in time can be thought of as being approximately equal to the rate of inflow to unemployment multiplied by the average duration of completed unemployment spells. So, for example, either an increase in the rate of inflow to unemployment, or an increase in average spell duration, will increase the rate of unemployment. Understanding about the duration of unemployment spells is of separate interest because duration may signal the 'employability' of a particular group of labour force participants, and due to the adverse welfare consequences of long-term unemployment.

Table 4 shows the share of long-term unemployed (spells longer than 52 weeks), and average unemployment spell duration for disaggregated age groups. The notable feature of the unemployment experience for labour force participants aged between 55 and 64 years compared to younger age groups is that a much higher proportion has long-term spells, and average spell duration is longer.

One major source of unemployment is retrenchment. Retrenchment occurs where a worker is dismissed from a job for reasons relating to demand conditions.

Retrenchment accounts for a larger share of job losses experienced by mature age

workers than younger workers (Commonwealth of Australia, 2000, p.18); although the incidence of retrenchment does not appear to be strongly ordered by age (Borland and McDonald, 2001, Table 1). What is however most notable is that mature age workers are less likely to become re-employed once retrenched. Table 5 shows that retrenched mature age workers are less likely to be employed than retrenched workers aged 25 to 44 years; and what is particularly notable is the propensity of retrenched workers aged 55 to 64 years to have exited the labour force. This pattern is confirmed by a review of case study evidence on outcomes for retrenched workers which found that workers aged more than 45 years were less likely to be re-employed, and that workers aged 55 years and over were more likely to exit the labour force (Borland, 1998).

It also appears that mature age workers in Australia are strongly of the belief that – if they are retrenched – they will have significant problems finding a similar job. Table 6 shows responses to questions on the probability of involuntary job loss in the next 12 months, on the probability of finding a similar job if retrenched, and a composite measure of the probability of being retrenched in the next 12 months and not being able to find a similar job. It is apparent that there is not a strong relation between age and the perceived probability of involuntary job loss, but that a strong inverse relation exists between age and beliefs about the probability of finding a similar job; overall, older workers believe they are more likely to experience the joint event of involuntary job loss and not being able to find a similar job. For example, on average workers aged 25 to 34 years believe their probability of job loss is 11.5 per cent, and probability of finding a similar job if retrenched is 62.6 per cent; whereas the corresponding average probabilities for workers aged 55 to 64 years are 11.4 per cent and 32.4 per cent.

While there is no doubt that older males who are retrenched have lower rates of re-employment than younger retrenched workers in Australia, OECD evidence (1998, p.144) indicates that the share of new jobs going to mature age workers in Australia is higher than in any other OECD economy. The ratio of the share of new jobs to the share of total wage and salary employment for the 45 to 64 year age group was 0.6 in Australia in 1995 – compared to an OECD average of 0.4.

#### *d. Out of labour force*

The population that is not in the labour force is defined as ‘out of the labour force’. There are a variety of reasons for being out of the labour force – for example, retirement, health condition, a belief that it would not be possible to obtain employment, or caring for a relative.

The main activities of the mature age population in Australia that is out of the labour force are summarised in Table 7. The probability of retirement increases with age for both males and females. For males in the age group 45 to 54 years, disability or illness is the main reason for being out of the labour force; but for the 65 to 69 year group retirement is the main activity. For females in the age group 45 to 54 years, home duties is the main reason for being out of the labour force; but for the 65 to 69 year group retirement is the main activity. Caring for an ill or disabled person accounts for about 5 per cent of those out of the labour force; and is a more important main activity for females than males.

Some of the mature age population who have retired from full-time work will continue to work part-time. (Part time work is defined as between 1 and 34 hours per week.) Table 8 shows that this is the case for about 8 per cent of male retirees, and 15 to 20 per cent of females. This difference is probably due to the younger age profile of females who have retired. The proportion of retirees who are in part-time jobs appears to have increased between the mid-1980s and mid-1990s.

A summary measure that is sometimes used to represent exit from labour force participation by the mature age population is ‘age at retirement’. Information on the distribution of ages at which the population has retired from full-time work is shown in Table 9. This data reflects survey responses on questions about age at retirement. During the 1980s and 1990s for males most retirement occurred between 55 and 69 years. Over the period from 1983 to 1997 there has however been a fairly steady shift towards a greater proportion of the retired male population having retired at less than 60 years, and a decrease in the proportion retiring at above 60 years. For females, retirement from full-time work has occurred primarily before 45 years of age. The trend between 1983 and 1997 has been though for a smaller proportion of the female

retirees to have left full-time work at less than 45 years, and more to have exited between 45 and 64 years.

An alternative approach is to construct an inferred measure of age at retirement from labour force participation data. This is the approach applied by Scherer (2002), and shown in Figure 4. The male average age at retirement declines from 66.0 to 61.2 years between 1971 and 1983 and thereafter is relatively steady; and the female average retirement age decreases from 64.4 to 57.8 years between 1971 and 1983, and then increases to 61.3 years in 1999. The trend in inferred retirement age from the early 1980s onwards for females seems consistent with data on age at retirement for the same period; but the trends seem in opposite directions for males. Disney (1996, p.213) notes that self-reported retirement age data is known to be ‘problematic’; and for this reason most weight should probably be placed on the inferred measure of age at retirement.

Job loss, including retrenchment, is an important reason for permanent exit from full-time work for many retired persons. Table 10 shows that in 1997 about one-third of retirees had ‘job loss’ as the main reason for ceasing their last full-time job. This proportion is larger for males than females, and may have increased somewhat between the 1980s and 1990s.

An important potential dimension of labour force participation by the mature age population is those people who are out of the labour force, but who express a desire to obtain a job. Table 11 shows information on marginal labour force participants – that is, persons who are out of the labour force, who wanted to work, but did not meet the activity or availability criteria necessary to be classified as unemployed by the ABS – and unemployment. In September 2002 marginally attached participants account for almost 10 per cent of the female population aged 15 to 44 years, about 5 per cent of the population aged 45 to 64 years, and less than one per cent of the population aged 65 years and above. For males, marginally attached participants are about 4 per cent of the population of the 15 to 64 year age group, but only a small fraction of the 65 years and above age group. At the same time the official rate of unemployment for the population aged 15 to 44 years is about 7 to 8 per cent, and about 3 per cent for the population aged 45 to 64 years. Combining marginally attached participants with

ABS-defined unemployed to create a revised rate of unemployment creates an adjusted rate of unemployment that now displays a U-shaped pattern with age; the revised rate of unemployment is higher for the 15 to 44 and 55 to 64 year age groups than for the 45 to 54 year age group.

***e. Mobility between labour force states***

Underlying the ‘stocks’ of the population who are in and out of the labour force, employed and unemployed, at any point in time, is considerable ‘churning’ between those states. These patterns of churning display considerable variation by age. This is illustrated in the study by Norris and Bradbury (2001) that examines changes in labour force status over an eight month period in 1996/97. Several main findings emerge from that study. First, for mature age workers aged 45 to 64 years, and who were employed in the initial month, there is a similar probability of remaining in employment as for workers aged 16 to 44 years; however, workers aged 65 years and above have a much lower probability of remaining employed with about one-third exiting the labour force. Second, the probability of a full-time worker moving to part-time work is substantially higher for workers aged 60 years and over, than for other age groups. Third, the probability that a mature age worker who is unemployed or out of the labour force in the initial month shifts into employment declines with age. For those aged 45 to 54 years the probability seems similar as for workers aged 30 to 44 years; but it is much lower for workers aged 55 years and above. Fourth, the propensity of mature age workers who are out of the labour force in the initial month to remain out of the labour force increases with age. The probability of exiting the labour force seems similar for those aged 45 to 54 years as for workers aged 30 to 44 years; but is higher for older age groups.

***f. Job characteristics - Hours of work, Industry and Occupation***

Total labour input in an economy depends both on the proportion of the population employed, and on the hours worked by each person employed. Hence, in seeking to understand the evolution of employment of mature age workers, it is also of interest to examine trends in hours worked.

Aggregate hours worked in the Australian economy – by all workers and by the subgroup of mature age workers - have increased over time. Figures 5a and 5b show total weekly hours between 1985 and 2003. Aggregate hours worked increase from about 240,000 to 320,000 over that period. Total hours worked by mature age workers have also grown – in fact at a faster rate than for the aggregate. Hence during the period between 1985 and 2003 the share of total hours worked accounted for by mature age workers rose from about 25 per cent to 35 per cent (and the share of hours from workers aged 55 years and above increased from 9 per cent to 11 per cent). Similar trends in hours of labour input are evident for both male and female mature age workers.

