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# 6 Real Wages, Employment, and Wage Dispersion in U.S. and Australian Labor Markets

Robert G. Gregory and Francis Vella

There are a number of reasons why a comparison of Australian and U.S. labor markets might improve our understanding of the large changes in relative earnings that are occurring in the United States.[1] First, it would be interesting to know whether the economic forces generating those changes are so powerful and internationally pervasive that the same earnings outcomes can be observed in very different institutional settings. The Australian labor market is a good comparison for such an inquiry because, unlike the relatively free and flexible U.S. labor market, it is dominated by direct trade union coverage and a strong centralized wage-fixing institution, the Industrial Relations Commission, which sets awards rates of pay and delivers trade union conditions to almost 90 percent of the Australian workforce.[2]

Second, perhaps the comparison can help us form rough judgments as to the way in which shocks affect relative employment and wages differently in different labor markets. It is widely believed that Australian relative award wages

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1. Davis (1992) compares U.S. outcomes with those of a number of OECD countries. Levy and Murnane (1992) survey the existing U.S. literature.

2. Awards set the same rate of pay and working conditions for approximately nine thousand separate job classifications throughout the country. There is provision for overaward and more market-orientated payments, but these are confined to about 2–3 percent of wage and salary earners.

are fairly inflexible across enterprises, skill categories, and industries and that most adjustment to micro shocks takes the form of relative *employment* responses. This contrasts with the U.S. labor market, where relative employment *and* wages seem to change considerably.

Of course, the U.S. experience prompts a range of questions about the Australian labor market. For example, will the rigid relative wage system begin to break down if exposed to the same labor demand and supply shifts that are occurring in the United States? Will wage rigidity in Australia give rise to exaggerated relative employment changes and increases in structural unemployment? These questions become more pointed within the Australian income policy regime that has operated during most of the 1980s.

The paper is divided into three sections. In section 6.1, the performance of the Australian and the U.S. labor markets is compared. The section begins with a description of the macro history of each country from 1950 to 1992, with the emphasis being placed on average wage changes. The histories are very similar, except for a brief period between 1969 and 1976 when Australian real wages increased by about one-third relative to those in the United States, the relative employment/population ratio fell about 10 percent, and the unemployment rate increased from typically one-third of U.S. levels to exceeding them. The changes of this period have remained in place, and during the 1980s the two countries have again shared a similar history.

Since 1970, and after adjusting for population growth, one in four male full-time jobs has disappeared in Australia.[3] In the United States, the full-time job loss among males has been minor, one in twelve. Is this very different employment history only a response to the Australian average real wage shock of the mid-1970s, or is it also related to the interaction of the Australian system of rigid relative wages and the forces generating changes in the earnings-employment dispersion in the United States?

This question is addressed by directing attention toward employment changes within different ranges on the earnings distribution rather than adopting the approach of other papers in this volume that emphasize changes in earnings at different points on the employment distribution. To do this, we take 1976 as the base year, rank full-time earnings for male wage and salary earners, and divide the earnings distribution into quintiles. The earnings boundaries of each quintile are expressed as a ratio of median earnings and applied to the median of each subsequent year. Then, to 1990, we follow the changing distribution of employment. There will be a close correspondence between changes in employment and earnings. A widening dispersion of employment implies a widening dispersion of earnings.

We find almost identical patterns of employment changes across the two countries. Male employment growth is overwhelmingly among high- and low-

3. A job loss of this magnitude has never occurred before in Australian history. From peak employment in 1927–28 to the depth of the depression in 1931–32, the employment/population ratio for males fell 18 percent; approximately two-thirds of the fall in the male full-time employment/population ratio occurred between 1970 and 1983.

paying jobs, and employment in the middle 60 percent of the weekly earnings distribution is disappearing at an astounding rate. After adjusting for population growth over the period 1976–90, employment in the middle three quintiles has fallen by around 33 percent in Australia and 18 percent in the United States. These findings give rise to a number of conjectures. For example, since changes in relative earnings and employment seem independent of the different average real-wage histories, the large across-the-board shock of average wages in Australia does not seem to have made a significant contribution to the change in relative earnings. In addition, the earnings dispersion appears to be widening at the same rate in both countries, and there is no evidence that the more compressed Australian distribution of earnings is converging toward the U.S. pattern. This section concludes with the observation that, unlike in the United States, the widening earnings dispersion in Australia has not been accompanied by an increase in the rate of return to education.

Section 6.2 discusses changes in the Australian employment-earnings distribution in more detail. We show that in Australia there is not a close correspondence between employment growth in different quintiles of the employment distribution and employment growth in different occupations. As in the United States, the widening dispersion of employment is largely occurring within occupations. The loss of male employment in the middle of the income distribution may be related to the rapid rate of growth of female employment, although the effect is not large. Middle-pay jobs are disappearing in both the public and the private sectors, and in the private sector it seems clear that the loss of middle-pay jobs has not been significantly affected by a move toward a more centralized wage system and the adoption of an income policy regime. The Prices and Incomes Accord between the trade union movement and the Labour government may have had some influence in the public sector, where the growth of high-earnings jobs has been subdued. Brief concluding comments are offered in section 6.3.

## 6.1 The Australian-U.S. Comparison

### 6.1.1 The Macro Background

At the beginning of 1993, the unemployment rate in Australia was around 11 percent, the highest level since the 1930s. The average unemployment rate had increased from 1.8 percent over the 1960s, to 3.6 percent for the 1970s, to 7.2 percent over the 1980s. It is widely believed that the average for the 1990s will continue to trend upward.

Although this unemployment trend is not unique to Australia, not all countries have fared as badly.[4] In the United States, the average unemployment rate

4. Most of OECD Europe has experienced similar unemployment increases to Australia's, but, viewed on a decade-by-decade basis, Australia's deteriorating unemployment performance is among the worst, along with France, Germany, and the United Kingdom. The change in average

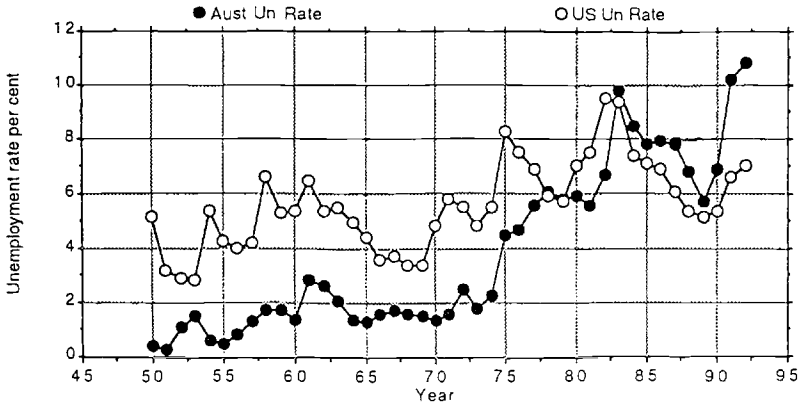


**Fig. 6.1 Unemployment rate, United States and Australia, 1950–92**
*Sources:* Foster and Stewart (1991); EconData Pty Ltd (OECD *Economic Outlook* diskette)

for each subsequent decade since the 1960s has been higher than the one before—4.6, 6.0, and 7.1 percent, respectively—but by Australian standards the increases have been small (fig. 6.1). Australian unemployment has quite clearly changed from low rates—which were typically a third of those in the United States during the 1950s and 1960s—to rates that typically exceed those of the United States. Most of this change occurred quite quickly over a four- to five-year period during the mid- to late 1970s.

