The Evolution of Occupational Gender Segregation in Australia: Measurement and Interpretation

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Abstract
In this paper, we build on earlier work (Watts and Rich, 1991, 1992a) and examine the conceptual and measurement issues associated with documenting trends in occupational segregation in Australia over the period 1986-2002. Some specific issues will be addressed, including: Is the rate of gender integration still pro-cyclical? Has gender stereotyping diminished in the atypical occupations? Have women crowded into occupations that were previously male dominated, so that re-segregation has occurred? What has been the impact on gender segregation of the continued growth of part-time employment? What role can legislation play in promoting occupational gender integration?

1. Introduction
Occupational gender segregation persists across most countries, irrespective of the level of economic development, political system and religious, social and cultural environment. It is an enduring characteristic of labour markets around the world (Anker, 1997). Jonung (1984, p. 45) defines the presence of occupational gender segregation as when women and men are differently distributed across occupations than is consistent with their overall shares of employment, irrespective of the nature of job allocation.

Chang (2000, p. 1658) notes that occupational segregation affects the gender gap in earnings, the prospects for career mobility, the likelihood of work autonomy and the chances of exercising authority over others in the workplace. In addition, it is a source of labour market rigidity and economic inefficiency that is detrimental to countries facing the globalisation of production and intensified international competition (Anker, 1997).

The topic of occupational segregation remains a controversial area of research, however, with long-standing disagreements over how to measure the evolution of the pattern of segregation over time (see for example Watts,

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1 It has been argued by a number of Australian researchers that occupational desegregation may increase the gender wage differential (see Lambert, Petridis and Galea, 1996, p. 215 and references therein). On the other hand, US studies, including Blau and Kahn (1997), consistent argue that occupational segregation impacts adversely on gender wage inequality.

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In addition, researchers from different disciplines, including sociology and economics, bring different theoretical perspectives to the study of this importance source of gender stratification. Sociologists typically adopt a broader approach to their research which embraces cultural, political and institutional, in addition to economic, factors (see, for example, cross-country studies by Charles, 1998 and Chang, 2000).

In studies of gender segregation by occupation conducted in the 1980s and early 1990s using the Karmel and MacLachlan (KM) index of segregation (Watts and Rich, 1991, 1992a, 1992b, 1993), a number of common trends were identified in the Australia and the UK, notably the slow integration by total employment, the more rapid integration of full-time employment and the tendency of part-time employment in these countries to impede the rate of occupational integration. These countries and the USA also exhibited a pro-cyclical rate of gender integration (Watts, 1995).

The novel approach adopted in these papers was to compute the rate of integration across four occupational groups in the context of the overall structure of employment by gender and occupation. This approach overcame a major deficiency of single, scalar measures of gender segregation that provided little information about patterns of change (Chang, 2000, p.1659).

Broadly similar patterns of change were also found in the three countries in these studies, with little evidence of integration in the female dominated Clerical, Sales and Service and male dominated Skilled Blue Collar occupations. On the other hand, Managerial, Professional and Paraprofessional (Upper Tier) occupations integrated relatively fast. Unskilled occupations also integrated relatively rapidly, although this provided few economic gains to women (Watts and Rich, 1992b, 1993; Watts, 1995).

The remainder of this paper reviews the theoretical and empirical literature, documents the contentious issues associated with the measurement of gender segregation and then investigates whether these apparently robust trends in segregation have continued through the late 1990s and into the 21st century in Australia. In addition, a number of specific issues are addressed including: Is the rate of gender integration still pro-cyclical? Have women crowded into some occupations that were previously male dominated, so that re-segregation has occurred? What has been the impact on gender segregation of the continued growth of part-time employment? What role can legislation play in promoting occupational integration by gender?

To address these questions, the paper uses the Karmel and MacLachlan index but adopts a more refined technique than was employed by Watts and Rich (1992b, 1993) and Watts (1995) to generate a consistent time series index of segregation by full-time and total (full-time plus part-time) employment, as well as indexes disaggregated across five occupational groups, with the Managerial and Professional (and Paraprofessional) occupations being
separated. Australian quarterly employment data by gender, detailed occupation and full-time and part-time status is used for the period 1986-2002.

The earlier trends appear to have broken down with Managerial occupations and, to a lesser extent, Professional occupations resegregating, and Clerical, Sales and Service occupations integrating, but Blue Collar Skilled occupations remain highly segregated. The pattern of segregation in the Unskilled occupations exhibits erratic change. Despite its continuing growth, part-time employment no longer plays such an inhibiting role in the gender integration of employment by occupation. An earlier study (Watts, 2002) used a limited occupational disaggregation of 35 minor occupations of which only three occupations were in the Managerial occupational group. The results from that paper are inconsistent with this study, particularly for the period 1996(3) - 2002(3).

Some theories of occupational gender segregation are presented in the following section. The measurement issues associated with the measurement of occupational gender segregation are outlined in section 3. In the following two sections the quarterly time series measures of segregation for Australia (1986-2002) are presented and analyzed. The implications for policy and some conclusions are outlined in the final section.

2. Theoretical Perspectives

Theories of occupational sex segregation can be divided into two broad groups, namely those in which the individual worker or firm is the unit of analysis, such as human capital theory, preference theory and sex role stereotyping models, and those based on structural analyses, such as segmented labour market theories and feminist theory.