A question that immediately arises is whether the increasing share of total labour input accounted for by mature age workers is due to different trends in hours worked per week by age, or simply due to the increasing share of mature age workers in the Australian workforce. Undertaking the counter-factual exercise of assuming that average hours for all workers had remained at the same level in 2003 as in 1985, it is found that the share of mature age workers in total labour input would still have risen from about 25 to 33 per cent. Hence, the main factor that accounts for the growing share of mature age workers in total labour input is their increasing share in the workforce. Nevertheless, there does also appear to have been some relative change in hours weekly hours of work by age group. Figures 5c and 5d show average hours of work per week for all workers, and for mature age workers. No strong trend is apparent for mature age workers, either in total or separately for males and females. By comparison there does appear to have been some decline in average weekly hours for all workers from 35.8 hours in 1985 to 34.6 hours in 2002.

An alternative perspective on the evolution of hours of work of the mature age workforce can be obtained by examining the share of workers in part-time and full-time employment. Table 12 shows the share of part-time employment for all workers and for mature age workers, and the proportions of those part-time workers who would prefer to work more hours.

Amongst both males and females there has been growth in the share of part-time employment between 1985 and 2003 for almost all age groups. Consistent with the

data on average weekly hours, that growth has been larger for the workforce aged 15 years and above, than for the mature age workforce. In the mature age workforce, at any time, the share of part-time employment is positively related to age, and in particular is much higher for the 65 years and above age group than for other ages. In proportionate terms, growth in part-time employment amongst mature age workers has been most rapid for males aged 45 to 59 years.

About one-third of males and one-fifth of females who work part-time would prefer to work more hours. For workers aged 45 to 54 years the proportion is very similar to that for all workers aged 15 years and above; however, the proportion is lower for all mature age workers than for all workers aged 15 years and above. Hence, it can be concluded that the propensity of part-time workers to prefer more hours is decreasing with age.

The distribution of employment of mature age workers by industry and occupation classification can have important implications for the evolution of the employment/population rate of those workers. For example, to the extent that the industry composition of employment differs by age (with limited opportunities for worker substitution between industries), and industries exhibit different growth rates, this may be the source of an upward or downward trend in employment growth for specific age groups.

Table 13 shows the proportion of mature age workers by industry in 1985 and 2003, and the proportion of young workers by industry in 2003. For males in August 2003 mature age workers account for a disproportionately high share of employment in agriculture and mining, government administration, and education, health and community services, and a disproportionately low share of employment in wholesale and retail trade. Comparing against data for 1985, it appears that the main structural force operating against mature age male workers (relative to young workers) would be their relative concentration in agriculture and mining where there has been a quite significant decline in employment. For females in August 2003 mature age workers are more represented in agriculture and mining, and education, health and community services, and less represented in finance, insurance and business services, than younger workers. Comparing against 1985, the main structural factors affecting

female mature age employment (relative to young workers) would appear to be the decline in employment in agriculture and mining, and the increase in employment in finance, insurance and business services.

Analyses of causes of declines in the male employment/population rate between the mid-1970s and early 1980s tended to conclude that structural change in the industrial composition of employment was not a major explanatory factor (for example, Merrilees, 1982, p.84). In considering later periods however, some commentators have argued that structural change may have had a more important role – for example, evidence of a decline in long tenure jobs (10 years or more) for males concentrated in male-dominated industries of mining and transport/storage (Commonwealth of Australia, 2000, p.18).

Table 14 presents data on the occupational composition of employment in August 2003. For both males and females mature age workers are more likely to be in the manager/administrator and professional categories, and less likely to be in the intermediate and elementary clerical, sales and service occupations, than younger workers. Male mature age workers are also less likely to be in the tradesperson and labourer occupations than their younger counterparts. [Due to changes to the ABS occupation categories it is not possible to make the same time-series comparison as for industry classification.]

### ***g. Labour force projections***

Projections of labour force participation rates are made for disaggregated age groups by the ABS (ABS, 1999). These projections are shown for mature age groups for the period from 1999 to 2016 (as well as actual data for 1985 to 1998) in Figures 6a and 6b. It is important to note that the method used by the ABS to make these projections is to extrapolate estimated trends from time-series regressions. Hence, the method does not take into account changes in economic or social variables that may influence participation rates.

The ABS projections predict little change in labour force participation rates for any age category of mature age males. The LFPR for males aged 55 to 59 years is

forecast to fall by just over 1 percentage point, and for males aged 65 years and above to increase by about 1 percentage point. The small forecast changes in participation by mature age males reflect the relative stability of participation by mature age males over the last two decades. In other words, because the forecasting method is to extrapolate trends in LFPR, and since LFPR has been relatively stable, therefore little change is predicted. For females the ABS predicts larger changes in labour force participation rates. Participation rates for females aged 45 to 54, 55 to 59 and 60 to 64 years are predicted to increase (respectively) by 7, 13 and 6 percentage points. These forecast rises reflect the growth in mature age female participation over the period since the mid-1980s.

#### ***h. Labour force participation – International comparisons***

Labour force participation rates display considerable variation across countries – and it is possible that the patterns of variation are informative about the potential for achieving higher rates of participation in Australia (see also Blundell and Tanner, 1999, OECD, 1998, and Schieber, 2002).

Figures 7a to 7c present LFPRs for Australia, USA, UK, Canada and New Zealand for 1980 to 2000 for three age groups: 45 to 54 years, 55 to 64 years, and 65 years and above. This is the set of countries that is chosen most often for cross-country labour market comparisons with Australia. It is important however to note that this particular set of countries constitute just one comparison group for Australia that could potentially be chosen.

In most countries the male participation rate appears to show similar trends to Australia. The LFPR shows a slight decline in the 45 to 54 year age group, a larger decline in the 55 to 64 year age group, and a decline and then stable pattern for the 65 years and above age group. Notably, the LFPR for each age group in Australia is generally below that in each of the other countries. This is particularly evident for the 55 to 64 year age group, and in comparisons with the USA and New Zealand.

A similar story is apparent for the comparison of female labour force participation rates. For each age group the participation rate displays the same trend as in other

countries – increasing quite strongly for the 45 to 54 year age and 55 to 64 year age groups, and steady for the 65 years and above age group. For each age group the participation rate in Australia is generally below that in other countries – especially for the 45 to 54 year and 55 to 64 year age groups, and in comparison with the USA and New Zealand.

### *i. Summary*

The proportions of the mature age population willing to supply their labour services and in employment in Australia declined from the mid-1970s to mid-1980s, and then increased from the mid-1980s onwards. Declines in labour supply and labour demand for the mature age population between the mid-1970s and mid-1980s were driven by large decreases over that period for the male population. Increases in labour supply and labour demand for the mature age population from the mid-1980s onwards have been mainly due to increases for females during that period.

Over the period from the mid-1970s to the present, for the population aged 45 to 59 years, there has been a strong growth in participation and employment rates for females, and some decline for males. For the population aged 60 years and above there has been a large decline in participation and employment rates for males, and little change for females.

The decline in male mature age employment is found to reflect factors that have caused a relative decline in supply and/or demand for mature age workers compared to younger male workers; and these factors are common to successive birth cohorts. By contrast, the growth in female mature age employment reflects factors that have caused a relative increase in supply and/or demand for successive birth cohorts of females; and are not specific to mature age females.

Unemployment rates for mature age workers are not high by comparison with other age groups. However, mature age workers who become unemployed have a relatively low probability of re-employment, and hence high average unemployment spell duration. Mature age workers also perceive that they are much less likely than younger workers to obtain a similar job, if they are retrenched.

The main activity and desired labour force participation of the mature age population who are out of the labour force varies substantially by age. For those aged 45 to 59 years the main activity tends to be home duties (females), or illness/disability (males); but for the population 65 years and above the main activity is voluntary retirement. Relatively large proportions of the male population aged 55 to 64 years, and the female population aged 45 to 64 years, who are out of the labour force, express a desire to work.

Comparison with a selected group of OECD countries shows that labour force participation rates in Australia have followed a similar trend to those other countries; however, at most times, and by comparison with most of the countries, the participation rate in Australia is below that in the other countries.

### **3. Determinants of mature age employment**

This section begins with a conceptual framework that identifies the main potential determinants of employment outcomes for the mature age population. This is followed by a more detailed discussion of the role of labour supply and labour demand as determinants of mature age employment. Empirical evidence on the role of labour supply and labour demand is reviewed. Some empirical analysis is available for Australia; but most detailed empirical analysis is for other countries. Another feature to note regarding the empirical evidence is that – since mature age employment has until fairly recently been a male phenomenon – most empirical evidence relates to issue determinants of employment patterns and retirement amongst males.

#### ***a. Conceptual framework***

Employment outcomes for mature age workers are determined by the interaction of labour supply, labour demand, and institution/policy influences (see Figure 8). Labour supply is about the decision of an individual (or household) whether to seek paid work and the optimal number of hours of paid work sought. An individual who

seeks work is a ‘labour force participant’. Labour demand is about the decision of an employer regarding the number and type of jobs to offer, and the characteristics of the workers to whom those jobs will be offered. The ‘labour market’ can be thought of as a process whereby labour force participants are ‘matched’ to available jobs.

