

# **DEREGULATION AND RELATIVE WAGES: STABILITY AND CHANGE IN AUSTRALIA**

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# **DEREGULATION AND RELATIVE WAGES: STABILITY AND CHANGE IN AUSTRALIA**

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## ***Abstract***

In Australia the pace of labour market deregulation has rapidly accelerated over the 1990s. This paper uses the recent developments in the Australian labour market to provide further insight into the effects of deregulatory policies on labour markets and labour. Does labour market deregulation have an equivalent impact on different labour market groups? Two wage indicators (the gender pay gap and the wage differential between part-time and full-time workers) are used to answer these questions. The paper shows that over the first half of the 1990s there was no change in the gender wage gap in the full-time labour market (equal to 10.5 per cent), a 12.6 percentage point convergence in the gender wage gap in the part-time labour market, and a 3.4 percentage point convergence in the part-time/full-time wage gap. Changes in the part-time labour market may be attributed to a deterioration in the relative earnings of males employed part-time.

**Keywords:** Discrimination, Economics of Gender, Wage Inequality, Labour Market Deregulation, Decentralised Pay Bargaining

**JEL-Code:** J7, J16, J31, J38

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## **DEREGULATION AND RELATIVE WAGES: STABILITY AND CHANGE IN AUSTRALIA**

### **1: Introduction**

Over the last few decades there has been a worldwide shift in values and attitudes towards markets and institutions. It is a shift characterized by a greater acceptance of economic rationalism and a laissez-faire approach to government. In the labour market it is reflected in legislative reforms designed to decentralize pay determination and deregulate the employment relationship. The claimed macro-economic benefits associated with such economic policy shifts include enhanced productivity, employment growth and lower inflation stemming from reduced spillover-effects or wage flow-ons.

While the net effects of the reforms appear to be gender neutral, beyond the aggregate statistics significant differences are apparent. In Britain, for example, women in the full-time labour market have managed to move into a broader set of occupations, improve their relative skill levels and reduce the gender wage gap (Makepeace *et al.* 1999; Bruegel and Perrons 1998; Colling and Dickens, 1998).<sup>1</sup> These gains must, however, be considered against a growth in low paid, part-time, insecure employment and a parallel increase in wage polarization (Brukitt, O'Donnell, Patel 1999; Bruegel and Perrons, 1998; Burchell, 1999; Leslie and Pu, 1996).

Some have attributed the mixed UK outcomes to the "...contradictory stance of Conservative thinking vis-à-vis individual enterprise, market process and familial ideology" (Bruegel and Perrons, 1998: 104-105). The various deregulatory policies adopted have narrowed access to employment protection rights, weakened trade unions, abolished wage councils (important for the regulation of wages in many low paid (female) industries), privatized public sector employment, decentralized wage bargaining to the enterprise level and/or individual level, established employer prerogative and undermined the provisions in equality legislation (Bruegel and Perrons 1998; Colling and Dickens, 1998). Deregulation has also fostered a change in working time arrangements

and a shift towards part-time and other non-standard forms of employment (Fajertag, 1999; Bosch, 1999)

Relative to the UK Australia has been slow to embrace the neo-liberalist deregulatory agenda, although since the early 1990s the pace of reform has quickened. Indeed, international comparative analysis suggests that Australia may now be classified as a ‘radical example of direct labour market deregulation’ (Campbell and Brosnan, 1999). Many parallels with the UK experience are apparent. The award system (analogous to the wage councils) has been dismantled, trade union power and rights have been weakened, public sector utilities have been privatized, and employer prerogative asserted. Available research suggests that over the 1990s there has been no significant change in the gender wage gap in the full-time labour market, while the relative position of part-timers appears to be worsening (Wooden, 1997). In 1990 the part-time/full-time wage gap for non-managerial employees was 6 per cent. By 1998 it had more than doubled to 15 per cent (Whitehouse, 2000). Growing wage polarization now features as a characteristic of the Australian labour market (Borland, 1999; Buchanan, Callus and Briggs, 1999; ABS 2000)

At an empirical level, the recent developments in the Australian labour market offer yet another opportunity to examine the effects of deregulatory policies on labour markets and labour. In the analysis below Australian data for 1990 and 1996 are employed to further explore the impact of deregulatory policies on labour market participants. Does labour market deregulation have an equivalent impact on the wages of different labour market groups? Evidence from the US, for example, suggests that deunionisation had a greater impact on the wage relativities of low and middle skill groups than it did on high skill groups (Blau and Kahn, 1997)

The remainder of the paper is structured as follows: Section 2 outlines the main contours of change in the Australian system; Section 3 offers some descriptive information on the Australian labour market; Section 4 describes the data and research methodology; Section 5 presents the results; and Section 6 concludes the paper.

## **2: Labour Market Deregulation in Australia<sup>2</sup>**

Throughout most of the last century wages and conditions of employment within Australia were primarily regulated by a system of legally binding awards that had been arbitrated or certified by independent industrial tribunals. Award regulation occurred at both federal and state levels, although state tribunals generally followed the federal tribunal in their determinations. The coverage of the award system (around 80 per cent of employees) was extensive and the principle of comparative wage justice (alternatively known as ‘fair wage comparisons’) ensured a well-integrated system. Gains won in one sector generally flowed through with relative uniformity to another.

There were, however, gaps in the award system. Non-employees (e.g. cleaners employed in private households), executives and some managerial employees were outside the system and instead subject to (common law) individual contracts; award enforcement was poor, creating space for avoidance and evasion; and the provisions in awards were primarily relevant to a permanent, full-time, waged workforce. There were some additional clauses for other employment categories (e.g. casual, part-time work) but the clauses were residual and were essentially designed to limit the extent of non-standard forms of employment (Campbell and Brosnan, 1999).

Notwithstanding the above gaps, various assessments of the Australian award system suggest that it served Australia well. For example, the adoption of the 1969 principle of Equal Pay for Equal Work and the 1972 principle of Equal Pay for Work of Equal Value by the federal tribunal was instrumental in removing institutionalized pay discrimination and delivering rapid convergence in the gender pay gap (Gregory and Duncan 1981).

For much of the post-war period the gaps noted above were inconsequential and were not used by employers to bid down wages and conditions. However, as labour market conditions changed employers increasingly made use of the award system to reduce labour costs. The significant growth in casual employment is symptomatic of this; with

employers using the category of casual employment to avoid paying annual leave, sick leave, parental leave, long-service leave and redundancy payments. The special provisions for casual employees in awards failed to provide protection and “... in effect, operated as a licence to employers to deprive a section of their workforce of most standard rights and benefits” (Campbell and Brosnan, 1999: 358). The provisions instead helped spur the growth of casual employment in Australia bringing about a “... sharp dualistic division in the employment structure” (*ibid.*: 361).<sup>3</sup>

Although the awards provided a fair degree of flexibility, criticism of the system mounted. As support for the neo-liberalist agenda grew so did calls for product and labour market deregulation. In 1987, in an effort to appease those pushing for change the Australian Industrial Relations Commission (AIRC) introduced a two-tier wage providing for both national wage adjustments and productivity bargaining. In October 1991, under increasing pressure to further decentralize wage bargaining the AIRC ‘begrudgingly’ introduced enterprise bargaining (Dabscheck 1997). This did little to appease the key players (notably the Australian Labor Party (ALP), the Australian Council of Trade Unions (ACTU) and the Business Council of Australia (BCA)) who had a common objective of overturning the traditional system of arbitration (Hancock, 1999). Accordingly, in 1992 the ALP amended the *Industrial Relations Act 1988* and introduced a new division (3A) on certified agreements. Following re-election more substantial changes were made with the *Industrial Relations Reform Act 1993*, which came into effect in early 1994. Under this Act collective bargaining was given priority and awards were relegated to the role of ‘safety net’. Awards thus became the benchmark against which the no-disadvantage test was conducted and the main source of wage adjustments for those not in the enterprise stream.

Although the 1993 reforms were depicted as an extension of over-award bargaining, closer inspection suggests that they delivered a critical ‘shift in the power relations’ between employers and employees (Campbell and Brosnan, 1999: 365). Aside from reducing the attractiveness of the award system (by constraining award or safety net wage adjustments to be substantially less than those awarded in the bargaining stream), the

reforms also introduced a new stream of agreements (non-union collective agreements), curbed union power and placed limitations on ‘protected industrial action’. The latter was provided for, but only with respect to the pursuit of single-employer agreements. A prime intent of the legislation was the imposition of single-employer bargaining as the dominant mechanism for wage determination (Buchanan, Callus and Briggs, 1999). The result was a decline in multi-employer bargaining and an exacerbation in the trend towards fragmentation.

In March 1996 the ALP lost power to the Howard Coalition government. Building on the 1993 reforms, new legislation in the form of the *Workplace Relations Act 1996* introduced further regulatory reforms aimed at curbing union influence, promoting single-employer and individual bargaining and establishing managerial prerogatives (*ibid.*). The award stream was maintained, but further paired back to a set of ‘allowable matters’, the option for non-union collective agreements were improved and a new form of agreements – individual contracts (or Australian Workplace Agreements (AWAs)) introduced. The 1996 Act continued to impose restrictions on multi-employer bargaining by trade unions, tightened the sanctions on industrial action and introduced new restrictions on trade unions (e.g. on rights of coverage). Enforcement has been weakened and secrecy provisions now apply to some agreements (e.g. AWAs). As with the Thatcher government during the miner’s strike, the Howard government has backed aggressive employer strategies (e.g. the 1998 waterfront dispute) designed to weaken trade union power.