To explain the relative increase in unemployment in Australia, a simple macro neoclassical model would look first to average real-wage changes, relative to labor productivity. Real wages increased at about the same rate as in the United States between 1950 and 1970, by just under 70 percent (fig. 6.2). Then, beginning in the early 1970s, four remarkable things happened.

First, after two and a half decades of steady increase, average real wages in the United States began to fall from a 1973 peak and today have just returned to levels prevailing two decades earlier. Second, between 1973 and 1975, Australia gained exceptional real-wage increases of around 20 percent. Based on the average experience of the 1960s, this change would have taken about seven years to accrue.

Third, since 1976, Australian real wages have varied little, increasing in the labor market deregulation period of 1980–83, and falling between 1983 and 1990 under the Prices and Incomes Accord. Recently, real wages have increased marginally and are now just above 1976 levels. The labor markets of both countries, which operate under very different institutional arrangements,

unemployment from the 1960s to the 1980s for each of these countries is 1.5–9.0 percent for France, 0.8–6.9 percent for Germany, and 1.6–9.5 percent for the United Kingdom. For an analysis of unemployment across most of the OECD, see Madsen (1992).

have not been able to generate significant real-wage increases for at least fifteen years in Australia and twenty years in the United States.

Fourth, primarily as a result of changes between 1973 and 1975, the long-term relation between U.S. and Australian real wages has changed in a fundamental and dramatic way (fig. 6.3). Between 1966 and 1975, Australian real wages increased by approximately 40 percent relative to those in the United States, or by about $12,000 per annum in terms of 1992 U.S. wage levels for full-year, full-time workers. This change is equivalent to about two-thirds of the average real-wage increase in the United States since 1950. It is a very large shift in relative living standards for employed workers in two mature developed countries over such a short period of time.

The large change in relative wages between the two countries occurs primarily in the two years immediately preceding the increase in relative unemployment, as would be predicted by a macro neoclassical model. Between 1950 and 1975, the variations in employment levels were similar; then relative employment seemed to respond quickly to the relative real-wage change of 1973–75 (fig. 6.3). Between 1976 and 1979, the Australian employment/population ratio fell 3.5 percent and that of the United States increased 5.5 percent (fig. 6.4). This is the only sustained period within the forty-year data span when the employment/population ratios of the two countries moved in opposite directions. Since 1979, variations of the employment/population ratio have been similar.

The changes in relations between U.S. and Australian labor markets during the 1970s were very large. If U.S. unemployment had maintained its 1960s

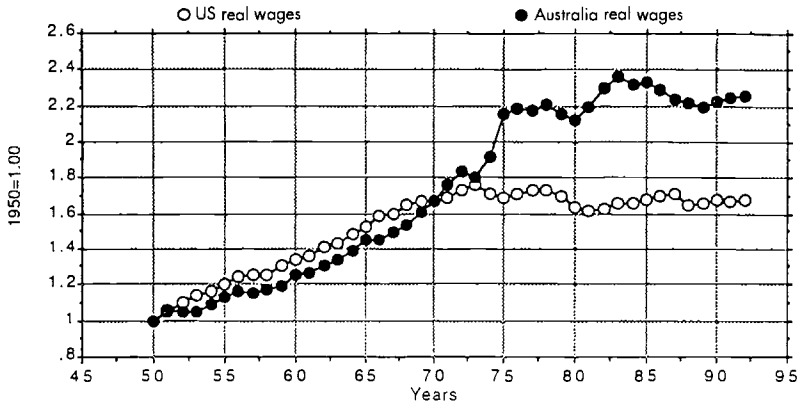


**Fig. 6.2 Real wages, United States and Australia, 1950–92**

*Sources:* Foster and Stewart (1991); EconData Pty Ltd (OECD *Economic Outlook* diskette)

*Note:* Real wages are measured as the ratio of compensation of employees adjusted for changes in consumer prices and divided by the number of wage and salary earners. 1950–88: Foster and Stewart (1991, tables 6.15, 6.23). 1989–92: EconData.

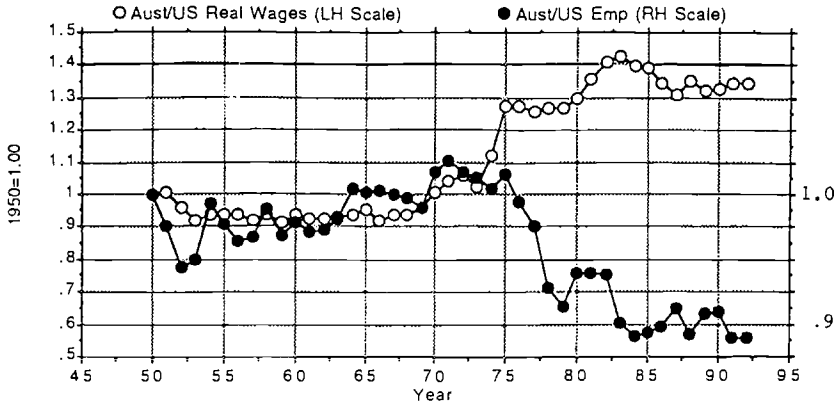


**Fig. 6.3 Relative employment and real wages, United States and Australia, 1950–92**

*Sources:* Real wages: see fig. 6.2 Employment/population ratios: Foster and Stewart (1991, table 6.12); EconData Pty Ltd (OECD *Economic Outlook* diskette). *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, February 1991).

*Note:* Employment is measured as employment divided by the population sixteen years and older.