Individuals seeking jobs, who are offered a job by an employer on terms that they agree to accept, become employed. Individuals seeking jobs, but who are not offered a job by an employer, are unemployed. The distribution of labour force participants between employment and unemployment, and the terms (for example, wages, hours of work) on which those individuals in employment agree to work, can be thought of as ‘labour market outcomes’.

Institutional/policy influences can affect employment outcomes in a variety of ways. First, policy can affect labour supply and labour demand – for example, income taxes and payroll taxes affect respectively the incentives for an individual to engage in paid work, and for employers to use labour in the production process. Second, policy can affect the ‘matching’ process between labour force participants and employers – for example, anti-discrimination regulation specifies rules that must be followed by employers in choosing between applicants for any job. Third, policy can seek to directly regulate labour market outcomes – for example, minimum wage regulation prohibits employers from paying wages below a specified level.

#### *i. Australian retirement and ‘out of labour force’ income sources*

Income for the retired population in Australia derives from three main sources: a) The Age pension; b) Distributions from superannuation funds financed by contributions mandated by the Superannuation Guarantee; and c) Voluntary savings – voluntary superannuation, owner-occupied housing, and other private savings (Carey, 1999).

The Age pension is a non-contributory flat-rate entitlement to which persons continuously resident in Australia for at least 10 years become eligible when they reach qualifying age, subject to income and assets tests. To qualify, men must be 65 years, and women must be 62.5 years (the minimum age for women is being increased by 6 months at 2-yearly intervals, and will reach 65 years in 2014). The rate of

pension is means tested on the basis of a person's income or assets, whichever gives the lowest rate of pension – both tests involve a reduction in pension at a specified rate for income/assets above an allowable limit. A Deferred Pension Bonus Plan provides a bonus to the population who remain in full-time employment and thereby defer taking up the age pension (Department of Family and Community Services, 1998, p.21).

The Superannuation Guarantee requires employers to make superannuation contributions on behalf of employees to complying superannuation funds. The current contribution rate is 9 per cent. Preservation age for access to payments is currently 55 years, but will be increased progressively to 60 years between 2015 and 2025. Benefits may be taken as a lump-sum or retirement income stream.

For the mature age population who are out of the labour force, but have not reached age of eligibility for (or do not have access to) retirement income sources, the main sources of income available are: a) Government allowances and pensions; and b) Private savings.

There are three main government allowances/pensions available to the mature age population who are out of the labour force (O'Brien, 2001). One is the Australian Service Pension (ASP) available to the population aged above 60 years who are ex-servicemen involved in operations involving enemy hostility. A second is the Disability Pension (DSP) available to persons with a significant disability who are unable to work or be retrained in the next 2 years. A third is the Mature Age Allowance (MAA) available to the population aged 60 to 64 years (males) who have been in receipt of income assistance for at least 9 months, and face a significant barrier to finding employment.

Table 15 presents data on the eligibility age for the age pension, and replacement rates for other government allowances/pensions, for selected OECD countries. The replacement rate is a measure of the amount that can be received in pension payments as a proportion of potential labour market earnings. Eligibility for the age pension is at a similar age to other countries. However the replacement rate for the old age pension in Australia is somewhat lower. This is consistent with evidence that –

compared to other OECD countries – Australia devotes a relatively small share of GDP to expenditure on the elderly (Gruber and Wise, 2001, pp.6-7).

Government pensions and allowances are a very significant source of income for the population aged 45 years and above who have retired from full-time work. For just under one-half of males, just over one-half of females, an age, service, widow's or war widow's pensions is the main source of income. The other main sources for males are superannuation, the DSP and business/property/investments (each the main source for over 10 per cent). And the other main sources for females are someone else's income and business/property/investments (each the main source for over 10 per cent) (ABS, Retirement and Retirement Expectations, catalogue no.6238.0, Table 8). Over the period from 1986 to 1996-97 it appears that for males aged 60 years and over the relative importance of government transfers as a source of income has declined, but for those aged 45 to 59 government transfers are more likely to be the principal source of income. For females aged over 60 years the relative importance of government transfers has also declined, and for those aged 45 to 59 years has been relatively steady (Norris and Bradbury, 2001, pp.40-43).

## *ii. Labour supply*

The basic economic model of labour supply is of an individual who in each time period decides on the optimal division of available time in that period between – paid work; education; household production; and leisure – in order to maximise well-being. Well-being is usually treated as depending (positively) on consumption of goods and services, and (positively) on leisure time. Incentives to spend time in each activity will depend on benefits associated with that activity (primarily current income and implications for future income) relative to the opportunity cost of the activity. The labour supply model is dynamic in the sense that an individual takes account of how decisions made today will affect well-being over future expected lifetime; and hence known future opportunities may influence current behaviour. For example, for mature age workers knowledge of the availability of an old age pension is likely to affect labour supply prior to the age of eligibility for the pension.

As an illustration, suppose an individual must choose to divide a fixed amount of time between paid work and leisure. The benefit of paid work is income from that activity; and the opportunity cost is the direct costs of paid work, the reduction in leisure time, and loss of access to payments that might be available if not in paid work (for example, the old age pension). The optimal choice of an individual about whether to seek paid work may therefore change over the individual's lifetime as the relative magnitude of income from paid work, value of leisure, and payments available if not undertaking paid work, vary during that time.

In context of the mature age population, the basic economic model suggests a variety of potential determinants of labour supply:

- Social security pensions/allowances – An increase in the level of income from these sources, will raise the opportunity cost of paid work. Hence the predicted effect would be to decrease labour supply. An expansion of eligibility of access to allowances/pensions – for example, reducing the eligibility age for the old age pension – will raise the opportunity cost of work at those ages where an individual is now eligible for the pension. Hence the predicted effect would be to lower labour supply at those ages.
- Superannuation/Wealth – An increase in an individual's wealth will increase the 'non-labour market income' available at any time. This increase in income would be expected to induce the individual to seek to 'consume' more leisure; or in other words, to reduce labour supply. Where – such as in superannuation schemes – access to the wealth is only available at a certain age, there may be a large difference in potential wealth before and after that age; and hence a large difference in incentives for labour supply.
- Labour demand – The benefit of seeking paid work will depend on the probability of obtaining a job, as well as expected earnings if employed. For those individuals who have had some period of unemployment, this probability might be assessed to be considerably less than one. A lower probability of obtaining employment will lower the benefits of seeking paid work, and hence lower labour supply (that is, a discouraged worker effect). There may also be important interactions between labour demand and social security pensions or allowances. For example, suppose there is a decrease in labour demand for older workers that causes some older workers to lose

their jobs. In a system where no social security payments are available it would be expected that most would continue to seek paid work; but in a system where such payments are available, the opportunity cost of seeking paid work is higher, and it would be expected that a greater proportion would withdraw from the labour force.

- Earnings from paid work – Higher earnings per hour from paid work will raise the value of working compared to leisure. Hence it would generally be expected that labour supply is positively related to labour market earnings. For this reason, any factor that is associated with lower labour market earnings, such as low levels of education attainment or a health/disability condition, would be expected to negatively affect labour supply. (Higher earnings also increase income, and hence cause an individual to seek to ‘consume’ more leisure by reducing labour supply. Generally however it is expected that this effect is dominated by the increase in the value of working compared to leisure.)

- Non-pecuniary job characteristics – A higher disutility of work (for example, associated with adverse working conditions such as physical stress or remote location) will lower the value of work relative to leisure. Hence it would be expected that labour supply is negatively related to disutility of work.

A range of other factors is also likely to affect labour supply of the mature age population:

- Family influences – eg., Whether spouse is working; Whether need to take on role as carer for older family member(s).
- Social norms – Individuals may adapt their behaviour to social norms about early retirement and retirement age. In part this may be an optimal response to wanting to have available a network of persons of the same age with whom to socialise or undertake activities.
- Mobility costs – In some circumstances geographic mobility may be necessary for an individual to maintain employment. Mobility costs may vary by age (for example, ability to finance transactions costs of moving house; and costs of loss of social and family networks).

### *iii. Labour demand*

The basic economic model of labour demand is of a single firm that chooses a quantity of each type of labour input (for example, workers of different ages) in order to minimise its cost of producing a given quantity of output. Incentives to hire different types of labour will derive from differences in the relative ability of workers to undertake required tasks, relative wage costs and relative productivity of the different types of labour, and relative hiring/training costs of different types of labour. The dynamic context is that the firm will make decisions on labour demand in any time period in order to maximise profits in both the current time period and in future periods. For example, in choosing a new worker to hire in the current time period a firm may take into account how long that worker is expected to stay at the firm – since this will affect hiring costs in future time periods.

