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This issue includes data up to 14 April 2004 unless otherwise specified.

A review of compositional developments in the Australian labour market

Jason Russo and David Hedley[1]

Aggregate labour market outcomes mask some significant compositional developments at the State and industry level. Solid employment outcomes in the past couple of years have been concentrated in sectors that have benefited from strong domestic demand, but this has partially been offset by a drag on employment growth from adverse shocks to the economy such as the impact of drought. In a distributional sense, employment growth has been strongest in the States that have recently experienced strengthening population growth.

Additionally, there have been longer-term changes in the structure of the Australian labour market, particularly the composition of hours worked. The growing share of part-timers in the labour market may point to a potential source of additional labour supply, as part-timers may inherently be more willing (and able) to work additional hours.

Looking ahead, demographic projections suggest significant changes in labour market trends in future, which have longer-term policy implications. Even if relatively positive assumptions are made about population growth, the ageing composition of Australia's population is likely to act as a constraint on employment growth by the end of this decade.

1 Domestic Economy Division, Australian Government Treasury. This article has benefited from helpful comments from Steven Kennedy, Martin Parkinson, David Gruen, Jason Allford, Jim Hagan, Yeon Kim and Dehne Taylor. The views in the article are those of the authors and are not necessarily those of the Australian Treasury.

Introduction

This article examines several compositional aspects of the Australian labour market. Whilst the unemployment rate is a key macroeconomic barometer, a slightly more disaggregated examination of developments in the labour market can provide additional insights. As such, industry and State dynamics are pivotal to examining the impact of economic developments on labour market outcomes.

Over the past year Australia has enjoyed robust labour market conditions. For the first time in over a decade Australia's unemployment rate has fallen below 6 per cent (Chart 1).

Chart 1: Unemployment rate

Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

This has occurred despite several shocks to the economy, such as the impact of drought and a substantial subtraction from GDP growth by the external sector. The Australian labour market appears to have acquired the capacity to better adjust to significant overall shifts in the economy, including adverse shocks.

Indeed, in recent times the Australian economy has displayed considerable resilience in the face of several shocks. This ability to ride through economic shocks while still recording solid GDP growth and low inflation may point to the cumulative dividends from previous economic reforms, although a full analysis of this issue is beyond the scope of this paper.

Over the longer term, there have been fundamental changes in the composition of the labour market. In particular, strong growth in part-time employment has seen

part-time workers increase significantly as a share of total employment. There are some reasons to believe this trend may continue, which are canvassed below.

The growth in part-time employment may have some positive spin-offs in terms of the ability of the labour market to respond to economic shocks, as part-timers may inherently have a greater capacity to accommodate changing work patterns or to work additional hours.

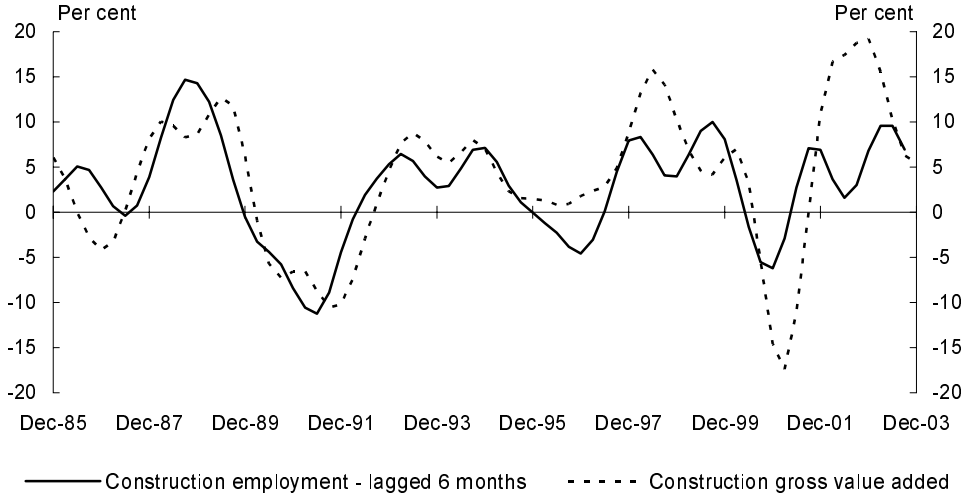
These compositional aspects of the Australian labour market are reviewed in further detail below, before ending with a brief examination of some of the implications from the projected age composition of Australia's population.

Industry developments in the labour market

In recent times, the labour market has been able to respond to significant shifts in the drivers of economic growth. Solid employment outcomes have been concentrated in areas of strong domestic demand (but partially offset by adverse shocks, such as a weak external sector).

Australia's employment growth in recent years has been driven by industry-specific developments in the economy, such as the construction cycle (Chart 2).

Chart 2: Construction output and construction employment[(a)]
(Quarterly, through-the-year growth)

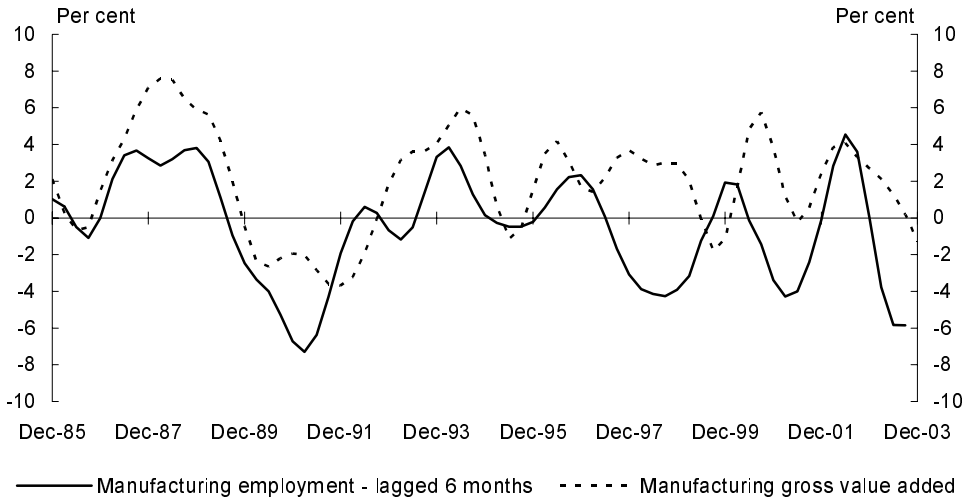


(a) Growth in construction employment is presented with a six month lag to illustrate activity typically leading employment growth.
Source: Australian Bureau of Statistics cat. no. 6203.0 and 5206.0.

The construction cycle produces a multiplier effect for other industries, such as manufacturing and property and business services. However, such industry specific developments do not necessarily permeate the entire economy.

Whilst particular segments of the manufacturing industry have benefited substantially from the construction cycle, employment in this industry (Chart 3) is influenced by many other economic developments.

Chart 3: Manufacturing output and manufacturing employment
(Quarterly, through-the-year growth)

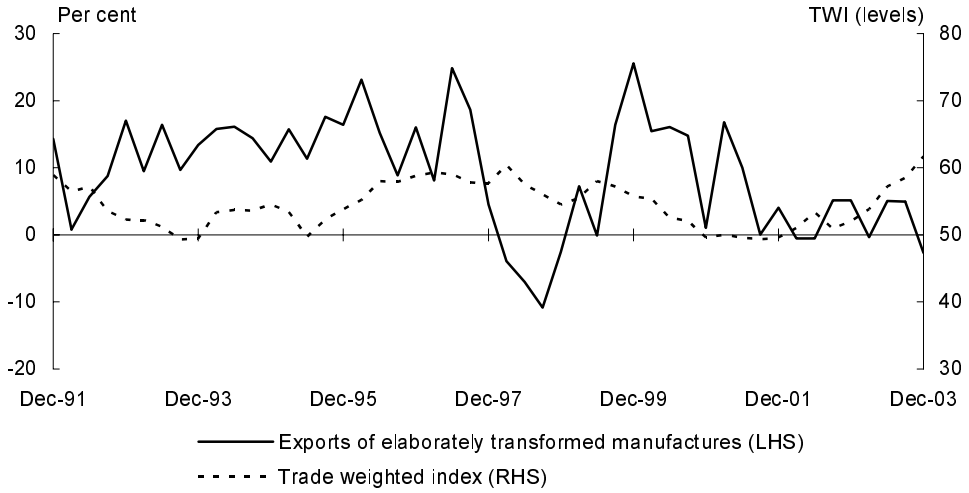


Source: Australian Bureau of Statistics cat. no. 6203.0 and 5206.0.

For example, export oriented manufacturing sectors have also been influenced by less favourable external conditions, particularly weak economic growth among some of Australia's major trading partners.

Australia's exports of elaborately transformed manufactures have grown weakly in the past couple of years, which partly reflects weak international conditions and a sharp appreciation in the exchange rate more recently (Chart 4).

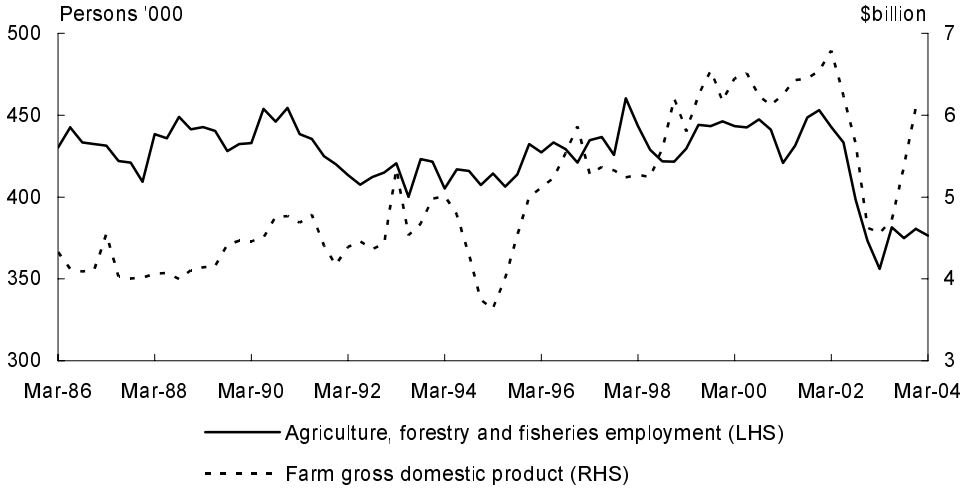
Chart 4: Exports of elaborately transformed manufactures and TWI
(Quarterly, through-the-year growth and level)



Source: Australian Bureau of Statistics cat. no. 5302.0.

Moreover, recent years have seen several shocks to the Australian economy. For instance, farm employment declined by almost 100,000 persons in the wake of the 2002-03 drought, albeit from high levels following a couple of years of favourable conditions (Chart 5).[2]

Chart 5: Farm employment and real farm gross domestic product[(a)]
(Quarterly, levels)



(a) Farm domestic product data only available to the December quarter 2003. Australian Bureau of Statistics cat. no. 5206.0.
Source: Australian Bureau of Statistics cat. no. 6203.0 and 5206.0.

2 This is explored further in *The impact of the 2002-03 drought on the economy and agricultural employment*, Economic Roundup Autumn 2004.

Despite adverse shocks from the drought and a weak external sector, changes in the compositional drivers of economic activity have seen continued solid employment growth and the unemployment rate decline steadily. The ability of the Australian labour market to respond to these developments, suggests an inherent degree of flexibility.

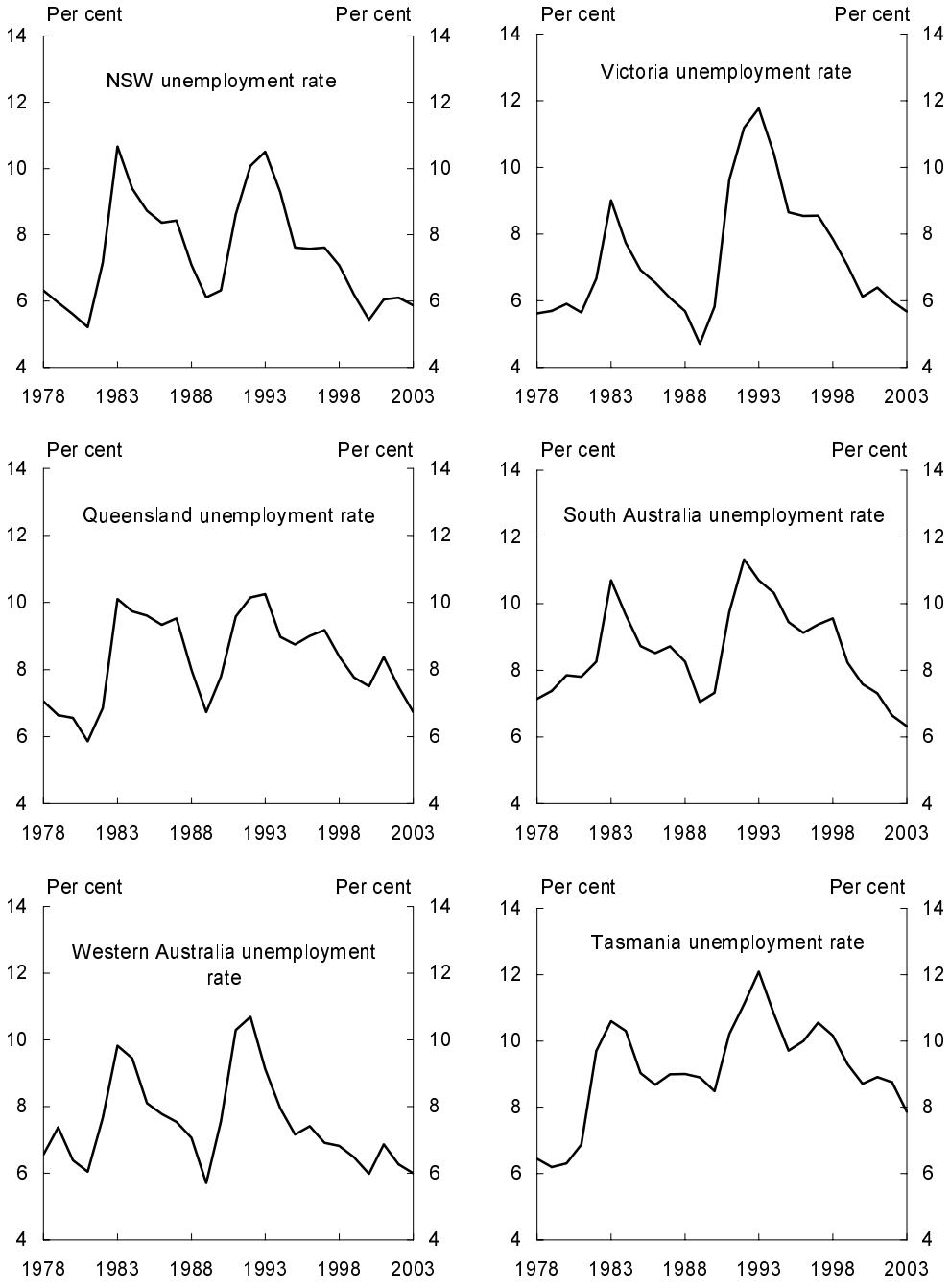
Geographic distribution of recent labour market outcomes

The composition of labour market trends can also be viewed in a distributional sense, to assess whether there are particular States or regions that are driving aggregate outcomes. For the purpose of this article, distributional outcomes are confined to examination at the State level.

Some interesting pictures emerge from examining labour market outcomes across Australia's States.[3] In aggregate terms, most States have experienced a gradual reduction in their unemployment rate over the past decade (Chart 6).

3 This brief examination excludes outcomes for Australia's Territories, which account for a relatively small proportion of the overall labour market.

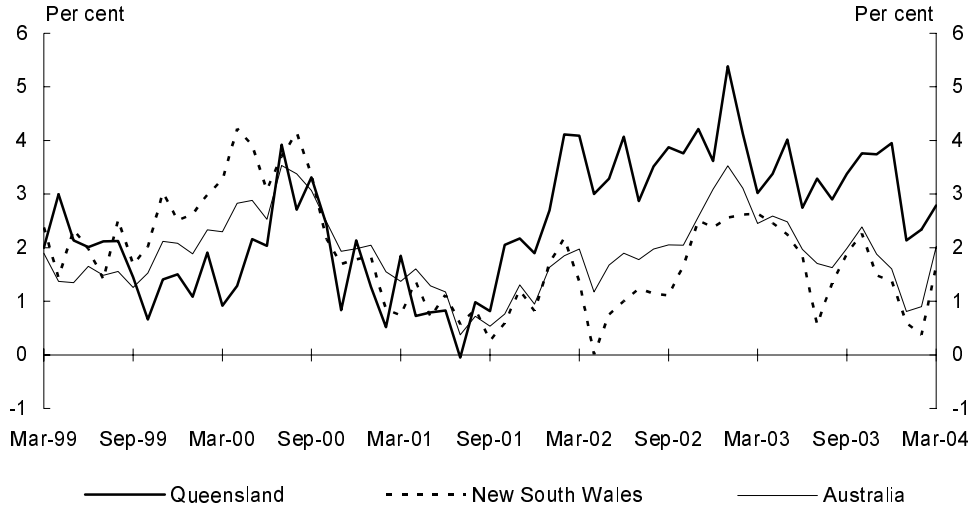
Chart 6: State unemployment rates
(Annual average)



Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

One exception is Queensland, which has experienced relatively stronger employment growth in the past couple of years (Chart 7), which has in-turn been supported by relatively strong population growth.[4]

Chart 7: Employment growth in Queensland, NSW and Australia
(Monthly, through-the-year growth)



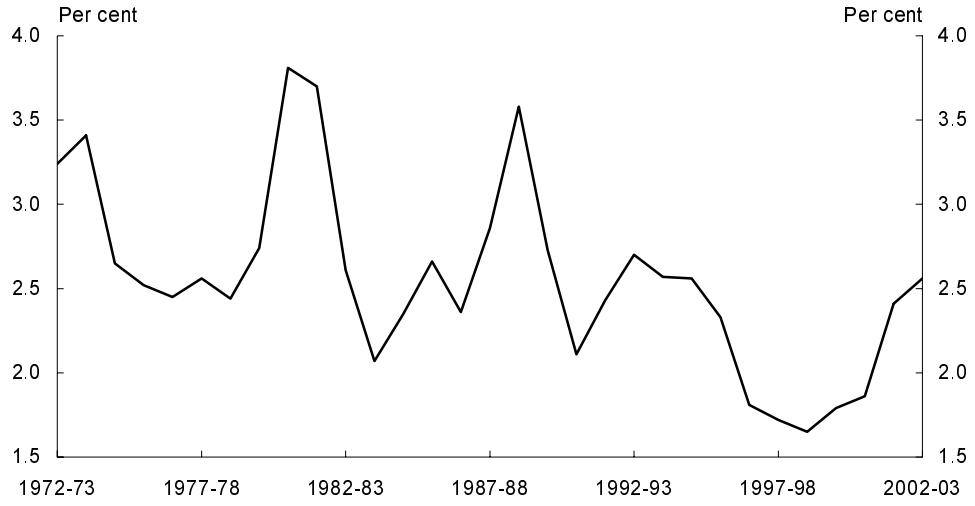
Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

Queensland accounts for around one-fifth of employment in Australia, but it contributed almost half of the total employment growth in Australia through the year to February 2004.

Queensland's annual employment growth has been stronger than the national average since the middle of 2001, corresponding with its surge in population growth over that period (Chart 8).

4 The substantially higher population growth in Queensland compared with the national average continues to be primarily driven by net interstate migration. Queensland Budget papers: http://www.budget.qld.gov.au/pdfdocs/strategy.pdf, p. 24.

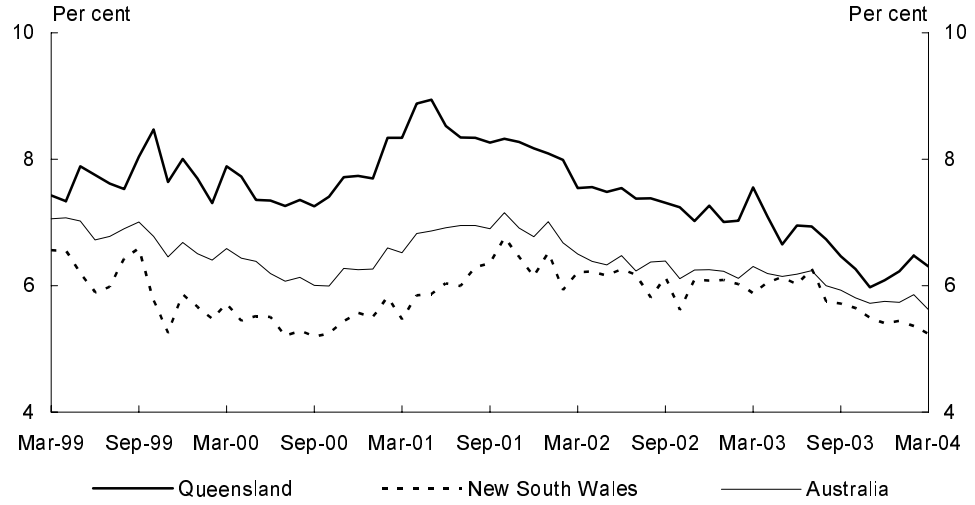
Chart 8: Annual growth in the number of people of workforce age[5] — Queensland
(Year-average growth)



Source: Australian Bureau of Statistics, *Population by Age and Sex, Australia*, cat. no. 3201.0.

Queensland's relatively stronger employment growth also saw a relatively faster reduction in that State's unemployment rate through 2003, although its unemployment rate has risen slightly in recent months (Chart 9).

Chart 9: Unemployment rates, Queensland, NSW and Australia

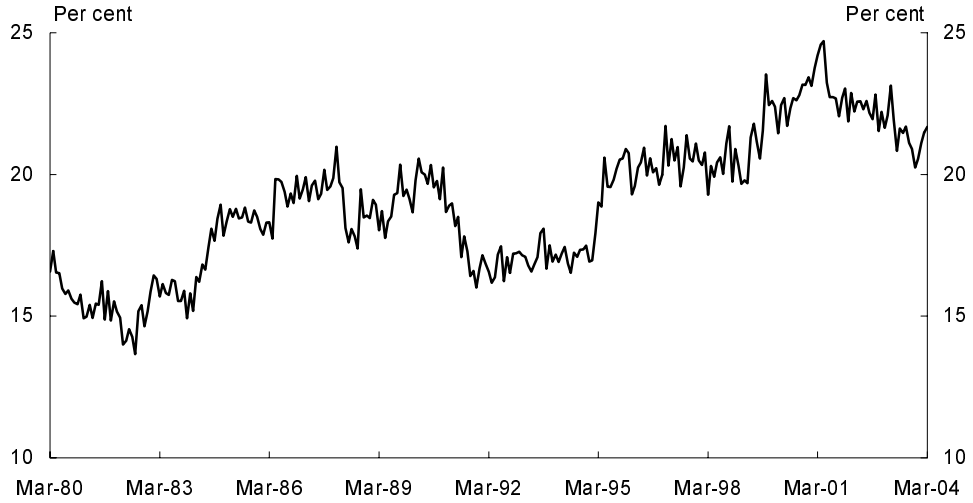


Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

5 Generally defined as ages 15-64 for the purposes of this article.

Nevertheless, Queensland's unemployment rate has declined from a higher starting point in 2001. Queensland's share of the total number of unemployed persons has therefore also fallen (Chart 10).

Chart 10: Queensland's share of total unemployment



Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

Tasmania has also recently recorded labour market outcomes stronger than the national average. The surge in employment growth in Tasmania over the past year has seen the unemployment rate decline more sharply than its long-term trend, albeit from a relatively higher starting point compared to other States.