Whilst the reforms at the federal level appear to be far reaching, reforms at the State level have, in some cases, been even more radical (Teicher and Svensen, 1998). The West Australian government, for example, considers itself as a ‘pacesetter’ in the field of labour market reform (Second Reading Speech, Assembly, 8/7/93: 1456-1459). Radical labour market reforms have similarly been introduced in Victoria. In New South Wales the changes have retained a more collectivist focus. Non-union bargaining, for example, is not provided in the NSW State jurisdiction.<sup>4</sup>

Notwithstanding the ‘carrot and stick’ approach to decentralised wage bargaining, the uptake of enterprise and individual agreements has remained relatively low. Estimates from a recent survey of agreement coverage suggest that only 42 per cent of employees in the survey had their pay determined through registered enterprise agreements (see Table 1). A further 44 per cent of employees remained in the residual, run-down, award stream (22 per cent covered by awards only; and 22 per cent enjoying awards plus overaward bargaining). The remaining 14 per cent of the survey sample were covered by other pay arrangements (e.g. individual contracts).<sup>5</sup>

**Table 1: Coverage of Agreements (% employees), 1999**

|                     | Awards only | Overawards/<br>Unregistered<br>Agreements | Registered<br>Collective<br>Agreements | Individual<br>Contracts &<br>Other Pay<br>Arrangements |
|---------------------|-------------|---|--|--|
| Full-time employees | 13          | 27  | 44                                     | 17   |
| Part-time employees | 44          | 12  | 38                                     | 6  |
| All employees       | 22          | 22  | 42                                     | 14   |

Source: DEWRSB (2000), Table 3

Whilst the statistics in Table 1 are of considerable interest, it is argued that a focus on the up-take of enterprise agreements misses a significant feature of the change since 1991 - the atrophy of award regulation (Campbell and Brosnan 1999, p.368) and the resultant inequities generated by the new arrangements. With this in mind, the remainder of this paper examines the impact of labour market deregulation on different labour market groups. Earnings feature as the principal indicator of change. The focus is directed at two sets of wage relativities: the gender wage gap and the full-time/part-time wage gap. Before proceeding to the results section the following discussion offers background information on some pertinent features of the changing Australian labour market.

### **3: The Changing Australian Labour Market**

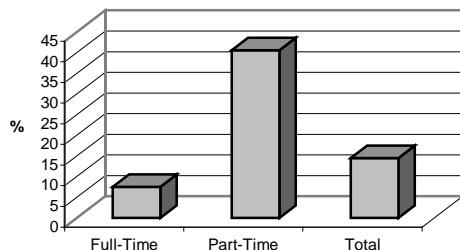
This section provides background information on some key labour market developments since 1990. (In most instances the reference period is June 1990 to June 2000). Attention

is restricted to a limited set of indicators, specifically: employment, participation and work patterns; wages, bargaining and trade union membership.

### *Employment, Participation and Work Patterns*

Over the 1990s Australia recorded relatively strong employment growth. Across all persons the number of jobs increased by 14.5 per cent, although this largely comprised a growth in part-time employment (equal to 41 per cent). Full-time employment grew by only 7.5 per cent (Figure 1) in the decade to June 2000. Notwithstanding the favourable employment performance, the job growth did little to affect the rate of unemployment. Over the same period there was no change in the male unemployment rate (currently 6.4 per cent) and an insignificant fall in the female unemployment rate (from 6.9 per cent to 6.2 per cent). These ratios should be considered against a significant increase in the female participation rate (from 52 to 55 per cent) and a significant decrease in the male participation rate (from 75.7 to 72.6 per cent).

**Figure 1: Employment Growth, All Persons,  
Australia, 1990-00**



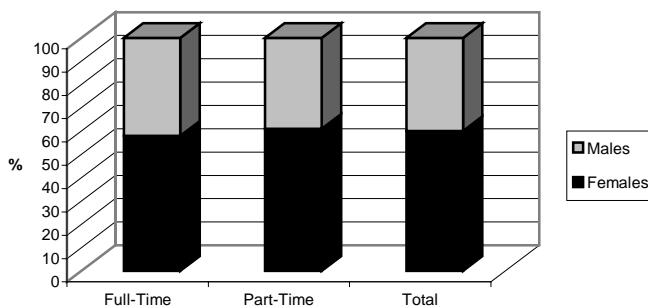
Source: ABS Cat. 6203

As with most developed economies, there is a high degree of gender segmentation in the labour market, not only with respect to occupation, but also employment status. For example, although females currently make up around 44 per cent of the total Australian labour force, only 57 per cent are employed full-time; the corresponding share of full-time employment amongst males is 88 per cent. Females are, therefore, significantly

over-represented in the part-time labour market; women hold 73 per cent of part-time jobs.<sup>6</sup>

Part-time employment amongst males is, however, on the rise. Over the decade to June 2000 the level of male part-time employment grew by 71 per cent (or from 4.6 per cent to 6.9 per cent of total employment in Australia). Amongst females the number in part-time employment increased by 32 per cent (or from 16.5 to 18.4 per cent of total employment) over the same period. Between 1990 and 2000 males moved into 39 per cent of all new part-time jobs and 42 per cent of all new full-time jobs. The majority (60 per cent) of all new jobs went to females (see Figure 2).<sup>7</sup>

**Figure 2: Gender Shares in Employment Growth,  
Australia, 1990-00**



Source: ABS Cat. 6203

An important feature of the employment growth over the decade was that it was primarily concentrated in the casual labour market. For example, between 1990 and 1996 male casual employment grew by 343,000, while total male employment increased by less than half this figure (118,900). Between 1990 and 1998, 90 per cent of total male employment growth was of a casual nature. Amongst females the corresponding share was 37 per cent (see Table 2).<sup>8</sup>

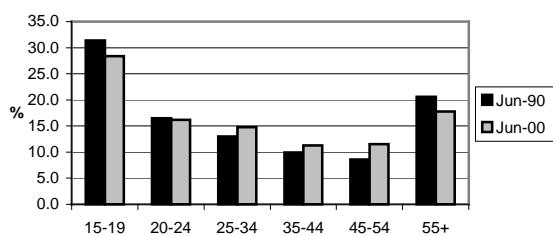
**Table 2: Casual Employment Growth, 1990 to 1998**

|                                 | 1990 | 1996 | 1998 | 1990/96     | 1990/98 | 1990/96                                      | 1990/98 |
|---------------------------------|------|------|------|-------------|---------|--|---------|
|                                 | '000 |      |      | change '000 |         | share of total employment growth, by sex (%) |         |
| <b>Males</b>                    |      |      |      |             |         |  |         |
| Full-Time-casual                | 266  | 401  | 453  | 135         | 187     | 114  | 41      |
| Part-Time-casual                | 220  | 428  | 441  | 208         | 221     | 175  | 49      |
| <i>Total Male Casual Jobs</i>   | 486  | 829  | 894  | 343         | 408     | 288  | 90      |
| <i>Total All Male Jobs</i>      | 4624 | 4742 | 5078 | 118.9       | 455     |  |         |
| <b>Females</b>                  |      |      |      |             |         |  |         |
| Full-Time-casual                | 118  | 158  | 164  | 40          | 46      | 13   | 7       |
| Part-Time-casual                | 678  | 854  | 888  | 176         | 210     | 56   | 30      |
| <i>Total Female Casual Jobs</i> | 796  | 1012 | 1052 | 216         | 256     | 68   | 37      |
| <i>Total All Female Jobs</i>    | 3275 | 3591 | 3964 | 316         | 689     |  |         |

Source: Junor (1998), Table 1 and ABS unpublished data.

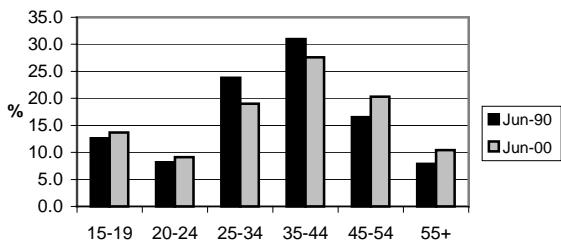
Given the substantial change in male and female employment patterns, it is important to ask whether or not the shifts were evenly distributed within each gender group. Evidence provided in Figures 3 and 4 show that differences were apparent. In the male labour market part-time employment growth was primarily concentrated in the 25-54 year old age group. Amongst females the growth occurred amongst young women (aged 15-24) and older women (aged 45 plus).

**Figure 3: Male Part-Time Employment, By Age, 1990-00**



Source: ABS 6203

**Figure 4: Female Part-Time Employment, By Age, 1990-00**

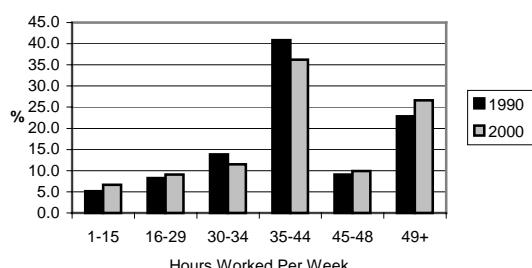


Source: ABS 6203

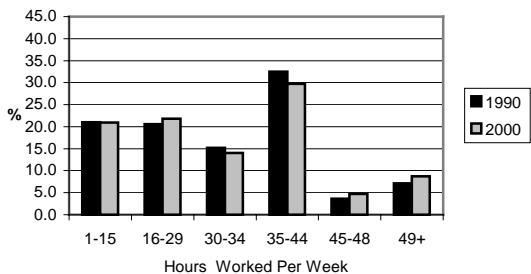
The strong growth in part-time employment, together with the emerging literature highlighting the increasing share of persons working very long hours (e.g. Dawkins 1996), suggests another question: how evenly is the paid work distributed? Figures 5 and 6, for males and females respectively, again show important gender differences.<sup>9</sup>

Amongst males there has been an increase in the incidence of 'long hours' (48+) and 'short hours' (1-15), and a decline in standard hours (30-44). Females, similarly, have experienced a decline in standard hours. There has been no change in 'short hours' and a substantial rise in 'long hours'. For example, in between June 1990 and June 2000, the number of females working 45 or more hours per week increased by 53 per cent; amongst males the corresponding increase was 26 per cent. At the other end of the spectrum, the number of males working between 1 and 29 hours per week increased by 29 per cent; amongst females the corresponding growth rate was 25 per cent.<sup>10</sup>

**Figure 5: Distribution of Hours of Work, Males, 1990-2000**



**Figure 6: Distribution of Hours of Work,  
Females, 1990-200**



### *Wages, Bargaining and Trade Union Membership*

Earlier in the paper we learned that labour market deregulation had affected the power of trade unions, fragmented bargaining structures and had contributed to rising wage inequality. In this sub-section some basic statistical facts are provided to illustrate these trends.

Table 3 below shows that over the 1990s there was a dramatic decline in the trade union membership rate. In 1992 40 per cent of all employees were trade union members, by 1999 the share had declined by more than one third to 26 per cent. Although the membership rates of men are higher than women, it is apparent that the shares are converging. In 1999 the membership rate for women was equal to 23 per cent, and 28 per cent for men. Many structural changes, such as the strong growth in casual and part-time employment, can explain the changing union membership rates observed here. In 1999, for example, the union membership rate amongst casual employees was 11 per cent. Amongst all permanent employees the corresponding rate was 31 per cent (ABS 2000, p.137). Other structural factors affecting membership rates include: a decline in public sector employment, growth of industries where union density is low, reductions in firm size, union amalgamation policy and recent legislative changes (Peetz 1998; ABS 2000).