The basic economic model of labour demand suggests a range of factors that may affect employment outcomes for mature age labour force participants:

- Relative ability to undertake required production tasks – Firms will have a required set of production tasks for workers to complete. Those production tasks will require workers to have skills necessary to be able to complete the tasks. It is possible that workers of different ages may not be perfect substitutes – in the sense that workers from some age groups may not have those skills necessary to complete the required tasks. For example, a ‘vintage capital’ effects exist with regard to computer training, whereby older workers have a much lower propensity to have knowledge of using a computer than younger workers (Borland et al., 1997).
- Relative productivity and wages – Workers from different ages may all be able to complete a given production task, but may differ in their productivity. For example, one worker may take 2 hours to complete a task, and another worker may take 1 hour. In this case the firm will seek to hire those workers whose wage cost per task is lowest. This will depend on the relative productivity of different workers (how many hours to complete a task), and the relative wages (wage per hour). Other things equal, the higher a worker’s productivity, and the lower the wage cost, the more likely that the labour services of that type of worker will be demanded by an employer.

- Hiring and training costs – A firm that hires a new worker will incur fixed costs. A firm that invests in worker training also incurs costs. In each case the firm will seek to amortise those costs, or to gain the benefits from the investment, over as long a future period as possible. In that context, older workers, who have a shorter available time horizon prior to retirement, may be seen as a ‘higher cost’ option by employers. But employers will also need to take into account the probability that the worker will quit the firm; in this regard, employers will have a preference for workers who have a lower probability of quitting their job. Since older workers tend to have a lower probability of quitting, there may therefore be some preference for them. It is also possible that training costs or the scope for extra training to add to a worker’s productivity vary by the age of a worker. Workers with lowest training costs, and greatest capacity to benefit from training, will be preferred by employers.
- Degree of flexibility in employment options – The types of job offered (for example, full-time/part-time), and the extent of flexibility (for example, timing of working hours) may induce different types of labour force participants to seek those jobs. For example, older workers may have a relatively higher preference for jobs with ‘regular’ working hours, that could restrict the set of jobs in which they would be willing to work.

Other factors:

- Attitudinal/Discrimination – In making a decision on which type(s) of labour to hire an employer does not have perfect information about factors such as the relative productivity of workers by age, or the costs of training. Where employers have incorrect beliefs about productivity or costs of training, this may cause what is referred to as ‘statistical discrimination’. For example, employers may believe that older workers have lower productivity, and hence will never hire that type of worker – since they are not hiring older workers they will never have an opportunity to have their beliefs about older workers revealed to be incorrect (if in fact older workers have the same productivity as younger workers). Employers may also have a preference for hiring younger workers, or believe their customers have a preference for younger workers. Such discriminatory attitudes can be thought of as increasing the relative cost of employing older workers, and hence will reduce labour demand.

## **b. International evidence**

### *i. Labour supply*

- Effects of social security payments - There is strong evidence of incentive effects of social security payments on LFPR. First, there appear to be significant effects from the age of eligibility for old age social security payments on retirement behaviour. A universal finding in the United States is that a ‘spike’ exists in the rate of retirement at ages where eligibility for old age payments commences (for example, Blau, 1994, Hurd, 1996, Ellwood, 2001, and Lumsdane and Mitchell, 1999, p.3266). As well, cross-country evidence suggests that an increase in the retirement age will raise LFPR of mature age males – for example, Blondal and Scarpetta (1999) find that increasing the retirement age by one year raises the LFPR of males aged 55 to 64 years by about 1 percentage point (see Table 16). However, it does not appear that entire ‘spike’ in the rate of retirement at ‘official’ retirement age can be explained solely by incentive effects. Hence it seems that the official retirement age acts as a focal point or social norm in conditioning retirement decisions, or that credit constraints are an important factor in labour supply decisions (Gruber and Wise, 2002, and Anderson et al., 1997). Second, the level and structure of old age payments matter. Cross-country evidence shows that a higher accrual rate in the old age pension prior to retirement will delay retirement (Blondal and Scarpetta, 1998). Studies for the United States and Canada find that a \$1000 increase in ‘peak value’ (difference between current social security wealth and wealth at optimal retirement age) reduces the probability of retirement by between 0.05 and 0.2 percent (Coile and Gruber, 2000, and Baker et al., 2003). Other evidence shows that an increase in social security wealth raises the probability of retirement – for the United States and Canada estimated effects for a \$1000 increase in wealth are between 0.2 and 0.6 percent (Coile and Gruber, 2000, Neumark and Powers, 2003, and Baker et al., 2003). Related studies show that the taper rate at which the pension is reduced for an increase in labour market earnings affects labour supply behaviour of the population who have retired from full-time work (for example, Leonesio, 1993, and Disney and Smith, 2002).
- Wealth effects – Wealth effects (of which social security effects would be one example) do appear to affect labour supply behaviour of the mature age population. Workers with more generous superannuation coverage do appear to retire earlier

(although effects are small), and workers who are offered money to delay retirement will do so (Leonesio, 1993, Lumsdane and Mitchell, 1999, pp.3287-88, Blundell et al, 2002). Differences in the structure superannuation schemes – defined benefit compared to defined contribution – also appear to be a source of variation in retirement incentives.

- After-tax wage effects – Recent evidence that wages affect labour force participation exists for the United States (see Ruhm, 1990b). Between the late 1960s and late 1980s there was a significant expansion of earnings inequality in the United States, part of which involved a fall in real earnings of low-pay workers. Some empirical studies have found that the fall in real earnings is the main explanatory factor the decline in labour force participation by older males during that period (Juhn, 1992, Peracchi and Welch, 1994). There is also evidence of a relation between tax rates on earnings from labour market activity and rates of labour force participation amongst the mature age population. For example, there is a high cross-country correlation between ‘tax force’ (equal to the sum of tax rates on earnings of workers aged 55 to 69 years) and degree of ‘non-work’ between ages 55 and 65; a 10 per cent increase in the ‘tax force’ measure reduces labour force participation by 3 percentage points (Gruber and Wise, 2001, and 2002).
- Job characteristics – There is evidence for the United States that workers in jobs that involve stress and/or intense physical demands are more likely to retire early. Interestingly, these workers are also likely to have relatively high accumulated superannuation, suggesting that early retirement was anticipated (Filer and Petri, 1988).
- Family influences – International evidence is focused on the nexus between carer roles within the family and labour supply. One issue is inter-dependence between spouses. Here, there appears to be compelling evidence of an important effect of the value that spouses place on spending time with each other on joint retirement decisions (Gustman and Steinmeier, 2002). Another issue is on the role of family members as carers – Here, the most recent major review concludes that “Many studies have found an empirical relation between caregiving and labor force participation. There is also a substantial evidence that a disproportionate amount of the caregiving responsibilities falls on women...” (Lumsdane and Mitchell, 1999, p.3297).

- Health/disability effects – Health has been found to be a significant determinant of worker productivity, and hence labour force participation. The risk of poor health and disability increases with age, and the onset of poor health is known to affect the timing of retirement for a significant proportion of older workers (OECD, 1998, p.136, Coile and Gruber, 2002, and McGarry, 2002). Some studies have suggested that the size of role of health effects will depend on the availability and level of social security payments (Quinn, 1977). However, health factors cannot be used as an explanation for the decline in labour force participation by the older population, as health outcomes have improved over the past several decades (Ruhm, 1990b).
- Education effects – Labour force participation is lower for population groups with lower levels of education attainment. The gap in participation between education groups increases with age in most OECD countries (OECD, 1998, p.141). The increasing gap in participation is most likely related to increasing availability of social security payments at older ages, and that in many countries the replacement rate on those payments is higher for low education workers.
- Discouraged worker effects – Evidence for several countries suggests that older workers who are retrenched have a lower probability of being re-employed (especially in the same industry/occupation sector) than younger workers (for example, Hutchens, 1993, Gregg and Wadsworth, 1995).

## *ii. Labour demand*

- Evidence on substitutability of young and old workers – There does not appear to be strong evidence of significant productivity differences between workers by age (Hurd, 1996 and OECD, 1998). One survey of gerontological/psychological studies concludes that there is no significant overall difference between the job performance of older and younger workers; older workers tend to be more reliable and have better inter-personal skills, whereas younger workers are more adept at very rapid production line and information processing work (Warr, 1994). More recently, a review of econometric evidence on labour demand by the OECD (1998, p.131) also concludes that “...workers of different ages are quite good substitutes in production”.
- Attitudinal factors – Evidence suggests that attitudinal effects related to age exist, and that they affect labour market outcomes of older workers. For example, evidence from the United States suggests that about 10 per cent of workers aged over 55 years

believe they had been discriminated against on the basis of age; an example of the effect of employer attitudes is that workers with an injury are more likely to return to work where their employer is willing to adjust to health problems (Lumsdane and Mitchell, 1999, pp.3293-96). Other evidence is from implementation of age discrimination legislation in the United States (the 1967 Age Discrimination in Employment Act). A review concludes that there is substantial evidence of discrimination against older workers in hiring prior to enactment of the legislation; that discrimination seems to have been due more to mis-perceptions about productivity of older workers than to preferences for younger workers (whereas the opposite finding is generally found for the sources of racial discrimination); and that the introduction of the age discrimination legislation has increased employment of older workers (Neumark, 2001, p.34).