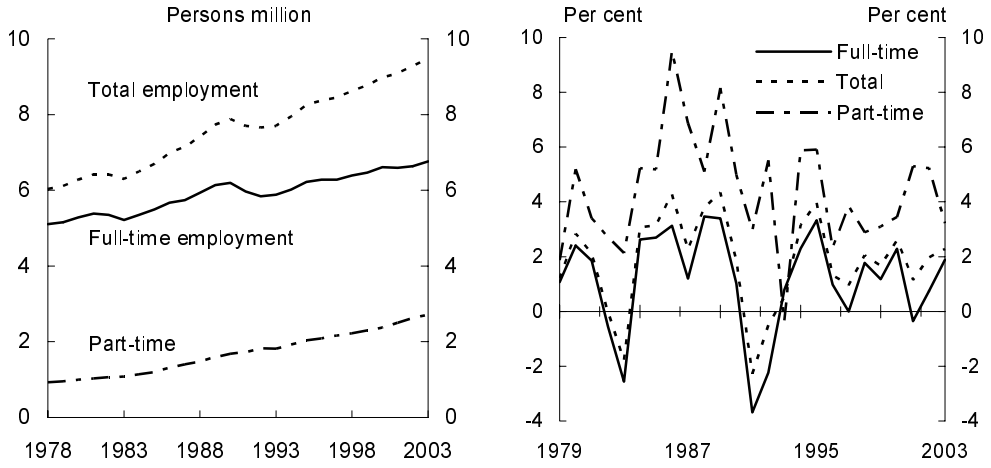
It can also be useful to examine these State labour market outcomes at the industry level (Appendix 1). Queensland's relatively strong employment outcomes over the past couple of years has been driven by several industries, including construction, retail trade, and property and business services. Queensland's industry employment outcomes may in turn be generally consistent with Queensland's relatively strong population growth.

Trends in the hours that people work[6]

Having looked at recent developments at the industry and State level, it is timely to examine some of the longer-term compositional trends in the labour market.

The past 25 years have seen a dramatic change in the composition of the hours that people work. In particular, there has been an increase in the proportion of workers in part-time employment, both male and female (Chart 11).[7] On average, part-time employment has grown almost four times as fast as full-time employment in the past 25 years (in through-the-year terms).

Chart 11: Full-time and part-time employment
(Annual, levels and growth)



Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

Nevertheless, the majority of people employed in Australia are still employed as full-time workers, currently around 6.9 million people or a little over 70 per cent of total employment. Part-time workers currently total around 2.7 million people (Chart 11).

6 Full-time employment is defined by the Australian Bureau of Statistics as persons working for 35 hours per week and over, while part-time employment includes those working up to 35 hours per week.

7 Gender participation trends are discussed in more detail in, *Educational attainment and labour force participation in Australia*, Economic Roundup Winter 2003.

There are some longer-term trends that may support continued strong growth in part-time employment. An examination of gross flows data for the Australian labour force reveals that people who do not currently have a job (either unemployed or outside the labour market) are more likely to initially find part-time work, rather than full-time work.[8]

The ageing of Australia's workforce may see increasing numbers of older workers opting to work on a part-time basis, rather than retiring early altogether. Broader demographic trends are discussed further below.

There also appear to be industry drivers of the trend towards a growing share of part-time employment. Analysis at the industry level indicates that the increasing share of part-time work is a phenomenon occurring across a range of industries.

The majority of the increase in part-time employment growth reflects a more general move to part-time employment whilst a smaller but not insignificant proportion of the change reflects changing industry composition (that is the relative size of industries) within the economy (Appendix 2).

In essence a general increase in part-time employment within industries has remained the main driver of the overall increase in employment (Appendix 2). This shift to part-time work has probably benefited from increasing flexibility in work arrangements, which has allowed people to elect for part-time work.

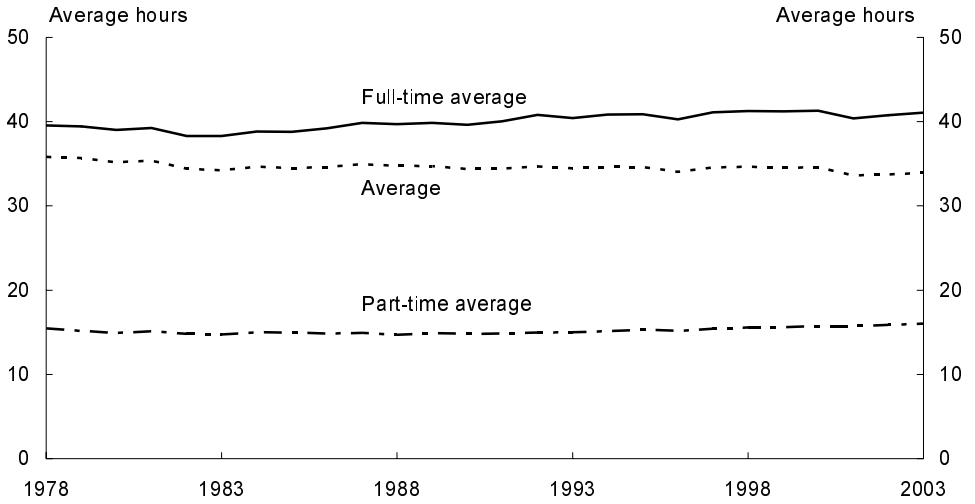
Average hours worked

Having examined employment on a 'heads' basis (that is the levels and proportions of people working part-time and full-time), trends in the actual number of hours worked can be reviewed.

Over the past 25 years, the average number of hours worked by full-time and part-time employees has remained relatively stable (Chart 12), despite significant structural change in the economy and a range of economic shocks.

8 Gross flows data available from *Labour Force, Australia*, Australian Bureau of Statistics cat. no. 6203.0. Calculations based on average proportions of people not in the labour force or unemployed that shift to part-time employment rather than full-time employment.

Chart 12: Average hours worked, full-time, part-time and total
(Annual average)



Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

The average number of hours worked by full-time employees has increased slightly, by around 1.6 hours per week over the past 25 years. Over the 1980s and early 1990s the average number of hours worked by part-time employees was relatively unchanged, but in the past decade the average number of hours worked by part-timers increased by around 1 hour per week.

Whilst the average number of hours worked by both part-timers and full-timers has increased slightly, the rising share of part-time employees in the labour market has actually produced a gradual decline in total average hours worked across the labour market.

Capacity to work additional hours

The share of part-timers in the labour market has grown over time and some of these people may have the capacity to work additional hours. This may be viewed as a potential source of additional labour supply.

The ABS produces estimates of the number of part-time workers that would like to work additional hours.[9] On average there were around 725,000 part-time workers that desired additional hours in 2003, or about one-quarter of part-timers. These part-time workers wanted an average of a little over 15 additional hours of work per week.

9 Estimates of part-time workers who want more hours are available from Australian Bureau of Statistics cat. no. 6203.0. and 6105.0. Annual estimates of the average number of extra hours wanted are available in Australian Bureau of Statistics cat. no. 6265.0.

For illustrative purposes, if these additional hours of labour supply were fully utilised, it would be equivalent[10] to almost 320,000 full-time jobs, or more than double that number of equivalent part-time jobs.

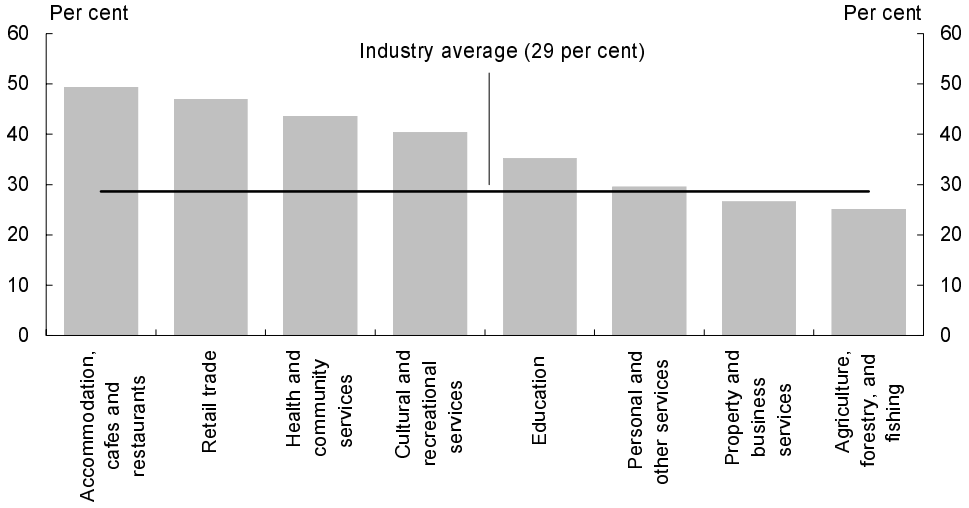
To place this figure in context, total employment grew by around 190,000 persons through the year to March 2004, underpinned by strong economic growth in 2003. This was comprised of around 170,000 full-time jobs and about 20,000 part-time jobs.

Interestingly, the average number of hours sought by part-timers wanting extra hours appears to have gradually declined over time. However, rapid growth in the total number of part-time workers in the labour market is likely to have seen this potential source of spare labour hours grow significantly in aggregate terms over time.[11]

If part-time employment continues to grow strongly, this source of spare labour hours is likely to expand further. Nevertheless, it is not certain how quickly this source of spare labour supply can be taken up to meet the productive demands of the economy.

This potential labour supply may be stronger in those industries that have a greater concentration of part-time employees (Chart 13).

Chart 13: Concentration of part-time employment for selected industries
(Year average for 2003)



Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

10 Full-time equivalence assumes the standard ABS definition of full-time employment, being 35 hours work (or more) in a week. This could also be calculated using the average full-time hours worked figure of around 41 hours per week in 2003. Part-time equivalence assumes the average part-time hours worked, of around 16 hours per week in 2003.

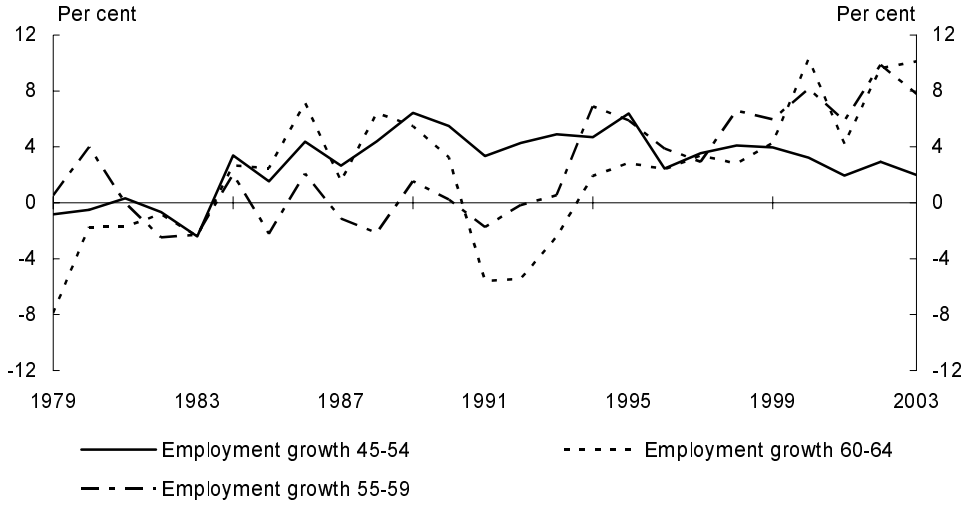
11 Author derived, based on data from *Labour Force, Australia*, Australian Bureau of Statistics cat. no. 6105.0., 6203.0 and 6265.0.

Broader demographic trends and the labour market

A review of compositional changes in the labour market is not complete without some examination of demographic trends, particularly in the context of Australia's ageing population.

In recent times, there has been strong growth in employment amongst people aged 55 to 64 (Chart 14). This may be a positive sign that participation among older workers has been encouraged by continued strength in the economy, or that people are showing a greater willingness to decide against early retirement, as more people move into these age cohorts over time.

Chart 14: Employment growth amongst older cohorts[(a)]
(Year-average growth)



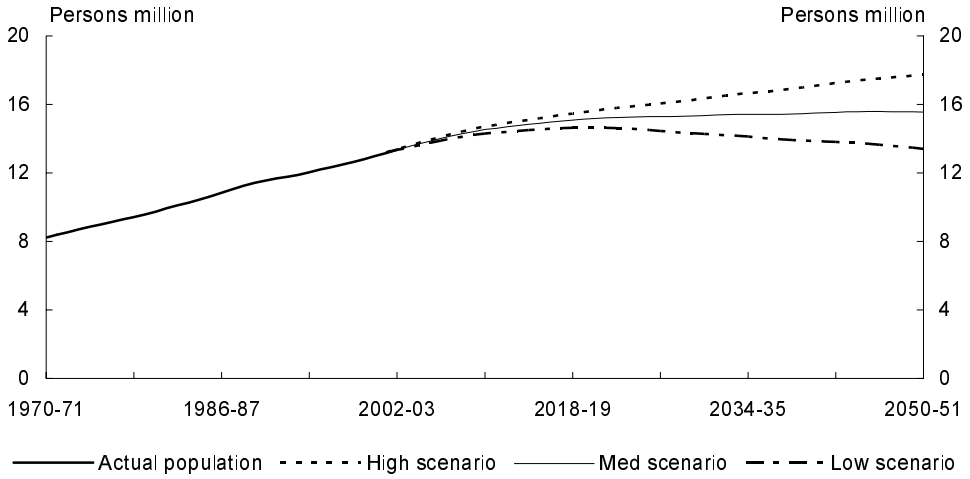
(a) That is, older cohorts within the population of typical work force age. Typical work force age is generally defined as ages 15-64 for the purposes of this article.
Source: Australian Bureau of Statistics, *Labour Force Statistics*. Australian Bureau of Statistics cat. no. 6203.0.

As a result, the participation rate of older cohorts rose solidly in the past couple of years. The participation rate among people aged 60 to 64 rose most significantly, although, participation rates among older cohorts remain quite low relative to younger cohorts.

Looking further ahead, labour market outcomes will be significantly influenced by the anticipated slowing in population growth and resultant ageing. This has significant implications for labour market participation and employment growth, which are pivotal to sustainable economic growth.

The ABS has produced projections of the number of persons aged 15-64 to the year 2051 (Chart 15).

Chart 15: Population projections ages 15-64
(Annual average)



Source: Australian Bureau of Statistics, *Population Projections 2002 to 2051*, cat. no. 3222.0.

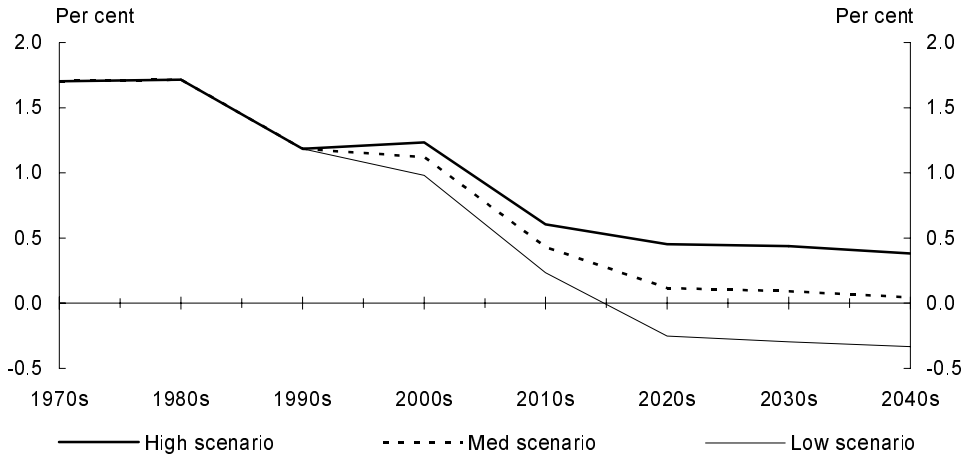
These projections are based on three scenarios that might broadly be characterised as high, medium or low — based on assumptions about fertility, life expectancy and immigration flows.[12]

In the context of potential employment growth and labour market participation, it is important to focus on projections for *growth* among the number of people of typical workforce age (Chart 16).[13]

12 The assumptions underpinning these scenarios are detailed in Appendix 3. These Appendix notes are paraphrased from those contained in *Population Projections 2002 to 2101 (*Australian Bureau of Statistics cat. no. 3222.0). For the full and original text, consult the source.

13 Generally defined as ages 15-64 for the purposes of this article.

Chart 16: Decade-average population growth (ages 15-64)
(Based on projected year-average growth)



Source: Australian Bureau of Statistics, *Population Projections 2002 to 2051*, cat. no. 3222.0.

Relatively high assumptions about population growth could potentially see the numbers of people of workforce age continue to grow at moderate rates this decade. However, the slight increase seen in the higher end of the growth spectrum for this decade in fact reflects relatively solid growth in the decade to date.

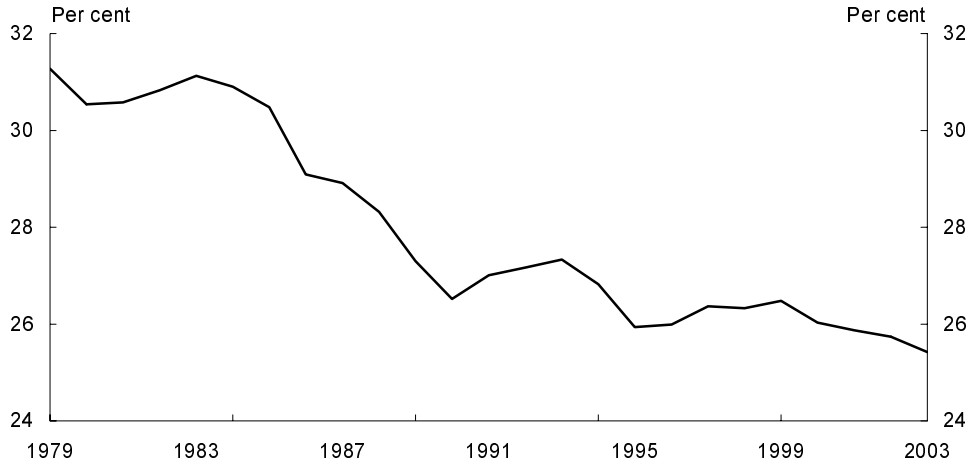
Even after allowing for relatively high assumptions about population growth, this is likely to be overcome by the cumulative effects of demographic trends in recent decades. Population growth amongst cohorts of typical workforce age is expected to slow over the remainder of this decade.

People not inside the labour force

The composition of the pool of people not inside the labour force (NILF) is potentially a significant source of additional labour force participants.

In an aggregate sense, Australia's continued solid labour market outcomes has seen a decline in the proportion of people of work force age that remain outside the labour force (Chart 17).

Chart 17: Proportion of people aged 15-64 NILF
(Year-average)



Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

As this proportion declines further, policy may have to carry a greater role in encouraging these people to participate in the labour market. Indeed, the rate of decline in the proportion of people remaining outside the labour force appears to have been modest in recent years.

The composition of the pool of persons NILF will be an important consideration in shaping policy. The total number of people NILF who would like to work is estimated by the ABS to be around 1.2 million.[14] Yet, significantly, most of them (around 95 per cent) are not actively seeking work, and around one third of them are unable to start work within a month.

Perhaps of most direct relevance is the group of around 830,000 persons that are classified as being NILF, but characterised as being marginally attached to the labour force.[15] This group is largely comprised of persons that would like to work and are available to commence work within four weeks, but are not actively searching for work.

14 *Persons Not In The Labour Force, Australia,* ABS cat. no. 6220.0 (September 2003). This Australian Bureau of Statistics publication presents information about persons aged 15 to 69 who are not in the labour force. This will not precisely align with estimates of typical workforce age (generally defined as ages 15 to 64) elsewhere in this article.

15 The Australian Bureau of Statistics defines marginal attachment as persons not in the labour force, but either: wanting to work and are actively looking for work but are not available to start work in the reference week; or wanting to work and are not actively looking for work but are available to start work within four weeks. ABS cat. no. 6220.0.

Nevertheless, of the 3.9 million people outside the labour force (aged between 15-69), many of them — around 2.4 million people — do not want to work for a variety of reasons. Encouraging labour market participation among this group may be difficult.

It is possible to argue that many people currently outside the labour market may not be able to work full-time, which may make entry to the workforce more difficult. However, examination of gross flows data for the Australian labour force suggests that people NILF who find jobs are initially more likely to find part-time employment than full-time employment.[16] Part-time employment may therefore provide a stepping-stone to labour force participation for some people.

As population growth is likely to slow significantly in coming decades, this will place further emphasis on the need to remove disincentives to work — for example, in order to call on part-time workers to expand their amount of work, or to encourage further people to actively participate in the labour market. Multi-factor productivity gains will also become increasingly important.

Key themes and conclusions

Australia has experienced solid employment growth and a gradual reduction in its unemployment rate in recent years. However, aggregate labour market outcomes can mask some significant compositional changes.

At the industry level, there has been a range of compositional changes in the drivers of economic growth. Strong domestic demand in the past couple of years has seen robust employment outcomes, but this has been partly offset by a drag on growth from a drought affected farm sector and the impact of generally weak external conditions on segments of industries such as manufacturing.

Moderate labour market outcomes have generally been experienced by most States, with gradual declines in unemployment rates. Queensland has experienced relatively stronger employment growth recently, which reflects its stronger population growth.

There is also reason to believe there is a potential source of additional labour supply in the economy, which resides in the growing pool of part-time workers. The ability of part-timers to work extra hours or change work patterns may assist the ability of Australian businesses to respond to changing economic conditions.

16 Gross flows data available from *Labour Force, Australia*, Australian Bureau of Statistics cat. no. 6203.0. Calculations based on average proportions of people not in the labour force that shift to part-time employment rather than full-time employment.

Nevertheless, the projected age composition of Australia's population points to slower growth in the number of people of typical work force age. This is likely to act as a drag on employment growth before the end of this decade.

Policy may therefore play an increasingly significant role in encouraging further participation, removing disincentives to work, and discouraging early retirement. Indeed, the pick up in labour market activity amongst older cohorts in Australia in the past couple of years suggests that such change is possible.

Appendix 1: Industry employment growth by State

Table 1: Industry contributions to employment growth, by State

	Contribution to employment growth - through the year terms						
Industry, Year to Feb 03	*NSW*	*VIC*	*QLD*	*SA*	*WA*	*TAS*	*AUS*
Agriculture, forestry, and fishing	-1.03	-1.27	-1.52	0.15	0.12	-0.50	-0.95
Mining	0.21	0.18	-0.13	0.51	-0.09	0.10	0.13
Manufacturing	1.04	0.57	-0.62	-0.58	1.37	0.66	0.47
Electricity, gas and water	0.13	0.06	-0.10	0.04	0.33	-0.10	0.08
Construction	0.66	0.01	1.60	0.39	-0.11	0.76	0.61
Wholesale trade	0.47	0.75	-0.51	0.26	-0.97	0.20	0.17
Retail trade	1.03	0.47	0.66	1.41	0.38	0.15	0.75
Accommodation, cafes and restaurants	-0.69	0.50	-0.20	-0.13	-0.44	0.15	-0.18
Transport and storage	-0.35	0.46	0.17	1.03	-0.45	0.15	0.07
Communication services	-0.23	0.08	0.30	0.35	0.23	-0.96	0.04
Finance and insurance	0.24	0.41	0.16	0.44	-0.18	0.20	0.23
Property and business services	-0.17	0.24	1.25	-0.39	1.19	0.35	0.32
Government administration and defence	0.75	0.37	0.56	0.44	-0.42	0.71	0.44
Education	0.28	0.39	0.78	-0.51	0.33	0.96	0.38
Health and community services	0.01	0.19	0.68	-0.39	0.93	-0.96	0.19
Cultural and recreational services	-0.25	-0.08	0.45	-0.17	-0.05	-0.45	-0.05
Personal and other services	0.58	0.21	0.63	0.09	0.44	-0.50	0.44
Total	***2.66***	***3.54***	***4.15***	***2.93***	***2.63***	***0.96***	***3.13***

	Contribution to employment growth - through the year terms						
Industry, Year to Feb 04	*NSW*	*VIC*	*QLD*	*SA*	*WA*	*TAS*	*AUS*
Agriculture, forestry, and fishing	-0.06	0.59	0.24	0.10	0.10	0.65	0.21
Mining	-0.01	-0.07	0.35	-0.01	0.60	-0.10	0.10
Manufacturing	-1.28	-0.83	0.72	1.31	-1.40	1.10	-0.52
Electricity, gas and water	-0.02	0.00	0.21	-0.06	-0.19	0.30	0.01
Construction	-0.02	0.19	0.15	-0.52	0.55	-0.10	0.09
Wholesale trade	-0.85	0.18	0.70	0.32	0.86	-0.65	-0.02
Retail trade	0.43	-0.28	0.42	-1.13	-0.90	0.20	-0.02
Accommodation, cafes and restaurants	0.52	0.26	-0.33	-0.10	-0.06	1.05	0.19
Transport and storage	0.69	-0.14	0.07	-1.16	0.59	0.45	0.20
Communication services	-0.06	-0.17	0.00	0.25	-0.25	0.25	-0.09
Finance and insurance	0.11	-0.29	0.11	-0.08	-0.16	-0.85	-0.07
Property and business services	0.63	-0.17	0.14	0.83	0.67	0.60	0.35
Government administration and defence	-0.09	0.19	-0.26	-0.21	-0.46	0.15	-0.02
Education	0.18	0.20	0.22	0.11	-0.17	-0.85	0.12
Health and community services	0.26	0.93	0.35	-0.18	0.81	2.00	0.47
Cultural and recreational services	-0.01	0.44	0.04	0.23	0.38	-0.35	0.17
Personal and other services	-0.03	-0.49	-0.76	0.46	0.06	0.85	-0.24
Total	***0.41***	***0.54***	***2.36***	***0.15***	***1.05***	***4.65***	***0.92***

Source: Australian Bureau of Statistics cat. no. 6291.0.55.001.