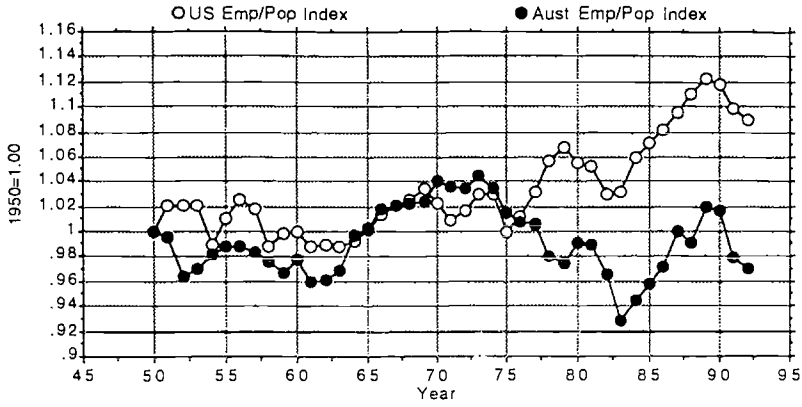


**Fig. 6.4 Employment-population indices, United States and Australia, 1950–92**

*Sources:* See fig. 6.3.

relation with that of Australia, the average unemployment rate would have been 18.4 percent during the 1980s rather than 7.1 percent.[5] If, from 1975, the U.S. employment/population ratio had increased at the same rate as it did in Australia, 13.8 million employment opportunities would have been lost in the United

5. This is calculated by applying to the U.S. unemployment rate of the 1960s the Australian percentage increase in average unemployment from the 1960s to the 1980s.

States. This is approximately two times the current number of unemployed people. A United States with 12 percent fewer people at work, an average unemployment rate of 18.4 percent,[6] and a real wage 30–40 percent higher would possess a very different allocation of living standards among the population.

This macro comparison suggests that Australian labor markets can deliver large real-wage changes and keep them in place, but not without affecting employment. It also suggests that real-wage increases are not fully offset by employment losses. The elasticity of demand appears to be about 0.3 so that the real-wage increase leads to a significant increase in the share of income being directed toward labor.[7]

### 6.1.2 The Disappearing Group of Middle-Wage Earners

The macro history of the previous section conceals two important labor market trends. First, between 1970 and 1991, there has been a strong bias against full-time jobs in Australia: 47 percent of Australian employment growth has been in part-time jobs. The equivalent U.S. ratio is 22 percent. Second, in both countries, there has been a similar bias toward female jobs, despite very large real-wage increases for Australian women.

Since 1970, these biases have been associated with a 25 percent reduction in Australian male full-time employment, adjusted for population growth (fig. 6.5). The contrast with the United States, where the male full-time employment/population ratio has fallen 10 percent, is starkly evident. Between 1966 and 1975, the male full-time employment series for both countries fell together, but, after 1975, following the change in the average wage relativity across the two countries, they diverged markedly. If the United States had matched the Australian proportionate job loss, then 7.8 million male full-time jobs would have disappeared between 1976 and 1991, approximately twice the 1991 average number of unemployed men in the United States.

To investigate the loss of male full-time jobs, attention is first directed toward job growth at different earnings levels in each country. There are no comprehensive and consistent Australian wage data for individuals extending back throughout the 1950s and 1960s, but since the mid-1970s the Australian Bureau of Statistics has been collecting two series of employee weekly earnings that are useful for our purposes. One is from a large sample of employers[8] (the May survey), and the other is from the sample of households included in the

6. These illustrative calculations do not allow for labor force responses to either the real-wage increase or the reduced level of employment opportunities.

7. For a range of estimated labor demand elasticities, see Russel and Tease (1991).

8. *Distribution and Composition of Employee Earnings and Hours,* Australian Bureau of Statistics (ABS), Catalogue no. 6306.0. For 1987, the sample extended to approximately ninety-one hundred employers and seventy-three thousand employees. The sample for 1976–81 differs from that for 1983 on. The data were not collected for 1982 and 1984. These data are referred to as the *May survey.*

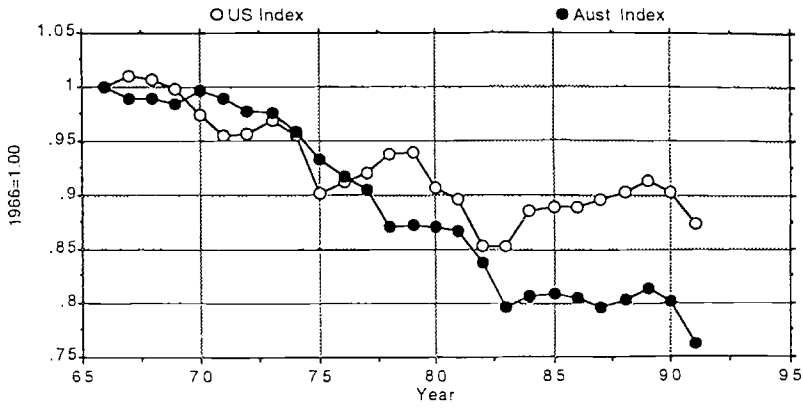


**Fig. 6.5 Male full-time employment-population indices, United States and Australia, 1966–91**

*Sources:* Australia: *The Labour Force,* ABS Catalogue no. 6203.0, various issues (August). United States: *Handbook of Labor Statistics* (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics, August 1989); *Employment and Earnings* (Washington, D.C.: U.S. Department of Labor, Bureau of Labor Statistics).

*Note:* Population is measured as male population sixteen years and older.

regular Labour Force Survey[9] (the August survey). The U.S. data are weekly earnings of full-year, full-time wage and salary earners taken from the March CPS tapes of 1977 and 1991.[10]

To identify where the job loss is occurring in each country, the weekly earnings distribution of male full-time workers in 1976 is ranked by earnings levels and then divided into quintiles and each boundary earnings level calculated as a proportion of median earnings. These boundaries are then applied to the median male full-time wage for 1990 and full-time male employment falling within each category counted and expressed as a proportion of the total. This places the emphasis on the changing employment distribution over fixed intervals of the earnings distribution. The alternative method, adopted in other papers, is to document changes in relative earnings at fixed points on the employment distribution. Each approach is measuring the same phenomenon, but the method adopted here seems more natural when the focus is to account for such large employment losses.