- Job structure – Availability of bridging jobs – For the United States there is debate about the incidence of a pre-retirement phase in which older workers transit from a full-time (career) job to a part-time job prior to retirement (for example, Ruhm, 1990 and 1991 against Blau, 1994 and Hurd, 1996). Those who argue that there is not a high incidence of such a phase also suggest that to the extent that it is due to unavailability of bridging jobs for older workers, it may constitute an impediment to labour force participation by the older population. Case study-type analysis has found that there can be a high take-up rate of phased retirement plans, and that the incidence of take-up by individual workers is strongly inversely related to employee performance (for example, Allen, 2003).
- Technological change – Has been found to have opposing effects on retirement and labour force participation of the older population (for example, Bartel and Sicherman, 1993, and Friedberg, 2001). First, workers with higher levels of specific skills associated with technology are likely to retire later. Second, older workers in industries that experience unexpected technological change are likely to retire at younger ages.

### c. Australian evidence

#### *i. Labour supply*

- Effects of social security payments – The availability, level and structure of the Age pension, do appear to affect labour supply in Australia. First, there is evidence that eligibility for the age pension has a strong negative effect on labour supply (Woodland, 1987). Second, there is evidence of correlation between the rise in real value of the Age pension and decrease in LFPR for males aged above 65 years in 1970s and 1980s – see Table 17 (Merrilees, 1982, 1983, and 1986, and Howe, 1980). Third, cross-country evidence suggests that the age of eligibility for the Age pension, the accrual rate associated with that pension, and the replacement rate on early retirement benefits, are factors that affect the LFPR of males aged 55 to 64 years (Blondal and Scarpetta, 1998).
- Wealth effects – There is a variety of evidence of wealth effects on labour supply of the mature age population. First, in cross-section studies of the determinants of labour supply, the availability of superannuation is found to have a negative effect (Woodland, 1987). Second, some studies argue that growth in household wealth can explain the decline in participation by older males in Australia in the 1970s and 1980s. For example, Miller (1983) shows that most of the reduction in participation within the 60 to 64 year age group that occurred between 1973 and 1982 can be predicted by retirement intentions of that cohort.
- Health/disability effects – Poor health and disability are found to lower the probability of employment and labour force participation for the mature age population in Australia (Woodland, 1987, Wilkins, 2002).
- Education effects – A wide range of studies find that education attainment is strongly positively related to labour force participation (Kenyon and Wooden, 1996). (That effect operates by increasing potential earnings from labour market activity, and hence raising the opportunity cost of leisure.) Hence, the increasing level of education attainment appears to be an important explanation for the growth of female participation since the mid-1970s (Borland, 1997).
- Effects of family influences – There are inter-dependencies between decisions of mature age family members regarding labour supply. For example, older females are

more likely to participate in the labour force if their husband works, and if they believe their husband wishes them to continue working; and similarly, older males are more likely to participate if their wife is working (Evans and Kelley, 2002a and 2002b). Descriptive evidence also shows that a quite large proportion of the mature age population who are out of the labour force are involved in carer roles. It is quite likely that undertaking these carer roles has implications for labour supply of those persons, although there is little evidence on this issue (Delpachitra and Beal, 2002, p.7).

- Discouraged worker effects – There is evidence that for some groups of mature age workers – especially low-skill males – that discouraged worker effects are likely to be particularly important as a determinant of labour supply. First, it appears possible to classify some exit from the labour force by mature age workers as involuntary – for example, Borland (1996) shows that only a very small fraction of the decline in participation by 55 –59 year old males during the 1980s can be explained by retirement intentions data. Second, as has been described above, re-employment probabilities for retrenched older workers are lower than for younger workers, and this is a fact that is clearly understood by older workers (Borland, 2003). A significant factor influencing withdrawal from the labour force by discouraged job seekers appears to be availability of non-work related social security payments such as the Service pension and DSP. Many studies have noted the apparent association between decreasing participation of older males and increasing take-up of those payments – see Table 18 (McCormack, 1996, p.132; O’Brien, 2001; Davis et al., 2001; Carey, 1999; Merrilees, 1982, 1986, Kumar and DeMaio, 2002, and and Stricker and Sheehan, 1981).

## *ii. Labour demand*

- Demand for workers by skill level – Over the past 25 years in Australia there appears to have been a significant increase in the demand for high skill workers relative to low skill workers (for example, Borland, 1996, and 1999). An important dimension of that growth in demand for high skill workers, has been an increase in demand for workers with high levels of education attainment. Average education attainment is lower amongst current cohorts of mature age workers (who for the most part had completed their formal education prior to expansion of the higher education

system in the 1970s and 1980s). Hence it is likely that the growth in relative demand for high skill workers has acted to reduce demand for mature age workers. (This is not an effect associated with age 'per se'; it is associated with differences between younger and mature age workers in levels of education attainment.)

- Evidence of attitudinal factors – There is a variety of evidence that employer attitudes constitute a barrier to employment for mature age labour force participants. Older workers appear to be discriminated against, primarily during the hiring process, and primarily because employers believe their skills are outdated (for example, no computer skills), they are harder to train, less adaptable, will not fit into a younger workforce, and have potential health problems (for example, Pickersgill et al. 1996, Encel and Studencki, 1996, Encel, 1998, Commonwealth of Australia, 2000, pp.101-108, and Bittman et al., 2001). (On the other hand, employers do seem to view older workers positively in terms of their experience, loyalty, and work ethic – Bittman et al., 2001, p.43.) Some studies have highlighted several perceptions of employers regarding older workers (for example, have lower productivity, or will not fit into a younger workforce) – and shows that these perceptions are most often incorrect (Pickersgill et al., 1996, and Bennington and Tharenou, 1999). Other evidence indicates that the key factors that influence whether an employer will hire a mature age worker are: the age of the typical client of the business; the employer's perceptions about the age at which an employee will make the best contribution to the business; and whether a mature age worker would have relevant skills and technical experience. (Bittman et al., 2001, pp.57-62).

### **c. Summary**

Empirical evidence suggests a quite wide range of factors are likely to have important effects on supply of, and demand for, mature age workers in Australia. Some of these factors will be common to all age groups within the mature age population:

- Individual characteristics – Willingness to participate in the labour force will be greater: the better a person's health condition; for persons with higher levels of education attainment; where a person's spouse is employed; and where there is no requirement for a person to act as a carer for a family member. These factors will

affect labour supply at all ages; however, the relative impact may differ by age – for example, the effect of health on labour supply is likely to increase with age.

- Employer attitudes – Employer perceptions of the relative productivity, and of the scope for training mature age workers, will affect demand for their labour services. These factors will operate for employers in their decisions about whether to retain an existing mature age worker, and about whether to hire a mature age worker to a job vacancy.
- Wealth – Higher levels of wealth are generally associated with a lower propensity to participate in the labour force.
- Post-tax Wages – A lower potential wage rate for a mature age worker is likely to be associated with a lower probability of labour force participation. (Other things equal, a lower wage rate represents a higher replacement rate for government allowances and/or pensions.)
- Non-pecuniary job characteristics – Workers in jobs that involve ‘worse’ characteristics are more likely to retire early.
- Availability of bridging jobs – Availability of part-time jobs, and the capacity for workers to shift between jobs at older ages, may affect labour force participation. (But little is known about dynamics of labour supply and employment of the mature age population in Australia.)

Other factors are likely to exert more specific influences on labour supply and labour demand for mature age workers in the phases prior to and after the ‘official’ retirement age (age of eligibility for the Age pension):

*Prior to official retirement age*

- Wealth – Superannuation and earnings from private investments are the main potential private sources of income for a mature age worker contemplating withdrawal from the labour force prior to official retirement age. Hence, earlier age of access to superannuation, a greater level of superannuation payments, will reduce incentives for labour force participation.
- Old age pension – For mature age workers for whom the Age pension is necessary to fund retirement, the age of eligibility for the pension will be an important determinant of the date of withdrawal from the labour force. The official retirement

age may also act as a ‘focal point’ for other workers making a decision on when to retire.

- Discouraged worker effect – For mature age workers who become unemployed, the difficulties in finding a new job may cause them to withdraw from the labour force. This is particularly likely to occur where there are social security payments (such as DSP or ASP) available to support non-employed persons who are not actively seeking work, and those payments have high replacement rates.

*Post official retirement age*

- Old age pension – The level and structure of the Age pension affects incentives for continued labour force participation. For example, the higher the pension taper rate, the lower are the incentives for taking part-time work.

A significant weakness of the existing literature on employment outcomes for mature age workers in Australia is that there appears to be little knowledge of the quantitative significance of each of the factors, or of the relative influence of each factor on labour supply or labour demand. Developing such a knowledge would require estimation of structural models of labour supply by mature age workers and modelling of demand for labour or worker productivity by age (for example, Gruber and Wise, 2002). An improved knowledge of policy effects on labour supply could also be gained by quasi-experimental analysis of recent policy changes such as the introduction of the Pension Bonus Scheme.