Appendix 2: Decomposing employment growth — a shift share analysis

Using an adapted shift share formula we found that 73.5 per cent of the increase in part-time employment in the past 20 years was due to the overall change in the proportion of part-time employment to total, and 23.6 per cent of the change was due to changes in industry composition (Table 2).

Table 2: Shift share analysis part-time employment growth 1984-2004

Part-time employment	Per cent change	Proportion of change
Change in the ratio of part-time to total employment	9.9	100
Behavioural effect	7.3	73.5
Composition effect	2.3	23.6
Interaction	0.3	2.9

In the shift share equation the first effect (behavioural effect) describes the overall change in the proportion of part-time employment to total employment. The second (composition effect) describes the change in the aggregate ratio due to changes in the relative size of industries. The third or interaction effect is a residual, which represents the interaction of the first and second effects. Typically the interaction effect is quite small.

The growth in part-time employment across industries explains the majority of the pick up in overall part-time employment growth. However, changing industry composition in the economy, with industries having a higher concentration of part-time workers growing faster than others, also explains some of the growth in part-time employment (Table 2).

Shift share equation

$$\Delta pt = \sum_{i}^{n} \Delta pt_i \times s_{i,t} + \sum_{i}^{n} \Delta s_i \times pt_{i,t} + \sum_{i}^{n} \Delta s_i \times \Delta pt_{i,t}$$

where

pt is the ratio of part - time employment to total employment

$pt_{i,t}$ is the ratio of part - time employment to total employment for industry i in the base period

Δpt_i is change in the ratio of part - time employment to total employment for industry i

$s_{i,t}$ is the size of industry i in the base period

Δs_i is change in the size of industry i

Appendix 3: Assumptions underpinning population projections

Background

The Australian Bureau of Statistics has produced three series of population projections. The following paragraphs briefly describe the assumptions behind these projections. The three scenarios are broadly described as:

- Series A — High Fertility, High Migration and High Life Expectancy;
- Series B — Medium Fertility, Medium Migration and Medium Life Expectancy; and
- Series C — Low Fertility, Low Migration and Medium Life Expectancy.

Summary of assumptions

Fertility

For the fertility component, assumptions are made on future total fertility rates (TFRs), age-specific fertility rates, and for the sex ratio at birth. These assumptions are formulated on the basis of past demographic trends, both in Australia and overseas. The three assumptions for Australia's future levels of fertility are:

- The TFR will reach 1.8 babies per woman in 2011, and then remain constant thereafter (high assumption);
- The TFR will decline to 1.6 babies per woman by 2011, and then remain constant (medium assumption); and
- The TFR will decline to 1.4 babies per woman by 2011, and then remain constant (low assumption).

Mortality

For the mortality component, assumptions are made for future levels of life expectancy at birth for males and females. There are two long-term mortality assumptions; both have life expectancy at birth increasing from the 1999-2001 level of 77.0 years for males and 82.4 years for females to:

- 84.2 years for males and 87.7 years for females in 2050-51 (Medium assumption). Under this assumption, life expectancy at birth will increase by 0.30 years for males and 0.25 years for females per year until 2005-06, following which improvement will gradually decline until 2050-51.

- 92.2 years for males and 95.0 years for females in 2050-51 (high assumption). Under this assumption the assumed rate of mortality improvement (0.30 years for males and 0.25 years for females per year) will continue through to 2050-51.

Under both assumptions the pattern of change in age-sex specific death rates derived from 1991-2001 data has been assumed to continue until 2050-51. The pattern of the assumed rate of change in age-specific death rates is scaled to conform to the predetermined life expectancies at birth for future years.

Overseas migration

Overseas arrivals on a yearly basis are determined by the Migration and Humanitarian Programs announced by the Australian Government, together with the movement of New Zealand citizens and other long-term migrants who do not come under the Migration Program. Net overseas migration levels (NOM) take into account overseas arrivals and overseas departures on a permanent or a long-term basis. The three assumptions that are made:

- Annual NOM gain will be 125,000 by 2005-06 (high assumption);
- Annual NOM gain will be 100,000 by 2005-06 (medium assumption); and
- Annual NOM gain will be 70,000 by 2005-06 (low assumption).

The impact of the 2002-03 drought on the economy and agricultural employment

Lan Lu and David Hedley[1]

This article seeks to document some of the economic effects of the 2002-03 drought, presenting a summary of the major macro-economic impacts before discussing the effect on agricultural employment in light of longer term trends. The article then examines the agricultural outlook and prospects for recovery from drought.

While agriculture accounts for a relatively small proportion of the aggregate economy, the drought had a significant impact. The drought has led to a decline in agricultural employment to an unprecedented low. While the grain sector has recovered with a record winter crop in 2003-04 a full recovery from the drought is still some way off as serious rainfall deficiencies persist in some areas and have re-emerged in others.

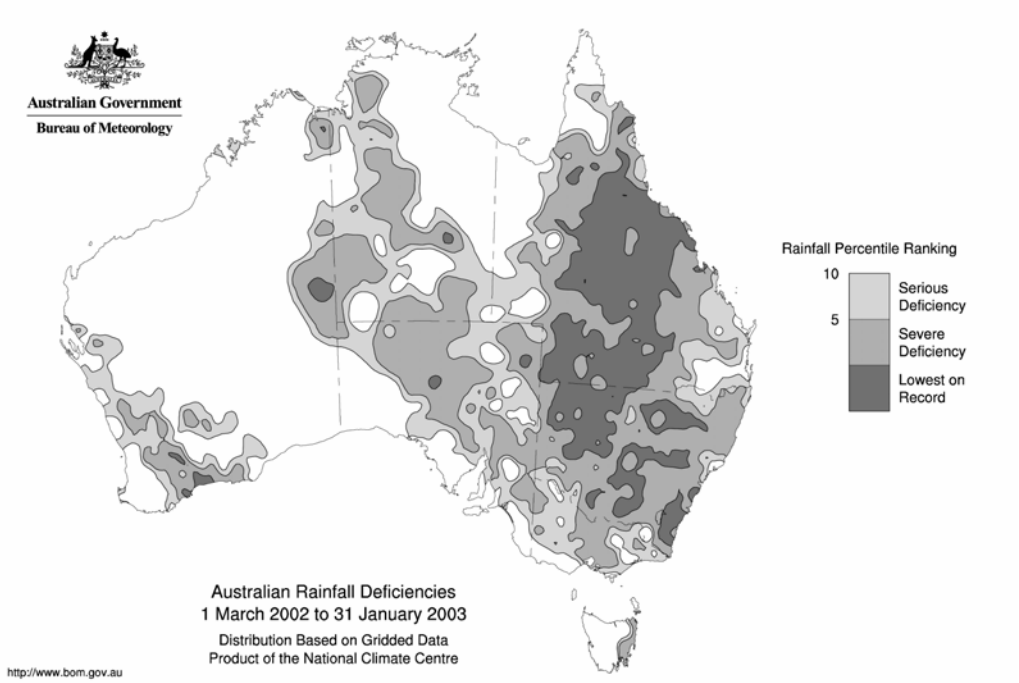
1 Domestic Economy Division, Australian Government Treasury. The authors would like to thank Jason Russo for some of the initial ideas for this article. This article has also benefited from helpful comments from Martin Parkinson, Paul O'Mara, Jim Hagan and Jason Allford. The views in the article are those of the authors and are not necessarily those of the Australian Treasury.

Introduction

Over much of 2002-03, drought affected significant areas of rural Australia. About 90 per cent of New South Wales, 65 per cent of Queensland and 48 of 59 municipalities in Victoria had been officially drought declared by August 2003. Below average seasonal conditions were also affecting parts of South Australia, Tasmania Western Australia and the Northern Territory.

Rainfall deficiencies were widespread with 56.1 per cent of Australia seriously or severely rainfall deficient for the 11 months from March 2002 to January 2003 (Map 1).

Map 1: Areas effected by drought



Source: Bureau of Meteorology.

Clearly, the severity and extent of this drought had significant social implications for rural communities. This impact was partly ameliorated by real farm incomes reaching their highest level since the 1980s prior to the drought.[2] Nevertheless, the scale of this drought led to significant economic disruption and individual hardship.

The drought has had a significant contractionary impact on the economy, far greater than the relative size of the farm sector might suggest. To summarise the economic effects of the drought, farm gross domestic product fell by 24.3 per cent through the

2 Real farm incomes have been calculated using headline Agricultural income from the national accounts, deflated by the Consumer Price Index.

year to the June quarter 2003, rural exports fell by 26.6 per cent, and agricultural income fell by 46.2 per cent. The drought is estimated to have directly reduced agricultural employment by about 100,000 people.[3] Drought related reductions in production have also contributed to increases in food prices since mid 2002.

The economic performance of rural and regional Australia has improved significantly during the course of 2003-04, largely reflecting much improved grain production. However, livestock enterprises affected by the drought will take some time to recover, and very dry conditions have returned to many parts of Southern Australia in recent months. Livestock prices remain high, particularly for quality breeding stock. As a result cattle numbers are projected by the Australian Bureau of Agricultural and Resource Economics (ABARE) to take several years to recover from the drought. Furthermore, depleted water storages in many areas has led to a reduction in planting of irrigated summer crops and also severely affected dairying relying on irrigated pasture.[4] Horticultural production was also affected by drought.

The initial recovery from the drought during 2003-04 has been reflected in an overall improvement in grain production. Following the aftermath of the drought, farmers turned to cropping where possible in an attempt to improve farm incomes, leading to a record winter cropping area being planted. Winter crop production has been the primary contributor to growth in agricultural output in 2003-04. However, assuming normal seasonal conditions, ABARE predicts modest growth in farm production for 2004-05, reflecting a moderation in winter crop production while the recovery in the livestock and irrigated sectors will take some time.

The article first discusses the overall impact of the drought on the Australian economy, including the impact on farm GDP, farm income, rural exports, agricultural employment and the Consumer Price Index (CPI) measure of food prices. The second section illustrates the impact of drought on agricultural employment. In the third section, the article illustrates some other longer-term trends in agricultural employment and the sector more generally. The final section of the article discusses the outlook for the agricultural sector.

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3 This estimate uses the headline ABS industry employment category for agriculture - Agriculture forestry and fishing: This data has been adjusted for a structural break using the methodology supplied by the ABS. The period used to estimate the total employment effect of the drought on agricultural employment is from the December quarter 2001 to the March quarter 2003; this period incorporates the trough associated with the drought and the peak prior to the drought.

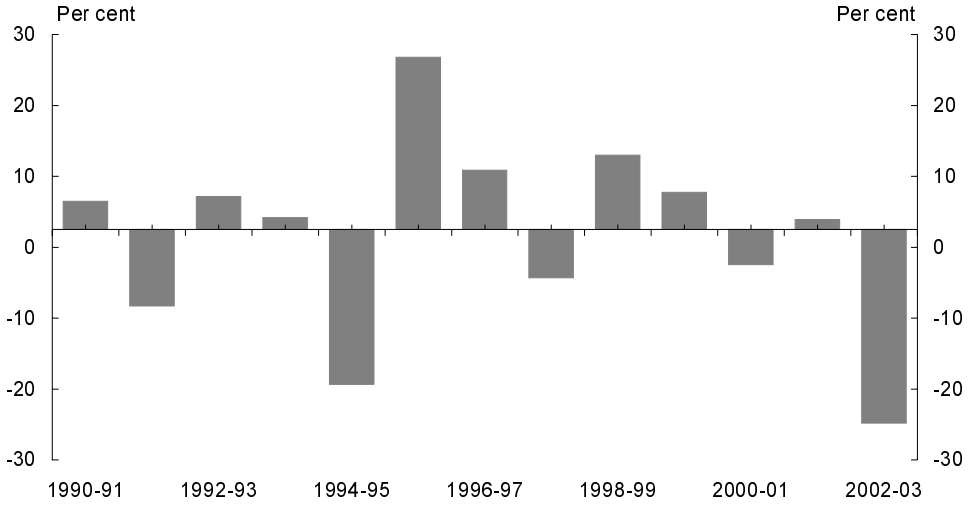
4 For a more detailed description of the impact of the drought on specific sectors see the Australian Bureau of Agricultural and Resource Economics, *Australian Commodities Outlook 2004*, vol. 11, no. 1, March quarter 2004.

Broad economic impact of the drought on the Australian economy

Whilst the farm sector accounts for only around 3½ per cent of the economy and around 4½ per cent of aggregate employment, the drought subtracted almost 1 per cent from Australia's GDP growth in 2002-03. The total impact of the drought on agricultural employment is estimated to have subtracted around 1 percentage point from employment growth. The overall effects are likely to have been significantly larger once account is taken of broader downstream effects.

During the course of 2002-03, the drought had a dramatic effect on most aspects of agricultural activity. In 2002-03, farm Gross Domestic Product fell by 24.8 per cent, directly subtracting 0.9 of a percentage point from overall GDP growth (Chart 1). This was a larger decline than recorded during the last major drought in 1994-95, when farm production fell by around 20 per cent.

Chart 1: Farm Gross Domestic Product
(Year average, growth — chain volume measure)



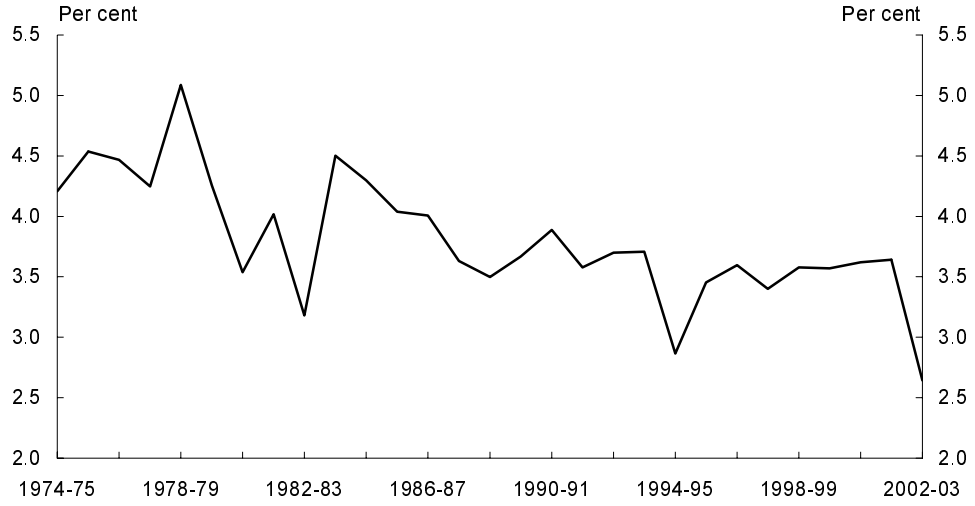
Source: Australian Bureau of Statistics, *National Income Expenditure and Product, Australia*, cat. no 5206.0, Canberra, 2003.

Farm production as a proportion of total production has been declining over time as the Australian economy has grown and diversified. That is, production in the farm sector has grown at a relatively slower rate than the average rate of the rest of the economy. This is not surprising considering the rapid growth in services industries. A similar story to that of farm production is found in the mining sector.

Whilst the farm sector has on average accounted for around 3½ per cent of Australian production; it has contributed around one-fifth of total exports on average.

Agriculture's share of GDP declined from around 3½ per cent in 2001-02 to around 2½ per cent in 2002-03 - an historical low (Chart 2).

Chart 2: Agriculture share of total production
(Annual, chain volume measure, gross value added)

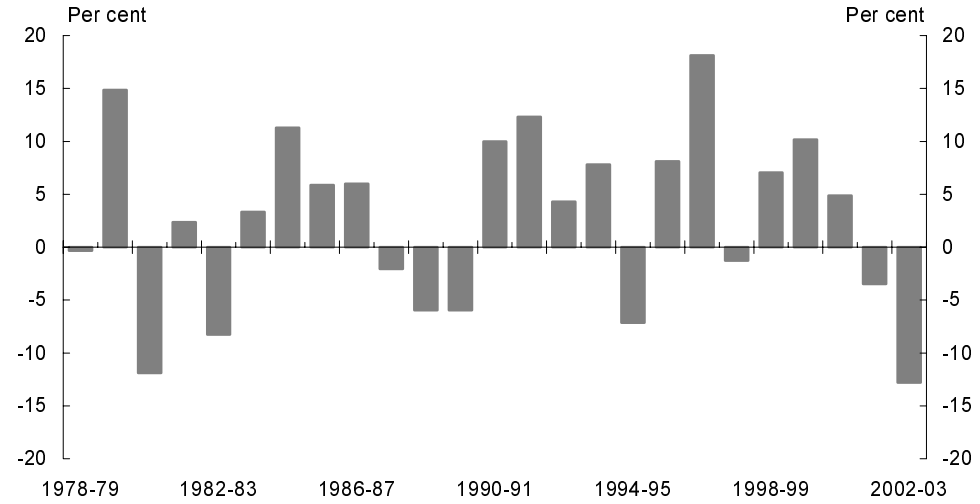


Source: Australian Bureau of Statistics, *National Income Expenditure and Product, Australia*, cat. no. 5206.0, Canberra, 2003.

As a result of the drought, rural exports declined by around 13 per cent in 2002-03. This is the largest decline in rural exports in the history of the series, which began in 1975-76 (Chart 3), and subtracted around 2½ percentage points from total export growth in 2002-03.

The fall in grains exports contributed the largest amount to the decline in total rural exports. Grains exports fell by around 32 per cent in 2002-03. Exports of wool and sheepskins declined by around 20 per cent in 2002-03. Exports of meat products remained stable, growing by 1¼ per cent over the same period, consistent with increased slaughtering and the rundown in herd numbers associated with drought.

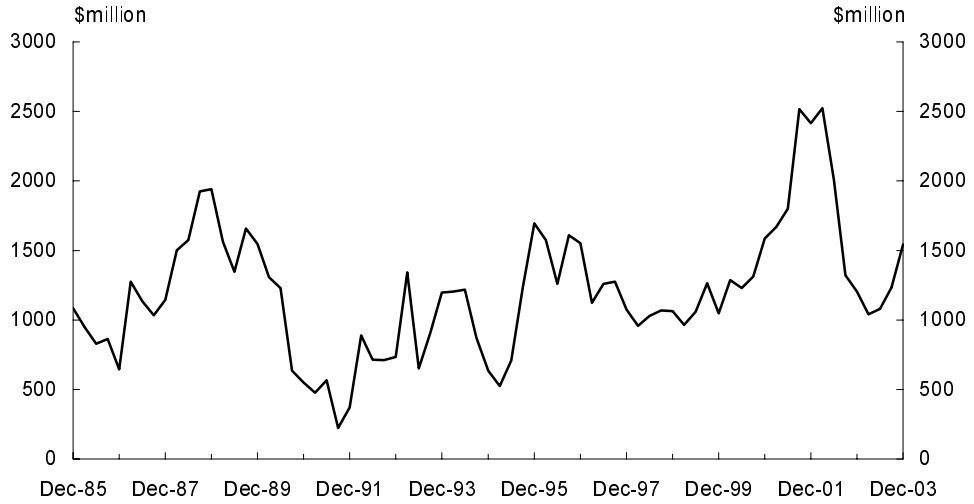
Chart 3: Rural exports growth
(Annual, chain volume measure)



Source: Australian Bureau of Statistics, *Balance of Payments and International Investment Position, Australia*, cat. no 5302.0, Canberra, 2003.

Real farm income, which takes into account changes in production, farm prices and farm costs, fell by 51 per cent in 2002-03 (Chart 4). The drought and an appreciation in the Australian dollar over the course of the year contributed significantly to the decline.

Chart 4: Real agricultural income
(Quarterly)

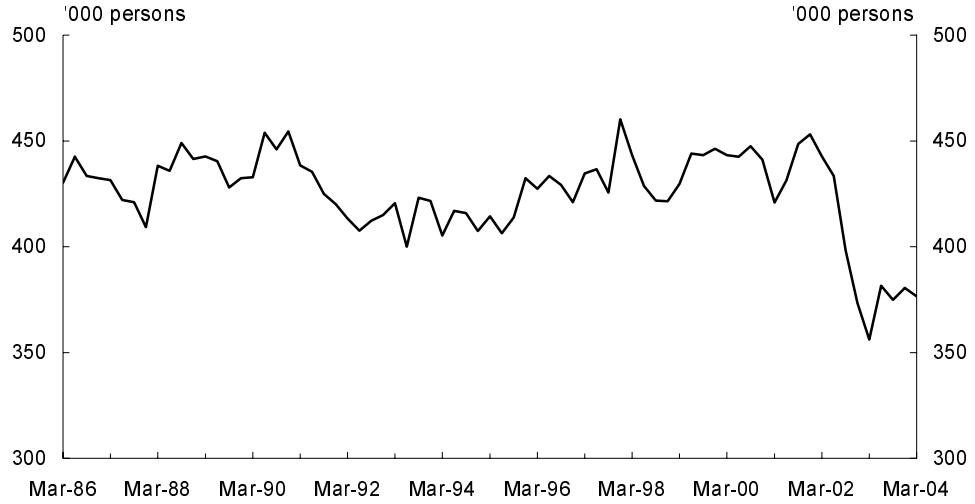


Source: Australian Bureau of Statistics, *National Income Expenditure and Product, Australia*, cat. no. 5206.0, Canberra, 2003. Australian Bureau of Statistics, *Consumer Price Index, Australia*, cat. no. 6401.0, Canberra, 2003.

Real farm incomes, however, grew by 16 per cent in 1999-2000, 32 per cent in 2000-01 and 49 per cent in 2001-02. As a result, the farm sector, in aggregate, entered the 2002-03 drought in better financial shape had income growth in the preceding years been more moderate. That said not all regions experienced average seasonal conditions in these years. While the aggregate financial position was strong prior to 2002-03, conditions differed markedly between regions.

The impact on agricultural employment was large enough to affect economy wide employment growth. It is estimated that around 100,000 jobs were lost in agricultural employment as a direct result of the drought, meaning that around 1 in 4 jobs were lost in the agricultural sector (Chart 5). The employment effect has been larger than that of any drought since reliable statistics became available in the 1960s.