**Table 3: Trade Union Membership (%), 1992 and 1999**

|         | 1992 | 1999 | %-Point Change |
|---------|------|------|----------------|
| Males   | 43.4 | 27.7 | -15.7          |
| Females | 34.8 | 23.4 | -11.4          |
| Persons | 39.6 | 25.7 | -13.9          |

Source: ABS (2000), p.135.

The decline in trade union membership has, in turn, contributed to rising wage inequality in Australia, particularly for men (Borland 1996). The following table (Table 4) shows that, although the trend towards rising inequality was evident in the 1980s labour market developments in the 1990s have only exacerbated the trend. In 1991 low paid full-time adult employees (10<sup>th</sup> percentile) earned 69 per cent of those in the middle of the earnings distribution (i.e. the P10/P50 ratio); by 1998 the ratio had declined 4 percentage points to 65 per cent. The pattern of rising wage inequality was particularly pronounced in the male labour market.

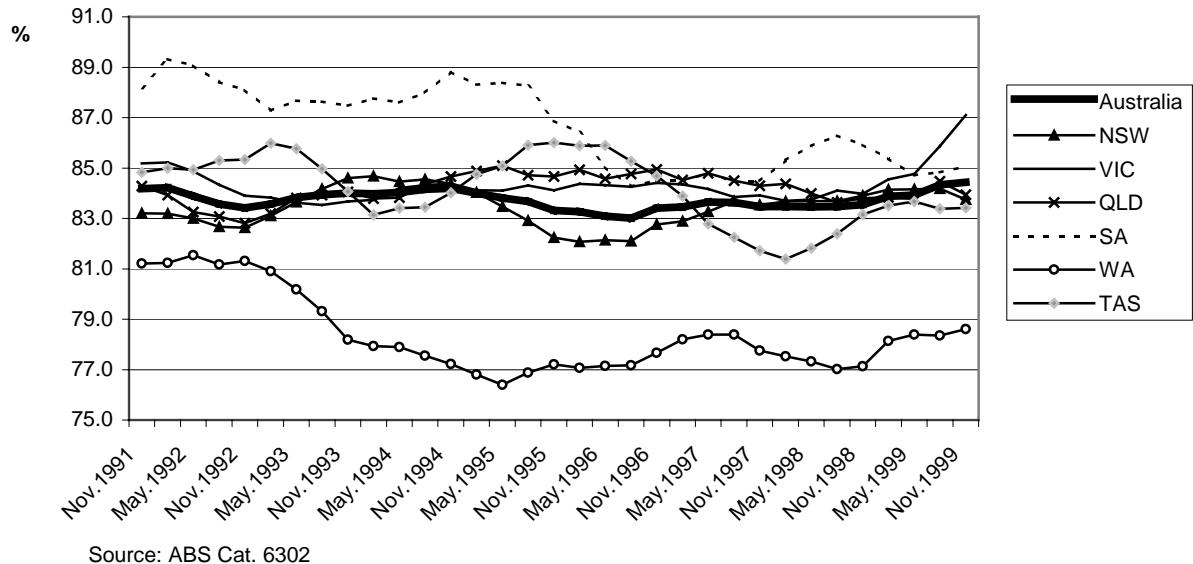
**Table 4: Earnings Distribution Ratios for Full-Time Adult Employees, 1985 to 1998**

|         | 1985 | 1987 | 1989 | 1991 | 1993<br>- % - | 1994 | 1995 | 1996 | 1998 | Change<br>1991-1998<br>%-point |
|---------|------|------|------|------|---------------|------|------|------|------|--------------------------------|
| Males   |      |      |      |      |               |      |      |      |      |                                |
| P10/P50 | 70   | 69   | 66   | 67   | 65            | 65   | 65   | 64   | 62   | -5                             |
| P90/P50 | 162  | 162  | 163  | 166  | 169           | 167  | 169  | 170  | 175  | 9                              |
| Females |      |      |      |      |               |      |      |      |      |                                |
| P10/P50 | 78   | 75   | 73   | 74   | 73            | 73   | 72   | 71   | 70   | -4                             |
| P90/P50 | 150  | 150  | 151  | 154  | 155           | 154  | 154  | 153  | 155  | 1                              |
| Persons |      |      |      |      |               |      |      |      |      |                                |
| P10/P50 | 72   | 70   | 68   | 69   | 68            | 68   | 68   | 66   | 65   | -4                             |
| P90/P50 | 163  | 163  | 162  | 168  | 166           | 165  | 167  | 168  | 172  | 4                              |

Source: ABS (2000), p.145

In the full-time labour market there has been no overall net change in the wage gap between males and females nationally over the decade (see figure 7). By November 1999 the female/male earnings ratio was 84.4 per cent, equal to a gap of 15.6 percentage points.<sup>11</sup> Some State differences are, however, apparent. Over the 1990s South Australia and Western Australia both recorded significant declines in the relative earnings of females. By November 1999 the gender wage gap in Western Australia was 21.4 percentage points – significantly lower than the comparable national average.

**Figure 7: Australian and State Gender Wage Relativities, 1991 to 1999**  
 (four quarter moving average)



Source: ABS Cat. 6302

The changing structure of wage relativities, of course, reflects more than simply a decline in trade union membership rates. Rising wage inequality is also a product of changing bargaining and employment arrangements. Table 5, for example, shows substantial variation in the average weekly earnings of public and private sector employees. In 1998 the private/public earnings ratio for males employed full-time was 89.7 per cent; amongst females the corresponding ratio was 80.8 per cent. Earnings in the public sector are, on average, higher and more equitably distributed. However, over the last decade there has been a very large decline in public sector employment and, with it, a growth in wage inequality.<sup>12</sup>

**Table 5: Average Weekly Total Earnings Private/Public Sector Ratio, 1998**

|                    | Males | Females | Persons |
|--------------------|-------|---------|---------|
|                    | - % - |         |         |
| Employed Full-Time | 89.7  | 80.8    | 87.9    |
| Employed Part-Time | 65.5  | 69.7    | 68.8    |

Source: ABS Cat. 6306.

A portion of the public/private wage differential can be attributed to differences in the arrangements for determining wages. Table 6 shows that within the public sector, 76 per cent of all employees had their pay determined through a registered enterprise agreement; in the private sector the corresponding share was 29 per cent.<sup>13</sup> Why does this matter? It matters because the wage adjustments granted in the award stream (excluding overaward negotiations) are significantly lower than those provided in the bargaining stream. In the former the average annual wage adjustment is around 1.3 per cent; in the latter it is somewhere between 4 and 6 per cent (see Table 7).

**Table 6: Coverage of Agreements (% employees), by Sector, 1999**

|                    | Awards only | Overawards/<br>Unregistered<br>Agreements | Registered<br>Collective<br>Agreements | Individual<br>Contracts &<br>Other Pay<br>Arrangements |
|--------------------|-------------|---|--|--|
| All Private Sector | 26          | 30  | 29                                     | 15   |
| All Public Sector  | 13          | 1   | 76                                     | 10   |
| All Employees      | 22          | 22  | 42                                     | 14   |

Source: DEWRSB (2000), Table 2

**Table 7: Average Annual Wage Increase & Estimated Average Weekly Wage, by Agreement Type.**

|   | Awards only | Registered Collective<br>Agreements | Individual Agreements &<br>Other Arrangements <sup>(c)</sup> |
|---|-------------|-------------------------------------|--|
| Estimated Average Annual<br>Wage Increase <sup>(a)</sup>    | 1.3%        | range<br>4% to 6%                   | range<br>0% to 8%  |
| Average Weekly Wage<br>(full-time employees) <sup>(b)</sup> | \$586       | \$718                               | \$990  |

(a) These estimates are from ACIRRT (1999) and pertain to 1995 data.

(b) These estimates are from DEWRSB (2000) and pertain to 1999 data.

(c) The 'Other Arrangements' does not include over-award bargaining and unregistered agreements.

The slow movement in award wages relative to other bargaining arrangements is also problematic for the part-time workforce. Relative to full-timers, part-timers are much more likely to depend on the award system for their wage outcomes. (In 1999 44 per cent of part-time employees in organisations with 5 or more employees were paid at the award rate; the corresponding share for full-timers was only 13 per cent).<sup>14</sup>

The following two tables from Wooden (1997) and Whitehouse (2000), respectively, illustrate the extent to which part-timers are disadvantaged in the current system.

Wooden (Table 8) shows that in the three years between 1992 and 1995 the overall wage gap between part-time and full-time non-managerial employees increased by 4.3 percentage points for males, and 5.2 percentage points for females. When all-employees and a longer time span are considered the deterioration in the part-time wage differential is even greater.

Figures from Whitehouse (Table 9) demonstrate a nine percentage point widening in the wage gap of part-timers relative to full-time (permanent) employees. Within the part-time labour force there has been a three percentage point *convergence* in the gender pay gap. The result may reflect a large growth in the incidence of male, part-time casual employment and with it a deterioration in their relative wages. Recent research by Wooden (1999, p.164) finds that casual employment in Australia is now associated with a negative wage premium of around 6 per cent after controlling for skill and job characteristics. (The following section sheds further light on some of these trends).

**Table 8: Average Hourly Earnings of Part-Timers Relative to Average Ordinary Earnings of Full-Time Non-Managerial Employees.**

|   | Males<br>1992 | Females<br>1992 | Males<br>1995 | Females<br>1995 | Males<br>% -point change<br>(1992-1995) |
|---|---------------|-----------------|---------------|-----------------|---|
|   | - % -         |                 |               |                 |   |
| Professionals                           | 124.8         | 115.9           | 95.1          | 96.6            | -8.9 1.5                                |
| Para-Professionals                      | 87.7          | 86.1            | 106.7         | 99.7            | -1.6 -7                                 |
| Tradespersons                           | 96.6          | 94.4            | 86.4          | 85.8            | -2.2 -0.6                               |
| Clerks                                  | 96.4          | 89.4            | 91.5          | 87.1            | -7 -4.4                                 |
| Salespersons & Personal Service workers | 90            | 84.5            | 87.2          | 80.7            | -5.5 -6.5                               |
| Plant & Machine Operators & Drivers     | 93.5          | 91.4            | 78.9          | 83.7            | -2.1 4.8                                |
| Labourers & Related Workers             | 102.6         | 99.4            | 99.3          | 95.5            | -3.2 -3.8                               |
| Total                                   | 96.3          | 92              | 93.6          | 88.4            | -4.3 -5.2                               |

Source: Wooden (1997), Table 3. The table can not be updated due to a change in the occupational coding arrangements post 1995.