Columns 1–3 of table 6.1 list the 1976 dividing boundaries for each employment quintile expressed as a fraction of median earnings. They show quite clearly, as suggested by many other authors,[11] that the Australian earnings dis-

9. *Weekly Earnings of Employees (Distribution) Australia,* ABS, Catalogue no. 6310.0. These data are collected from two-thirds of 1 percent of the population and are referred to as the *August survey.*

10. We wish to thank Larry Katz for processing the U.S. data.

11. This compression has been discussed and documented in Hughes (1973), Norris (1986), and Gregory and Daly (1991).

**Table 6.1** **The Distribution of Male Full-Time Earnings in 1976 and Employment Changes by Earning Quintiles, United States and Australia, 1976–90**

| | Earning Boundaries, Ratio of 1976 Male Median Full-Time Earnings | | | Employment Distribution, 1990 (%) | | |
|---|---|---|---|---|---|---|
| | | Australia | | | Australia | |
| Earning Quintiles | United States: Full-Time Wage and Salary Earners (1) | Full-Time Nonmanagerial Employees (2) | Full-Time Wage and Salary Earners (3) | United States: Full-Time Wage and Salary Earners (4) | Full-Time Nonmanagerial Employees (5) | Full-Time Wage and Salary Earners (6) |
| First | .62 | .82 | .78 | 23 | 27 | 25 |
| Second | .88 | .99 | .92 | 18 | 16 | 17 |
| Third | 1.15 | 1.07 | 1.07 | 17 | 15 | 17 |
| Fourth | 1.50 | 1.28 | 1.35 | 14 | 19 | 18 |
| Fifth | | | | 27 | 23 | 24 |

*Sources:* United States: Weekly earnings of full-year, full-time wage and salary earners from the March Current Population Survey, 1977 and 1991. Australia: Full-time wage and salary earners: *Weekly Earnings of Employees (Distribution) Australia,* Australian Bureau of Statistics (ABS) Catalogue no. 6310.0 (August survey); full-time nonmanagerial employees: *Distribution and Composition of Employee Earnings and Hours,* ABS Catalogue no. 6306.0.

tribution is more compressed than the U.S. earnings distribution. The compression is quite significant, especially at low earnings. For example, in 1976, male full-time earnings in the United States at the twentieth employment percentile were about one-quarter less than in Australia. In terms of 1992 wage levels, this difference is equivalent to about U.S. $6,000 and, in proportionate terms, is equivalent to all the increase in U.S. male average earnings over the last thirty years. At the eightieth employment percentile, U.S. male full-time earnings were 11–17 percent more than in Australia.[12] These are comparisons of gross earnings, and the disparities between the two countries are widened when allowance is made for taxes and transfers.

The changes in the employment distribution between 1976 and 1990 are presented in columns 4–6. The pattern is remarkable, and the first impression is that the change seems almost identical in each country. The proportion of employment at low and high weekly earnings has increased in both countries by about 25 percent. The proportion of employment in the middle three quintiles has fallen by about 18 percent. The Australian data are consistent for both the August Labour Force Survey, which in terms of data-collection method and data definition is directly comparable to the U.S. data, and the more restricted sample collected from employers in the May survey. The sec-

12. Data taken from the two Australian series, full-time nonmanagerial (May survey) and all wage and salary earners (August survey), are very similar, but, as expected, the earnings dispersion is greatest among full-time wage and salary earners, for two reasons. First, the data include managers. Second, data reported by individuals from a household survey tend to be more variable than data reported by firms.

ond impression is that, in the high-growth areas at the extremes of the distribution, Australian employment, relative to that in the United States, is growing faster at the bottom but more slowly at the top.

These results suggest the following comments. First, the evidence from table 6.1 does not support the conjecture that both countries are moving toward the same earnings distribution. Although the earnings distributions and the quintile cutoff points are so very different in each country—the gap between the bottom and the top quintile is almost twice as great in the United States—the pattern of job change is approximately the same. Despite compressed wage relativities, Australia has not been subject to a greater hollowing out of middle-level jobs. The forces bringing about change are altering the earnings distributions in the same proportionate way, but they are *not* acting to equalize the earnings distributions across the two countries.

The lack of an equalization tendency can be seen in table 6.2, where U.S. quintile divisions have been applied to Australian data in 1976 and 1990. As mentioned earlier, the Australian earnings distribution is more compressed: in 1976, 33.5 percent of Australian male earnings lie in the middle quintile of the U.S. earnings distribution and only 8.1 percent in the lowest quintile (August survey). The Australian distribution, however, has moved toward the U.S. 1976 earnings distribution, as the middle quintile has fallen to 28.0 percent of employment and the bottom quintile increased to 11.2 percent. This change would have represented an equalizing tendency across the two countries except that the U.S. distribution has also changed and become less equal. The net result is that the two distributions have moved further apart.[13]

Second, we have shown elsewhere that the difference in the earnings distributions between the two countries cannot be explained by human capital variables, as conventionally measured, and that the compression of employment in Australia is institutionally determined (Gregory and Daly 1991). It is perhaps surprising, therefore, that, on an employment basis, Australian institutions are able to *maintain* relativities between U.S. and Australian earnings distributions but not *offset* the trends for the earnings distribution to widen. It is puzzling that the rate of change should be so similar in the two countries when one is perceived as having a flexible labor market (in which relative employment and earnings change) and the other an inflexible labor market (in which relative employment changes but relative earnings are fairly inflexible).

Third, and perhaps even more surprising, the change in the employment distribution is approximately the same in both countries despite the fact that,

13. A measure of the difference between the two distributions, after applying the U.S. boundaries to the Australian data, is calculated as follows. The percentage point difference between the two countries in the employment proportions in each quintile is calculated and then averaged, ignoring the signs. The average percentage point difference across the two countries in the 1976 distributions, calculated by ignoring the signs, was 7.5 percentage points (August survey). This had narrowed to 5.5 percentage points between Australia in 1990 and the United States in 1976, but, because of the U.S. change since 1976, the average difference between the two countries in 1990 had widened to 9.9 percentage points.

**Table 6.2** **Employment Shares Calculated from U.S. 1976 Employment Quintiles**

| | Australian Employment Share (%) | | | | | |
|---|---|---|---|---|---|---|
| | August Survey | | May Survey | | U.S. Employment Share (%) | |
| Quintile | 1976 | 1990 | 1976 | 1990 | 1976 | 1990 |
| First | 8.1 | 11.2 | 2.3 | 3.4 | 20.0 | 23.1 |
| Second | 25.3 | 25.8 | 27.8 | 31.7 | 20.0 | 18.0 |
| Third | 33.5 | 28.0 | 39.0 | 30.4 | 20.0 | 17.7 |
| Fourth | 18.7 | 18.9 | 21.1 | 22.7 | 20.0 | 14.2 |
| Fifth | 14.4 | 16.1 | 9.8 | 11.8 | 20.0 | 26.9 |

*Sources:* See table 6.1.

since 1970, and adjusting for population growth, Australia has lost 25 percent of its male full-time jobs and the United States only 8 percent. Given the large wage increases in Australia in the mid-1970s, and given the fact that the unemployed are drawn disproportionately from those with lower earnings, it might have been expected that employment at the bottom of the earnings distribution would not have grown so much in Australia.

Fourth, as the pattern of change is so similar across the two countries, it appears as though the change in relative earnings and employment can be regarded as independent of the different macro history. In other words, the large change in Australian average wage levels, relative to those in the United States, does not seem to have affected relative employment at different earning levels.