Chart 5: Agriculture, forestry and fishing employment
(Quarterly, seasonally adjusted)



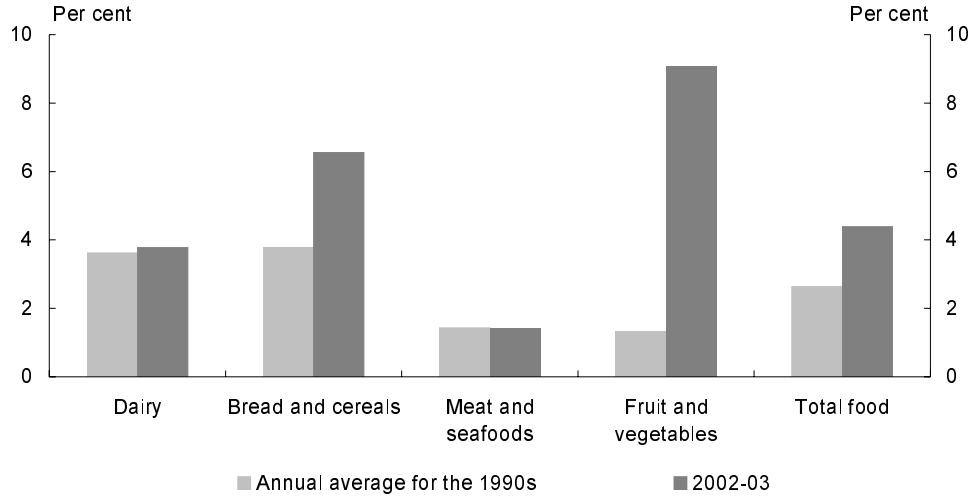
Source: Australian Bureau of Statistics, *Labour Force, Australia, Detailed*, cat. no. 6291.0.55.001, Canberra, 2004.

An important impact of the drought felt outside of rural Australia was the effect on food prices, which increased on average by 4.4 per cent over 2002-03 compared with a general increase in the Consumer Price Index of 2.7 per cent (Chart 6).

Drought related shortages contributed to increases in food prices from mid 2002; food prices accounted for 18.3 per cent of the Consumer Price Index in the December quarter 2003. The prices of bread and cereal products increased by 6.6 per cent in the year to the June quarter 2003, compared with a general increase in the Consumer Price Index of 2.7 per cent. Over the same period, fruit and vegetable prices increased by 9.1 per cent, egg prices by 11.7 per cent and dairy products by 3.8 per cent. The prices

of some other basic food products, such as honey, also increased significantly over this period. Meat prices typically fall in the early stages of a drought, as animal slaughtering increases, and then rise later as supply shortages become evident. Consistent with this pattern, meat prices did not increase significantly as a result of the drought until mid to late 2003.

Chart 6: Year-ended growth in selected food sub-groups



Source: Australian Bureau of Statistics, *Consumer Price Index, Australia*, cat. no. 6401.0, Canberra, 2003.

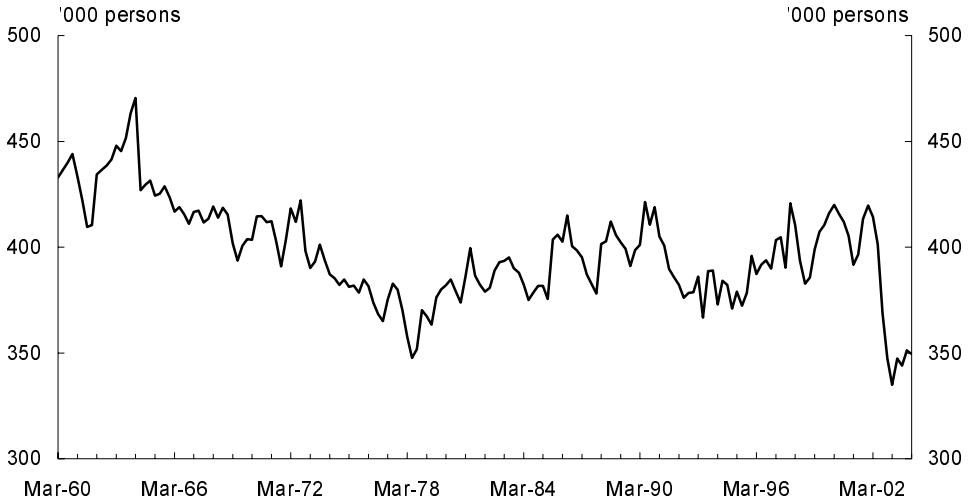
The impact of drought on agricultural employment

Using a longer series of farm employment clearly shows the severity of the employment shock caused by the 2002-03 drought (Chart 7).[5] The size of the decline in farm employment reflects that the drought was spread broadly across the states covering many employment intensive agricultural regions and that the impact of the 2002-03 drought covered both cropping and livestock regions, which are the largest employers in the agricultural industry.

Following the drought in the early 1990s farm employment had been increasing until the December quarter 2001. Normally a delay would be expected between the deterioration in seasonal conditions and declines in employment. However, farm employment declined almost concurrently with farm production, until reaching a trough in the March quarter of 2003.

5 Farm employment is defined as Agricultural forestry and fishing employment (published by the ABS) less the forestry and fishing components. These data suggest that the drought subtracted around 85,000 jobs from farm employment. This indicates that around 15,000 jobs were lost in forestry and fishing industries over the same period. However, the farm employment decline still reflects the largest impact of any drought since the early 1960s.

Chart 7: Farm employment
(Quarterly, seasonally adjusted)

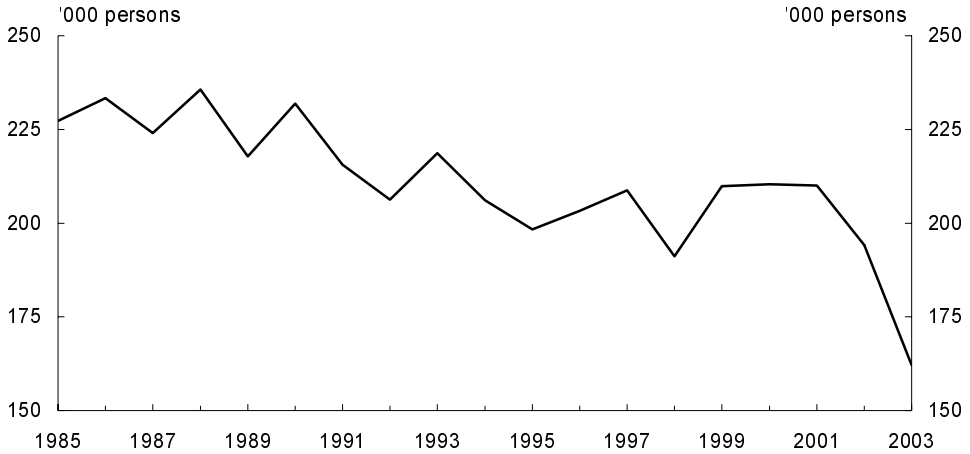


Source: Australian Bureau of Statistics, *Treasury special request files*, Canberra, 2004.

The trough in agricultural employment in March 2003 has been followed by a very modest pick-up in employment in the agriculture sector to March 2004, indicating that a recovery in employment is now tentatively underway. Employment in the agriculture sector is expected to recover moderately in 2003-04 and should continue in 2004-05 assuming a return to average seasonal conditions. However, until the livestock sector recovers more substantially from the drought, agricultural employment is expected to remain below pre-drought levels.

The grain, sheep and beef cattle farming industries accounted for the majority of the decline in agricultural employment (Chart 8). The grain, sheep and beef cattle industries are the largest employers in the sector and shed around 73,000 or around one third of employees from their collective employment. This accounted for 73 per cent of the overall decline in agricultural employment.

Chart 8: Grain, sheep and beef farming employed persons[6]
(Yearly average)

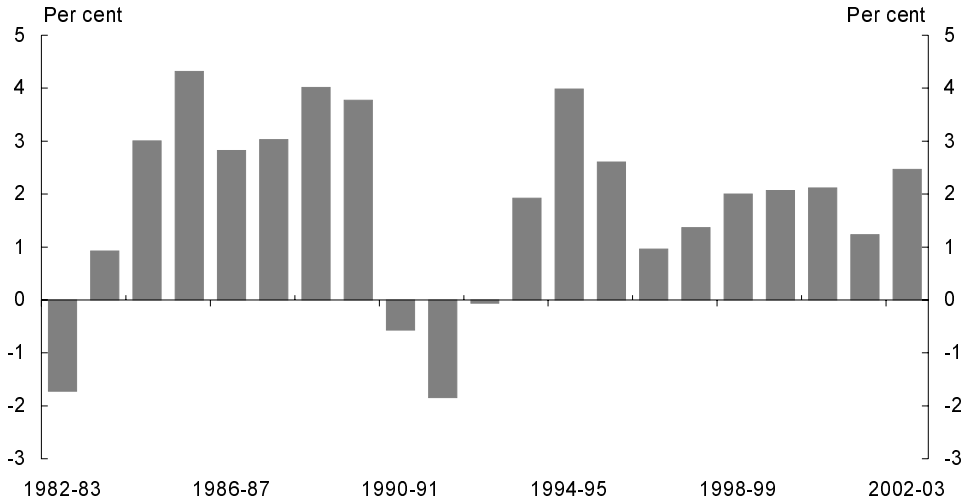


Source: Australian Bureau of Statistics, *Labour Force, Australia, Detailed*, cat. no. 6291.0.55.001, Canberra, 2003.

Although employment in the agriculture sector declined significantly during the drought, total employment in Australia increased by around 225,000 or 2.5 per cent in 2002-03 (Chart 9). Whilst the drought had a devastating impact on agricultural employment, the strength of the broader domestic economy saw above trend growth in total employment. In other words, at an aggregate level, employment declines related to the drought were offset by the strong growth in other sectors. In particular, construction employment remained at high levels while employment in retail trade and property and business services grew solidly.

6 This data can be subject to large standard errors, and should be considered as indicative of broad trends rather than exact point estimates.

Chart 9: Total employment across all industries
(Annual, growth)



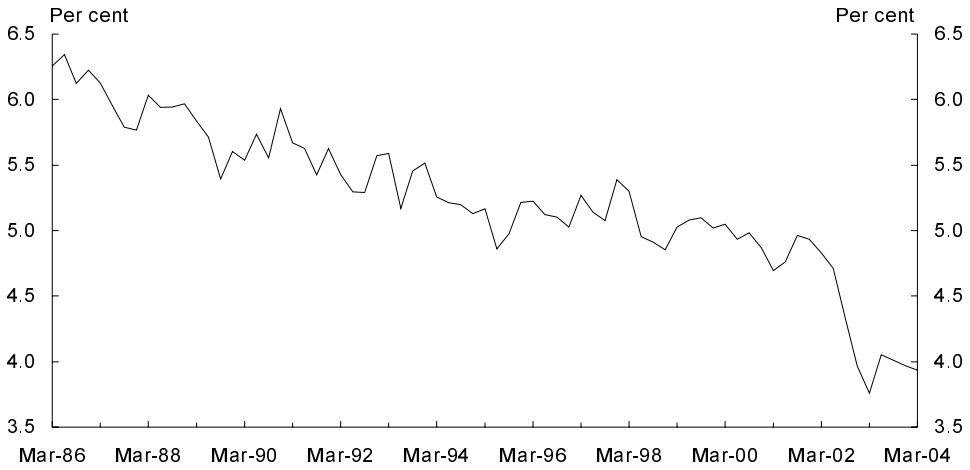
Source: Australian Bureau of Statistics, *Labour Force, Australia*, cat. no. 6202.0, Canberra, 2004.

Broader trends in agriculture and agricultural employment

Agriculture's share of total employment has trended downward over time; reflecting the overall trend for Australian industry employment to be largely driven by employment growth in services (Chart 10). This downward trend in the share of agriculture as a proportion of total employment is also reflected by agriculture's declining share of overall production in the Australian economy (Chart 2).

In absolute terms, however, employment was increasing on average until the December quarter 2001 even though the share was declining.

Chart 10: Agriculture share of total employment
(Quarterly)



Source: Australian Bureau of Statistics, *Labour Force, Australia, Detailed*, cat. no. 6291.0.55.001, Canberra, 2004.

Typically, strong labour productivity growth has meant that agriculture's share of overall employment has fallen faster than the sector's share of overall production since the mid-1980s (when this data series begins).

Farm productivity growth reflects a mix of growth in productivity, capital intensity and improved productivity in land resource use. Solid growth in farm productivity has allowed production to increase at a faster rate than employment.[7] In the farm sector between 1985 and 2003 industry gross value added has increased by 27 per cent, while part-time employment has increased by 16 percentage points and average hours worked per head has declined by 4 hours. This combination of factors implies sharply higher farm productivity. For example, productivity gains have driven the substantial increases in grains production in Australia over the past three decades.[8]

Productivity growth in agriculture has outpaced productivity growth in the broader economy on an hour's basis (Chart 11). Average productivity growth for the economy on an hours basis is around 2 per cent, while average productivity in the agricultural sector is around 3 per cent.

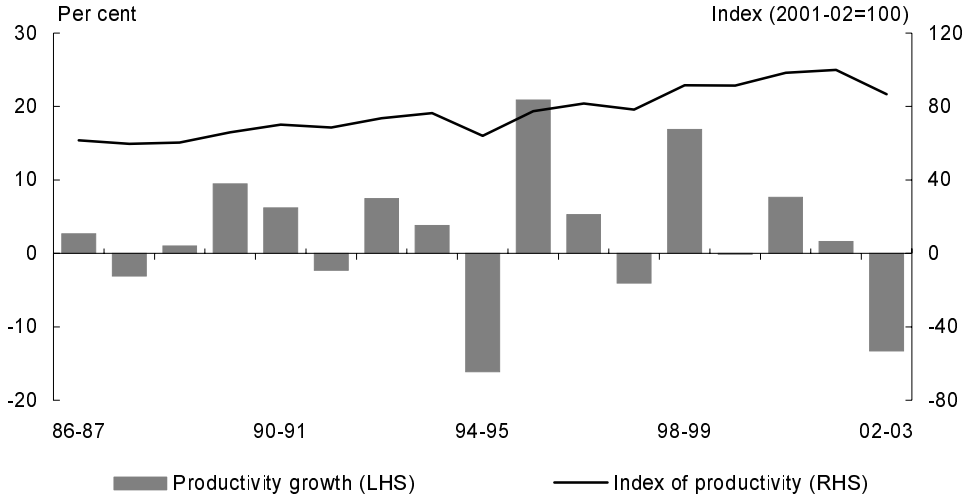
It can be seen that productivity growth, like other agricultural variables, is affected by the seasonal pattern that defines farm production. The decline in productivity growth

7 For the purposes of this article farm productivity is measured a Gross product per hour worked.

8 Australian Bureau of Agricultural and Resource Economics, *Australian Grains 04.1: Grains Industry Performance & Outlook.*

caused by the drought in 2002-03 was very similar to that in 1994-95. We expect 2003-04 to show a recovery in productivity growth similar to that in 1995-96 (Chart 11).

Chart 11: Productivity in agriculture
(Gross product per hour worked, annual growth)



Source: Australian Bureau of Statistics, *National Income Expenditure and Product, Australia*, cat. no. 5206.0, Canberra, 2003.

The number of employers increased leading up to the drought peaking in 2001, before declining to the lowest level recorded by the end of 2003 (Chart 12).[9]

In the mid 1990s, the average number of employers on an annual basis remained reasonably stable. However, the average number of employers over the 1990s was lower and less volatile than in the late 1980s. This suggests that a structural change may have occurred in the early 1990s, which was only partially offset towards the end of the decade. Increases in employer numbers between 1999 and 2001 reflected generally favourable conditions in the sector when farm incomes and commodity prices rose significantly. The drought subsequently reduced the number of employers by almost 15,000, to the lowest level recorded in the series in 2003. Falling numbers of employers in the sector also suggests a more general consolidation is occurring over time.

9 This data only includes persons employing other workers, that is, excluding the pool of self-employed.

Chart 12: Employers and average employees in the agricultural sector

Source: Australian Bureau of Statistics, *Labour Force, Australia, Detailed*, cat. no. 6291.0.55.001, Canberra, 2003.

Employment trends in the agricultural sector and the impact of drought are also reflected in the average number of employees (Chart 12).[10]

Consistent with consolidation in the agriculture sector, the average number of employees per agribusinesses enterprise has trended upward over time. Interestingly, the drought did not lead to a reduction in the average number of employees — this suggests that the rate of decline in the number of employers due to the drought has exceeded the rate of decline in the number of employees. Alternatively, it may suggest that the decline in employment (and employers) may have been concentrated in a decline in the number of smaller employers (that is, employers with a below-average number of employees).

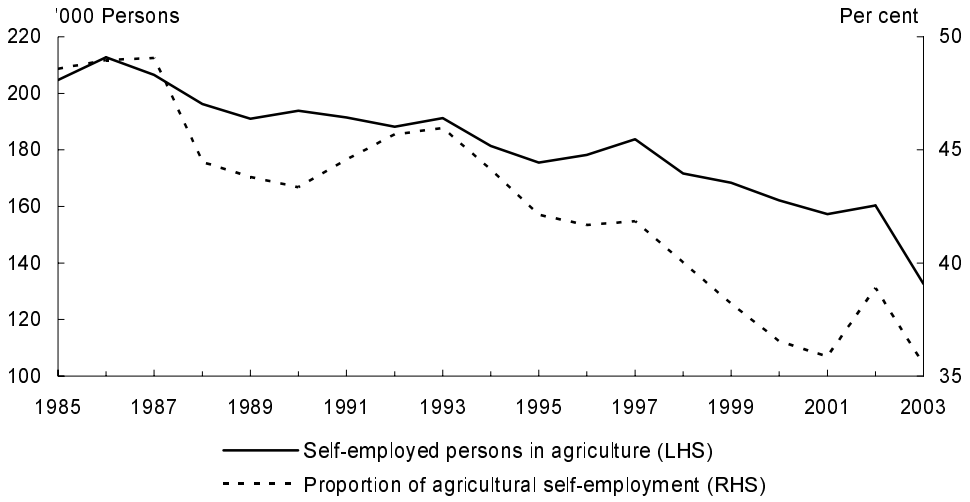
The number of self-employed persons in the agricultural sector is in longer-term decline, falling from over 200,000 persons in 1985 to around 130,000 persons in 2003. Interestingly, the number of self-employed persons in the agriculture sector grew by 3,000 persons in 2002, leading up to the drought — this may have reflected downsizing of very small agribusinesses (for example, 2 or 3 persons) to the 'owner-level'; that is, carrying no staff and therefore shifting from 'employer' status to the pool of self-employed. Similarly, there was an increase in the proportion of self-employed persons in the industry in 2002 (Chart 13).

The proportion of self-employed persons rose in 2002 reflecting that the number of self-employed persons increased whilst total agricultural employment declined

10 For the purposes of this article, the average number of employees is measured as the ratio of employees to employers, abstracting from the pool of self-employed.

sharply (Chart 13). In 2003, the declining proportion of self-employment in agriculture continued. Over the history of the series the proportion of self-employment has declined from around half to around a third of the work force. This suggests that consolidation in the industry has been ongoing from the mid 1980s.[11]

Chart 13: Self-employed persons and proportion of self employed in agriculture



Source: Australian Bureau of Statistics, *Labour Force, Australia, Detailed*, cat. no. 6291.0.55.001, Canberra, 2003.

Outlook for the agricultural sector[12]

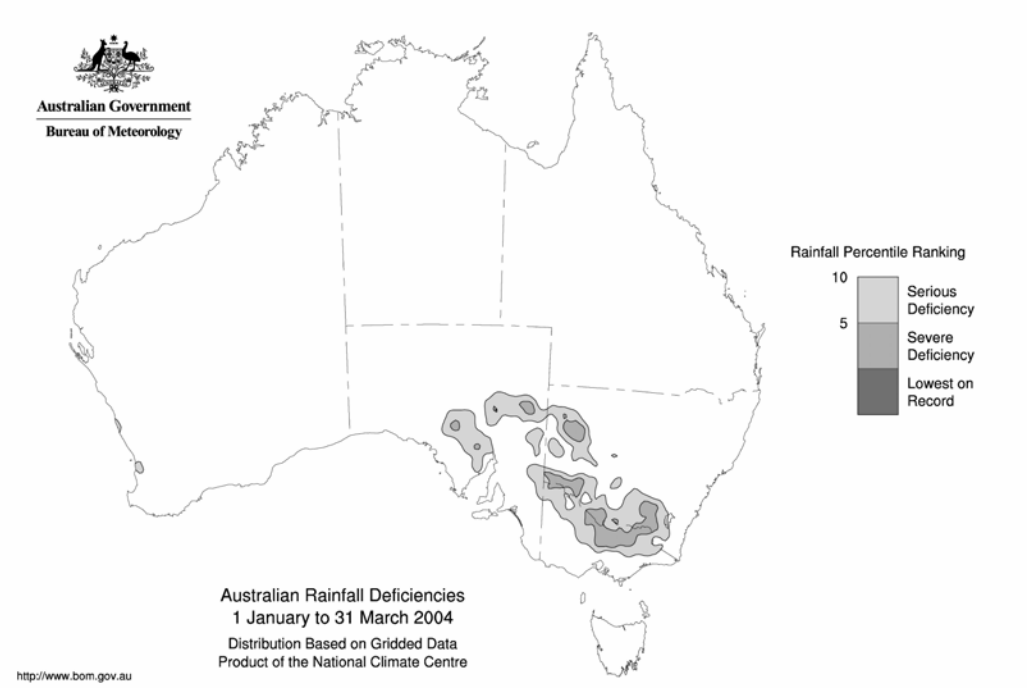
The Bureau of Meteorology has announced that heavy monsoon rain during March removed or significantly eased long-term rainfall deficiencies along the Queensland coast north of Ingam; nevertheless, serious and severe, rainfall deficiencies remain further south along the Queensland coast, through inland eastern Australia, in the southeast of the mainland and in northwest Western Australia (Map 2).[13]

11 For more detailed information on change in Australian agriculture refer to the Australian Bureau of Statistics publication no. 2055.0 — *The Micro Dynamics of Change in Australian Agriculture: 1976 – 2001.*

12 The outlook section of this article relies on the information supplied in Australian Bureau of Agricultural and Resource Economics, Australian commodities outlook 2004, vol. 11, no. 1, March quarter 2004.

13 Statement on Drought for the 21- month period ending 31 March 2004. Issued 5 April 2004 by the National Climate Centre.

Map 2: Areas suffering continuing rainfall deficiencies[14]



Source: Bureau of Meteorology.

In the March quarter publication of *Australian Commodities Outlook 2004*, ABARE published information on the impact of the 2002-03 drought and how it has differed from previous droughts in 1982-83 and the early 1990s.[15] ABARE suggests that much of the difference is related to changes in resource use; agricultural enterprises have moved towards using more arable land for cropping rather than livestock or wool production due to the greater profitability of cropping. As a result much of the impact from the recent drought has occurred through a severe decline in grain production, in contrast to the 1982-83 drought when the majority of the decline in production occurred through the impact on the cattle numbers.

In this vein, the recovery from the drought is also expected to be different. In 1982-83 when the cattle and livestock industries accounted for a larger percentage of total production, farmers were able to switch a relatively larger proportion of resources into crop production due to low livestock numbers — or 'the cash crop effect'. Essentially, farmers take advantage of seasonal conditions to improve income through cropping while livestock numbers are low. Leading up to the most recent drought, the greater

14 Bureau of Meteorology Statement on Drought for the 3-Months 1 January to 31 March 2004.
15 Australian Bureau of Agricultural and Resource Economics, *Australian Commodities Outlook 2004*, vol. 11, no. 1, March quarter 2004.

profitability of cropping over time has resulted in less land being available to switch into cropping from livestock.