**Table 9: Part-Time and Full-Time Relative Wage Gaps.**

|                                  | 1990<br>Wage Gap( %) | 1998<br>Wage Gap (%) | Change:<br>%-point |
|----------------------------------|----------------------|----------------------|--------------------|
| Part-Time (all) / FT (permanent) | -6                   | -15                  | -9                 |
| PT (casual) / FT (permanent)     | -8                   | -17                  | -9                 |
| PT (permanent) / FT (permanent)  | -4                   | -12                  | -8                 |
| Female PT/ Male PT               | -2                   | 1                    | 3                  |

Source: Tables 1 and 2, Whitehouse (2000), pp.153-154. Note: 'all' refers to casual and permanent.

Of course, it should be noted that the above relativities pertain to ‘raw’ or ‘unadjusted’ wage gaps and, in the absence of controls for differences in the characteristics of the groups (e.g part-time and full-time; public and private; males and females) will probably over-state the size of the gaps. Gornick and Jacobs (1996), for example, show that around one fifth of the female part-time/full-time wage gap in the Australia can be explained by differences in the characteristics of part-time and full-time workers. In the UK the explained portion is even higher, equal to 26 per cent.<sup>15</sup> In the following section estimated wage equations are used to provide further insight into the effects of labour market deregulation on the wage structure.

#### **4: Data and Methodology**

A key factor associated with the selection of suitable data sets was the ability to make comparisons pre and post labour market deregulation; e.g. pre and post 1992. In this paper comparisons are made between data from the 1989/90 Income Distribution Survey (IDS) and the merged data from the 1995/96 IDS and the 1996/97 IDS. The two 1995/96 and 1996/97 IDS data files were merged to produce a large enough sample for analysis purposes. The earnings data in the 1996/97 IDS were deflated to 1995/96 levels.<sup>16</sup> When the samples are restricted to full-time wage and salary earners aged between 16 and 64 years there are 3,202 and 3,273 females in the 1996 and 1990 samples, respectively.<sup>17,18</sup> The corresponding male sample sizes are 5866 (in 1996) and 6385 (in 1990).<sup>19</sup> The IDS data files also provide information on part-time workers. After purging the file of persons employed less than 10 hours, there were 2048 part-time employees in the 1990 sample and 2217 in the 1996 sample.<sup>20</sup> (Part-time work is defined as less than 35 hours per week).

The analytical framework is the human capital model. There are a number of ways in which the model may be used to study gender wage discrimination. The simplest is to include a female dummy variable. The level of wage disadvantage may be measured by

the coefficient on this control variable. A more sophisticated approach involves the estimation of separate wage equations for males and females and a subsequent decomposition of the gap into explained and unexplained components (e.g. Blinder, 1973; and Oaxaca, 1973). Both approaches result in adjusted gender wage gaps of similar magnitudes (Miller 1994; Preston 2000 (appendix c)). In the following analysis preference is given to the simplistic dummy variable approach. As noted above, the Blinder/Oaxaca approach requires estimation of separate male and female wage equations. Disaggregation of the IDS data by full-time status, state and gender produces relatively small sample sizes for some groups and brings with it the possibility that the results may not be robust.

The estimated wage equations are of the form  $\ln \hat{Y}_i = \hat{\beta}_0 + V_i \hat{\beta}$ . The dependent variable in all cases is a measure of hourly earning in the persons main job.<sup>21</sup> The set of control variables includes measures for educational attainment, potential labour market experience and its square, marital status, presence and age of dependent children, migrant status and location of residence.<sup>22,23,24</sup> A female dummy variable is used to measure female ‘treatment-disadvantage’ in the labour market.<sup>25</sup>

The analysis below focuses on two sets of relativities: the gender pay gap in the full-time labour market, and the wage gap between part-time and full-time employees. The study concentrates, primarily, on developments at the national level although separate estimates of the gender wage gap are given for each State. As previously noted, governments (State and Federal) throughout Australia have, over the 1990s, implemented a range of deregulatory policies. Some have pursued a radical agenda based on an ideology of individualism (e.g. WA and Victoria), in other States (e.g. NSW) the focus has remained collectivist. Comparisons of outcomes between more and less deregulated States allows a *within* country study of the effects of deregulation on gender wage equality. One advantage associated with this approach is that it minimises problems inherent in cross-country comparative studies, namely difficulties associated with controlling for the unique historical and social experiences of each country (Bray 1993). A limitation with the methodology is that one cannot identify, from the data, the jurisdiction of coverage for

each individual. Within each State they may be covered by either the State jurisdiction or the Federal jurisdiction. Furthermore, the spread of the Federal jurisdiction is not even across the States. Victoria, for example, has historically had a higher incidence of Federal coverage than any other State.

## 4: Results

### *Full-Timers*

The analysis begins with a study of the gender wage gap. It was widely feared that labour market deregulation would disadvantage women relative to men (Wooden, 1997). Women, for example, tend to be concentrated in lower status jobs, have lower rates of unionisation and are often in a weaker bargaining position.

The results reported in Table 10 show that throughout Australia females are at an earnings disadvantage relative to men, even after controlling for differences in their productivity characteristics. Nationally the adjusted gender wage gap is 10.5 per cent, elsewhere it is much higher.<sup>26,27</sup> For example, in Western Australia females earn 18.5 per cent less than their male counterparts. The estimates in Table 11 show that over the first half of the 1990s, a period of substantial labour market deregulation, there was no significant change in the gender wage ratio in the full-time labour market at the national level. The small convergence observed was not significant. This, of course, does not imply an absence of deregulatory effects on market wages. It could be that the effects of deregulation and rising inequality have been moderated by other forces, such as improvements in the human capital endowments of females (Blau and Kahn 1994). Research reported elsewhere (e.g. Preston and Crockett 1999a) shows that, on average, Australia females have, as suggested here, managed to improve their qualification, skill and experience levels and, in so doing, have helped narrow the gender wage gap.<sup>28</sup>

**Table 10: State Levels of Gender (Hourly) Wage Discrimination**

|           | 1996   |            |       | 1990   |            |       |
|-----------|--------|------------|-------|--------|------------|-------|
|           | Coef.  | t-stat     | mean  | Coef.  | t-stat     | mean  |
| Australia | -0.105 | 12.544 *** | 0.353 | -0.113 | 15.580 *** | 0.339 |
| NSW       | -0.097 | 5.857 ***  | 0.365 | -0.129 | 9.196 ***  | 0.343 |
| VIC       | -0.088 | 5.140 ***  | 0.368 | -0.126 | 7.870 ***  | 0.344 |
| QLD       | -0.112 | 6.052 ***  | 0.352 | -0.118 | 7.497 ***  | 0.340 |
| SA        | -0.051 | 2.339 **   | 0.336 | -0.022 | 1.139      | 0.338 |
| WA        | -0.185 | 6.911 ***  | 0.327 | -0.133 | 7.170 ***  | 0.335 |
| TAS       | -0.117 | 4.123 ***  | 0.338 | -0.089 | 2.538 **   | 0.309 |

Notes:

(a) The above results detail the coefficient estimates on a ‘female dummy’ in pooled (male plus female) wage equations. The set of explanatory variables includes controls for education (2 dummies), experience and its square, marital status (2 dummies), birthplace (1 dummy), children (3 dummies) and area of residence (urban/rural) (1 dummy). Appendix A reports the national results. The state results are available from the author on request.

(b) Absolute t-statistics are reported; \*\*\* indicates significance at the 1% level; \*\* at the 5% level

(c) The ‘mean’ proportions indicate the proportions of female in each sample group.

(d) The Australian results detailed are for the six states taken as a whole. Persons in the Northern Territory and Australian Capital Territory are not included in this study.

**Table 11: Movements in Australian Gender Wage Gaps: 1990 to 1996**

|           | Change in the Gender Wage Gap | t-statistic |
|-----------|-------------------------------|-------------|
| Australia | 0.009                         | 0.817       |
| NSW       | 0.037                         | 1.767 *     |
| VIC       | 0.032                         | 1.427       |
| QLD       | 0.008                         | 0.328       |
| SA        | -0.019                        | 0.677       |
| WA        | -0.050                        | 1.622 *     |
| TAS       | -0.026                        | 0.589       |

Notes:

(a). The results here were estimated using a pooled 1990-1996 wage equation, a time period dummy (equal to one for the 1996 period) and a ‘female\*1996-dummy’ interaction term. Footnote (a) at Table 10 above details the other variables in the model.

(b) Absolute t-statistics are reported; \* indicates significance at the 10% level.

At the state level there have been some interesting developments. In Western Australia, a state pursuing radical labour market deregulation, the gender wage gap in the full-time labour market grew by 5 percentage points over the 1990s. The WA results are quite robust. Different data sets consistently show a higher than average 1996 WA net gender wage gap and a growth in this gap over the first part of the 1990s (Preston and Crockett 1999a).<sup>29</sup> The changing WA gap cannot be explained by changes in the relative human capital endowments of males and females over the period. Rather, the movement relates

to a change in the industry composition of males and females (with males moving into higher paying industries) and, more importantly, a change in the distribution of rewards (or labour prices) (with the change again favouring males) (Crockett and Preston 1999). What caused a change in the reward or wage structure in WA?

It is difficult to attribute the change entirely to State legislative reforms introduced since 1993 as the slide commenced a year earlier in November 1992 (see Figure 7 above). Between November 1992 and November 1993 the WA gender wage ratio widened by 3.1 percentage points. It is also hard to argue that the WA experience was the product of changing economic fortunes at the time – only WA females shared in the decline. Relative to males nationally the earnings of WA males increased; relative to females nationally the earnings of WA females decreased (Preston and Crockett, 1999b). Faced with a dearth of data on the coverage of payment systems by sex one can only speculate as to the determinants of the widening wage gap. Available evidence tends to suggest that the change is more likely to be a product of institutional rather than market forces. In other words, there are reasons to believe that the deterioration in the gap can be linked to institutional arrangements for wage determination brought about by labour market deregulation. For example, 1993 was an election year in WA. It was clear that the conservative Liberal government would win the election and embark on labour market reform once in power. Employers planning to negotiate an enterprise agreement had an incentive to postpone negotiations until new legislation offering non-union individual agreements was in place (December 1993). Consistent with this hypothesis available statistics from the Commissioner for Workplace Agreements shows that in December 1993 1,293 agreements were lodged for registration purposes. By comparison only 263 agreements were lodged in January 1994 and 323 in February 1994.