### 6.1.3 Education and Disappearing Employment at Middle-Level Earnings

The changes in the employment distribution in table 6.1 above are so similar that they suggest common forces generating U.S. and Australian changes. Most commentators on U.S. earnings distribution changes believe that the increasing demand for better-educated workers, not matched by an increase in supply, has been important (Burtless 1990; Blackburn, Bloom, and Freeman 1990). What has been the Australian experience?

Table 6.3 documents educational attainment and income for Australian full-year, full-time male workers from 1968–69 to 1989–90. Before the mid-1970s, the change in the rate of return to education is similar to that in the United States. The ratio of average earnings of degree holders to those who left school at fourteen or fifteen years fell 23 percent between 1968–69 and 1978–79, and the earnings relativity for those with a diploma fell 19 percent. Since 1978–79, when the earnings dispersion widened, the change in the education return has been quite different across the two countries. In Australia, the rate of return appears to have been constant, while, in the United States, it has increased substantially. The failure of the education return to increase in Australia since the mid-1970s might be explained by the greater increase in the supply of

**Table 6.3** **Full-Year, Full-Time Workforce in Australia: Ratio of Average Earnings by Educational Attainment to the Average Earnings of Those Who Left School at Age Fourteen or Fifteen, 1968–69 to 1989–90 (average earnings of those who left school at age fourteen or fifteen = 100)**

| Educational Attainment | 1968–69 | 1973–74 | 1978–79 | 1981–82 | 1985–86 | 1989–90 |
|---|---|---|---|---|---|---|
| Males with postschool qualifications: | | | | | | |
| Degree | 238 | 202 | 183 | 173 | 170 | 179 |
| Diploma/certificate (nontrade) | 160 | 147 | 135 | 135 | 143 | 135 |
| Trade certificate | 115 | 111 | 111 | 107 | 114 | 112 |
| Other | N.A. | 132 | 121 | 122 | 114 | 121 |
| Males without postschool qualifications: | | | | | | |
| Left school at 17 | 109 | 105 | 104 | 101 | 104 | 106 |
| Left school at 16 | 102 | 100 | 97 | 104 | 99 | 102 |
| Left school at 13 or under | 95 | 96 | 96 | 98 | 96 | 95 |

*Sources:* 1968–69: *Income Distribution, 1968–69: Consolidated and Revised Edition,* ABS Catalogue no. 6502.0, table 63. 1973–74: *Social Indicators no. 3, 1980,* ABS Catalogue no. 4101.0, table 6.8. 1978–79: *Income Distribution, Australia, 1978–79: Supplement to Social Indicators no. 3,* ABS Catalogue no. 4108.0, table 8. 1981–82: *Social Indicators no. 4, 1984,* ABS Catalogue no. 4101.0, table 6.8. 1985–86: *1986 Income Distribution Survey, Persons with Earned Income, Australia,* ABS Catalogue no. 6546.0, table 11. 1989–90: *1990 Survey of Income and Housing Costs and Amentities, Persons with Earned Income, Australia,* ABS Catalogue no. 6546.0, table 11.

*Note:* N.A. = not available.

**Table 6.4** **Full-Year, Full-Time Male Workforce in Australia by Educational Attainment, 1968–69 to 1989–90 (%)**

| Educational Attainment | 1968–69 | 1973–74 | 1978–79 | 1981–82 | 1985–86 | 1989–90 |
|---|---|---|---|---|---|---|
| With postschool qualifications: | | | | | | |
| Degree | 3.6 | 4.5 | 8.1 | 9.1 | 10.7 | 13.4 |
| Diploma/certificate (nontrade) | 8.6 | 10.2 | 13.1 | 13.6 | 12.0 | 14.0 |
| Trade certificate | 15.6 | 18.4 | 26.1 | 27.0 | 28.4 | 28.2 |
| Other | N.A. | 2.7 | 3.6 | 1.7 | 1.9 | 0.1 |
| Total | 27.8 | 35.8 | 50.9 | 51.4 | 53.0 | 56.3 |
| Without postschool qualifications: | | | | | | |
| Left school: | | | | | | |
| Over 17 years | 4.2 | 10.9[a] | 3.7 | 4.3 | 5.3 | 6.0 |
| 17 years | 5.9 | | 6.4 | 7.3 | 7.8 | 8.1 |
| 16 years | 11.1 | 11.2 | 9.8 | 10.6 | 10.3 | 10.4 |
| 14 or 15 years | 40.0 | 34.2 | 23.8 | 21.3 | 19.4 | 16.0 |
| 13 years or under | 11.0 | 7.9 | 5.1 | 4.9 | 4.1 | 3.0 |
| Total | 72.2 | 64.2 | 49.1 | 48.6 | 47.0 | 43.7 |

*Source:* See table 6.3.

*Note:* N.A. = not available.

[a]Includes both over 17 years and 17 years.

better-educated workers, especially in the earlier period (table 6.4). Between 1968–69 and 1989–90, the proportion of full-year, full-time male workers with postschool qualifications increased from 27.8 to 56.3 percent and those with degrees from 3.6 to 13.4 percent.[14]

Even though the different experience of rate of return changes may be easily explained, there are still a number of potential difficulties. First, given that the earnings-employment distribution changes are so similar since 1976, why is the change in the return to education so different?[15]

Second, can the relative stability of the education return in Australia be reconciled with the evolving employment growth pattern? It is surprising, perhaps, that declining employment in the middle of the earnings distribution and rapid growth of employment at low weekly earnings have not affected the education return.

Third, what can be said as to the rate of return to education for the economy as a whole? Since 1976, the average number of years of schooling has increased by one year from 11.6 to 12.5 years. However, average real wages have not increased, and 71 percent of *all* new jobs are in the bottom quintile of the male earnings distribution. The disjuncture between the rapid growth of the average level of education and new jobs being created primarily at the bottom of the earnings distribution suggests that the additional government investment in education may not yet be paying off.

## 6.2 The Australian Story in More Detail

### 6.2.1 The Demand for Different Occupations

To comment on the relation between changes in the dispersion of employment at different levels of earnings and shifts in occupational employment re-

14. The relation between the rate of return to education and the changing stock of educated workers is not clear-cut. For example, the increase in degree holders since 1978–79 has been substantial, but the increase in those with some postschool qualifications is not very significant. The increase in those with degrees and diplomas—this aggregation might be equivalent to those with degrees in the United States—does not seem sufficient to explain why the increase in the rate of return experienced in the United States is not found in the Australian data. It is obvious that considerably more work needs to be done in this area. For the latest Australian research, see Maglen (1991).