Australia is expected to record a record grains harvest in 2003-04, estimated at 41.7 million tones. As a result farm incomes, especially in the grains sector, are expected to have partially recovered in 2003-04. However, the livestock industries will take a longer timeframe to recover, restocking prices remain at high levels and there are few signs of herd rebuilding at present; a full recovery is expected to roll into 2006-07. In addition, very dry conditions have returned to many parts of southern Australia in recent months and the irrigation sector is suffering from low levels of water storage that will continue to affect production.

The winter crop is expected to be slightly lower in 2004-05, as the area sown to grains is expected to decline. Farm incomes are forecast to decline in 2004-05, largely reflecting lower prices. Assuming a return to average seasonal conditions in 2004-05 ABARE expects total farm production to increase; however, aggregate prices received by farmers are expected to fall.

As indicated by the Australian Bureau of Statistics in the December 2003 National Accounts released on 3 March 2004, Gross Agricultural Product at market prices is expected to increase in chain volume terms by 21.4 per cent in 2003-04. This is expected to make a positive contribution of 0.6 percentage points to GDP growth in 2003-04.

The outlook for a recovery in farm employment is inextricably linked to the pattern of seasonal conditions over the next 2-3 years. Assuming a return to average seasonal conditions an orderly recovery in farm employment is anticipated. Nevertheless, employment is expected to take some years to recover to pre-drought levels.

Conclusion

The 2002 drought had a significant impact on the Australian economy. The farm sector subtracted around 1 percentage point from GDP growth and around ¾ of a percentage point from employment growth in 2002-03. These macro-economic effects are very large in comparison with the size of the farm sector — typically around 3½ per cent of GDP.

The drought led to the largest declines in employment on record in the agricultural sector. The negative impact of the drought cost the sector around 100,000 jobs, with almost three-quarters of job losses in the grain, sheep and beef cattle farming industries. The size of the decline in employment, in comparison to other droughts, reflects the widespread nature of the drought across the States.

In aggregate, real farm income growth was relatively strong leading up to the drought. Nevertheless, the sheer scale of the drought would have affected all farmers to some degree, particularity those who had experienced below average rainfall in the period leading up to the beginning of the drought.

An expected record winter grain harvest in 2003-04 will improve farm incomes, but a recovery in livestock is expected to take a number of years, and is currently hampered by the high cost of restocking. Furthermore, depleted water storages in many areas has led to a reduction in planting of irrigated summer crops and irrigated pasture for dairying was also severely affected. The horticultural industry also suffered from the drought.

The outlook for the farm sector has picked up but will require close monitoring as very dry conditions have returned to many parts of southern Australia in recent months. Assuming average seasonal conditions, agricultural employment is expected to recover modestly in 2003-04 and 2004-05 but will remain below pre-drought levels until the livestock and irrigated sectors recover. Variations in seasonal conditions and global markets over the period ahead will determine the prospects for any recovery.

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Developments in the United States labour market

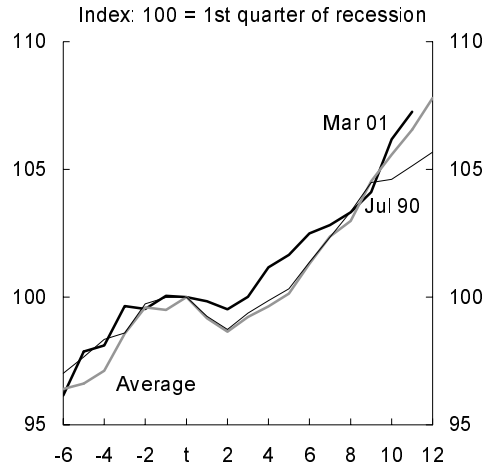
Steven Kennedy and Jason Harris[1]

Continued labour market weakness presents a significant downside risk to the United States recovery. Given the reliance of the global recovery on sustained United States growth, developments in the United States labour market are a key element of the global outlook. This article examines the United States labour market, analyses the composition of the demand and supply for labour, and discusses possible explanations of the weakness in employment growth. Both cyclical and structural factors appear to explain the weakness.

1 The authors are from the International Economy Division, Australian Government Treasury. We are grateful for comments and suggestions from David Gruen, Jim Thompson, Phil Garton, Jyoti Rahman and Martin Parkinson. The views in the article are those of the authors and are not necessarily those of the Australian Treasury. Data are current as at 26 March 2003. Since then, March 2004 employment data have been released, with payrolls increasing by 308,000 jobs.

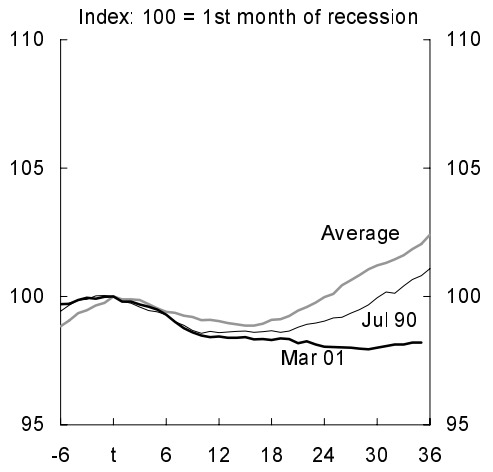
The United States labour market has shed over 2.4 million jobs since March 2001, making this the weakest United States labour market performance since the Great Depression. The fall in employment is even more remarkable considering that the recession is one of the mildest on record in terms of output. However, a jobless recovery is not without precedent, with the 1991 recovery also known for generating relatively few jobs compared with previous recoveries. Regardless, the current employment recovery is far weaker and longer than the 1991 recovery, with employment declining by 1.8 per cent since March 2001, despite output growing by 7.3 per cent over the same period (Charts 1 and 2).[2]

Chart 1: Real GDP



Source: Bureau of Economic Analysis.

Chart 2: Non-farm employment



Source: Bureau of Labor Statistics.

The corollary of weak employment growth with robust output growth is strong labour productivity growth. As labour productivity is measured as a residual, an observed increase in productivity growth does not always imply a large step forward in the organisation of labour or technological change. For example, the increase in productivity may reflect cyclical responses to an overexpansion in the preceding period. Nonetheless, *genuine* ongoing productivity improvements would have the effect of raising potential output growth. In the medium term, this would allow stronger output growth, with less inflationary pressure, allowing monetary policy to remain relaxed for a longer period.

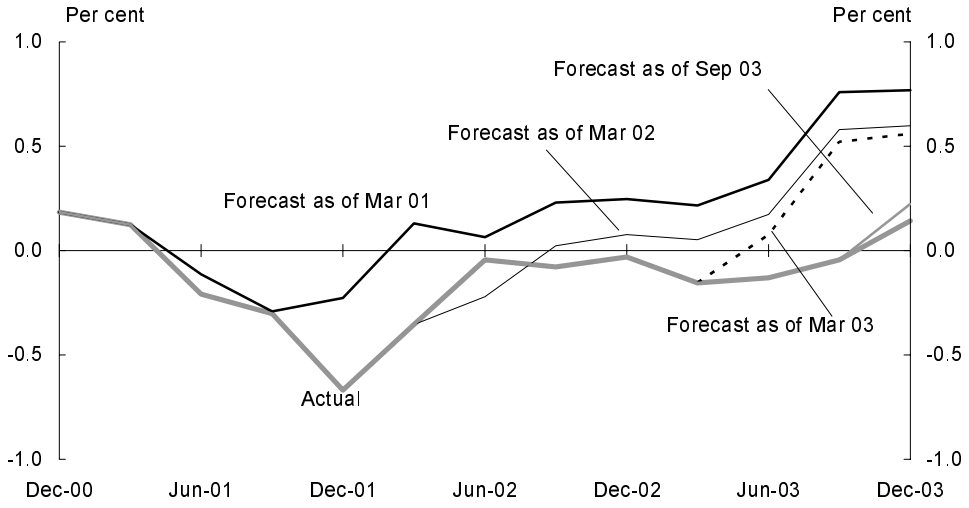
2 The average recession is calculated using data from the six previous recessions since 1960 (1960, 1969, 1973, 1980, 1981 and 1990). Recessions are dated according to the National Bureau of Economic Research's dating of the first month/quarter of recession. The recessions are indexed against the first month/quarter of recession, and then an average recession is calculated from these indices. Note that data are counted twice in the tail of the 1980 and head of the 1981 recessions.

Employment demand

We estimated a simple labour demand function with which we could further examine the recent weakness in employment. The equation is specified to reflect labour demand generated by a profit maximising firm, with the short run or dynamic characteristics of employment captured by lags in the change in output. The estimated equation does a good job of explaining variations in employment and passes most relevant statistical tests.[3]

To examine the weakness of the United States labour market we conducted a series of experiments using our model of employment demand. We re-estimated the equation up to March 2001, and (dynamically) forecast employment growth using the known output and wage series. The equation was then re-estimated and new forecasts derived by sequentially adding additional employment data points. Selected forecasts of employment growth are presented in Chart 3. What these forecasts illustrate is that employment growth has been consistently weaker than that suggested by the historical relationship between employment, output and wages.

Chart 3: Forecasts of United States employment
(Quarterly growth)



Source: Australian Treasury, Bureau of Labor Statistics, Bureau of Economic Analysis.

Having demonstrated the extent of the recent weakness in employment growth through comparisons with previous recoveries and using an employment demand equation, we disaggregated employment by industry and educational attainment. This allows us to identify areas of strength and weakness in the United States

3 Regression results are available from the authors on request.

economy, and to provide insights into possible explanations for the overall employment weakness.

Employment by industry

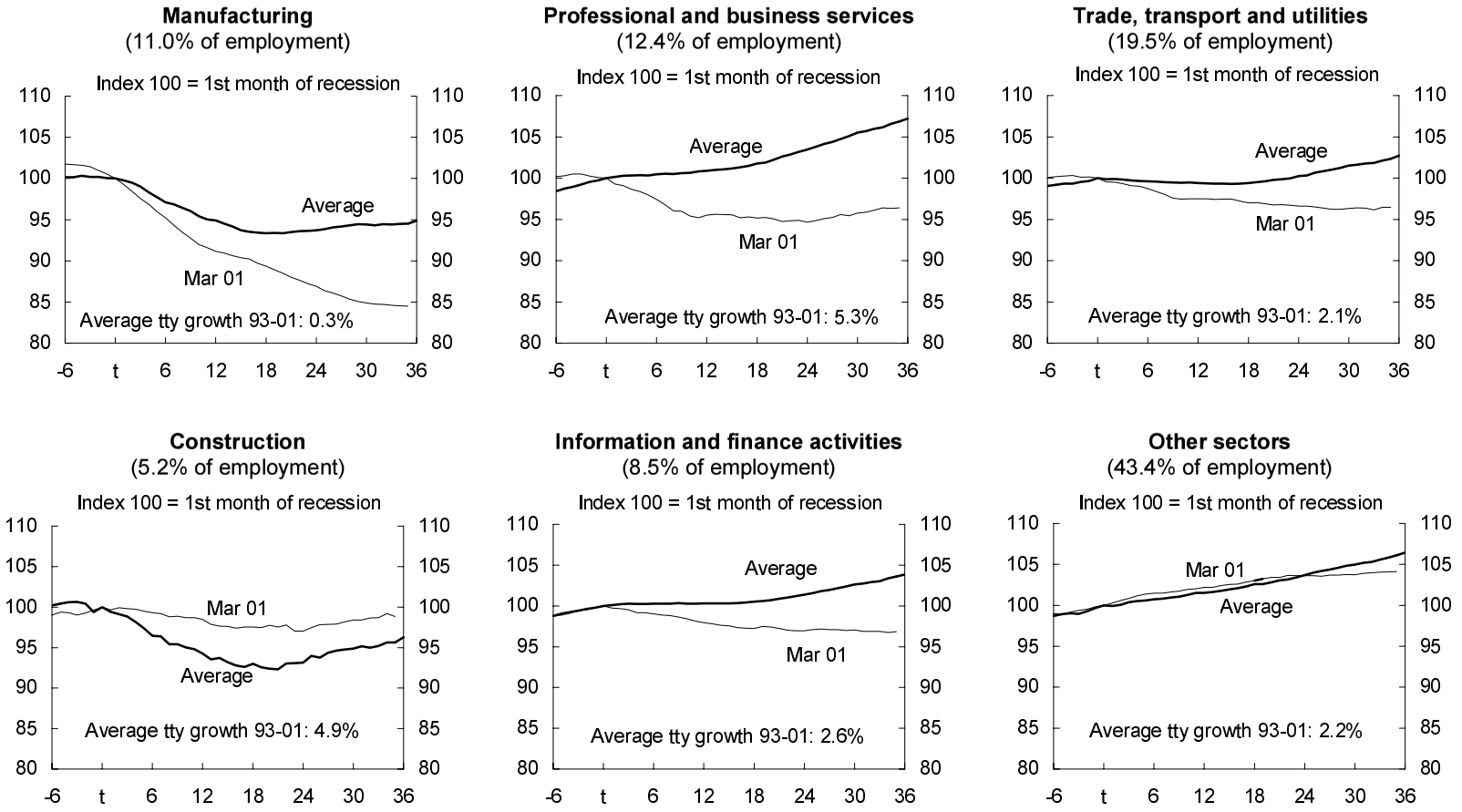
In Chart 4, we present indices of employment for six industries where each industry's employment is indexed to 100 in the period each National Bureau of Economic Research's (NBER) timed downturn occurs. The lighter line refers to the index of the most recent recovery while the darker line is the average of the previous six recoveries. In each chart we also show average through the year employment growth over the period January 1993 to February 2001, and the proportion of total employment in each industry as of 2003.

It is immediately apparent that manufacturing and professional and business services are the two industries where employment growth has been weakest compared both to previous recoveries and growth in the 1990s. We found that within both these industries, employment fell strongly in sectors engaged in Information and Communications Technology (ICT) related activities.

Within manufacturing, employment growth has been particularly weak in computer and electronic manufacturing, having fallen by 28 per cent since March 2001, accounting for around 20 per cent of the overall net fall in manufacturing employment, despite making up only 9 per cent of manufacturing employment. Other sectors within manufacturing that were particularly weak were transportation and fabricated metal production.

The sector of greatest weakness within professional and business services was computer systems design and related services, which fell by 18 per cent between March 2001 and December 2003. This sector accounted for around 41 per cent of the net fall in professional and business services employment, while making up only 7 per cent of the industry's total employment. Another sector within professional and business services that experienced relative weakness was management services.

Chart 4: US industry employment growth



Source: Bureau of Labor Statistics.

A correction to an over-expansion of employment in industries that grew ahead of fundamentals in the late 1990s is one possible explanation of the current weakness in employment. The overall decline in employment in ICT related jobs, both in servicing aspects as well as their production, was dramatic.[4] Employment in ICT industries, which makes up around 3 per cent of non farm employment, fell by around 1.2 million since March 2001.

Our analysis of industry employment suggests that cyclical aspects may have played an important role in the weakness of the labour market recovery. However, variations in industry employment might also reflect deep structural changes. Groshen and Potter (2003) explored structural changes in the United States economy by examining layoff trends and industry job gains and losses in the current recession. They found that the permanent relocation of workers from some industries to others may help explain the stalled growth in jobs. Industries that lost jobs during this recession have continued to shrink during the recovery, with permanent job losses eclipsing temporary layoffs, indicating structural changes. Comparing their measure of structural change to cyclical change, they find that the current cycle has a much larger incidence of structural change than previous cycles.

Structural job losses tend to take longer to recover than temporary losses, given the loss of human capital (that is, skills that are made obsolete), as well as the time required to find new positions in new industries. Furthermore, Figura (2003) finds that restructuring is not characterised by simultaneous permanent job losses in one industry and permanent job gains in another within the same region. The new jobs tend to come with a lag and in different geographical areas. Hence, the jobless recovery could be partly attributed to structural change underway in the United States economy.

The demand for skills

Aggregate demand for labour is comprised of demand for very different types of labour, and labour with different skills is sought across a range of industries. We examined employment growth by educational attainment to gain insights into changes in the quality of labour being sought.

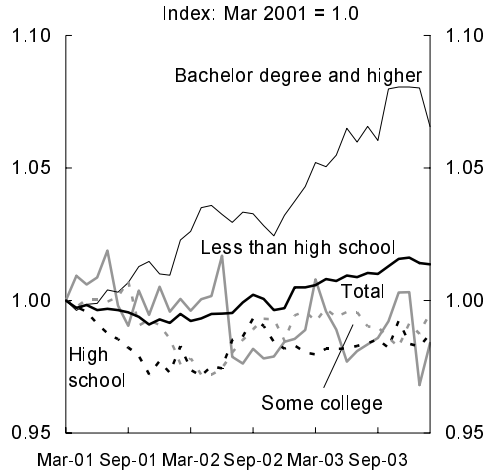
In Chart 5, we present indices of recent employment growth by educational attainment groups. Note that these data are based on the United States household survey rather

4 The ICT related activities measure is derived by Treasury. It includes the following North American Industry Classification System 5 and 6 digit industries (with relevant *supersector* in parentheses): computer and electronic products (manufacturing); internet publishing and broadcasting, telecommunications, ISPs, search portals and data processing (information); computer systems design and related services (professional and business services).

than the establishment survey, and that the overall change in employment is somewhat different between the surveys.[5]

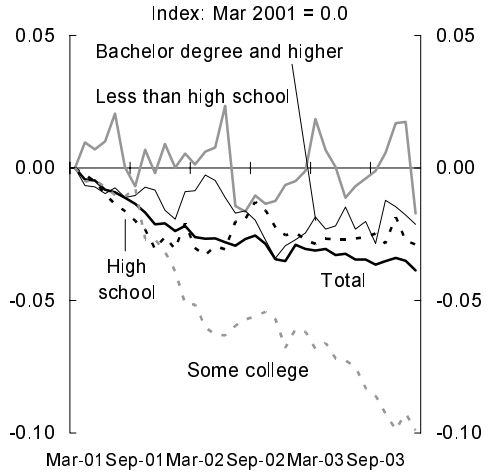
The data in Chart 5 suggest that employment growth of the more highly educated has been quite strong. However, employment growth among these groups may reflect underlying growth in their population as the general population becomes on average more highly educated. To account in part for such an effect we subtracted average trend growth (calculated over the 1990s) from each series (Chart 6). This illustrates the weakness in employment growth in those with some college education but less than a bachelor's degree compared with all other groups.

Chart 5: Employment by educational attainment



Source: Bureau of Labor Statistics.

Chart 6: Employment by educational attainment net of average 90s growth



Source: Bureau of Labor Statistics.

In a downturn we would expect that less productive workers would be more likely to lose their jobs than more productive workers. Examining the relative productivity of workers through educational attainment suggests that in this most recent downturn this has not been the case. Workers with more education (particularly those with some college education) have suffered relatively more than those with less education. This unusual outcome presumably reflects the weakness in employment in manufacturing and professional and business services, and suggests that industry composition is an important aspect of the most recent downturn.

5 The United States household survey data indicates that employment growth has been slightly stronger, and hence productivity growth slightly weaker, than indicated in the establishment survey data. For a discussion of household versus establishment survey data see Bernanke (2003).

We further examined changes in the demand for skills using a simple quality adjusted measure of labour input, using average industry wages to reflect relative productivity. The key conclusion was that the overall quality of the workforce fell during the downturn. This suggests that measures of labour productivity that do not take into account quality change (such as non-farm output per hour) may have underestimated the recent increase in productivity over the recent recovery.[6]

Wages

An aspect of the labour market that might lead to muted employment growth is high or increasing wages. The simple model of employment discussed earlier allows for growth in hourly wages and suggests that this is not a large part of the current employment weakness. There has been some argument that the increase in non-wage costs (for example, health insurance) has contributed to employment weakness, though the effect is likely to be relatively small.

Related to this aspect is the possibility that the relative price of labour compared to capital may have increased.[7] Given the decline in the cost of new capital and the capital overhang built up during the late 1990s, there could be an element of substitution away from labour towards capital. This may explain some of the employment weakness as well as the increase in labour productivity.

Uncertainty, hours and temporary employment

It is possible that the unusual uncertainties that United States firms have faced during this recovery, in particular war and terrorism, have contributed to weak employment growth. This may have made firms reluctant to hire permanent staff. While a plausible partial explanation up to mid to late 2003, the continuing weakness of employment suggests that these effects are unlikely to be a major part of the story.

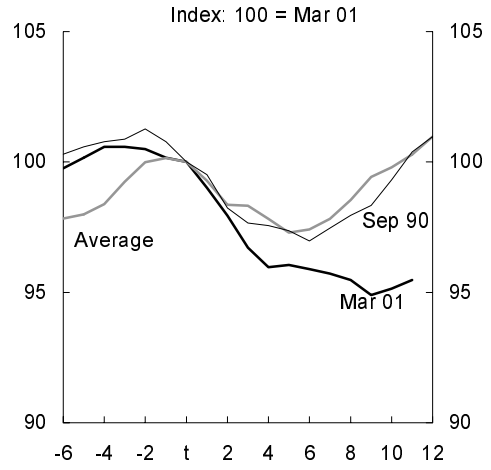
Furthermore, where there is strong current growth, but uncertain future growth, firms would tend to work their current employees longer, rather than hire new employees. Measures of hours worked have only increased marginally, despite 6 per cent annualised growth in output over the second half of 2003 (Chart 7). In a climate of uncertainty, firms might also choose to hire temporary rather than permanent workers.

6 The method we used to derive a quality adjusted labour input (QALI) measure was less than ideal. In particular, the employment groupings were made across industries, rather than the preferred method of measuring quality through education, experience and age cohorts. Further details on the QALI measure are available from the authors on request.

7 The large net foreign capital inflow through the 1990s helped to push down the cost of capital.

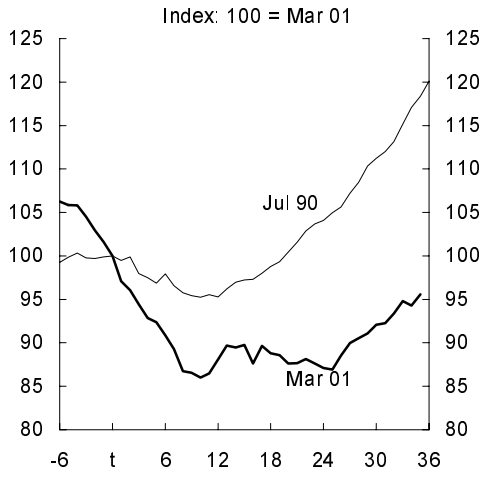
After a period of considerable weakness, there has been a recent increase in the hiring of temporary help, but this is off a very low base (Chart 8).[8]

Chart 7: Hours worked



Source: Bureau of Labor Statistics.

Chart 8: Temporary help employment



Source: Bureau of Labor Statistics.

Bernanke (2003) offers a further explanation of weak employment growth and large increases in productivity that involves the efficient use of new technology. He argues that a significant portion of the increase in productivity reflects managers reorganising production and distribution to take better advantage of their heavy investment in high-technology equipment in the late 1990s.

In contrast to the cyclical effects, this explanation, as well as Groshen and Potter's explanation could result in ongoing strong productivity growth. If this is the case, the potential rate of output growth will have increased, with beneficial effects throughout the economy. However, it also implies that employment growth could remain weak for some period.[9]

Labour supply

The United States employment-population ratio has fallen from 64.3 to 62.2 per cent since March 2001. This is one of the largest falls in the history of the series. Moreover, the ratio has continued to fall through the recovery period, unlike previous cycles

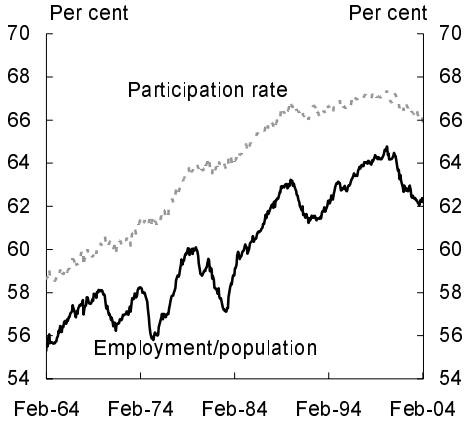
8 Comparing the current labour market recovery to previous recoveries, Scheft and Singh (2003), conclude that the uptake of just in time employment practices has been a significant factor in the current employment weakness. Just in time employment practices involve greater use of temporary and part-time workers to achieve a more flexible labour force.