The decline may also reflect an over representation of females in firms opting to remain in the ‘run-down’ award stream. Recent research from DEWRSB (2000) shows that small (employing) organisations are more likely to have award rather than agreement coverage. WA has a relatively higher share of small organisations.<sup>30</sup>

### *Full-timers: summary*

Overall the aggregate statistics suggest no change in the national gender pay gap in the full-time labour market, but behind the aggregate statistics differences are apparent. It is quite clear that changing institutional arrangements in the labour market have affected some groups. In Western Australia, for example, there has been a significant deterioration in the gender pay gap following the demise of centralised wage bargaining in 1991.

For reasons noted above one might expect changes in the system of wage determination to have a greater impact on the earnings of part-time employees than full-timers. Relative to full-timers, part-timers are more likely to be in the award stream where wage movements have been slower and average weekly wages are lower. The following section uses the IDS data to study wage structure outcomes in the part-time labour market.

### *Part-timers*

As with the gender wage gap the principal estimation approach uses semi-log wage equations for a pooled sample of males and females and a dummy variable indicating part-time (PT) work (defined as 10 to 35 hours per week). The independent variables include education, experience, marital status, children, and a control for area of residence (metropolitan/urban). The results associated with this model are presented below, along with estimates of the raw (unadjusted) part-time/full-time (PT/FT) wage gap and a measure of the gender wage gap in part-time earnings.<sup>31</sup>

There are a number of interesting features to the results (reported in Table 12). Firstly, at a national level there is a statistically significant gap in the earnings of part-timers and full-timers. In 1996 part-timers earn 3.8 per cent less than their full-time counterparts. Secondly, consistent with Whitehouse (2000), there is no significant difference in the earnings of males and females employed part-time in 1996.<sup>32</sup> Thirdly, over the period 1990-96 there have been a number of significant changes in the relative earnings of part-time workers.

Focusing on the changes the results show that between 1990 and 1996:

- the adjusted earnings gap between part-time and full-time employees *narrowed* by 3.4 percentage points (from -7.1 per cent to -3.8 per cent).<sup>33</sup>
- there was a 5.4 percentage point *convergence* in the earning gap between *females* employed part-time and persons (males and females) employed full-time (from -9.8 per cent to -4.4 per cent).
- the earning gap between *males* employed part-time and persons employed full-time *widened* by 7.4 percentage points (from +6.3 per cent to -1.1 per cent).
- changes in the relative earnings of males and females produced a significant *convergence* (12.6 percentage points) in the gender wage gap in the part-time labour market (from -15.9 per cent to -3.3 per cent).<sup>34</sup>

Table 13 below sheds further light on some of these changes. Blau and Kahn (1997), for the US have computed ‘quality adjusted’ measures of the changing wage structure to test whether the decline in the relative wages of low-skilled males was related to a change in their average characteristics (e.g. skill level, experience levels etc). A similar analysis is adopted here with separate wage equations used to compute actual, human-capital constant, and price-constant mean wage levels for each group in 1990 and 1996. (For comparison purposes full-time and part-time outcomes are reported below).

The human-capital constant predicted wage level (estimated by combining the coefficient estimates from a 1996 wage equation with the measured characteristics (means) from the equivalent 1990 wage equation) shows that, for males employed full-time, their ‘quality adjusted’ mean wage increased by 0.140 log points between 1990 and 1996. The equivalent female ‘quality adjusted’ mean wage increase was roughly the same, equal to 0.151 log points. In price-constant terms (calculated by combining the coefficients from the 1990 wage equation with the means from the 1996 wage equation), the results indicate that changes in the human capital endowments between 1990 and 1996 would have, *ceteris paribus*, increased the average male wage by 0.028 log points (measured at 1990 prices). The equivalent change for females is 0.030 log points.

In the part-time labour market the trends are different. The actual wage changes show that amongst males the actual mean wage increased by 0.076 log points between 1990 and 1996; the corresponding change for females was more than double, equal to 0.210 log points. The ‘quality-adjusted’ predicted wage shows that the lower male average wage growth rate in the part-time labour market can not be attributed to a decline in the quality of the male workforce relative to the female workforce. For both gender groups the actual and quality-adjusted predicted wages are identical.

The ‘price-constant’(quality-changing) predicted wage confirms the above finding. Between 1990 and 1991 there was a very very small (insignificant) decline in the quality of the male workforce which, *ceteris paribus* would have reduced the male average part-time wage by 0.006 log points (less than one percentage point). There was a very very small (insignificant) increase in the quality of the female workforce which, *ceteris paribus*, would have increased the female part-time average wage by 0.003 log points (less than half a percentage point).

The finding of a low growth rate in male average part-time wages unrelated to changes in the quality of the part-time workforce suggests that other factors must have been important. Potential candidates may be the rising level of casualisation within the male part-time workforce (see section 3), and related to that declining levels of unionisation (again more pronounced amongst males). Borland (1996), as previously noted, shows that declining trade union membership may be linked to rising wage inequality amongst men. To the extent that labour market deregulation has encouraged a shift towards part-time (and casual) employment and fostered changing institutional arrangements in the labour market (eg. union membership), then one could conclude from the above that the impact of these policies has varied across different labour market groups with male part-time workers appearing to be most disadvantaged.

**Table 12: Estimated Part-Time/Full-Time Hourly Wage Gaps, Australia.**

| 1996                            |         |                            |         | 1990                  |         |                            |         | Change 1990 to 1996   |         |                            |         |            |
|---------------------------------|---------|----------------------------|---------|-----------------------|---------|----------------------------|---------|-----------------------|---------|----------------------------|---------|------------|
| Raw PT/FT<br>Wage Gap           |         | Adjusted PT/FT<br>Wage Gap |         | Raw PT/FT<br>Wage Gap |         | Adjusted PT/FT<br>Wage Gap |         | Raw PT/FT<br>Wage Gap |         | Adjusted PT/FT<br>Wage Gap |         |            |
| Coef.                           | t-stat. | Coef.                      | t-stat. | Coef.                 | t-stat. | Coef.                      | t-stat. | Coef.                 | t-stat. | Coef.                      | t-stat. |            |
| All persons                     | -0.078  | 7.410 ***                  | -0.038  | 3.794 ***             | -0.088  | 8.303 ***                  | -0.071  | 7.198 ***             | -0.009  | -0.621                     | -0.034  | -2.403 **  |
| Male-PT to<br>Persons-FT        | -0.126  | 4.810 ***                  | -0.011  | 0.460                 | -0.025  | 0.764                      | 0.063   | 2.122 **              | 0.101   | 2.429 **                   | 0.074   | 1.928 *    |
| Fem-PT to<br>Persons-FT         | -0.061  | 5.520 ***                  | -0.044  | 4.303 ***             | -0.098  | 9.143 ***                  | -0.098  | 9.695 ***             | -0.037  | -2.403 **                  | -0.054  | -3.756 *** |
| Gender<br>Wage Gap in<br>PT pay | 0.060   | 2.160 **                   | -0.033  | 1.289                 | -0.074  | 2.200 **                   | -0.159  | 5.153 ***             | -0.134  | -3.071 ***                 | -0.126  | -3.130 *** |

Notes: \*p<0.10; \*\* p < 0.005; \*\*\* p<0.01.

Table 13: Actual and Predicted Log Wages

|                                    | 1990  | 1996  | Change 1990-96 |
|------------------------------------|-------|-------|----------------|
| <i>Males: Employed Full-Time</i>   |       |       |                |
| Actual Wage                        | 2.494 | 2.667 | 0.173          |
| Predicted Wage (1990 means)        | 2.494 | 2.634 | 0.140          |
| Predicted Wage (1990 prices)       | 2.494 | 2.522 | 0.028          |
| <i>Females: Employed Full-Time</i> |       |       |                |
| Actual Wage                        | 2.349 | 2.540 | 0.191          |
| Predicted Wage (1990 means)        | 2.349 | 2.500 | 0.151          |
| Predicted Wage (1990 prices)       | 2.349 | 2.379 | 0.030          |
| <i>Males: Employed Part-Time</i>   |       |       |                |
| Actual Wage                        | 2.420 | 2.496 | 0.076          |
| Predicted Wage (1990 means)        | 2.420 | 2.496 | 0.076          |
| Predicted Wage (1990 prices)       | 2.420 | 2.414 | -0.006         |
| <i>Females: Employed Part-Time</i> |       |       |                |
| Actual Wage                        | 2.346 | 2.556 | 0.210          |
| Predicted Wage (1990 means)        | 2.346 | 2.557 | 0.211          |
| Predicted Wage (1990 prices)       | 2.346 | 2.349 | 0.003          |

## 5: Summary and Conclusion

Over the last few decades governments of most Western developed economies have pursued policies designed to deregulate the labour market and decentralise pay negotiations. Relative to many other nations Australia has been slow to embrace the neo-liberalist agenda, although since the 1990s the pace of reform has quickened. Australia is now considered a ‘radical example of direct labour market deregulation’ (Campbell and Brosnan 1999).

Within Australia it was widely feared that labour market deregulation would disadvantage women, particularly those in low status, low paid, low unionised, part-time jobs, and thus in possession of little bargaining power (Wooden, 1997). Using unit record data from two income surveys - one pre (1990) and one post (1996) deregulation - this paper examines the claim that labour market deregulation has a differential impact on different labour market groups. Two key indicators are used in the analysis: the gender

wage gap and the wage gap between full-time and part-time workers. The key findings may be summarised as follows.

During a period of radical labour market deregulation (1990 to 1996) there has been:

- no change in the national gender wage gap in the full-time labour market. The quality-adjusted gap remains stable at 10.5 per cent.
- a significant deterioration in the gender pay gap within the full-time labour market in Western Australia; the adjusted gap is now around 18.5 per cent.
- a significant convergence (by 3.4 percentage points to 3.8 per cent) in the overall part-time/full-time wage gap.
- a 5.4 percentage point *convergence* (to -4.4 per cent) in the wage gap of females employed part-time and persons (males and females) employed full-time.
- a 7.4 percentage point *deterioration* (to -1.1 per cent) in the wage gap of males employed part-time and persons employed full-time.
- an 80 per cent (or 12.6 percentage point) *convergence* in the gender pay gap in the part-time labour market. By 1996 females employed part-time earned 3.3 per cent less than their male counterparts employed part-time.