15. The data from table 6.3 above are not standardized for labor force experience, but a more careful analysis does not suggest an increasing rate of return to education over the data period analyzed. Borland (1992), e.g., has processed the available unit record data from the Income Distribution Surveys for 1982, 1986, and 1990. He confined his analysis to wage and salary earners and those full-year, full-time workers earning more than $60.00 a week. After standardizing for a quadratic in experience, his results show that the education differentials increase marginally between 1982 and 1986 and then narrow between 1986 and 1990. Borland suggests that, in the Income Distribution Survey data, the differential across education categories has not expanded as rapidly in Australia as in the United States but that wage differentials across experience categories appear to have widened by a larger amount. The change to the return for experience seems surprising and is not consistent with the published data, which include the self-employed. Borland also provides a wide range of earnings statistics from each of the available data sources.

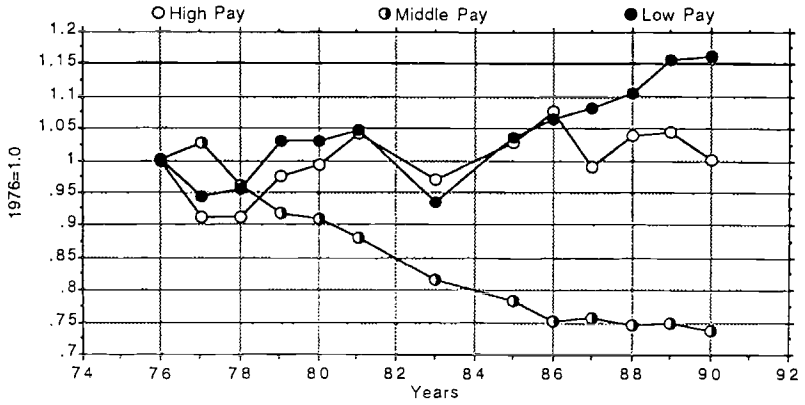


**Fig. 6.6 Male employment indices for high-, middle-, and low-paying earnings, Australia, 1976–90**

*Source: Distribution and Composition of Employee Earnings and Hours,* ABS Catalogue no. 6306.0.

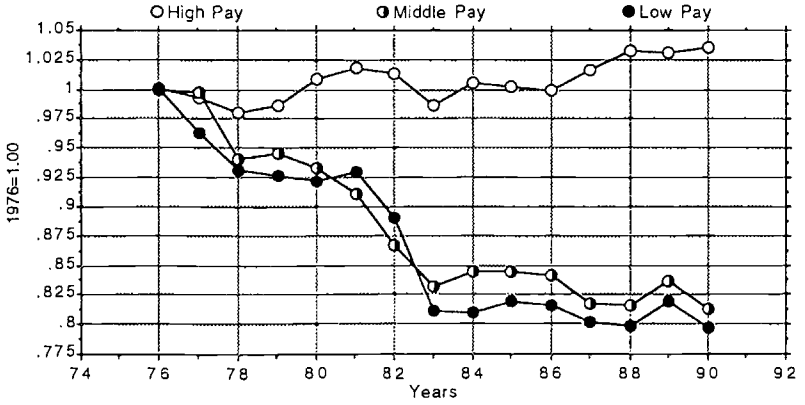


**Fig. 6.7 Male employment indices for high-, middle-, and low-paying occupations, Australia, 1976–90**

*Sources: The Labour Force Survey,* ABS Catalogue no. 6203.0, various issues (August); *Distribution and Composition of Employment Earnings and Hours,* May 1983, ABS Catalogue no. 6306.0.

quires matching different data sets.[16] Changes in occupational employment from the Labour Force Survey can be compared to employment growth in different quintiles of weekly earnings from the May survey. To do this, male full-

16. There are few data series available over a long time period that allow a detailed analysis of wage changes within occupations. The data sources that could be used include the Income Distribution Surveys for 1968–69, 1973–74, 1978–79, 1982, 1986, and 1990, but individual level data are available on tape only since 1982. The 1976, 1981, and 1986 census data are available on tape, but unit record data are available only for 1981 and 1986.

time employment from the Labour Force Survey is divided into three fixed occupation groups to approximate employment from the highest weekly earnings quintile, the middle three quintiles, and the lowest quintile taken from the May survey.[17] In 1976, high- and low-paying occupations each accounted for 28 percent of all employment.[18] The occupation classification available does not allow a closer approximation of employment proportions to the quintile groups.

Employment growth in the high weekly earnings quintile, figure 6.6, and in high-paying occupations, figure 6.7, is similar and matches the population growth rate. Employment growth in the middle-earnings quintiles and middle-pay occupations is also similar but declines strongly. It appears that the 25 percent employment loss in the middle quintiles of the earnings distribution could be "explained" by the 25 percent employment loss in middle-level occupations.[19] But there is an evident puzzle when we turn to the low-earnings group. An explanation of the disappearance of middle-paying jobs cannot be based on changing demands for occupations. For low-paying occupations, there has been a 25 percent *decrease* in the employment/population ratio, but employment in the low-earnings quintile has *increased* 15 percent. Across each earnings group, therefore, there is not a precise mapping of employment changes by occupation onto employment changes by earning levels. Employment growth at low weekly earnings cannot be explained by employment growth in low-paying occupations, and, as a result, employment declines at middle-level earnings cannot be explained by employment declines in middle-level occupations.

It also appears that the loss of middle-paying jobs is not related to a fall of average earnings in middle-paying occupations relative to low-paying occupations. High-paying occupations have experienced a real earnings increase of 5

17. The employment data are taken from the *The Labour Force*, ABS Catalogue no. 6203.0, August issues. Relative wages of occupations are taken from the *Distribution and Composition of Employment Earnings and Hours, May 1983*, ABS Catalogue no. 6306.0. It is not a straightforward matter to allocate full-time employment to occupations. Employment classified by occupation is not divided into full- and part-time employment, but this is not a serious problem for the male labor market over this period as part-time employment never accounts for more than 8 percent of all male employment. Before 1985, low-paying occupations are defined as laborers not elsewhere classified, other clerical workers, storemen, toolmakers, and metalworkers. The high-paying occupations are all professionals and managers. Middle-paying occupations are the residual. After 1985, the classification changes. Low-paying occupations are laborers, machine operators, drivers, sales assistants, tellers, miscellaneous sales, vehicle trades, and horticulturists. High-paying occupations are managers, professionals, and paraprofessionals. The series are spliced on the assumption that the employment distribution did not change between 1985 and 1986.

18. Within the high-paying occupation group, employment of professionals has grown quite strongly, but employment of managers has not. For some purposes, it would be useful to disaggregate the data further.