9 If the technology shock was a once-off, once the returns from the reorganisation are exhausted, there would be no increase in the potential rate of output growth.

where substantial falls have only occurred during recessions. While the fall in the employment population ratio is dramatic, there has also been a marked reduction in labour force participation, representing the largest fall in the history of the series (Chart 9).

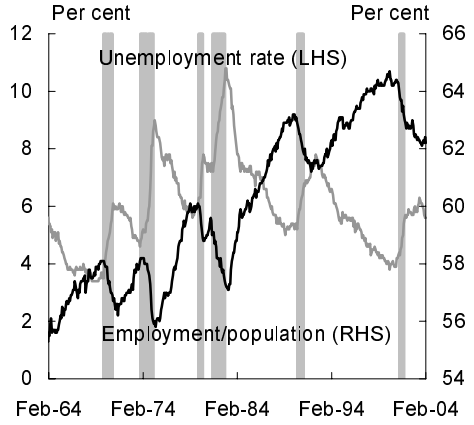
The recent fall in labour force participation substantially offsets the fall in the employment-population ratio, such that the increase in the unemployment rate was relatively moderate. In past downturns, every percentage point fall in the employment population ratio would be accompanied by around a 1.6 percentage point increase in the unemployment rate. However, in this downturn, despite the employment-population ratio falling by 2.1 percentage points, the unemployment rate has only risen by 1.3 percentage points — less than the 'expected' rise of 3.3 percentage points (Chart 10).

Chart 9: Participation rate and employment-population ratio



Source: Bureau of Labor Statistics.

Chart 10: Unemployment rate and employment-population ratio

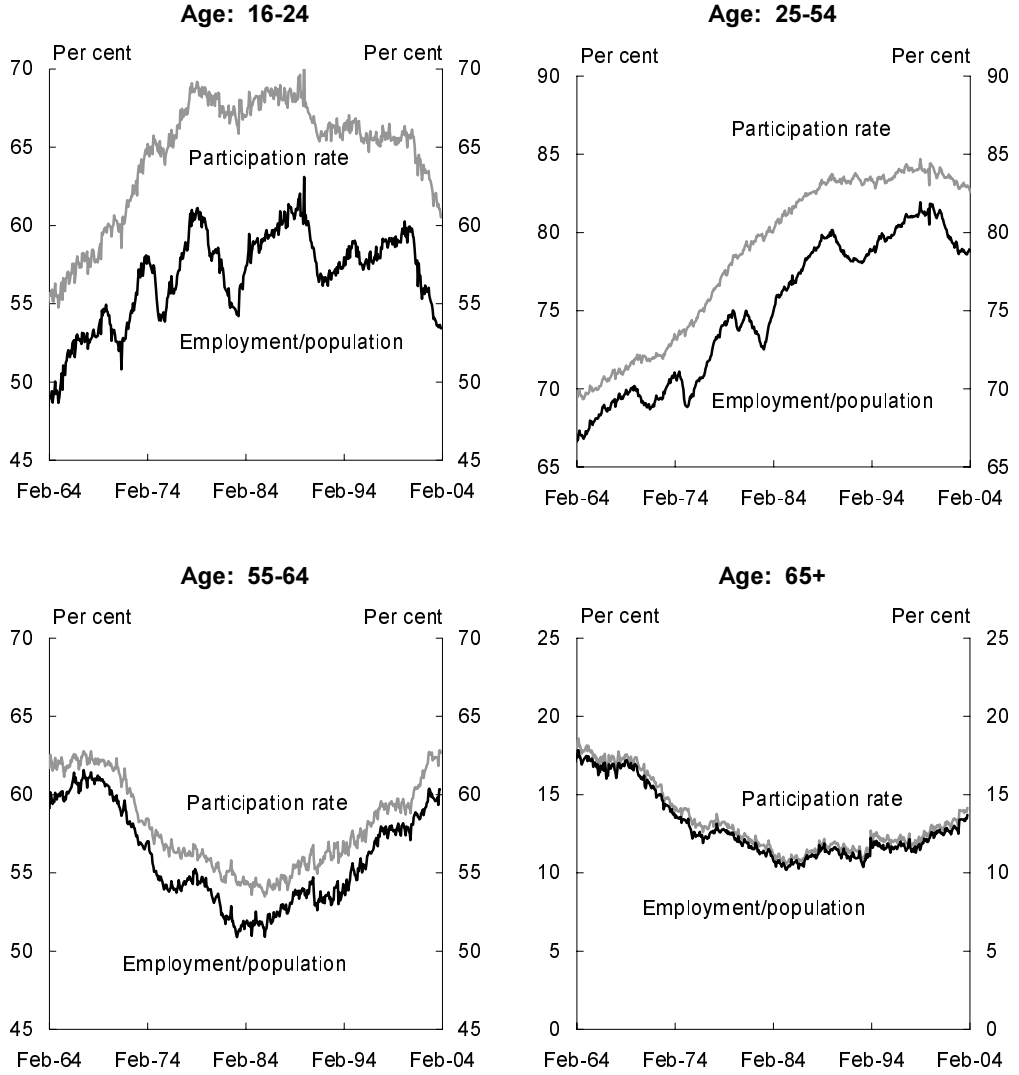


Source: Bureau of Labor Statistics.

Over-expansion in employment might be suggested by the historically high employment population ratios of the late 1990s. However, Bernanke (2003) argues cogently that if we 'defined sustainable labor market conditions as an unemployment rate of 5 per cent and a labor force participation rate equal to its approximate trend value of 67 per cent, the level of aggregate employment would still be about 3½ million jobs below the 'sustainable' level [in November 2003 when his speech was presented].'

Discouraged workers have been an important dimension of the current jobless recovery. In Chart 11, we show labour force participation rates and employment-population ratios for four age groups. For young people (aged 16 to 24 years) the fall of 5.6 percentage points in the employment-population ratio since March 2001 has been almost matched by a fall of 5.0 percentage points in labour force participation.

Chart 11: Participation rate and employment-population ratio by age



Source: Bureau of Labor Statistics.

The consequences of the fall in labour supply of young people may be relatively benign if these people are investing in more education. Data on high school and college enrolments support this hypothesis, with the proportion of 16-24 year olds enrolled in school increasing by 1.6 percentage points from 2000 to 2002, after declining by 2 percentage points over the period 1997 to 2000.

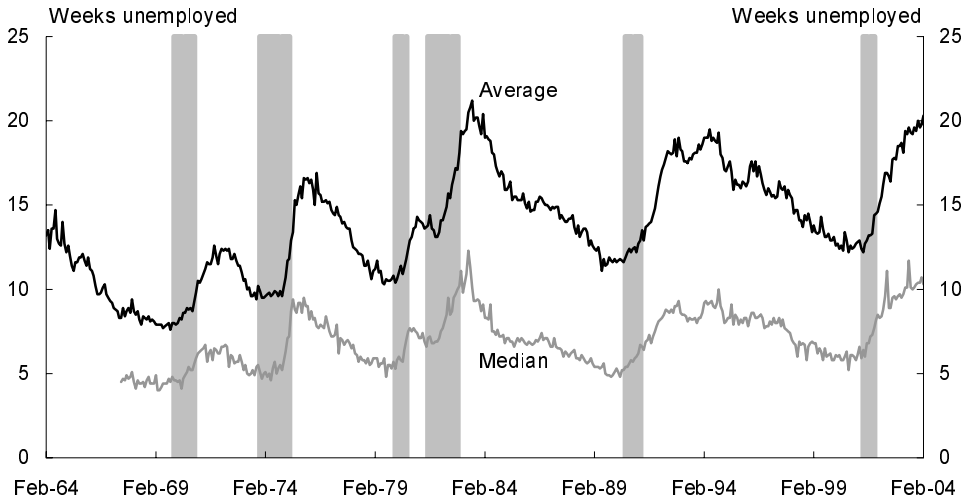
The majority of the fall in the aggregate employment-population ratio and labour force participation rate is due to persons aged 25 to 54 years. This age group accounts for around 70 per cent of the population aged 16 years and over. The fall in participation for this age group is the largest on record, though admittedly this is off record highs in participation in the late 1990s. The withdrawal from the labour force by this age group, usually a group strongly attached to the labour force, is where the consequences of discouraged worker effects could be most profound. This group would also account for the vast majority of the increase in the unemployment rate and be over-represented in the duration of unemployment data.

Another interesting aspect of the labour supply data is the rise in participation of those aged 55 years and over. The sharp increase in participation of 55-64 year olds since the downturn in the broader economy may reflect the large falls in stock markets and the effects this had on retirement savings and wealth, though there has been an upward trend in participation for this age group for around two decades.

The duration of unemployment

An aspect of labour market downturns that can have hysteresis effects is the deskilling of individuals, usually reflecting the length of time spent unemployed. An examination of the median and mean duration of unemployment data suggests that this may become an aspect of the current recovery (Chart 12).

Chart 12: Duration of unemployment



Source: Bureau of Labor Statistics.

Currently the mean and median duration of unemployment are around their highest levels since 1983. Should the average duration of unemployment fall slowly, as was the case with the 1991 recovery, it is possible that a substantial body of labour force participants will be out of the workforce for a long period of time.

The increase in the duration of unemployment might reflect substantial structural adjustment within the United States economy. In this case, workers may have to retrain in order to find jobs in different industries, and this takes some time. Of course, an increasing duration of unemployment might also simply reflect widespread weakness in the demand for all labour.

Concluding remarks

The current United States recovery is notable for the significant weakness in the labour market, and without sustained employment growth the recovery may falter. Both cyclical and structural factors appear to explain the weakness in employment growth. Some of the structural factors imply strong *ongoing* productivity growth, while others imply only a *once-off* productivity 'kick'.

In examining the supply and demand characteristics of labour, we have identified a number of areas of particular weakness. The demand for workers in ICT related sectors has fallen considerably, which is reflected in a fall in demand for relatively highly skilled employees. At the same time, the supply of younger workers has fallen considerably.

The unique circumstances around this recovery mean that models which are calibrated on past experience are less useful than they would otherwise be. The cyclical factors that we have discussed are not fully reflected in the cyclical movements in output and wages, resulting in a breakdown in traditional employment equations.

At least some of the factors underlying the labour market weakness appear to be structural. The nature of these structural factors has significant implications for the United States economy, both in terms of the near-term labour market outlook and its effect on the output recovery, as well as to changes to the potential rate of growth.

If the labour market has been weak due to *once-off* structural adjustments, the rate of productivity growth should not continue indefinitely. As long as strong aggregate demand persists, we should observe an increase in employment in the near-term.

On the other hand, if there is an *ongoing* structural adjustment and strong economy-wide productivity growth continues, this could imply an increase in the potential growth rate. If this was the case, we could observe continued weakness in employment growth in the near term, even in the face of exceptional output growth. In the medium to longer term, higher productivity would result in higher potential output growth and stronger income growth with less inflationary pressure, allowing monetary policy to remain relaxed for a longer period.

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Scheft, S., and Singh, A. (2003), *A Closer Look at Jobless Recoveries*, Federal Reserve Bank of Kansas City, Economic Review, pp. 45-72.

Data appendix

US real gross domestic product data are sourced from the Bureau of Economic Analysis (BEA) National Income and Product Accounts (NIPA), Table 1.1.5 (Chart 1),

US non-farm payrolls data are sourced from the Bureau of Labor Statistics (BLS) Establishment survey (Equation 1, Charts 2 & 3).

US real non-farm gross domestic product data are sourced from the BEA NIPA, Table 1.3.6 (Equation 1).

US real average hourly earnings are derived from (nominal) average hourly earnings data sourced from the BLS household survey, deflated by the Personal Consumption Expenditure deflator sourced from the BEA NIPA, Table 1.1.4 (Equation 1).

US employment by industry data are sourced from the Bureau of Labor Statistics (BLS) Establishment survey. The ICT related activities measure is derived by Australian Treasury. It include the following North American Industry Classification System 5 and 6 digit industries (with relevant *supersector* in parentheses): computer and electronic products (manufacturing); internet publishing and broadcasting, telecommunications, ISPs, search portals and data processing (information); computer systems design and related services (professional and business services) (Charts 4 & 8).

US employment by educational attainment data are sourced from the BLS household survey. The series presented in Chart 6 are detrended by Australian Treasury (Charts 5 & 6).

US non-farm business hours data are sourced from the BLS Major sector productivity and costs index (Chart 7).

US participation rate and employment population data are sourced from the BLS household survey. The population, labour force and employment series for age groups 55-64 and 65+ were seasonally adjusted using X-11 by Australian Treasury (Charts 9, 10 & 11).

US unemployment rate data are sourced from the BLS household survey (Chart 10).

US high school and college enrolments for age group 16-24 are sourced from Table 2 of the BLS 'College enrolment and work activity of 2002 high school graduates' release.

US duration of unemployment data are sourced from the BLS household survey (Chart 12).

The Japanese economy and future growth prospects

Sian Fenner[1]

Japan continues to be a major source of trade and direct foreign investment for Australia and the Asia Pacific region more broadly. In the coming decades Japan is facing major challenges including profound demographic pressures. This paper examines Japanese growth prospects through a 3P framework — population, participation and productivity — and illustrates the importance of productivity growth in offsetting the effects of declining population and aggregate labour force participation. Without further structural reforms, particularly in the labour market and non-tradeable sectors, labour productivity growth will remain subdued and Japanese potential GDP growth constrained.

1 The author is from the International Economy Division, Australian Government Treasury. Helpful comments and suggestions were received from Steven Kennedy, Brenton Goldsworthy, Gordon de Brouwer, Brian Thomas, Heather Smith, David Gruen, Ron Foster, and Martin Parkinson. The views in the article are those of the author and are not necessarily those of the Australian Treasury.

Japan and the region

Japan is the third largest economy in the world and continues to be one of Australia's and the region's largest trading partners.[2] Australia's exports to Japan are nearly 20 per cent of total exports, and the stock of Japan's foreign direct investment in Australia is over A$49 billion.[3] Despite growing export demand from the rest of Asia, in particular China, Japan's relative importance to Australia's economy will remain strong.

Japan continues to play a strong economic role in the region. It has been the largest source of foreign direct investment and bank lending to East Asia although this has declined since the Asian financial crisis. Japan is also a major export destination for East Asia particularly Southeast Asia.

The focus of this paper is on Japan's medium-term economic prospects using simple growth accounting methods. To start, it is useful to briefly look at Japan's transition from an economy enjoying sustained strong rates of growth to one experiencing average GDP growth of just 1.6 per cent since 1990.

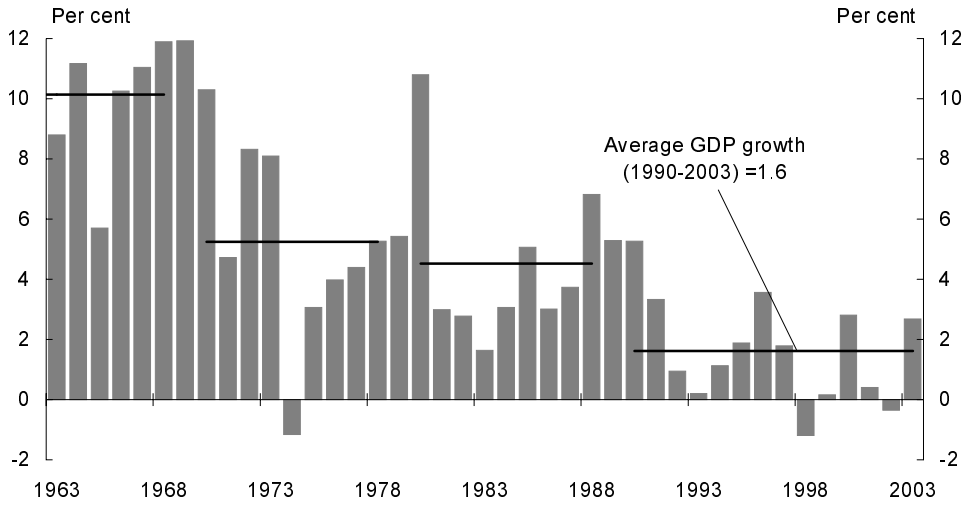
Japanese economic growth post World War II

After World War II, the Japanese economy experienced a sustained expansion. GDP growth averaged around 10.1 per cent in the 1960s, 5.2 per cent in the 1970s, and 4.6 per cent in the 1980s, slowing because the economy had essentially caught up to the levels of other OECD countries (Chart 1).

2 Ranking of the Japanese economy is based on a purchasing power parity (PPP) measure of GDP.

3 Latest available data from the Department of Foreign Affairs and Trade.

Chart 1: Japanese GDP growth



Source: CEIC database.

The rate of economic growth, in both GDP and GDP per capita terms, saw Japan acclaimed as a model economy for developing countries, especially across East Asia. The formula for success was thought to be built on a comparative advantage in the manufacturing sector over many industrialised economies. The Japanese were quick to implement new technologies, and their culture of a strong work ethic and company loyalty were touted as keys to success.[4] The heavy involvement of government in the economy and links between government, banking and industry also played a large part in Japan's economic development. But this same system proved unsustainable for an advanced industrialised economy with an increasingly uncompetitive non-tradeable sector.

The bursting of the bubble in the early 1990s undermined Japanese economic growth, with GDP growing at an average annual rate of just 1.4 per cent in the four years immediately following the crash. In the 13 years since the bubble burst, there have been recessions in 1993, 1997-98 and 2000-2001, with the economy growing at an average annual rate of just 1.6 per cent.

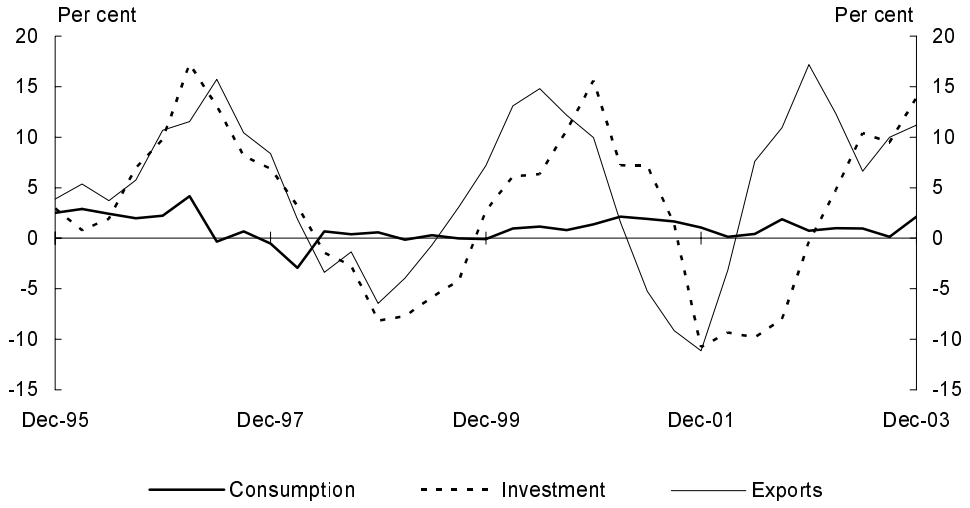
Low levels of growth in the 1990s have been due to a combination of factors including banks' inability to lend, low investment from firms trying to improve the health of their balance sheets, and poor economic management (Hayashi and Prescott (2002), Posen (2000) and the OECD (2000)).

More recently, economic activity in Japan has rebounded with Japanese GDP growth exceeding expectations in 2003, growing at 2.7 per cent. The drivers of growth have

4 Posen (2001).

been robust exports and strong investment (Chart 2). Although consumption remained weak for most of 2003, a continuing trend from the 1990s, it began to show signs of recovery in the December quarter of 2003 as labour market conditions stabilised. Nevertheless, a sustained pick up in consumption depends on improvements in employment and income.

Chart 2: Japanese exports, investment and consumption
(Through the year)



Source: CEIC database.

Exports remained robust in 2003, growing by about 10 per cent, despite an 8 per cent appreciation of the yen/US$ exchange rate in 2003. Growth was underpinned by strong demand from East Asia, especially China. The increase in demand for exports from this region offset the decline of about 10 per cent over the year in exports to the United States.

Another source of growth was private investment, which grew by 10 per cent in 2003 after contracting in 2002. Strong investment has been the result of an improvement in corporate profits and business expectations, as well as successful balance sheet adjustment.

GDP growth may have been exaggerated by underestimation of GDP deflators, especially for private investment. This has raised questions among analysts and Japanese officials over the true magnitude of the economic recovery and, in particular, the true extent of growth in investment. Yet, regardless of Japan's current cyclical recovery, Japan's medium-term growth potential will be determined by how effectively it responds to the related challenges of demographic change and reform of its non-tradeable sectors.

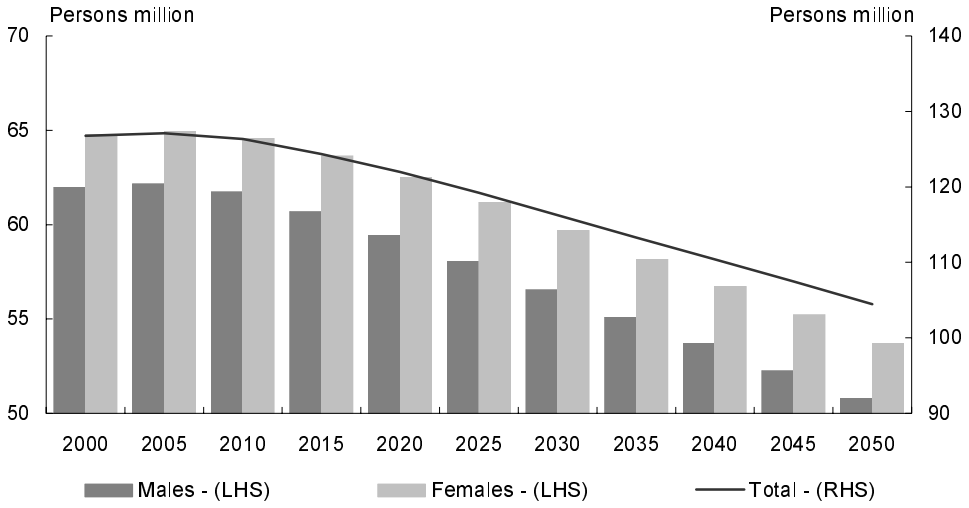
Raising Japan's growth potential

This section focuses on the first of these challenges by examining Japan's growth prospects through a 3P framework — population, participation and productivity. Population provides an indication of the total amount of labour resources available to produce goods and services; participation determines the number of hours worked for those who are economically active; and productivity determines the volume of goods and services produced per hour worked.

Population

Japan's population growth rate has been declining since the early 1970s, with the fertility rate falling from 2.2 per cent in 1971 to 1.4 per cent in 2001, and immigration remaining low. According to World Bank projections, Japan's population is expected to fall by 2 per cent by 2015 and continue to decline over the next 50 years (Chart 3).[5]

Chart 3: Population projections



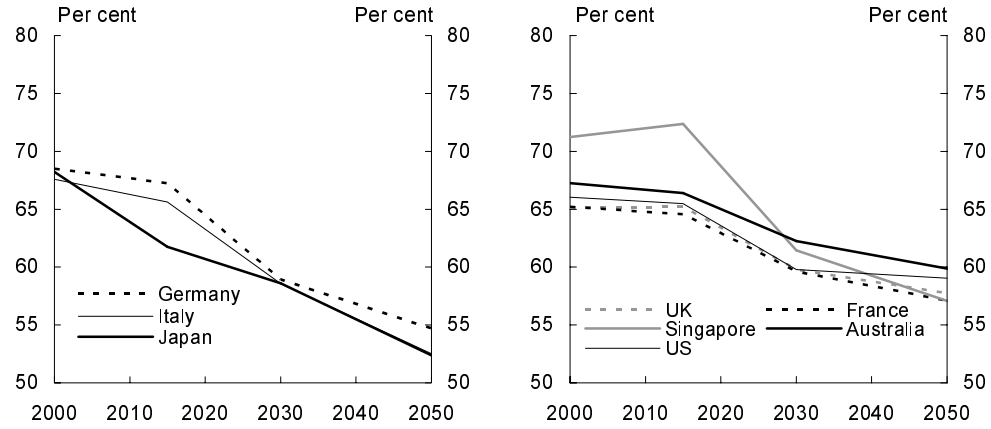
Source: Health, Nutrition and Population statistics (HNP), World Bank.