The convergence in the gender pay gap in the part-time labour market is unrelated to changes in the quality of the part-time workforce and has more to do with male treatment disadvantage, possibly caused by growing levels of casualisation and declining union membership levels – both of which can be linked to labour market deregulation.

In conclusion, although evidence shows some stability in the gender pay gap in full-time labour markets, the outcome reflects the impact of on-going equal opportunity policies

such as training, promotion and career development. In so far as deregulation has had an impact it has prevented further convergence in the gender pay gap in the full-time labour market.

In the part-time labour market deregulation has contributed to a growth in low paid, low status jobs and, importantly, a deterioration in the relative earnings of males employed part-time. From a policy perspective a growth in this gap will make it increasingly difficult to move to a more balanced allocation of paid work time between men and women and, ultimately, place additional constraints on the capacity for females to attain labour market equality (Rubery, Smith and Fagan, 1998).

As a final comment, the results shown here do not refute the hypothesis that labour market deregulation adversely impacts on the earnings of females employed in part-time, low paid, low status jobs. The findings in this paper are based on comparisons of average wages for different groups. The part-time workforce is not, however, homogeneous. Females employed part-time differ with respect to skills, aims, preferences etc. (Walsh 1999). Many females employed part-time work in a professional capacity (e.g nursing). Many female part-time employees are similarly employed in low-skilled jobs (e.g. cleaning). Accordingly, to further understand how labour market deregulation is impacting on the labour market future work in this field should study the wage outcomes in low-skilled, part-time, male and female employment.

## Appendix A.

**Table I:** Estimated wage equations, Australia, 1996 and 1990

|   | 1996   |             |        | 1990   |             |        |
|---|--------|-------------|--------|--------|-------------|--------|
|   | Coef.  | Absolute t. | mean   | Coef.  | Absolute t. | mean   |
| <i>Constant</i>                               | 2.138  | 148.443     |        | 2.021  | 178.606     |        |
| <i>Skillvoc</i>                               | 0.152  | 16.483      | 0.321  | 0.162  | 22.610      | 0.396  |
| <i>Degree</i>                                 | 0.415  | 35.072      | 0.174  | 0.408  | 35.829      | 0.131  |
| <i>Potential experience</i>                   | 0.035  | 23.162      | 18.577 | 0.030  | 23.980      | 16.509 |
| <i>Potential experience</i> <sup>2</sup> /100 | -0.069 | 19.253      | 4.746  | -0.059 | 20.799      | 4.085  |
| <i>Married</i>                                | 0.093  | 8.343       | 0.638  | 0.102  | 10.158      | 0.640  |
| <i>Wsd</i>                                    | 0.081  | 4.676       | 0.076  | 0.063  | 3.951       | 0.068  |
| <i>Kids0t4</i>                                | -0.010 | 0.747       | 0.140  | 0.011  | 1.042       | 0.147  |
| <i>Kids5t9</i>                                | -0.010 | 0.759       | 0.146  | -0.015 | 1.408       | 0.151  |
| <i>Kid1015</i>                                | -0.043 | 3.471       | 0.165  | -0.042 | 4.059       | 0.166  |
| <i>Migrant</i>                                | -0.050 | 4.876       | 0.251  | -0.033 | 4.114       | 0.260  |
| <i>Metro</i>                                  | 0.060  | 6.486       | 0.704  | 0.067  | 8.585       | 0.686  |
| <i>Female</i>                                 | -0.105 | 12.549      | 0.353  | -0.113 | 15.580      | 0.339  |
| R <sup>2</sup> adj.                           | 0.243  |             |        | 0.288  |             |        |
| Breusch-Pagan                                 | 326    |             |        | 236    |             |        |
| Sample Size                                   | 9068   |             |        | 9658   |             |        |
| Mean Dependent Variable<br>(hourly wage)      | 2.628  |             |        | 2.445  |             |        |

Note: The samples are comprised of adult (16 to 64) males and females who are employed full-time (35+ hours per week) and have only one job. Absolute t-statistics are reported. Variable labels and definitions are given in Appendix C.

## **Appendix B: Variable Definition**

### **Dependent Variable**

Natural logarithm of hourly earnings. In the 1996 data set the variable was derived via continuous earnings and hours information. In the 1990 data set the earnings information was provided on a continuous basis, but the hours were grouped as follows:

1 “0 to 9 hours per week”; 2 “10 to 19 hours per week”; 3 “20 to 24 hours per week”; 4 “24 to 29 hours per week”; 5 “30 to 34 hours per week”; 6 “35 to 39 hours per week”; 7 “40 to 44 hours per week”; 8 “45 to 49 hours per week”; 9 “50 hours per week or more”.

The mid points of each category were used to construct a continuous measure. In the case of the open-ended upper limit the variable was set at 55 hours.

### **Education Level**

Highest qualification: the omitted or reference category includes persons with a basic qualification, persons who completed secondary schooling, and persons who did not complete school.

*Skillvoc*: Highest qualification a skilled certificate or diploma.

*Degree*: Highest qualification a bachelor degree or higher.

### **Labour Market Experience**

*Potential Experience*: equal to ‘(age of person)-(years of schooling)-5’.

*Years of schooling* was defined as follows: 16.5 for those with a degree or higher; 15 for those with a skilled vocational qualification (e.g. trade or diploma), 13 for persons completing high school or post-school basic qualifications; and 11 for those with no qualifications.

*Age of person* – this information was provided in bands.

| <b>1996</b>               | <b>1990</b>  |
|---------------------------|--|
| 15 through 24: continuous | 15 through 17: continuous                                |
| 25-29 years               | 18-20 years  |
| 30-34 years               | 21-24 years  |
| 35-39 years               | 25-29 years  |
| 40-44 years               | 30-34 years  |
| 45-49 years               | 35-39 years  |
| 50-54 years               | 40-44 years  |
| 55 through 64: continuous | 45-49 years<br>50-54 years<br>55-59 years<br>60-64 years |

## **Marital Status**

Persons who were single formed the omitted category

*Married:* married

*Wsd:* widowed, separated or divorced.

## **Children**

Persons with no dependent children formed the omitted category.

*Kids0t4:* has dependent children aged between 0 and 4.

*Kids5t9:* has dependent children aged between 5 and 9

*Kid1015:* has dependent children aged between 10 and 15

## **Birthplace**

*Migrant:* equal to 1 if the person was born overseas. Australians form the reference group.

## **Geographic location**

*Metro:* equal to 1 if the person resides in a capital city.

## **Gender**

*Female:* equal to 1 if the person is a female.

## **Appendix C**

In the economic literature studies of the gender pay gap a variety of decomposition techniques are frequently employed to study sources of wage inequality. The Blinder (1973), Oaxaca (1973) and Wellington (1993) techniques are amongst the more common. The Blinder/Oaxaca approach provides a one period decomposition. The Wellington approach extends this across two periods. The following summarises the two techniques.

### *Blinder/Oaxaca*

Firstly two separate wage equations of the form  $\ln \hat{Y}_{im} = \hat{\beta}_{0m} + V_{im}\hat{\beta}_m$  and  $\ln \hat{Y}_{if} = \hat{\beta}_{0f} + V_{if}\hat{\beta}_f$  are estimated for males (*m*) and females (*f*), respectively. Adopting the male wage structure as the non-discriminatory norm the raw wage gap can be decomposed using the following procedure:<sup>35</sup>

$$\overline{\ln Y_m} - \overline{\ln Y_f} = (\bar{V}_m - \bar{V}_f)\hat{\beta}_m + \bar{V}_f(\hat{\beta}_m - \hat{\beta}_f) + (\hat{\beta}_{0m} - \hat{\beta}_{0f})$$

where *m* denotes the males, *f* denotes females,  $\bar{V}$  is a vector of the means of the independent variables and  $\hat{\beta}$  is a vector of estimated slope coefficients. The first term of the decomposition calculates the portion of the gap attributable to differences in the characteristics of males and females. The residual measures the unexplained gender wage differential and is often regarded as a measure of unfavourable treatment or labour market disadvantage.

### *Wellington*

The Wellington (1993) technique may be summarised as follows:

$$(\overline{\ln Y_{m96}} - \overline{\ln Y_{m91}}) - (\overline{\ln Y_{f96}} - \overline{\ln Y_{f91}}) = [(\bar{V}_{m96} - \bar{V}_{m91})\hat{\beta}_{m96} - (\bar{V}_{f96} - \bar{V}_{f91})\hat{\beta}_{f96}] + \\ [\bar{V}_{m91}(\hat{\beta}_{m96} - \hat{\beta}_{m91}) - \bar{V}_{f91}(\hat{\beta}_{f96} - \hat{\beta}_{f91})]$$

where  $\overline{\ln Y}$  is the mean wage,  $\bar{V}$  is a vector of the means of the independent variables  $\hat{\beta}$  is a vector of estimated slope coefficients, *m* and *f* denote males and females respectively, and the subscripts 96 and 91 refer to two different time periods, in this case 1996 and 1991. The first term on the right hand side measures the *explained* change in the gender wage gap. The second term measures the *unexplained* change.

*Preston and Crockett (1999a) – reconciling the differences*

Preston and Crockett use the Wellington approach to decompose various Australian wage gaps into two components: (a) changes attributable to changes in the characteristics of males and females (explained), and; (b) an unexplained component measuring a change in the treatment of females in the labour market. Table II replicates Preston and Crockett's results.

**Table II:** 1991 to 1996 Changing Gender Earning Gaps

|                              | NSW           | VIC          | QLD           | ADEL          | PERTH        |
|------------------------------|---------------|--------------|---------------|---------------|--------------|
| Change Gender Gap to Explain | -1.288        | 0.176        | 0.056         | -2.808        | 1.113        |
| Explained Portion            | -0.661        | -1.688       | 0.148         | -2.599        | -0.099       |
| <i>Unexplained Portion</i>   | <i>-0.627</i> | <i>1.864</i> | <i>-0.092</i> | <i>-0.209</i> | <i>1.212</i> |

Source: Table 3, Preston and Crockett, 1999.

When compared to Table 10 in the body of the above paper there are some notable differences. The estimates in Preston and Crockett are much lower and the Victorian results are contradictory. Differences in dependent variables, estimation technique, model specification and time periods studied may account for some of these differences.