19. The question now becomes, Why is employment disappearing in middle-level occupations? It should be easy to make progress on this question because occupations can be matched to the changing demand for industry output and different patterns of international trade to discover whether imports are a factor. Alan Powell of Monash University has begun to do this; see also the new research project of Falvey, Forsyth, and Tyers (1992).

percent over the period 1976–90. Real earnings for low- and middle-paying occupations have fallen steadily and at a similar rate until 1987, something on the order of 4–5 percent. Since earnings in low- and middle-paying occupations have fallen at the same rate, the Australian experience is consistent with U.S. results that indicate that most of the changing earnings dispersion is occurring within and not across occupations.

### 6.2.2 The Employment of Women

A disproportionate share of the exceptional real-wage growth in Australia during the early 1970s was accounted for by women. Had their real-wage increase been constrained to that of men, the average aggregate real-wage increase between 1969 and 1975 would have been about 8 percent less, and the average aggregate wage increase relative to the United States over this period would have been reduced from about one-third to one-quarter.

The real earnings increase for Australian women between 1968–69 and 1975–76 was approximately 65 percent, while that of U.S. women was around 4 percent. Despite this extraordinary earnings increase in Australia, the employment of women continued to increase relative to that of men. For example, the number of adult women employed as full-time nonmanagerial employees (the May survey) increased 39 percent between 1976 and 1990, while male employment increased 7 percent. Among *all* new jobs, women employed full- and part-time have accounted for seven of every ten.[20] This rapid growth of female employment naturally prompts the question as to the relation between their employment growth and the distribution of male jobs. Perhaps better-educated women have been filling some of the missing male middle jobs.

Table 6.5 refers to full-time nonmanagerial employees (the May survey). Column 1 allocates the male employment change between 1976 and 1990 to each quintile from table 6.1 above. The absolute employment loss in the middle quintiles is clearly evident. Column 2 allocates women employed full-time to the same quintiles to see where their employment growth lies in the male earnings distribution. The dispersion of additional employment for women since 1976 is more even,[21] but once again job growth is greatest at levels of weekly earnings equivalent to the bottom 20 percent of male workers. Women have done absolutely and relatively better than men in obtaining employment in the middle of the male pay distribution, and, in this sense, there has been some employment substitution. The extent is slight, however. Had all additional employment of women been allocated to men, there would still be a disappearing middle, and the growth rate of low-paying jobs would have been even greater than before.

20. For a further analysis of the effect of female employment growth on the Australian labor market, see Gregory (1990).

21. Women have done particularly well in the fourth quintile, where they filled eight of every ten new jobs.

**Table 6.5** **Australian Employment Growth by Earning Quintiles, 1976–90 (thousands)**

| Quintile | Full-Time Nonmanagerial Employees | | | | All Employees |
|---|---|---|---|---|---|
| | Male (1) | Female (2) | Public Total (3) | Private Total (4) | (5) |
| First (lowest) | 176 | 114 | 111 | 178 | 983 |
| Second | −51 | 24 | 29 | −60 | 4 |
| Third | −82 | 54 | −4 | −25 | 10 |
| Fourth | 15 | 104 | 89 | 30 | 139 |
| Fifth (highest) | 94 | 50 | 35 | 117 | 243 |
| Total | 152 | 347 | 260 | 240 | 1,379 |

*Source: Distribution and Composition of Employee Earnings and Hours*, ABS Catalogue no. 6306.0.

Finally, we look at *all* new jobs created since 1976, extending the sample to include managers and part-time workers.[22] The data presented in column 5 are extraordinary: 71 percent of all additional employment created in Australia between 1976 and 1990 is in the bottom 20 percent of the male full-time weekly earnings distribution; a further 18 percent of employment is in the top quintile. Australia is losing middle-level employment at an astounding rate, to be replaced primarily by employment at weekly earnings at the bottom of the earnings distribution.

### 6.2.3 The Accord

Australian data provide an opportunity to measure the effect of income policies on the changing distribution of employment at different levels of weekly earnings. Beginning in 1983, the newly elected Labour government and the trade union movement adopted a Prices and Incomes Accord that was to act as a general means to coordinate and centralize wage changes. The objective was to limit real and nominal wage increases so that a larger proportion of economic growth could be directed toward additional employment. As with most moves toward centralized wage fixing, the accord process was expected to compress wage relativities and thus might also be expected to increase employment in the middle and reduce employment growth in the bottom and top quintiles. There was also another period (1976–79) during which wage changes were also largely controlled and centralized by the Industrial Relations Commission.

Figure 6.8 presents the proportion of male employment in the aggregate of the middle three quintiles for both surveys. Although it has been suggested by King, Rimmer, and Rimmer (1992) that the accord widened the earnings

22. The ratio of managers to nonmanagers has not changed over the data period. Part-time employment, however, has grown quickly.

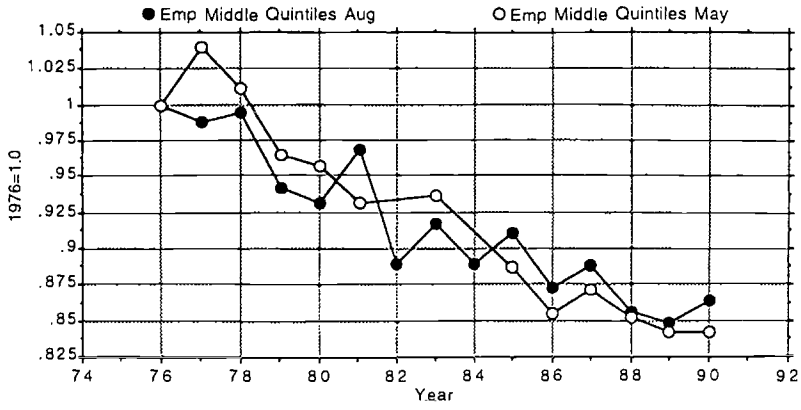


**Fig. 6.8 Male employment indices for middle three quintiles, Australia, 1976–90, May and August surveys**

*Sources: Distribution and Composition of Employee Earnings and Hours,* ABS Catalogue no. 6306.0 (May survey); *Weekly Earnings of Employees (Distribution) Australia,* ABS Catalogue no. 6310.0 (August survey).

dispersion, the effects of this are not obvious in a break in the trend toward greater employment dispersion. A significant accord effect on the time trend is difficult to discern. There is a suggestion in the data, however, that the rate of decline of the disappearing middle has moderated in recent years.

It might be expected that the effects of the accord will differ in magnitude in the public and private sectors and that middle-level jobs will disappear at a faster rate in the private sector, but in both sectors the employment series are again trend dominated.[23] It is also apparent that the rapid growth of low-paying jobs is approximately the same in both sectors, and the trend has not been interrupted by the accord (fig. 6.9). There is no marked accord effect on low-earnings employment. It is the rapid growth of employment at high earnings in the private sector that distinguishes the two sectors. If there is an obvious and significant accord effect, it is to be found in the lower employment growth at high wages in the public sector.