Japan's economy is already being affected by these demographic pressures. Indeed since 1998 the 15-64 age group has been declining and is expected to fall by an additional 31 million by 2050. The ratio of the number of 15-64 year olds to total population is also expected to decline from 67 per cent in 2003 to 52 per cent by 2050 (Chart 4). The accelerated decline in the numbers in 15-64 age group will have an

5 The Japanese National Institute of Population and Social Security Research forecasts a slightly lower population over the time horizon out to 2050.

increasingly adverse effect on potential GDP growth (estimated currently at 1-2 per cent), reducing it by 0.4 percentage points a year between 2003-2008.[6]

Chart 4: Proportion of population of 15-64 years



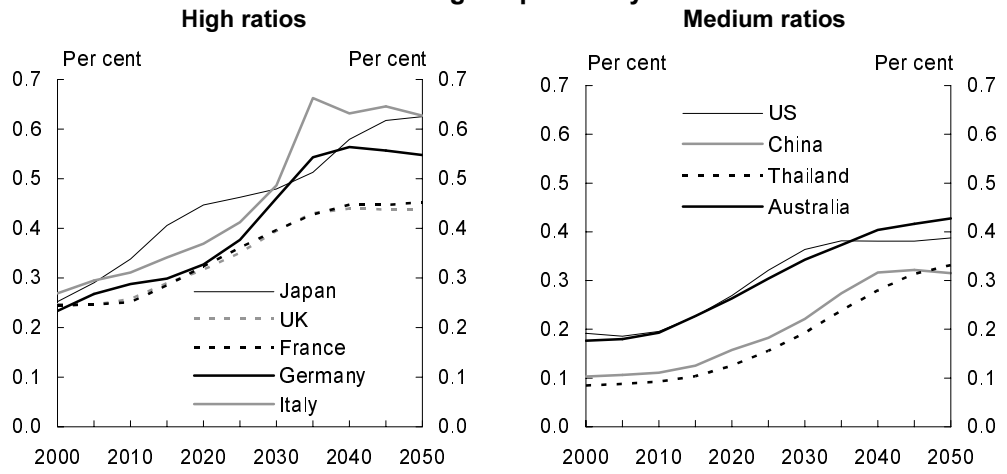
Source: Health, Nutrition and Population statistics (HNP), World Bank.

Projected declines in the proportion of the population aged 15-64 years are common among developed countries but, with the exception of Italy, the decline is generally not as severe.

A related economic pressure caused by Japan's demographic transition is the increase in the proportion of the aged population (65 years and over) relative to the 15-64 age group, the age dependency ratio (Chart 5). This trend is also a characteristic of a number of developed and developing countries but in the case of Japan (and Italy) the rise in the age dependency ratio is much more prominent.

6 OECD (2003).

Chart 5: Age dependency ratio



Source: Health, Nutrition and Population statistics (HNP), World Bank.

The increase in the age dependency ratio has the potential to worsen Japan's already heavy fiscal burden. Less labour will be available to produce goods and services, while at the same time there will be more people needing to be supported through welfare. This places stress on the government's fiscal balance with a smaller tax base available to fund increased outlays on health and welfare. The OECD and IMF note that Japan's large fiscal deficit of 7.4 per cent of GDP and large gross government debt of around 154 per cent of GDP in 2003 is unsustainable in the longer term given the pressures presented by an ageing population.[7]

Several measures have recently been announced to help alleviate the expected fiscal burden. For example, in December 2003, the government put forward a number of reforms to help reduce the under funded liabilities of the national pension scheme. This includes raising the premium rate of employee pension plans from the current level of 14 per cent to 18 per cent by the year 2018.[8] However, more will be needed in the years ahead to ensure fiscal sustainability.

Participation

Changes in employment growth, or more broadly total labour input, reflect the combined impact of changes in the labour force (aged 15 years and above), labour force participation, unemployment, and average hours worked.

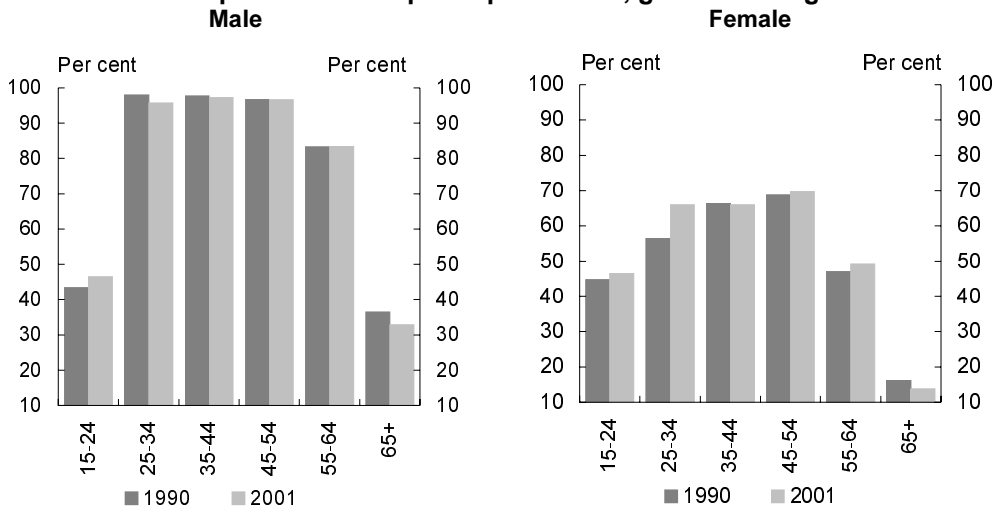
7 OECD (2003) and IMF (2003).
8 Ministry of Health, Labour and Welfare (2003).

The Japanese labour force will decline in line with the falling working age population. However, the extent of the decline will be influenced by future trends in labour force participation.

Labour force participation rate

Over the past decade, Japan's labour force participation rate, for those aged 15 years and above, has declined from around 63 per cent in 1990 to about 62 per cent in 2001.[9] Although both male and female participation rates have fallen, males have experienced a larger decline of around 2 percentage points. This largely reflects the fall in the male participation rate for those aged 65 years and above (Chart 6).

Chart 6: Japanese labour participation rate, gender and age cohorts



Source: International Labour Office, Year Book of Labour Statistics (2002) and OECD Labour Statistics.

To illustrate the demographic effects, if the 1990 age distribution were applied to the 2001 participation rates for each age cohort, the aggregate participation rate for 2001 would be 64 per cent, compared with the actual rate of 62 per cent. This is because older age cohorts, particularly males, who traditionally work less, constituted a larger proportion of the total workforce in 2001 than in 1990. If Japan's age distribution had not changed, participation would have been 2 percentage points higher and GDP around 2 per cent higher.[10]

This trend is expected to continue given the projected increases in the proportion of males and females aged 65 years or more. The proportion of people aged 65 years and over is projected to reach 29 per cent by 2015 and continue to rise after that (Table 1).

9 The latest data available from the International Labour Office for Japan is 2001. These data are used to make labour force participation rates internationally comparable.

10 Based on Bank of Japan's labour input share of output.

Assuming no change in age specific participation rates, this alone would have the effect of decreasing aggregate labour force participation from 62 per cent in 2001 to 57 per cent in 2015 (Chart 7).

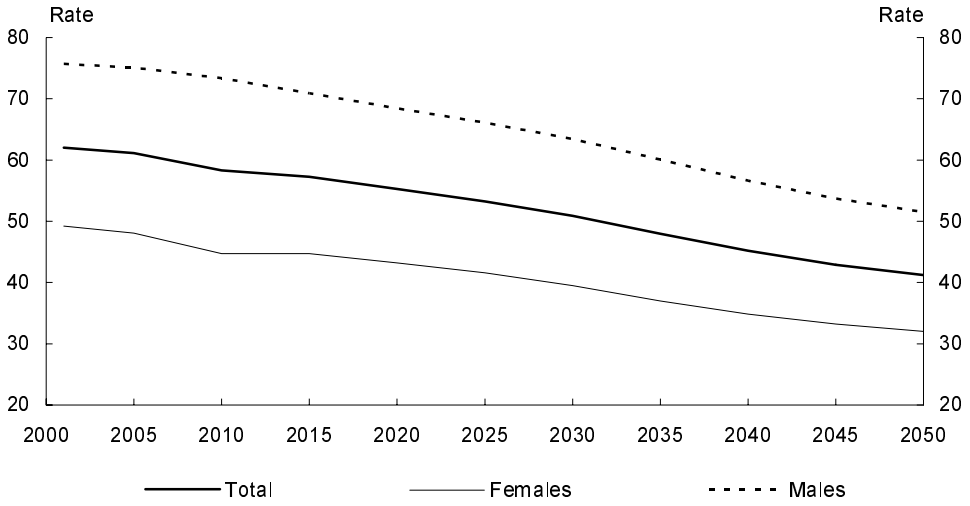
Table 1: Age cohorts as a proportion of working age population

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
15-24	15	13	11	11	11	11	10	10	11	12	12
25-34	17	17	14	13	12	11	12	12	11	11	11
35-44	15	15	17	17	15	13	12	12	13	12	11
45-55	18	15	15	15	17	17	16	14	13	13	13
55-59	8	9	7	7	7	8	9	8	8	7	6
60-64	7	8	8	8	7	7	8	10	9	8	7
65+	20	22	27	29	31	32	32	34	37	38	38

Source: World Bank and Treasury calculations.

The Japanese Ministry of Health, Labour and Welfare (2003) have also projected participation rates, assuming a similar age distribution, to 2025. However, these projections are higher than those in Chart 8 because of an underlying assumption that female and older male participation rates will increase significantly in the future. This highlights two population groups, women and older men, as potential sources of additional labour supply.

Chart 7: Projected labour force participation rates



Source: International Labour Office, *Year Book of Labour Statistics* (2002), and Treasury calculations.

Men in the 55-64 age group have a participation rate higher than the OECD average, although the rate falls off sharply from the 55-59 year age group to the 60-64 year age group. This largely reflects the existence of a mandatory retirement age of 60 years. Increasing the retirement age has been recognised as a mechanism to improve labour

supply in the face of an ageing population by a number of countries facing demographic pressures.

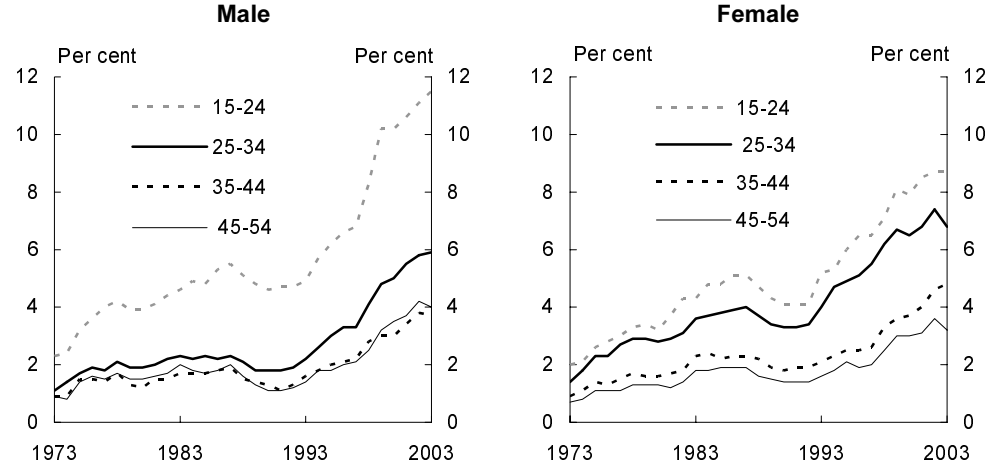
The other source of labour supply identified is females. Although the female participation rate is slightly above the OECD average, there are a number of policies that could increase female participation rates further. Recent policy responses aimed at increasing female participation include increasing child-care facilities and promoting long-term care insurance for the elderly.

Immigration could also be increased to offset part of the decline in labour supply. According to United Nations projections, an average net increase of 381 000 immigrants a year, or 17 million immigrants over 2005 to 2050, would be required to maintain Japan's population at its 2005 level over this period.[11]

Unemployment rate

Japan's unemployment rate has more than doubled from around 2.1 per cent in 1990 to an average of 5.2 per cent in 2003, but still remains one of the lowest among industrialised economies.

Chart 8: Unemployment rate, gender and across age cohorts



Source: CEIC database.

Unemployment rates have increased for males and females across all age groups, but most notably for males in the 15-24 and 25-34 years age groups (Chart 8). The rapid rise in youth unemployment may have negative implications for future labour productivity growth, because of reduced work experience. However, this negative

11 United Nations (2000).

effect would be reduced if people in this age group are acquiring education to increase their human capital.

Employment conditions weakened in Japan after 1990 due to sluggish demand, firm restructuring and structural rigidities in the Japanese labour market that impede employment growth. Firm restructuring has tended to focus on replacing permanent employees with temporary workers and reducing the level of new recruits. This partly reflects court rulings inhibiting firms' ability to retrench labour, fostering firms' reluctance to permanently hire employees.

The OECD suggests that a possible consequence of the current labour market environment is the underdevelopment of the labour market external to the firm.[12] This has resulted in skill mismatch whereby there is a mismatch between the skills of potential employees and those required for employment. It is usually manifest in an outward shift in the ratio of the unemployment rate to vacancies rate (Beveridge curve), a trend that has accelerated in Japan since the late 1990s.

Average hours worked of employees

Over the past two decades the average number of hours worked in Japan has declined by 11 per cent. This is largely attributable to the widespread adoption of a five-day work week, an increase in national holidays and a rise in part-time employment.

The rise in part-time employment seems in part to be the result of current policies distorting the incentive to work full time. For example, there are tax benefits for spouses who work less than 75 per cent of full time hours and earn less than 1.3 million yen a year (about $16 250 Australian dollars at an exchange rate of 80 yen per Australian dollar). In addition, those meeting these criteria are exempt from contributing to pensions and health insurance.

According to Japan's Ministry of Labour, about 40 per cent of female part-time workers limit their working hours in response to these policies.[13] Removal of some or all of these benefits has the potential to increase the employment of labour resources increasing the efficiency of the declining labour force.

12 OECD (2003).

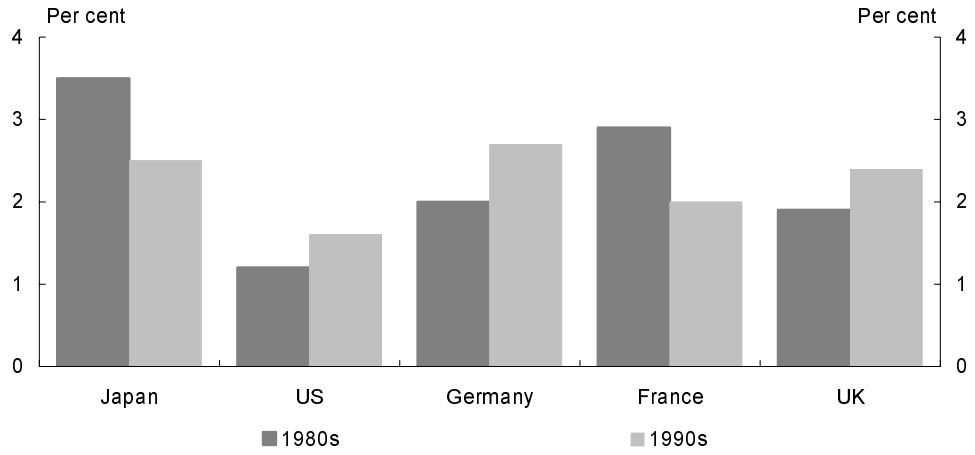
13 Ministry of Labour Report (1995), General Survey on Part Time Workers.

Labour productivity[14]

Japan's potential growth has slowed from 4 per cent in the second half of the 1980s to now be around 1-2 per cent. [15] This reflects the combination of falling labour inputs and low labour productivity growth. In the absence of any major change to labour inputs, productivity growth will need to strengthen to produce higher potential GDP. Higher productivity growth can be achieved through reforms, particularly to a number of non-tradeable sectors.

Japanese labour productivity experienced robust growth in the period leading up to the 1990s, driven by high levels of capital accumulation. It slowed in the 1990s, but at an average of 2.5 per cent a year, labour productivity growth was still above that of many OECD countries (Chart 9).

Chart 9: Labour productivity growth across countries



Source: OECD Productivity Database.

The slowdown in Japanese labour productivity growth has generally been attributed to Japan investing less in information and communication technology (ICT) than the United States. However, Jorgenson (2003) argues that there is an inconsistency between the measure of capital investment in the United States and Japan and once this is rectified levels of ICT investment growth are stronger during the 1990s. However, overall labour productivity still slowed because of reduced growth in non-ICT capital investment and multifactor productivity growth (see Box 1 for further details).

14 Labour productivity is measured as the amount of goods and services produced divided by the units of labour used to produce them.

15 Japan's potential growth rate has been estimated at 1.3 per cent by the OECD (2003).

Box 1: Jorgenson's study of Japanese labour productivity

Jorgenson (2003) argues that if measurement inconsistencies are remedied, the slowdown in Japanese labour productivity recorded during the 1990s cannot be solely attributed to a slowing of investment in ICT as has been the view of the OECD and various private sector institutions.

If Japanese capital investment is measured in a similar manner to the United States, investment in ICT and productivity associated with ICT investment increased over the 1990s and was of a similar magnitude to that in the United States.

Jorgenson's study improves the comparability of Japanese National Accounts and the US National Income and Product Accounts (NIPA) by adjusting Japanese capital investment to include in-house software and package software investment. To ensure consistency, Information Technology (IT) prices for both countries were treated similarly and were derived using a constant-price index that holds performance constant.

The resulting harmonised national accounts for Japan suggest that the slowdown in Japanese labour productivity between the 1980s and the late 1990s primarily reflected a fall in non-ICT capital deepening (Table 2). In addition, labour productivity over this period was adversely affected by the slowdown in productivity growth of firms not involved in IT production.

For firms in IT production, IT capital deepening and productivity grew more quickly in the latter half of the 1990s compared to the early 1990s.

Table 2: Labour productivity growth — Jorgenson

	Labour productivity	ICT capital deepening	Non-ICT capital deepening	Labour quality	Productivity ICT production	Productivity non-ICT production
Japan						
1980-1989	3.86	0.42	1.20	0.87	0.23	1.14
1989-1995	3.23	0.33	1.42	0.54	0.29	0.65
1995-2000	2.58	0.78	0.61	0.21	0.57	0.41
US						
1980-1989	1.55	0.41	0.31	0.30	0.22	0.31
1989-1995	1.34	0.43	0.32	0.36	0.25	-0.02
1995-2000	2.05	0.85	0.55	0.23	0.41	0.01

Source: Jorgenson (2003).

Drivers of Japanese labour productivity growth

Labour productivity growth can be decomposed into capital deepening, defined as growth in capital per unit of labour, and multifactor productivity growth, which reflects changes in output not accounted for by changes in combined inputs, such as structural change or technological advance.

According to both the OECD and Jorgenson, the slowdown in Japanese labour productivity in the 1990s reflects a large decline in multifactor productivity (MFP) and a relatively smaller fall in capital deepening for the non-ICT sectors.

Capital deepening

The ratio of capital per unit of labour fell during the 1990s with the fall in labour input being smaller than the fall in the level of capital accumulation. The slowdown in capital accumulation reflects the economic slowdown following the bursting of the asset price bubble as firms restructured their balance sheets and reduced debt instead of investing. In addition, the rate of return to capital declined by 21 percentage points during the 1990s.[16] This, combined with anaemic demand for goods, may have reduced the incentive for firms to accumulate capital at levels previously experienced.

Incentives to increase the level of capital accumulation such as research and development subsidies, in combination with the projected decline in units of labour, will likely increase labour productivity growth. It will also help promote movement to more higher value added sectors.[17] However, capital deepening is only one of the drivers of productivity. It is also important that capital is allocated appropriately to ensure that multifactor productivity does not decline to offset any of the gains from capital deepening.

Multifactor productivity

During the 1990s Japanese multifactor productivity (MFP) growth declined by 0.6 of a percentage point relative to average growth in the 1980s (Table 3). The manufacturing and wholesale and retail trade sectors, which make up about 40 per cent of Japanese industry, continued to report strong MFP gains while the level of MFP actually fell in construction, and real estate.

16 OECD (2001).
17 Fukao and Miyagawa (2003).

Table 3: Sectoral multifactor productivity growth, annual percentage change

	1980 to 1989	1990 to 1999	Industry share % 2002[a]
All Industries	0.9	0.3	100.0
Manufacturing	2.4	1.5	23.9
Services activities	-8.7	-1.0	21.1
Wholesale and retail trade	1.4	2.3	14.8
Real estate excluding rent	-3.8	-6.8	13.2
Transport and communications	2.0	2.0	7.8
Construction	0.9	-7.1	7.0
Finance and Insurance	7.4	-0.1	7.1
Electricity, gas and water supply	-2.2	-1.1	3.2
Agriculture, forestry and fishing	-0.8	-4.7	1.6
Mining	-4.6	-4.4	0.2

(a) Industry shares are calculated for the represented sectors.
Source: OECD and CEIC database with Treasury calculations.

The disparity in MFP growth across industries has led to the characterisation of Japan as a dual economy with some leading export industries and lagging non-tradeable industries. This is supported by a study undertaken by Baily and Solow (2001) on the inter-sector differences in MFP growth rates (Table 4).

Table 4: Open sectors have high labour productivity, 1999 (US=100)

	Japan	US
Auto	145	100
Steel	121	100
Metal	119	100
Consumer	115	100
Computer	95	100
Healthcare	93	100
Telecom	82	100
General merchandise retail	54	100
Construction	45	100
Food processing	35	100

Source: Baily and Solow (2001) in association with the McKinsey Global Institute.

Japan remains highly productive in export industries such as autos, steel, machinery tools and consumer electronics but non-tradeable sectors such as construction and food processing are less than half as productive as their United States counterparts.

The difference in export and non-tradeable industries has been related to the different competitive pressure and regulation faced by these industries. In addition, government policies and continued lending by banks has sustained the more vulnerable sectors despite declining profitability and high debt levels. This has allowed many low productivity firms to continue to operate with high levels of excess capacity, exacerbating the misallocation of resources.

Concluding comments

After a decade of disappointing growth Japan appears to be experiencing an economic recovery. But Japan's medium term economic prospects will be constrained by a profound demographic transition as its working age population declines and ages.

By 2050, people aged 65 years and over are projected to account for 38 per cent of the total working age population. Without changes to labour force behaviour this would decrease Japan's aggregate labour force participation from 62 per cent in 2001 to 41 per cent by 2050.

In the absence of significant immigration and changes to labour input behaviour, Japan's future growth potential will be largely determined by productivity gains. Achieving these gains will require substantial restructuring and reform of the non-traded goods sector. As shown in Table 3, there is significant potential to increase productivity in such sectors as real estate, finance and insurance and construction. Such reforms would be expected to increase overall productivity through improved resource allocation of labour and capital from low productivity sectors to high productivity sectors, particularly were they to be accompanied by broader reform of the labour market and public sector.

Delaying these reforms will result in continued weakness in Japan's economic performance and only add further pressure to Japan's fiscal position and debt burden.