*Nature of the dependent variable:* The dependent variable in Preston and Crockett measures weekly earnings from *all sources* with the responses grouped into bands. The mid points of each bands were used to construct a continuous measure of income. The open-ended upper limit was given a value of 1.5 times the lower threshold level. Dividing annual income by 52 derived weekly earnings. The estimates in Table 10 in the body of the text are derived from models measuring hourly earnings. In the 1995/96 and 1996/97 income distribution surveys information on *Total current usual weekly income from wages or salary from main and second jobs* (IWSUCP) and *number of hours usually worked per week in main and second jobs* (HRSWKACP) were provided on a continuous basis. In the 1990 IDS information on income was continuous basis, but the hours information was grouped (see Appendix B). The mid-points of each band were used to generate a continuous measure of hours. Persons holding more than one job were excluded from the sample and a measure of hourly pay by dividing income by hours.

Table III shows that even within the same data set and sample, the size of the estimated gender wage gap varies depending on whether weekly or hourly earnings are used. By way of example, when the dependent variable is weekly earnings the estimated Australian net gender wage gap is 13.2 per cent; 2.7 percentage points higher than the estimated net gender hourly wage gap (as reported in Table 10). The difference is not statistically significant ( $t=0.210$ ). The models are almost similar, the only difference being the inclusion of a dummy variable measuring long hours (40+ per week) in the weekly wage regression.

**Table III:** Comparisons of estimated gender wage gaps 1996 and 1990

|                            | 1996 Census                                     |                         | 1996 Income Distribution Survey (IDS)        |                         |  |          |
|----------------------------|---|-------------------------|--|-------------------------|--|----------|
|                            | Weekly Earnings<br>(all sources) <sup>(a)</sup> |                         | Weekly Earnings<br>(main job) <sup>(b)</sup> |                         | Hourly Earnings<br>(main job) <sup>(b)</sup> |          |
|                            | Raw   | Adjusted                | Raw  | Adjusted                | Raw  | Adjusted |
| Australia                  | 0.192   | -0.141                  | 0.181  | -0.132                  | 0.127  | -0.105   |
| NSW                        | 0.183   | -0.133                  | 0.160  | -0.122                  | 0.105  | -0.097   |
| VIC                        | 0.176   | -0.135                  | 0.161  | -0.118                  | 0.109  | -0.088   |
| QLD                        | 0.214   | -0.151                  | 0.182  | -0.138                  | 0.135  | -0.112   |
| SA                         | 0.172   | -0.159                  | 0.12   | -0.076                  | 0.066  | -0.051   |
| WA                         | 0.261   | 0.176                   | 0.305  | -0.210                  | 0.237  | -0.185   |
| TAS                        | 0.178   | -0.171                  | 0.181  | -0.142                  | 0.139  | -0.117   |
| 1991 Census <sup>(c)</sup> |   | 1990 IDS <sup>(d)</sup> |  | 1990 IDS <sup>(d)</sup> |  |          |
| Australia                  | Raw   | Adjusted                | Raw  | Adjusted                | Raw  | Adjusted |
|                            | 0.199   | 0.145                   | 0.203  | 0.142                   | 0.146  | 0.108    |

Notes:

- (a) These estimates were generated from a set of regressions where the dependent variable was weekly earnings (from all sources) and the independent variables controlled for education level (4 dummies), experience and its square, marital status (2 dummies), children (1 dummy), birthplace (2 dummies), sector of employment (public/private dummy), location (rural/urban dummy), industry (1 digit) and occupation (1 digit). The Blinder/Oaxaca decomposition procedure was applied. The results are reported in Preston and Crockett (1999b), Table 2.
- (b) The set of independent variables in these models controlled for education level (2 dummies), experience and its square, marital status (2 dummies), children (3 dummies), birthplace (1 dummy) and location (1 dummy). There were no controls for industry and occupation. Gender disadvantage is estimated using the simple dummy variable approach.
- (c) This estimate is contained in Preston 1997, where industry and occupation are controlled for at the mainly 2digit level of analysis. The other independent variables are equivalent to those listed at (a) above. The Blinder/Oaxaca decomposition approach was used here.
- (d) These weekly and hourly income estimates are based on the 1990 IDS file and calculated using the Blinder/Oaxaca technique. The models used were of a basic specification without controls for industry and occupation. The 1990 estimates are consistent with comparable estimates in the literature. Langford (1995), for example, finds a raw gap of 0.150 and an a Blinder/Oaxaca adjusted gap of 0.092. Langford controls for one digit industry and occupation.

*Estimation Technique:* In Table 11 in the text the estimates are generated from a pooled 1990 and 1996 wage equation. A “female\*1996-dummy” interaction term is used to measure gender differences in the changing wage gap over the period 1990 to 1996. In this approach the means associated with the various 1990 and 1996 productivity characteristics are constrained to be equal. The Wellington decomposition procedure used to generate the Preston and Crockett (1999a) results allows for changes in the endowments or productivity characteristics of males and females over the period. Table IV below allows comparisons of the changing gender wage gap estimated using the Wellington decomposition procedure. The last column of Table IV may be compared to the results in Table 10 above. Some differences are apparent. Using the dummy variable approach the WA net gender hourly wage gap widens by 5 percentage points (Table 11). Using the Wellington approach it widens by 4.2 percentage points (Table IV). Using weekly income as the dependent variable the corresponding change is 3.5 percentage points (Table IV).

*Differences in model specification:* The analysis in Table IV also shows that the results are sensitive to model specification. Differences in the industry and occupational distribution of males and females are shown to account for some of the gender wage gap. Thus, inclusion of industry and occupation variables in the wage equation results in lower estimated gender wage gaps vis a vis a basic specification of the model. For example, using the Wellington decomposition approach, 1990 and 1996 income distribution surveys and hourly earnings as the dependent variable the results in Table IV show that between 1990 and 1996 the net gender wage gap narrowed by 4.2 percentage points in Western Australia. When industry and occupation are controlled for the revised change in the WA net gender wage gap is 2.9 percentage points. Preston and Crockett (1999a) controlled for one digit industry and occupation in their models. The results reported in Tables 10 and 11 above are void of industry and occupation controls.

**Table IV:**

Sensitivity Analysis Of Estimated Gender Wage Gaps For Adults Employed Full-Time. A Study Of The Wellington Decomposition Technique Across Different Data Sets And Dependent Variables.

|                   | 1991-1996:<br>Census<br>Household<br>Sample Files |   | 1990 to 1996, Income Distribution Surveys |                                      |                                   |                        |                                      |                                   |                   |
|-------------------|---|---|---|--------------------------------------|-----------------------------------|------------------------|--------------------------------------|-----------------------------------|-------------------|
|                   | <b>Weekly Earnings<br/>(all sources)</b>          |   | <b>Weekly Earnings</b>                    |                                      |                                   | <b>Hourly Earnings</b> |                                      |                                   |                   |
|                   | Raw   | Net<br>Change<br>(extended<br>model) <sup>(b)</sup> | Raw                                       | Net<br>Change<br>(extended<br>model) | Net<br>Change<br>(basic<br>model) | Raw                    | Net<br>Change<br>(extended<br>model) | Net<br>Change<br>(basic<br>model) | percentage points |
| Australia         | -0.42   | 0.20  | -2.3                                      | -2.3                                 | -2.0                              | -1.9                   | -1.5                                 | -1.1                              |                   |
| NSW               | -1.29   | -0.63   | -5.2                                      | -6.7                                 | -5.4                              | -5.5                   | -6.2                                 | -4.6                              |                   |
| VIC               | 0.18  | 1.86  | -5.0                                      | -4.0                                 | -4.4                              | -4.0                   | -2.4                                 | -3.2                              |                   |
| WA <sup>(a)</sup> | 1.11  | 1.21  | 4.3                                       | 2.2                                  | 3.5                               | 4.2                    | 2.9                                  | 4.2                               |                   |

Notes:

(a) In the Census based analysis it was not possible to separately identify persons residing in Western Australia in 1991. The analysis reported here measures the changing Perth wage gap. (Perth is the capital of Western Australia).

(b) The 'extended model' is the basic (human capital + demographics) model plus controls for one digit industry and occupation. See note (b) to Table iii for a list of the variables in the basic model.

(c) The Wellington decomposition approach requires estimation of separate male and female wage equations for each period (i.e. 4 sets of results). The following table sets out the different sample sizes. It is possible that the results are sensitive to sample size, particularly at smaller levels. It is for this reason that the analysis presented in the body of this paper opts for the simple dummy variable approach rather than the more sophisticated Blinder/Oaxaca (1993) and Wellington (1993) type decompositions.

Sample Sizes:

|              | Australia | NSW  | VIC  | WA  |              | Australia | NSW  | VIC  | WA  |
|--------------|-----------|------|------|-----|--------------|-----------|------|------|-----|
| 1996:Males   | 5866      | 1497 | 1366 | 873 | 1990:Males   | 6385      | 1652 | 1369 | 983 |
| 1996:Females | 3202      | 861  | 796  | 425 | 1990:Females | 3273      | 863  | 719  | 495 |

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<sup>1</sup> Bell and Ritchie (1998) similarly find a mixed set of outcomes behind the aggregate statistics, although in their article they highlight differences in sector (public/private) wage relativities, coverage of collective agreements and time effects (with females having flatter age-earning profiles).

<sup>2</sup> The discussion in this section is draws extensively from Campbell and Brosnan (1999)

<sup>3</sup> In an analogous way Dawkins and Norris (1995) show that between 1978 and 1993 there was a 7.9 percentage point increase in the incidence of part-time employment in both the UK and Australia, notwithstanding the very different industrial relations backgrounds prevailing at the time. The Australian growth was primarily demand driven with an important factor being the lower relative labour costs associated with part-timers.

<sup>4</sup> For further information on the State reforms see, also: Alexander and Lewer (1998); Gardner and Palmer (1997) and Preston and Crockett (1999b).

<sup>5</sup> The estimated size of the unregulated, individual contract, sector (i.e. 14 per cent) is significantly lower than estimates elsewhere. Buchanan *et al.* (1999), for example, suggest that around 30 per cent of the workforce are outside the system. Their estimates are based on 1995 AWIRS data and, although dated, would appear more plausible. Firstly, for most of the period of award regulation 20 per cent of the workforce were outside the system. Secondly, since 1991 there has been a growth in the coverage of individual and common law contracts. The difference in the size of the estimates may relate to the nature of the sampling framework in the DEWRSB survey. Firms with less than 5 employees were excluded from the survey.