Looking to the next 20 years, the review of evidence on determinants of labour supply and labour demand for the mature age population, suggests a range of potential influences to take into account:

- Wealth effects – a) Superannuation: Increased access to, and levels of, superannuation payments are likely to exert a downward influence on labour supply. But the higher preservation age will have an opposite effect; b) Home ownership: Recent rapid increases in property prices in capital cities in Australia are likely to result in a significant increase in wealth for segments of the mature age population – This would be expected to have a negative effect on labour supply.
- Old age pension – Increases in the age of eligibility for females should increase labour supply at ages between the old and new eligibility ages. A continuation of

growth in earnings inequality may increase the old age pension replacement rate for low wage workers, and hence lower labour supply.

- Individual characteristics – a) Education - Increases in average education attainment are likely to continue to exert a positive effect on labour supply (cohort effect). In particular, the growth of the share of mature age male workers with high education attainment may reverse the decline in demand for that group that has been observed (where the impact of the decline in demand has been concentrated on mature age workers with low education attainment); b) Family characteristics – The growth in the proportion of the population aged 65 years and above will increase demand for old age care services. To the extent that those services must be provided informally by family members, there would be expected to be a negative effect on labour supply by the mature age population.
- Discouraged worker effects – The evolution of demand for mature age workers is likely to depend on the extent of structural change in the economy, and employer perceptions of the relative productivity and cost of mature age workers. Policies relating to non-work pensions/allowances seem to be primarily directed to increasing work requirements for the mature age population – for example, the abolition of the MAA, and tightening of eligibility for the DSP. These reforms would be expected to increase labour supply (reduce discouraged worker effects).

#### **e. Policy options for promoting mature age employment**

Increasing the rate of employment of the mature age population will involve operating on several margins. First, it will be necessary to increase the willingness to participate in the labour force by the mature age population. Second, demand for the labour of the mature age population should be promoted. This will involve – first, policies to enable mature age workers to retain their jobs for as long as possible; and second, to intervene to improve the transition to re-employment for those mature age workers who become unemployed.

##### ***i. Labour supply***

- Increase pension eligibility age – Modelling of labour supply predicts that increasing the old age pension eligibility age will raise labour supply. For example,

from detailed modelling for a range of selected OECD countries Gruber and Wise (2002, p.25) conclude that "...a reform that delays benefit eligibility by three years would likely reduce the proportion of men out of the labor force between 23 and 36 per cent".

- Employment-related eligibility requirements for old age pension – In some countries eligibility for the old age pension requires a minimum number of years be spent in employment (for example, 'The crumbling pillars of old age', *The Economist*, September 27, 2003, pp.67-69).
- Increase age of preservation of superannuation payments or change in structure of superannuation payments – For example, one proposal has been to set the amount of superannuation payments available at each age to give increased incentives for retirement at later ages (Department of Family and Community Services, 1998, pp.44, 46). However, a substantial discount may be necessary to prevent early retirement. Evidence from the Commonwealth Superannuation Scheme appears to suggest that rates of early retirement between ages 55 and 64 years are not highly sensitive to a discount factor of 2 to 3 per cent per annum (Anderson et al., 1996, p.202).
- Decrease marginal tax rates on earnings from part-time work for retired persons – High effective marginal tax rates are likely to reduce incentives for labour supply by old age pension recipients (Carey, 1999, p.23). Hence an option is to reduce those marginal tax rates.
- Conditions on non-work payments – Non-work payments available to the mature age population (prior to old age pension eligibility) are likely to increase the incidence of labour market withdrawal by discouraged workers. Hence, the tightening of eligibility for payments such as the DSP, and introduction of work requirements, has been suggested to reduce adverse incentive effects on labour supply (Department of Family and Community Services, 1998, pp.49-50).

There would appear to be three main impediments to these types of proposals. First, some involve significant budgetary implications. For example, reforms to decrease marginal tax rates on part-time work for retired persons have been opposed on this basis (Commonwealth of Australia, 2000, pp.150-51). A second possible impediment is political considerations. For example, the proposal to delay age of eligibility for the pension would seem likely to be quite unpopular with mature age workers who need

to delay retirement until that age. A final factor is welfare considerations. For example, tightening eligibility requirements for payments such as the DSP may improve labour market outcomes for some disabled persons, but may also impose genuine hardship on a group who are not able to respond to the incentives for labour market participation.

## *ii. Labour demand*

- Skill development of mature age workers – Many studies suggest skill development for mature age workers as a way of enhancing their employability, although few suggest details of the nature of training, or the mechanism by which training should be provided. It seems important that training should focus on addressing areas where employers believe mature age workers to be deficient (for example, degree of adaptability or flexibility – Carey, 1999, p.23). Some studies emphasise the importance of ‘lifelong learning’ rather than intervening to provide training once a worker has, for example, been retrenched, at which stage it may be difficult to make a significant difference to employment prospects (Commonwealth of Australia, 2000, p.90).
- Subsidy for costs of hiring mature age workers – Wage subsidy programs could be used to lower the cost of hiring mature age workers. Budget cost would most likely require such a policy to be targeted at mature age unemployed job-seekers. Wage subsidy programs can have positive effects on employment outcomes, although it is important that estimates of program impact take into account that some participants would have obtained employment, and that program employment may simply substitute for jobs that would have been created, in the absence of the program; and that there will be low rates of take-up of these schemes where employers believe the target population does not have required skills (for example, Webster, 1998).
- Changes to employer attitudes towards mature age workers – It appears that the most beneficial way to increase labour demand for mature age workers by changing employer attitudes is by altering perceptions about the productivity of those workers. A report into mature age employment by the Commonwealth of Australia (2000, pp.121-122) proposes a range of options:
  - A public education campaign to promote the benefits of an age-balanced workforce;

- Publicising success stories of mature age workers;
- A requirement to report age profiles in Annual Reports;
- Forming an Australian version of the British Employers Forum on Age; and
- Targeting employers to demonstrate the benefits of mature age workers in the workplace.

A further impetus to policies to improve attitudes about the ‘employability’ of mature age workers is evidence that employers are generally unaware of the likely future impact of population ageing on their operations (Bittman et al., 2001, p.36).

It seems important that demand-side policies should take into account that the major method of recruitment by employers for all age groups is ‘personal networks’ (Bittman, 2001, p.55).

#### Other issues –

In considering future developments in mature age employment, and policy options available, a range of other issues may be of importance:

- Wage effects (Boersch-Supan, 2001) – The relative shortage of labour of workforce age may induce an increase in wages. That increase in wages could raise participation by mature age workers. To assess the significance of this labour supply response it is necessary to know: How big would be the wage increase? And, what would be the responsiveness of labour supply to the wage increase? The possibility of an opposite influence must also be recognised – That is, an increase in the dependency ratio could cause higher rates of income tax. The expected effect of higher rates of income tax would be to reduce participation by younger workers.
- The industrial composition of demand for goods and services (Boersch-Supan, 2001) - The change in the age composition of the population is likely to cause change in the composition of product demand in the economy (eg., increase in share of expenditure on health services). Hence, the capacity of the economy to accommodate that structural change will be critical to performance. In that respect, policies that allow for and promote labour mobility will be important.
- Demand for high-skill workers (Ellwood, 2001) – An important factor behind labour market outcomes in Australia and other OECD countries in the past twenty-five years

has been an increase in relative demand for high-skill workers. In Australia, during the 1970s and 1980s, that increase in demand has been largely accommodated by growth in the supply of workers with high levels of education attainment (Borland, 1996). However, if historical trends in growth in relative demand for high-skill workers continue, and with a slowing rate of expansion in the share of the population with high levels of education attainment, there may be an under-supply of high skill labour. For the United States, Ellwood (2001, p.19) raises the possibility that “...American employers may shift more and more of their work to other nations. Skilled work might be done abroad while much of the service work which cannot be exported will remain”.

**Table 1a: Share of mature age population in civilian population aged 15 years and above – Australia – 1967 to 2002 (August)**

	<b>Age group</b>			
	<b>45+</b>	<b>45-54</b>	<b>55-64</b>	<b>65+</b>
1967	40.2	16.2	12.1	11.9
1972	39.7	15.7	12.3	11.7
1977	39.2	15.0	12.1	12.1
1982	38.2	13.2	12.1	13.1
1987	38.5	12.9	11.7	13.9
1992	39.9	14.5	10.7	14.7
1997	42.6	16.4	10.8	15.4
2002	44.8	17.0	12.2	15.6

**Table 1b: Projected share of mature age population in civilian population aged 15 years and above – Australia – 2001 to 2051**

	<b>Age group</b>			
	<b>45+</b>	<b>45-54</b>	<b>55-64</b>	<b>65+</b>
2001	44.3	17.1	11.7	15.5
2011	49.0	17.1	14.7	17.2
2021	53.0	16.2	15.2	21.6
2031	55.3	15.1	14.7	25.5
2041	56.9	14.9	14.1	27.9
2051	57.4	14.4	14.2	28.8

Source: ABS, Population Projections Australia 1999 to 2101, catalogue no.3222.0.