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The Review of Aspects of Income Tax Self Assessment

This article provides background on the Review of Aspects of Income Tax Self Assessment, outlines its processes and gives a brief summary of the discussion paper released by the Treasurer on 29 March 2004.

Uncertainty is the key issue for the Review. Under self assessment, taxpayers may be uncertain about how the law applies to their circumstances or they may be unaware of certain entitlements. Uncertainty has implications for taxpayer perceptions about the fairness of the tax system (which may impact on the level of voluntary compliance), or it may affect a taxpayer's willingness to enter into an economically beneficial transaction, to the detriment of the economy as a whole.

Introduction

On 24 November 2003, the Treasurer announced the Review of Aspects of Income Tax Self Assessment.

The purpose of the Review is to assess whether the right balance has been struck between protecting the rights of individual taxpayers and protecting the revenue for the benefit of the whole Australian community. Finding the right balance is not an easy task.

The complexity of taxpayers' affairs has increased in recent times, with many more individual taxpayers claiming deductions and sourcing income outside the traditional wage and salary categories. This has meant that some taxpayers need to understand a broader range of tax laws and may be experiencing increased uncertainty about their ability to apply the income tax laws to their circumstances.

The Review seeks to identify ways to refine Australia's system to provide greater certainty and lower compliance costs, without jeopardising the capacity of the Tax Office to collect taxes.

Scope of the Review

The Review is examining aspects of Australia's current income tax self assessment system, including:

- the level of reliance that taxpayers can and should be able to place on Tax Office advice;
- the proper time frame for amending assessments;
- the appropriateness of the length of tax audits;
- the circumstances in which the Tax Office should undertake earlier examination of tax returns;
- whether taxpayers are adequately protected from unreasonable delays in enforcing the tax law; and
- aspects of the operation of the general interest charge (GIC).

The Review has not been asked to consider fundamental tax policy changes, such as the extent to which tax returns, or categories of tax deduction, could be dispensed with. The Review is not examining tax collection issues or assessment of taxes other than income tax.

Review process

The Review, which is being conducted by the Department of the Treasury, is reliant on extensive public consultation with stakeholders in the tax system, such as taxpayers' representatives, professional bodies and government agencies with an oversight role in the tax system.

An initial round of consultations was held to aid development of the recently released 'Review of Aspects of Income Tax Self Assessment' discussion paper and the Government has now invited interested parties to make submissions in response by 21 May 2004. Views outlined in submissions, together with the outcomes of upcoming public consultations will assist consideration of all relevant issues before Treasury reports to Government in mid-2004.

The next section of this paper summarises the key ideas canvassed in the discussion paper.

Discussion paper summary

The discussion paper has six chapters, dealing with the following topics:

- the background to self assessment and the focus of and framework for the Review;
- rulings and other Tax Office advice;
- review and amendment of assessments;
- penalties;
- the general interest charge (GIC); and
- other issues.

Chapter One — Background to self assessment and focus of the Review

Chapter One describes how the Australian system of partial self assessment evolved and identifies the changes that resulted from the shift to partial self assessment in 1986. Previously, a taxpayer would have to provide all information relevant to the calculation of their taxable income to the Tax Office and Tax Office assessors applied the tax laws and calculated the tax liability. The primary responsibility of the taxpayer was to make a full and true disclosure of all the material facts relating to their circumstances.

When partial self assessment was introduced for individual taxpayers, the responsibility for many aspects of applying the tax laws shifted to the taxpayer. As a result, an increased obligation on the Tax Office to provide information to taxpayers was accompanied by a new onus on taxpayers to understand the tax laws relevant to their circumstances. Tax Office resources were moved from assessing to taxpayer education and compliance activities.

To view these and other characteristics of the Australian self assessment system in a broader context, the Review has compared the Australian system with the systems in Canada, New Zealand, the United Kingdom (UK) and the United States (US). These comparisons reveal many similarities, but it is difficult to draw firm conclusions given the differences in tax policy and other factors.

In each jurisdiction there is an annual reconciliation of a taxpayer's income tax affairs, through means such as a tax return, an income tax statement generated by the revenue authority or a withholding tax system. Revenue authorities provide taxpayers and their agents with a wide range of information and advice to assist them in discharging their obligations.

One substantial difference between the five countries is the extent to which particular categories of taxpayers are required to lodge annual income tax returns. In Australia, Canada and the US, most income earners are expected to lodge an annual income tax return containing information on their taxable income and deductions. However, New Zealand and the UK have removed this requirement for large numbers of taxpayers (generally individuals with simpler tax affairs), while those with more complex affairs are still required to lodge annual returns.

All revenue authorities consider themselves to be bound by private rulings unless the information upon which they based the ruling was incorrect or incomplete. In Australia, Canada, New Zealand and the US, taxpayers can apply for a private binding ruling in advance of entering into an arrangement. Of the four countries, only Australia does not charge a fee for preparing a private ruling. The UK revenue authority will only provide taxpayers with a post-transaction ruling in limited circumstances and does not charge a fee to prepare them.

As the table below shows, the period in which a taxpayer's assessment can be reviewed after they have submitted their return is broadly similar across all of the countries examined.

Table 1: Time limitations on tax amendments

Country	General rule from date of original assessment	Where taxpayer has misrepresented information or tax fraud occurs
Australia	4 years, 2 years for taxpayers with simple affairs	Unlimited
Canada	4 years for large corporations, 3 years for individuals and other businesses	Unlimited
New Zealand	4 years	Unlimited
United Kingdom	5 years and 10 months for self employed or individuals with complex affairs, 22 months for employed individuals without complex affairs (for the UK, this time period starts at the end of the tax year)	20 years and 10 months
United States	3 years from due date for filing return, 6 years for major understatements	Unlimited

Where an income tax shortfall is identified, taxpayers in all five countries are potentially liable to pay interest and penalties. Australia generally charges the highest rate of interest on amounts owed, however the amount of interest paid is tax deductible. None of the other countries examined allow an individual this deduction, although New Zealand, the UK and the US allow a deduction in limited circumstances for interest paid by a company.

The Review uses a framework incorporating confidence, finality and the consequences of uncertainty to analyse the issues under review, asking the questions:

- Are taxpayers confident the Tax Office will take a consistent view of the law, over time and in similar circumstances?
- When should a taxpayer's affairs for a given year become final?
- What are the consequences of low confidence or lack of finality?

The subsequent chapters discuss these issues of confidence, finality and the consequences of uncertainty, looking at ways to address the causes of uncertainty for that parameter.

Chapter Two — Rulings and other Tax Office advice

Chapter Two of the paper discusses the main types of advice the Tax Office provides, reviews major issues that have been identified in relation to this advice, and outlines options for improving the quality of Tax Office advice.

The Tax Office provides taxpayers and practitioners with a comprehensive range of advice on how to apply the income tax law, consisting of formal rulings (such as public rulings and private binding rulings) and other products (including *TaxPack*, oral advice in response to queries and taxpayer alerts). Whether the Tax Office's advice is binding on the Tax Office depends on what type of advice it is.

The advice contained in formal rulings is binding by law on the Tax Office, whereas other advice is not, though some of it is treated by the Tax Office as administratively binding (effectively meaning that the Tax Office will stand behind it, even though it has no legal obligation to do so). Due to the different levels of bindingness, taxpayers may experience considerable uncertainty about their tax obligations when asking the Tax Office for advice, especially if the advice is of a type which cannot be relied on by the taxpayer.

The capacity of Tax Office advice to enhance taxpayer confidence that the taxpayer is acting in accordance with the Tax Office view depends on the accessibility, timeliness, accuracy and reliability of that advice. The discussion paper therefore examines a range of issues framed around these four factors, raising a number of options for reform.

Some of the issues and options explored in the Chapter include:

- Should more Tax Office advice be made legally binding?
- Is Tax Office advice sufficiently accessible?
- Do taxpayers and their advisers encounter delays in obtaining Tax Office advice?
- Are there significant problems with the accuracy of Tax Office advice?
- Is there evidence of a pro-revenue bias to the Tax Office's advice?
- Should the Tax Office be permitted to charge for providing certain advice?

Chapter Three — Review and amendment of assessments

Chapter Three explains the current rules governing the amendment of assessments and discusses whether they should be changed to give taxpayers earlier finality as to their income tax liability. The current rules attempt to balance two competing objectives, namely:

- A taxpayer should pay the correct amount of tax according to law.

- Whether or not a taxpayer has paid the correct amount, eventually their tax affairs for a particular year should become final, unless they have deliberately sought to evade their responsibilities.

The law seeks to balance these objectives by only allowing the Tax Office to amend assessments to correct errors within set time limits.

The discussion paper examines this topic from the perspective that, in order to promote certainty, the period permitted for amendment should approach the minimum required by the Tax Office (and the taxpayer) to identify incorrect assessments and take action to correct them.

Before self assessment, the Tax Office's ability to amend an assessment depended on whether the taxpayer had made a 'full and true disclosure' of all the facts necessary for the Tax Office to make an assessment in their tax return. Where a taxpayer had done this, the Tax Office could only increase the assessment within three years to correct an error in calculation or a mistake of fact. The Tax Office could not amend an assessment to correct a mistake of law.

Where a taxpayer had not made a full and true disclosure (for example, by not giving the correct details about a deduction claimed), or had been involved in a tax avoidance scheme, the Tax Office could alter the assessment for up to six years. If the underpayment of tax was due to fraud or evasion, the Tax Office could amend the assessment at any time.

With self assessment, the concept of 'full and true disclosure' was removed from the amendment rules and taxpayers were no longer required to disclose the full details of their income and deductions in their returns. Assessors no longer scrutinised that information before an assessment was issued.

The standard period now allowed for the Tax Office to amend an assessment (either to increase or reduce a taxpayer's liability) is four years. For certain individuals with very simple tax affairs, the period is two years. As with the previous system, the Tax Office has up to six years to amend an assessment to cancel a tax benefit under Part IVA (the general anti-avoidance provision). Where the Tax Office considers that there has been fraud or evasion, there continues to be no time limit on amending an assessment.

Chapter Three discusses a series of approaches that could be adopted to give taxpayers earlier certainty as to their income tax liability.

The first is to reduce the amendment period for individuals and very small businesses. Since the Tax Office generally completes its compliance activity for these taxpayers

within about two years of the original assessment, it may be possible for the period of review for these classes of taxpayers to be reduced without affecting compliance or revenue collection at all.

Another issue canvassed is reducing the amendment period for arrangements covered by the general anti-avoidance provision from six years to four years, to bring it into line with the amendment period for other complex taxpayers and issues.

The paper also invites comment on the introduction of fixed periods of review for loss and nil liability returns equivalent to those applying to assessments of a positive liability and other special cases that currently have unlimited review periods.

Another concept is to introduce early notification of intended compliance activity, so that taxpayers who are not notified would know that the Tax Office will not amend their assessments, except in limited cases. Under this system, the Tax Office could have, say, half of the applicable amendment period to notify a taxpayer that they will be subject to further scrutiny. Once the Tax Office has notified a taxpayer within that period, the normal amendment times would apply for all issues in the income year. If however, a taxpayer was not notified within the period, the Tax Office would be unable to amend (other than to address fraud or evasion).

The final idea considered in this Chapter is to extend existing pre-assessment agreements to cover a wider range of transactions or circumstances. There are a number of types of transactions for which a pre-assessment agreement would require a significantly shorter amount of time and less resources than an audit on the same topic. Examples of transactions for which pre-assessment agreements could be made include the application of losses and research and development expenditure.

Chapter Four — Penalties

Chapter Four deals with the penalties that can apply if a taxpayer has a tax shortfall resulting from a range of culpable acts or omissions.

The amount of the shortfall penalty depends on the reason for the shortfall, and may be varied up or down depending on whether the taxpayer has hindered the Tax Office in investigating the shortfall, has previously had a shortfall amount with a similar cause, or has made a voluntary disclosure of the shortfall.

Penalties are a potential consequence of uncertainty for taxpayers. During consultation, practitioners have suggested that:

- The meanings of key concepts such as ‘reasonable care’ and ‘reasonably arguable position’ are not clear.

- The penalty for failure to follow a private ruling should not apply if the taxpayer has taken reasonable care and, for a large item, has a reasonably arguable position.

- When a tax agent makes a mistake, penalties should not apply to a taxpayer who has taken reasonable care to provide the correct information to the agent.

- The Tax Office ought to be more flexible in remitting penalties.

The paper also asks whether the current penalty for failing to follow a Tax Office private binding ruling is achieving its intended effect.

Chapter Five — The General Interest Charge

Chapter Five outlines the operation of the GIC and explores the implications for self assessment. The GIC applies a uniform rate of interest to late payments of any type of tax, compounding daily from when the tax was originally due. This means that where a taxpayer under-assesses their liability, a substantial amount of GIC may have accumulated before the Tax Office informs the taxpayer of the shortfall in tax.

The Chapter discusses whether the way the GIC applies to shortfalls provides the right incentives, and discusses options for reducing the amount of GIC that currently accrues in relation to income tax shortfall amounts during the period between the issue of an initial assessment and an amended assessment.

Two further issues discussed in this Chapter are those of Tax Office initiated remission and the standardisation of tax deductibility. During initial consultations, practitioners suggested that remission could be streamlined if the Tax Office were to initiate remission in more circumstances, and more frequently. Standardising tax deductibility would eliminate the current diversity in after tax shortfall GIC outcomes. This could be achieved by replacing tax deductibility with an offset of, say, the top marginal rate for individual taxpayers and 30% for companies. Alternatively, tax deductibility could be abolished altogether, with a commensurate reduction in the uplift factor.

The following table shows interest charges applied by the revenue authorities on tax shortfalls in Australia, Canada, New Zealand, the UK and the US, noting that Australia is the only country that allows individual taxpayers a deduction for GIC.

Table 2: Interest payable on tax shortfalls

Country	Rate of interest	Interest tax deductible?
Australia	Bank Accepted Bill rate plus 7%	Yes
Canada	Canadian 90 day Treasury Bill rate plus 4%	No
New Zealand	New Zealand business base lending rate plus 2%	Only for businesses
United Kingdom	4.75% for corporations which pay their tax in quarterly instalments	Only for corporations
	6.5% for individuals and corporations which pay their tax annually	
United States	Federal short term rate plus 3% for individuals	Only for corporations

Chapter Six — Other Issues

Chapter Six collects issues that do not fall directly within the main themes of the previous chapters.

A number of issues relate to tax agents. Over 75 per cent of taxpayers in Australia use tax agents, so the relationship between tax agents and the Tax Office, and the systems used by tax agents, are important issues in the Australian self assessment system.

These issues include review of tax agents' systems by the Tax Office, obligations to provide information, obligations to keep records and lodgement records. Most of these issues are also relevant to individual taxpayers. Other issues discussed are taxpayer awareness of self assessment obligations, an option for earlier examination of returns, and discretions and elections.

Another issue is the perception of a power imbalance between the Tax Office and the taxpayer when it comes to formal disputation. From the point of view of many taxpayers, the Tax Office is a very powerful adversary with virtually unlimited resources and finances. In other situations where an imbalance of resources exists, mechanisms such as alternative dispute resolution have proven successful. This non-adversarial approach could improve relations between individual and small business taxpayers and the Tax Office and remove the perception of the Tax Office aligning its resources against a single taxpayer in a court setting. The Tax Office itself may benefit, in terms of costs, public image and ease of administration. Of course, this approach would not help clarify areas of the law.

Other issues discussed in this Chapter relate to obligations to keep records and provide information, which become important to the Tax Office's tasks of identifying revenue risks and make accurate assessments of tax liability. At the tax agent level, the Tax Office assists tax agents to perform these roles to gain mutual assurance that tax agents' systems are accurate and reliable. There are some suggestions in the paper as to how these processes could be improved and streamlined.

The final section of Chapter Six discusses discretions and elections, and outlines some issues that practitioners have raised relating to how discretions are determined and elections are made. The paper acknowledges the importance of administrative discretions (for example, to extend the time to do something), but suggests that the discretions going to the determination of liability that are causing practical difficulties could be identified and dealt with. With respect to elections, as a result of changes made in 1992, elections generally do not have to be lodged with the Tax Office. The discussion paper invites comments on any specific elections that are still causing difficulty for taxpayers.

Conclusion

This paper has given some background on the Review of Aspects of Income Tax Self Assessment, including outlining the content of the Review's recently released discussion paper. The discussion paper outlines a range of issues and approaches for refining the operation of Australia's income tax self assessment system and to date the reaction from industry has been positive. Government agencies including the Tax Office, the Department of Prime Minister and Cabinet, the Department of Finance, the Inspector-General of Taxation, the Australian National Audit Office, the Office of Small Business and the Commonwealth Ombudsman have contributed to the Review to date.

The Review team will continue to consult with taxpayers, tax practitioners, government agencies and industry groups until submissions close on Friday 21 May 2004. Further information about the Review and a copy of the discussion paper, can be accessed at the Review's website, at http://selfassessment.treasury.gov.au

Key themes from the Treasury Business Liaison Program — February 2004

The following article is a summary of findings from the Treasury Business Liaison Program conducted in February 2004.[1] Treasury greatly appreciates the commitment of time and effort made by the Australian businesses and industry associations that participate in this program.[2]

1 A detailed explanation of the Treasury Business Liaison Program is provided in the Treasury *Economic Roundup Spring 2001*.

2 Summary reports of Treasury's business liaison reflect the views and opinions of contacts. A summary of business conditions reported by liaison contacts is provided for the information of readers. While Treasury's evaluation of the economic outlook is informed by findings from business liaison, a much wider range of information and data is utilised to ensure a rigorous assessment of the Australian economy.

Overview

The February business liaison round comprised meetings with contacts in Sydney, Melbourne and Canberra, along with a number of phone interviews. Contacts in this round were primarily industry associations across a range of sectors.

Overall, most contacts reported sound business conditions and a solid outlook for the coming year. In particular, mining industry contacts were very positive, along with those in the retail and finance sectors. In contrast, manufacturing sector contacts tended to expect flat business conditions while contacts in dwelling construction were generally expecting a moderate slowdown in activity over the next 12 months.

A number of contacts noted that it was becoming more difficult to attract and retain skilled labour in some sectors. Several contacts also indicated that these difficulties could become more marked in the medium term; as a result of a shortage of new apprentices.

General business conditions and outlook

As in previous recent liaison rounds, most contacts reported relatively strong trading conditions and were generally optimistic about the future.

Mining sector contacts were particularly positive noting the existence of strong international demand and high mineral commodity prices. Further information on this sector is provided below.

Retail sector contacts reported that the mood of retailers remains positive. While profit margins are tight in some business areas, high sales volumes mean that profitability remains strong across the board.

Financial sector contacts noted that equity markets appear to be gathering strength. The development of more sophisticated financial products was fuelling this growth as investors could use financial instruments to cover risk more easily than in the past. In addition, the growth in the size of superannuation funds means that they are playing an increasingly important role in the market.

Agriculture contacts noted that some parts areas of the country are still recovering from the drought whereas others are growing strongly. Industries providing goods and services to the agriculture sector reported sound business conditions and solid levels of profitability.

Tourism contacts reported that both international and domestic tourism activity are currently solid with ongoing growth expected over the next year.

In contrast, manufacturing sector contacts were generally expecting relatively flatter business conditions than most other sectors of the economy. This outlook reflected strong international competition due to both the appreciation of the Australian dollar and increased efficiency by manufacturers in the Asia-Pacific region. Nonetheless, some manufacturing firms were still anticipating strong business conditions over the next year.

Many contacts in the dwelling construction sector were expecting a downturn over the next year, albeit a moderate one. However, contacts involved in other areas of the construction sector were expecting continued strong conditions. Further views from contacts in this sector are discussed below.

Labour market

Although not a universal perspective, a number of contacts noted that there was some evidence of labour market tightness. In particular, contacts in the manufacturing, mining and machinery servicing components of the agricultural sector indicated that it was becoming more difficult to attract and retain skilled labour.

In the short term, some firms were looking to address this issue by employing staff from overseas or by 'poaching' staff from other firms or from interstate. While contacts generally reported that this was currently not impacting significantly on wages, there was concern that it did have the potential to put pressure on wage costs in certain sectors in the future.

The issue of skilled labour shortages was also raised as a longer-term issue with a number of contacts indicating that there were not currently enough apprentices coming through the system. While this situation was seen as manageable at present, contacts thought it would have an impact when existing employees retired leaving a large shortfall in skilled labour.

- One contact noted that the average age of one section of their skilled labour force was over 45 years and that there were not currently sufficient numbers of apprentices to train as replacements.

Mining

Mining sector contacts noted that the sector as a whole was performing strongly at present. Most contacts noted that high commodity prices were providing a 'natural hedge' against the appreciation of the Australian dollar and were helping to retain profitability.

Looking ahead, contacts thought that the industry was faced with 'fantastic opportunities' based on strong international demand and high mineral prices. Reflecting this, investment levels were currently high and were expected to increase further.

Contacts noted, however, a number of potential impediments to growth in the sector. In particular, a number of contacts noted that rail infrastructure was limiting the amount of minerals that could be delivered to ships, especially in New South Wales. Freight costs had also risen extremely rapidly from the combination of an increased global demand and the retirement of a number of bulk commodity carrying ships. Mining contacts also indicated the existence of skilled labour shortages for some jobs.

Housing and construction

The majority of contacts stated that the housing market has slowed with a number of contacts noting that the slowdown had begun prior to the recent interest rate rises. The majority of contacts also expected further slowing, albeit moderate, through 2004.

- While some medium density projects are being cancelled, work already in the pipeline means that construction will be maintained at high levels in the near term. However, over the next 12 months many contacts in Melbourne expect to move from large apartment projects to low rise medium density developments, reflecting the high supply of inner city apartments and increasing labour costs associated with apartment construction.

Most contacts noted that house and unit prices were either static or had fallen. Almost all contacts also mentioned a significant increase in costs of construction. The main rises were in prices charged by sub-contractors along with the price of materials.

Contacts involved with non-residential construction typically expect continued strong levels of activity. Many indicated that investment in public infrastructure (particularly in partnership with the private sector) continued to provide work. Construction linked to investment in the mining sector was also noted as a source of ongoing activity.

Sources of economic data

The following table provides sources for key economic data. Australian Bureau of Statistics (ABS) data can be obtained over the internet at **http://www.abs.gov.au**. The Reserve Bank of Australia information is available at **http://www.rba.gov.au**. Similarly, OECD information is available at **http://www.oecd.org**. Information on individual economies is also available via the IMF at **http://www.imf.org**.

International economy	
Output, current account balance and interest rates	OECD Main Economic Indicators
Consumer price inflation	ABS cat. no. 6401.0
National accounts	
Components of GDP, contributions to change in GDP	ABS cat. no. 5206.0
Incomes, costs and prices	
Real household income	ABS cat. nos 5204.0 and 5206.0
Wages, labour costs and company income	ABS cat. nos 5204.0, 5206.0 and 6302.0
Prices	ABS cat. nos 6401.0 and 5206.0
Labour market	ABS cat. no. 6202.0
External sector	
Australia's current account, external liabilities and income flows	ABS cat. nos 5368.0, 5302.0 and 5206.0

Past editions of Economic Roundup

Details of articles published in the past two editions of the Economic Roundup are listed below:

Summer 2003-04

First home buyers in Australia

Recent developments in the Australian housing market

Australian net private wealth

Globalisation: the role of institution building in the financial sector

Key themes from the Treasury Business Liaison Program — November 2003

Spring 2003

2002-03 in review: continued growth despite global weakness

Key themes from the Treasury Business Liaison Program — July/August 2003

Treasury submission to the Senate Economics References Committee Inquiry into the Structure and Distributive Effects of the Australian Taxation System

East Asian capital flows

Australia and the international financial architecture — 60 years on

Copies of these articles are available from the Treasury. Written requests should be sent to Mr David Hedley, Department of the Treasury, Langton Crescent, Parkes, ACT, 2600. Telephone requests should be directed to Ms Susan O'Shea on (02) 6263 3797.

Copies may be downloaded from the Treasury web site http://www.treasury.gov.au.

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