<sup>6</sup> In the UK the share of part-time jobs occupied by females appears to be higher. Estimates range from 79 per cent (Fajertag, 1999) to 82 per cent (Bruegel and Perrons, 1998). The higher share may, of course, related in part to differences in the definition of part-time work. In Australia part-time work is defined as less than 35 hours per week.

<sup>7</sup> The following table may help clarify the changing employment shares discussed here.

|         | Share of Total Employment (%) |        |        | Share of Group Employment (%) |        |        |
|---------|-------------------------------|--------|--------|-------------------------------|--------|--------|
|         | Jun-90                        | Jun-96 | Jun-00 | Jun-90                        | Jun-96 | Jun-00 |
| Males   |                               |        |        |                               |        |        |
| FT      | 53.9                          | 50.5   | 49.2   | 92.1                          | 88.7   | 87.7   |
| PT      | 4.6                           | 6.4    | 6.9    | 7.9                           | 11.3   | 12.3   |
| Females |                               |        |        |                               |        |        |
| FT      | 25.0                          | 24.7   | 24.9   | 60.3                          | 57.4   | 56.7   |
| PT      | 16.5                          | 18.4   | 19.0   | 39.7                          | 42.6   | 43.3   |

Source: ABS Cat. 6203

<sup>8</sup> The Australian Bureau of Statistics defines casuals as employees who are "not entitled to either annual leave or sick leave in their main job". Although casual contracts may be terminated often at an hours notice a feature of many casual jobs is that they are on-going. The growth in the demand for casual labour essentially reflects the fact that the labour costs associated with casual employees are comparatively low (Dawkins and Norris, 1990).

<sup>9</sup> The proportions show in Figures 5 and 6 are calculated as a share of persons working one or more hours in the reference period. Persons who are classified as employed, but who worked zero hours in the reference period (e.g. because of holidays, sick leave etc.) were excluded from the calculation.

<sup>10</sup> Some caution should be exercised in interpreting these figures as the information reflects hours actually worked (rather than paid) in the reference period. For example, persons who usually work full-time (defined in Australia as 35 or more hours per week), but who were on holiday or had flex-leave, would record < 35 hours in the reference period.

<sup>11</sup> These estimates are based on measures of Average Weekly Ordinary Time Earnings, Full-Time Adults and have been calculated using a four quarter moving average.

<sup>12</sup> It should be noted that retrenchments in the public sector have been more concentrated in lower-paid positions. Accordingly, without controlling for differences in the skill levels across sectors the raw wage gaps shown here are probably over-stated.

<sup>13</sup> The survey only sampled firms with 5 or more employees. The coverage of enterprise agreements is lower in small firms than large, which would suggest that, for the private sector, the actual portion of the workforce covered by enterprise agreements is actually lower than 29 per cent.

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- <sup>14</sup> See Table 1 above.
- <sup>15</sup> In Gornick and Jacobs (1996) the focus is on wage data from 1986.
- <sup>16</sup> In the 1996/97 data set the earnings of persons employed full-time were deflated by a factor of 4.8 (with 4.8 representing the average movement in full-time earnings between 1995/96 and 1996/97). Part-time earnings were deflated by 0.2 per cent.
- <sup>17</sup> Full-timers are defined as those working 35 or more hours per week in their main job. The rationale for initially restricting the sample to full-time wage and salary earners is that it overcomes some of the estimation difficulties associated with measuring the labour market experience of persons employed part-time.
- <sup>18</sup> Persons identified as being employed in defence were excluded from the analysis, as were persons with more than one job.
- <sup>19</sup> For short-hand purposes 1996 is used to refer to the merged 1995/96 and 1996/97 data set. 1990 refers to the 1989/90 data set.
- <sup>20</sup> Gornick and Jacobs (1996) find that persons working fewer than tend hours tend to underestimate their hours worked, thus inflating the estimated hourly wage. Removing persons working less than 10 hours a week eliminated 7.1 per cent of females and 1.5 per cent of males from the combined 1990-1996 sample.
- <sup>21</sup> Hourly earnings are calculated as total weekly earnings from main job divided by hours of work in main job. In the 1996 data set the hours information is given on a continuous basis. In the 1990 data set the hours information are grouped. The mid points of the categories are thus used to construct hourly earnings.
- <sup>22</sup> It is generally acknowledged that 'potential experience' (calculated as age minus years of schooling minus 5) is a poor proxy for female labour market experience. Rummery (1992) shows that when actual measures of experience are used the rate of return is lower. In Rummery's case it fell from 1.48 per cent using potential to 1.32 per cent using actual. A number of different techniques may be employed to try to overcome the data limitations. Some studies employ the potential measure (as used here) but augment the regression equation with additional variables to control for marital status and children to correct for spells of absence from the workforce (see, for example, Gregory and Daly, 1992). Others have adjusted the potential measure to account for intermittent experience patterns (e.g. Lambert, 1993), or have imputed actual measures of experience from other equations (e.g. Miller and Volker, 1993). The results using these alternative approaches are mixed. On the one hand, Wright and Ermisch's (1991) results for the UK show that the potential measure overstates the returns to experience for women. On the other hand Kidd and Shannon (1996) find that the imputed measure suggests higher returns. According to Blinder (1976), in the absence of data on actual work experience, any measure of experience will be plagued by statistical biases. The simple 'potential' measure is thus an accepted approach. The approach adopted in this paper follows Gregory and Daly (1992) and controls for related demographic characteristics such as marital status and dependant children. Langford (1995) shows that this approach yields fairly accurate results.
- <sup>23</sup> The analysis was run with and without industry and occupation controls. Tests of significance revealed no significant difference on the estimated size of the female dummy coefficient (used to proxy gender wage discrimination). The results reported here pertain to a basic (human capital) specification of the wage equation without the industry and occupation augmentations.
- <sup>24</sup> Further description of the explanatory variables is provided in the Appendix B.
- <sup>25</sup> It should be note that while it is common to interpret the gap as evidence that female skills and qualifications are undervalued the interpretation does have some limitations. For example, the model is unable to control for unmeasured differences in male and female characteristics. These unmeasured differences may account for a portion of the gender wage gap.
- <sup>26</sup> In semi-logarithmic equations the coefficients of dummy variables that are small in value may be interpreted as the percentage effects on the dependent variable, relative to the omitted category (Halvorsen 1980).
- <sup>27</sup> Using the Blinder/Oaxaca decomposition approach the adjusted national 1996 gender wage gap is 10 per cent without industry and occupation controls, and 9.3 per cent with industry and occupation controls. The corresponding estimates for 1990 are 10.8 and 10.3 per cent, respectively. These results are consistent with those estimated elsewhere. Langford (1995), for example, using the same 1990 data set, similar sample and similar specification (with industry and occupation) estimates an adjusted gender wage gap of 9.2 per cent using the Blinder/Oaxaca approach. (Further details may be found in Preston (2000), appendix c).

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<sup>28</sup> Analysis of the descriptive statistics from the unit recorded data used in this section reveals that between 1990 and 1996 the share of females, employed full-time, who had a degree increased from 13 per cent to 20.5 per cent.

<sup>29</sup> In trend terms these results are fairly consistent with estimates in Preston and Crockett (1999a) using 1991 and 1996 Australian Census data. There are, however, two notable differences. Firstly the estimated changes in the Preston and Crockett study are much smaller. Preston and Crockett, for example, report a 0.6 percentage point convergence in the NSW net gender wage gap. The corresponding estimate in Table 11 suggest a 3.7 percentage point convergence. Secondly, as noted above, Preston and Crockett found that the net gender wage gap of Perth (Western Australia) and Victoria widened between 1991 and 1996. In Perth it grew by 1.2 percentage points and in Victoria it grew by 1.8 percentage points. The Victorian results are at odds with the results reported in Table 11 (showing an insignificant decline in the gap). What might account for the differences? Firstly, it may be that the Victorian change was not significant. Relative to the recorded change in NSW the Victorian change was significant at the 10 per cent level. However, relative to fluctuations in the within state (Victoria) wage gap this change may not have been significant. Preston and Crocket did not examine this. An insignificant finding would not be at odds with the hypothesis since, as noted earlier, the Victorian reforms may have been tempered by the collectivist arrangements at the federal level. (Appendix C explores other possible explanations for the divergent Preston and Crockett results and those detailed here).

<sup>30</sup> Preliminary research suggests that this is a plausible hypothesis, although no firm evidence is yet available.

<sup>31</sup> These estimates were obtained from the coefficients on a “female\*part-time” interaction term (FPT). Thus the equation was of the form  $\ln Y_i = \beta_0 + \beta_1 PT_i + \beta_2 FPT_i + \beta V_i + u_i$  where, as before, V is a vector of characteristics. The coefficient on the PT variable measure the earnings of males employed PT vis a vis persons employed full-time. Female workers employed part-time earn  $\beta_1 + \beta_2$ . The t-statistics on  $\beta_2$  indicate whether the earnings of females working part-time are significantly different from males employed part-time.

<sup>32</sup> Estimates in Whitehouse (2000), summarised in Table 9 above show a gender wage gap in part-time earnings of two percentage points in 1990. Over the period 1990-98 the gap converged three percentage points; by 1998 males had an earnings disadvantage of one percentage point.

<sup>33</sup> Estimates of the raw or unadjusted part-time (casual & permanent)/full-time (permanent) wage gap using unpublished data from the Australian Bureau of Statistics shows that the gap widened by 9 percentage points (from -6 per cent to -15 per cent) between 1990 and 1998 (Whitehouse, 2000; see Table 9 above). The calculated change is considerably higher than the estimated changes in Table 12. There it is shown that the raw PT/FT wage gap was equal to -8.8 per cent in 1990 and -7.8 per cent in 1996. It is difficult to know why the differences are so large. It may relate to differences in sample groups. In the study above persons working fewer than 10 hours and persons with more than one job are excluded from the analysis. This may place upward bias on the wages of the part-time workers. The big change observed in Whitehouse may also relate to time period studied. For example, any changes emanating from the federal *Workplace Agreements Act 1996* will not show up in the sample data in this paper, but may be present in the Whitehouse estimates.

<sup>34</sup> Bruegel and Perrons (1998) similarly note that in the UK the position of low paid women relative to low paid men has only improved because of a deterioration in the relative position of low paid men.

<sup>35</sup> If the female wage structure is taken as the non-discriminatory norm the explained portion is equal to  $(\bar{V}_m - \bar{V}_f)\hat{\beta}_f$ , and the unexplained portion is equal to  $\bar{V}_m(\hat{\beta}_m - \hat{\beta}_f)$ .