**Table 2: Decomposition of change in mature age employment/population rate – 1966 to 2003 (August)**

	<b>1966 to 1985</b>	<b>1985 to 2002</b>
<b>Total change in E/POP</b>	-9.9	+9.1
Effect of:		
<b>a) Change in E/POP:</b>		
Female 45-54	+2.4	+4.3
Female 55-59	+0.1	+1.8
Female 60-64	-0.3	+0.9
Female 65+	-0.4	+0.2
Male 45-54	-1.9	-0.4
Male 55-59	-1.6	-0.1
Male 60-64	-2.6	+0.6
Male 65+	-1.8	+0.2
<b>b) Change in POP</b>	-3.8	+1.4

Source: 1966 – ABS, Australian Labour Force Annual Summary 1964-76, catalogue no.6203.0; 1985, 2003 -Austats file: 6291.0.55.001 Labour Force, Australia, Detailed - Electronic Delivery - Table 1 -TABLE 01: Labour force status by Social marital status, Age and Sex.

**Table 3: Labour force participation rates by education attainment and age**

**Panel A: Males - 1995**

	<b>35 to 44 years</b>	<b>55 to 64 years</b>
Not completed HS	88.5	57.9
Completed HS	94.4	62.9
Diploma/Trade certificate	96.5	70.2
University qualification	97.5	77.2

Source: OECD (1998, Table 4.8).

**Panel B: Change in participation rates from 1981 to 2001**

	<b>Age 25 to 54 years</b>	<b>Age 55 years and over</b>
<b>Males</b>		
Degree +	-1.4	-6.6
Non-degree post-school	-3.5	-8.8
No post-school	-13.7	-10.9
<b>Females</b>		
Degree +	+8.0	+4.9
Non-degree post-school	+12.0	+7.4
No post-school	+11.6	+2.1

Source: Kennedy and Hedley (2003, Table 1).

**Table 4: Duration of unemployment spell by age – 2003(August)**

	<b>Males</b>			<b>Females</b>		
	<b>Proportion of ue (%)</b>	<b>Rate of long-term ue (weeks)</b>	<b>Average duration</b>	<b>Proportion of ue (%)</b>	<b>Rate of long-term ue (weeks)</b>	<b>Average duration</b>
15-34 years	59.3	20.6	37.8	61.6	13.2	28.4
35-54 years	32.0	34.6	83.2	33.1	21.6	48.1
55+ years	8.7	48.5	107.5	5.3	43.7	105.9

Source:

ABS Supertable: Unemployed persons (ST UM3) by age, sex, state and duration of unemployment - from Apr01

**Table 5: Workers retrenched between July 1994 and June 1997 – Proportion by current labour force status - Status at July 1997**

	<b>Employed (%)</b>	<b>Unemployed (%)</b>	<b>OLF (%)</b>
<b>Males</b>			
18-24 years	46.8	47.6	5.6
25-34 years	60.4	31.9	7.7
35-44 years	64.6	27.4	8.0
45-54 years	58.4	31.6	10.0
55-64 years	33.4	29.5	37.1
<b>Females</b>			
18-24 years	52.4	32.1	15.5
25-34 years	57.1	19.2	23.8
35-44 years	56.5	18.9	24.6
45-54 years	55.8	15.4	28.8
55-64 years	30.0	6.5	63.5

Source: ABS, Retrenchment and Redundancy, catalogue no.6266.0, July 1997 (Table 4).

**Table 6: Responses to questions on job security – Mean responses – Employed wage and salary earners aged 18 to 64 years – Pooled data for August 1999 to May 2002**

	Probability of job loss	Probability of finding a similar job	Probability of job loss and not finding a similar job
18-24 years	12.7	65.2	3.8
25-34 years	11.5	62.6	4.6
35-44 years	12.4	55.2	5.9
45-49 years	12.1	49.4	6.9
50-54 years	11.8	42.7	7.4
55-64 years	11.4	32.4	8.5

Source: Borland (2003, Table 3).

**Table 7: Persons not in the labour force – Share of population by main activity by age and gender – September 2002**

	45-54 years	55-59 years	60-64 years	65-69 years
<b>Males</b>				
Retired	16.5	31.6	53.7	77.4
Home duties	9.9	8.8	6.7	4.2
Disability/Illness	54.2	46.2	27.7	6.6
Carer for ill/disabled	5.1	2.0	2.5	1.7
Other	14.4	11.4	9.4	10.0
Total	100.0	100.0	100.0	100.0
<b>Females</b>				
Retired	8.2	23.3	39.8	50.4
Home duties	63.0	45.6	41.3	35.4
Disability/Illness	15.7	13.4	6.7	3.5
Carer for ill/disabled	5.7	7.9	4.0	2.5
Other	7.4	9.7	7.8	8.3
Total	100.0	100.0	100.0	100.0

Source: ABS, Persons Not in the Labour Force Australia, catalogue no.6220.0, September 2002, Table 2.

**Table 8: Percentage of part-time workers in retired population – 1986 to 1997**

	1986 (Nov)	1992 (Oct)	1997 (Nov)
Males		8.0	8.7
Females		16.6	19.2
Persons	6.4	13.1	15.0

Source: ABS, Retirement and Retirement Intentions, catalogue no.6238.0.

**Table 9: Distribution of age at retirement – Proportion of retired population by age - 1983 to 1997**

	<b>1983 (Sept)</b>	<b>1986 (Nov)</b>	<b>1989 (Nov)</b>	<b>1992 (Oct)</b>	<b>1994 (Nov)</b>	<b>1997 (Nov)</b>
<b>Males</b>						
<45 years	3.6	5.2	5.7	6.9	7.2	7.0
45-49	2.8	3.9	3.6	4.4	5.3	6.6
50-54	6.3	7.7	8.7	9.8	9.4	10.7
55-59	15.2	17.1	18.4	19.2	19.5	22.2
60-64	35.4	34.0	35.4	33.3	32.3	30.9
65-69	31.8	27.9	24.8	23.2	22.7	19.5
70+ years	4.9	4.2	3.4	3.2	3.6	3.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
<b>Females</b>						
<45 years	61.8	60.2	60.6	59.8	56.5	54.4
45-49	7.4	8.1	7.6	7.3	8.6	9.0
50-54	10.4	10.4	10.9	10.9	10.9	12.5
55-59	8.3	9.0	9.3	9.4	11.1	11.5
60-64	8.6	8.8	8.4	9.2	9.5	9.5
65-69	2.5	2.5	2.4	2.5	2.4	2.5
70+ years	1.0	1.0	0.8	0.9	1.0	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: ABS, Retirement and Retirement Intentions, catalogue no.6238.0.

**Table 10: Retired population – Main reason for exit from last full-time job – 1983 to 1997**

	<b>Job Loser</b>	
	<b>1983 (Sept)</b>	<b>1997 (Nov)</b>
Males	29.9	46.6
Females	15.9	20.0
Persons	20.9	30.8

Source: ABS, Retirement and Retirement Intentions, catalogue no.6238.0.

**Table 11: Marginally attached population and rate of unemployment – 2002 (September)**

	<b>LFPR</b>	<b>Percent of population marginally attached to LF</b>	<b>Official rate of unemployment</b>	<b>Revised rate of unemployment (plus marginally attached)</b>
<b>Males</b>				
15-44 years	85.3	4.0	7.4	11.6
45-54 years	88.1	3.0	4.3	7.4
55-64 years	63.0	4.3	4.5	10.6
65+ years	9.9	0.6	1.6	7.3
<b>Females</b>				
15-44 years	71.3	9.8	7.4	18.6
45-54 years	74.3	5.7	3.7	10.6
55-64 years	39.3	4.7	2.6	13.1
65+ years	3.5	0.3	0.0	7.6

Sources: ABS, Persons Not in the Labour Force Australia, catalogue no.6220.0, September 2002, Table 3; and Austats file: 6291.0.55.001 Labour Force, Australia, Detailed - Electronic Delivery - Table 1.

**Table 12: Share of part-time employment in total employment and whether part-time workers preferred to work more hours – 1985 to 2002 (August)**

	Share of part-time employment (%)			Percent of part-time workers who prefer more hours (%)
	1985	1993	2002	2002
<b>Males</b>				
15+ years	6.2	10.4	14.8	32.9
45+ years	6.9	9.5	13.6	28.0
45-54 years	3.7	5.5	8.6	43.1
55-59 years	5.6	9.7	13.3	29.4
60-64 years	12.4	17.5	22.6	16.9
65+ years	37.5	40.6	50.8	9.3
<b>Females</b>				
15+ years	37.3	42.5	46.5	22.4
45+ years	44.2	45.1	46.8	17.3
45-54 years	43.0	42.8	43.6	20.2
55-59 years	42.8	48.6	48.5	13.5
60-64 years	47.9	51.1	59.9	11.6
65+ years	67.2	67.1	74.6	6.9

Source: 1985 and 1993 - ABS, Labour Force Australia, catalogue no.6203.0 (August); 2003 – ABS Supertable: Labour Force (ST EM1\_Aust): Employed persons by hours worked, age, State (Aus), and ABS Supertable: E01 - Persons employed part-time by Sex, Whether preferred to work more hours, State, Age, Hours worked 01\_may01.srd (261.81 kb).