The comparison between sectors prompts the following conjectures. First, as the rapid rate of employment growth at the bottom of the earnings distribution is approximately equal in the two sectors, the economic forces generating the growth of low-earnings employment may be similar. This may suggest that the growth of low-earning jobs and the decline in the middle of the earnings distribution are not just the result of a private-sector decline in manufacturing or of unusual private-sector profit squeezes. Second, as there has been steady

23. The sample frame was changed in 1983 in response to the changing distribution of firms, and this may explain the unusual 1983 observation in the private-sector data. As 1983 is the beginning of a new sample frame, it raises difficulties in discriminating between the effects of the sample change, the 1982 recession, and the beginning of the accord.

employment growth at low weekly earnings in both sectors and the effects of moving toward and away from a centralized wage-setting system are not obvious, perhaps it is the change in employment growth at different levels of earnings that is important rather than changes in relative wages for existing jobs. This conjecture is further supported by the observation that middle-level jobs have also disappeared in the public sector, even though the wage system is more rigid there.

### 6.2.4 Real Earnings at the Top and Bottom

Other papers in this volume focus on changes in real wages at different points on the employment distribution. To facilitate comparisons, we conclude this section by presenting real weekly earnings for male full-time, nonmanagerial employees at the tenth and ninetieth percentiles.

There are marked but consistent differences across sectors (fig. 6.10). In the public sector, which employs approximately one-third of adult male full-time, nonmanagerial employees, real wages paid to the top and bottom 10 percent have moved closely together, as might be expected from a rigid-wage public-sector system that generally does not make overaward payments. Nevertheless, there is a widening earnings gap of about 4 percentage points. Employees at both extremes of the wage distribution have experienced significant real wage reductions since 1985, and, in 1991, real wages are 2–5 percent below 1976 levels. It is interesting to note that the loss of middle-paying jobs and the contrast between rapid employment growth in the bottom quintile and slow employment growth in the top quintile do not translate into significant changes in the relation between real wages at the tenth and ninetieth percentiles in the public service.

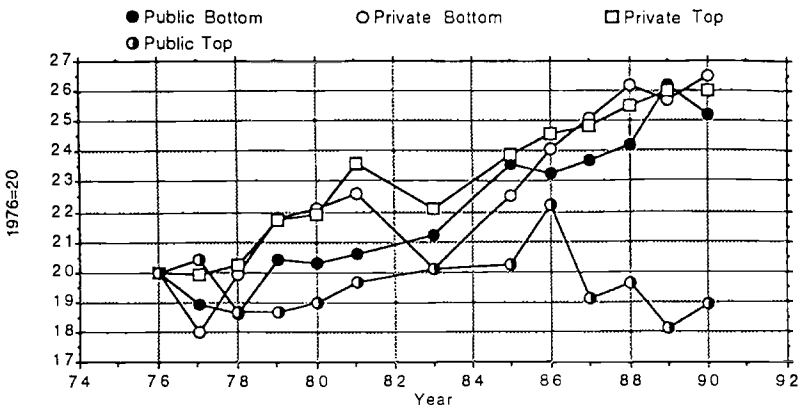


**Fig. 6.9 Male employment indices for top and bottom quintiles, Australia, 1976–90, public and private sectors**

*Source: Distribution and Composition of Employee Earnings and Hours,* ABS Catalogue no. 6306.0 (May survey).

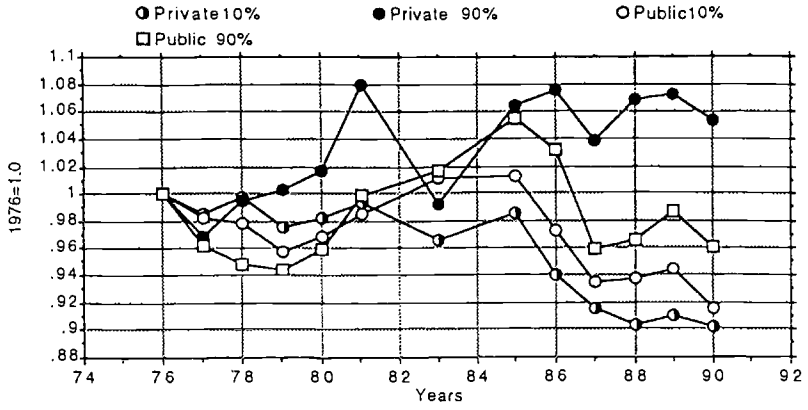


**Fig. 6.10 Male real wages, Australia, 1976–90, public and private sector at the tenth and ninetieth percentiles**
*Source:* See fig. 6.9.

It is in the private sector that the earnings gap has widened most. Real earnings for the top 10 percent have increased 6 percentage points since 1976, and real wages for the bottom group have fallen 10 percent. The real-wage gap has opened by 16 percentage points, a very large increase indeed.

## 6.3 Concluding Remarks

Perhaps the most important result that flows from the U.S.-Australian comparisons is the similarity of changes in employment dispersion across the two countries. Both are losing middle-income jobs and creating employment at the extremes of the distribution. The employment-earnings distribution appears to be widening at the same rate in each country, but there is no evidence of convergence. The gap between the countries has not narrowed. The similarity of the change raises a number of interesting questions that still need to be resolved. The more important seem to be the following.

First, in the United States, special attention has been given to the increased rate of return to education as a contributing factor to the widening employment-earnings dispersion. The rate of return to education does not appear to have increased in Australia, but the same change in earnings dispersion is observed.

Second, although the Australian earnings dispersion is more compressed than that in the United States, the earnings distributions are not moving closer together as international trade and the links between the two countries increase. The loss of middle-paying jobs appears to be increasing at much the same rate in both countries.

Third, the change in the earnings dispersion in Australia is occurring in both the public and the private sectors, and it does not seem to have been retarded

to any significant degree by income policy regimes. As it is generally thought that income policy regimes compress the earnings distribution, the Australian experience is particularly interesting and raises the question as to whether the change in the earnings distribution would have been even greater without the income policy regime. If so, then the Australian employment distribution may have shown clear signs of converging toward the U.S. distribution.

Fourth, the macro history of the two countries has been very different. Australian male employment has fallen 25 percent, after adjusting for population growth, and U.S. male employment has fallen 8 percent. Our analysis suggests that the very large increase in real wages in Australia during the 1970s is an important part of the explanation for falling employment, increasing unemployment, and the loss of male full-time jobs but seems not to be an important explanation of job growth at low earnings and the disappearance of middle-level jobs. All dispersion effects are subject to strong trend influences rather than the sudden response that might be expected from the mid-1970s real-wage shock.

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