**Table 13: Share of employment by industry – Civilian population**

	Males			Females		
	1985 – 45+ years	2003 – 45+ years	2003 – 15-44 yrs	1985 – 45+ years	2003 – 45+ years	2003 – 15-44 yrs
Agriculture & mining	11.6	7.8	5.4	7.0	4.3	2.3
Manufacturing	20.9	14.3	15.4	17.1	7.5	7.0
EGW	3.8	1.6	1.0	0	0.3	0.5
Construction	9.0	11.1	13.9	1.0	2.6	1.9
Wholesale & retail trade	15.6	14.5	21.7	19.9	14.8	23.4
Accommodation & restaurants	1.8	2.6	4.5	4.2	4.6	7.0
Transport, storage & communication	10.8	9.7	7.8	3.4	3.3	3.9
Finance, insurance & business services	8.5	15.6	14.4	7.0	14.0	17.6
Government administration	5.6	5.7	3.3	4.5	5.1	4.8
Education, health & community services	8.6	11.0	6.6	31.1	37.7	24.0
Cultural, recreational and personal services	3.8	5.9	5.9	4.8	5.9	7.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: 1985 - Ausstats Companion Data: Supertable q2\_Nov84.srd; 2002 - Ausstats Companion Data - Supertable q2\_aug94.srd.

**Table 14: Employment by occupation – Civilian population – 2003 (August)**

	<b>Males</b>		<b>Females</b>	
	<b>45+ years</b>	<b>15-44 years</b>	<b>45+ years</b>	<b>15-44 years</b>
Manager/administrator	14.3	7.1	5.4	3.4
Professional	18.9	15.4	23.3	20.4
Associate professional	14.4	12.4	11.8	10.7
Tradespersons & related workers	17.5	23.0	2.1	2.9
Advanced clerical & service workers	1.1	0.6	10.1	7.0
Intermediate clerical, sales & service workers	7.6	9.1	25.9	29.4
Intermediate production & transport workers	13.8	12.9	3.0	2.3
Elementary clerical, sales & service workers	3.8	7.8	9.5	17.3
Labourers & related workers	8.6	11.7	8.9	6.7
Total	100.0	100.0	100.0	100.0

Source: Ausstats Companion data: supertable q4\_aug96.srd.

**Table 15: Details of government allowances and pensions – International comparison**

	<b>Eligibility age – Age pension – Males (1999)</b>	<b>Eligibility age – Age pension – Females (1999)</b>	<b>RR – Old age (1995)</b>	<b>RR – Disability (1995)</b>
Australia	65	61.5	40.9	27.3
United States	65	65	56.0	44.8
United Kingdom	65	60	49.8	27.5
Canada	65	65	51.6	33.1
New Zealand	64	64	61.3	31.0

Source: Bloch (2000, Tables 20, 21, 23); Blondal and Scarpetta (1998, Tables III.3 and IV.2).

Notes: RR = replacement rate. Calculated as the average of four cases – Based on two earnings levels (average and 2/3 or average), and two household compositions (single and single with dependent spouse) (Blondal and Scarpetta, 1998, p.17).

**Table 16: Participation rates of 55-64 year old males: Summary of regression results, 1971 to 1995**

<b>Changes in explanatory variables</b>	<b>Change in LFPR</b>	
	<b>Percentage points</b>	<b>Significance</b>
<b>Old age pension</b>		
Replacement rate (+10 percentage points)	+0.5	
Accrual rate (+10 percentage points)	+1.3 to +2.5	1% level
Standard retirement age (+1 year)	+0.8 to +1.0	1% level
<b>Early retirement benefits</b>		
Unemployment-related (-10 percentage points)	+1.5 to +2.0	1% level
Special benefits (-10 percentage points)	+0.3 to +0.5	
<b>Labour market conditions</b>		
Rate of unemployment (-1 percentage point)	+0.6 to +0.9	1% level
Share of prime age population (-1 percentage point)	+0.9	1% level

Source: Blondal and Scarpetta (1998, Table V.3).

Notes: Accrual rate = percent change in old age pension benefits for a 55 year old male by working for 10 more years.

**Table 17: Retirement rates and pensions – 1970 to 1984**

	<b>Proportion of males retired - Aged 65+ (%)</b>	<b>Proportion of population in receipt of old age pension (%)</b>	<b>Single pension/Male Total AWE</b>	<b>Single pension/Process worker's wage</b>
1970	77.6	60.3	20.9	35.8
1972	77.2	62.0	23.7	35.9
1974	81.2	72.9	25.9	39.0
1976	85.5	75.4	26.0	39.7
1978	88.0	78.0	26.4	41.4
1980			26.7	40.0
1982			24.0	35.2
1984			23.9	39.1

Sources: Howe (1980, Table 3); Whiteford and Bond (1999, Table 9.4).

**Table 18: Percent of males receiving selected social security pensions by age 1972-1999 (Percent of population)**

	<b>DSP (55-59 years)</b>	<b>ASP (60-64 years)</b>	<b>DSP (60-64 years)</b>	<b>MAA (60-64 years)</b>
1972	4	4	8	na
1977	7	12	13	na
1982	8	22	13	na
1987	12	12	16	Na
1992	13	2	23	na
1997	16	1	25	15

Source: O'Brien (2001, Table 2).

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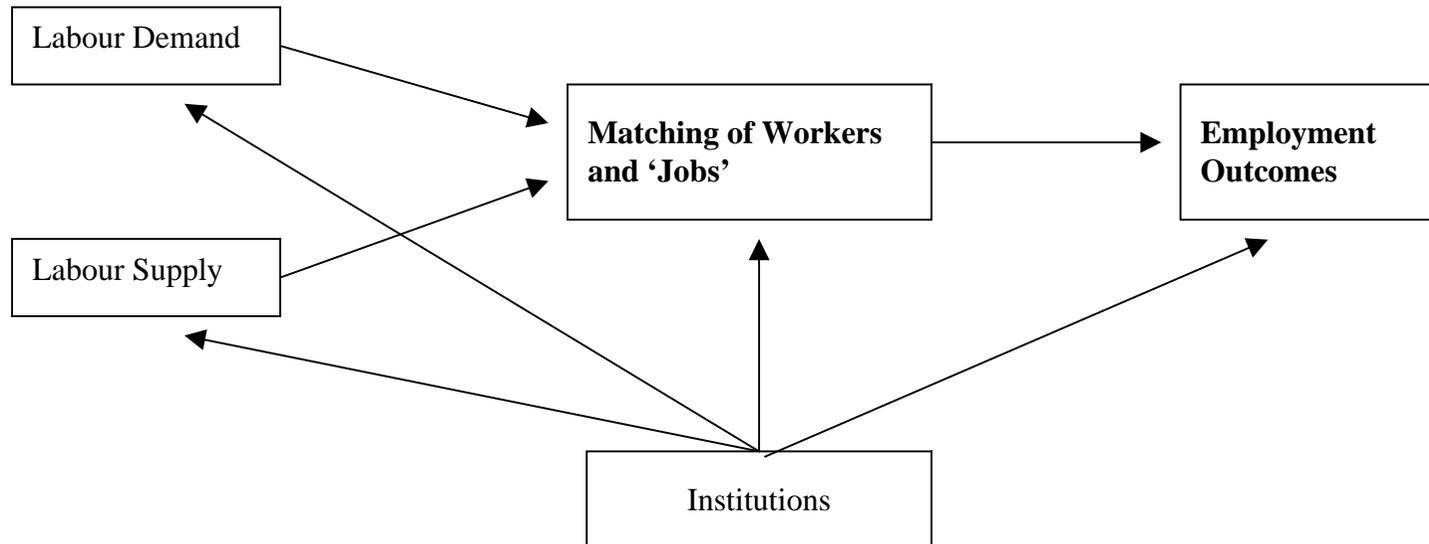
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**Figure 8: Determinants of Employment Outcomes for Mature Age Workers**



## Sources – Figures

Figures 1a-1c: 1966-1969 – ABS, Australian Labour Force Annual Summary 1964-76, catalogue no.6203.0; 1970-81 – ABS, Labour Force Australia, catalogue no.6303.0; 1982-2002 – ABS, Ausstats files, Labil9a, Labil9b, Labil9c (Labour force participation); Labcp9a, Labcp9b (Civilian population); Labpr9a, Labpr9b (Participation rate).

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Figure 4: Scherer (2002, Table 3).

Figures 5a-5d: 1985-1993: ABS Companion Data: Supertable q2\_Nov84.srd; 1994-2002: ABS Companion Data - Supertable q2\_aug94.srd.

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Figures 7a-7f: OECD (2002), ???