In one strand of the supply side literature, occupational choice and associated wage outcomes are viewed as the outcome of rational human capital investment decisions based on the different gender roles in social reproduction. Labour supply is differentiated, both between the sexes and within the sexes in the sense of skill and part-time and full-time status. It is claimed that women engage in less training, due to their shorter expected labour market tenure, and choose occupations for which interruptions to employment are not costly, due to low skill depreciation and flat age earnings profiles. This analysis is alleged to explain the tendency of women to locate in low skill jobs but it cannot justify why women are concentrated in a small number of female occupations at each skill level (Blau and Jusenius, 1976). England (1982) claims that, contrary to Polachek (1981), the U.S. evidence does not support the contention that job segregation is based on pecuniary incentives. Hakim (2002) notes the importance of

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2 It is well known that a higher degree of occupational disaggregation cannot lead to a lower index measure of occupational segregation. The impact on the rate of change of the index magnitude is unclear, however. In this instance the calculations of rates of change appear sensitive to the degree of occupational disaggregation.
convenient hours in women’s choice of employment. England finds no evidence that women, planning non-continuous employment, choose traditional female occupations or that women with continuous employment have an occupational distribution similar to men (see also Okamoto and England, 1999). Human Capital Theory ignores the discriminatory behaviour of employers in setting lower wages in female occupations, as well as giving people more information and computational acumen than is realistic (Okamoto and England, 1999, pp. 574-575). Blackburn et. al. (2002, p. 517) note that men’s work is typically prioritized, because they earn more than their partners, for whatever reason, so that many women undertake part-time and less demanding full-time jobs. The determinants of the occupational structure of part-time employment then assume importance, specifically the extent to which the technological or organisational dimensions of the occupation influence the extent to which employment is made available in the form of part-time work, and/or whether the gender of the incumbent plays a role (see Horrell and Rubery, 1991). The occupational mobility experienced by women when moving between full-time and part-time employment, in response to changing family roles (Blackwell, 2001), undermines a simple human capital model of occupational choice.

In their US study, Okamoto and England (1999) find that there is a supply side to occupational gender segregation founded on attitudes and aspirations formed in youth, but the effects are modest. Gender per se is more important, but the nature of the processes and in particular whether they originate on the supply side or the demand side is unclear (Okamoto and England, 1999, p. 576).

Harper and Haq (2001) find that there are significant differences in occupational aspirations formed by girls and boys at the age of 16 in their study of a UK cohort. Using a conditional hiring model, they conclude that there was no hiring bias against women at the age of 33, except in the manual and craft occupations. They mention two qualifications associated with influences on the formation of occupational aspirations and their relevance 17 years later to occupational attainment.

Preference theory which was developed by Hakim (1996, 2000, 2003) is viewed as a refinement of rational choice and human capital theories. Hakim (2003, p. 3) is critical of public policy for treating women (and men) as a homogenous group with the same preferences and labour market aspirations. Drawing on British evidence from a 1999 Interview Survey conducted by the Office of National Statistics, she claims that there are three types of women who differ with respect to their attitudes to paid work and family commitments. They are the work centred, the family centred and the adaptive. Hakim (2002) alleges that these preferences are a primary

1 In 2002, women represented less than seven per cent of full-time employees in Skilled Blue Collar occupations in Australia, with full-time employment representing approximately 90 per cent of total employment. On the other hand, 62 per cent of full-time employees in Clerical, Sales and Service occupations were female, with full-time employment representing less than 55 per cent of total employment.
determinant of female behaviour with respect to fertility, employment patterns and job choice. However, she claims that these lifestyle preferences cut across educational groups, as well as socio-economic and income groups, and do not determine occupational choice and hence occupational segregation (Hakim, 2002, p. 454). She provides limited evidence to support her claim about segregation, in the form of employment outcomes for the three groups of women, based on the tripartite classification of male dominated, female dominated and mixed occupations, rather than individual occupations. Her analysis has attracted a lot of criticism, specifically for giving primacy to these exogenous preferences (Proctor and Padfield, 1999). Also her claim that, in Britain at least, equal opportunities legislation has been effective, so that, irrespective of their preferences, women are not excluded from certain occupations, is not substantiated.

Within the demand side strand of the choice theoretic approach, employers practice statistical discrimination against women by using gender as a cheap screening device. Individuals are assigned the real or perceived characteristics of the group to which they belong, such as high turnover and/or absenteeism rates (see Chapman, 1984). It is then cost efficient for an employer to choose members of a group displaying the desired characteristics. In an environment of weak labour market regulation and unemployment, employers exercise significant discretion in their structuring of work (i.e. full-time versus part-time and the determination of when work is undertaken) and in their hiring behaviour, particularly with respect to women who seek part-time employment and constitute a relatively elastic supply of labour. Also the culture of the particular workplace can attract women or deter them from seeking employment.

In an Australian study Riach and Rich (1987) demonstrated through correspondence testing that women and men with similar qualifications and experience were treated unequally in the hiring process. Since the discrimination occurred during shortlisting, the applicant was unlikely to realise that unequal treatment had occurred. Using a multinomial logit specification, Kidd and Meng (1995) showed that personal characteristics and educational attainment provided a limited explanation of the differences in occupational status of men and women in 1981/82 and 1989/90.

Statistical discrimination against minority groups is more likely to be practiced by small organisations because they are less likely to have regular procedures for assessing workers’ qualifications (Reskin, McBrier and Kmec, 1999, p. 339). Employers will tend to seek replacements who resemble the former incumbents. Likewise, recruitment through informal networks will tend to reinforce the existing gender/race composition because incumbent workers advise similar types of people to apply (ibid., p. 343). In the USA more sophisticated personnel systems are found in larger organisations (Pfeffer, 1977, p. 557). It is difficult to differentiate statistical discrimination from discrimination based on prejudice, however, because statistical discrimination could be founded on inaccurate statistical data that reflects inadequate sampling.
Once jobs become sex typed, a complex process of institutional discrimination denies equal occupational opportunities for the sexes. This reflects two processes, namely employers’ overt (statistical) discrimination, and limited expectations on the part of women, mediated by family influences and trade union attitudes. Women’s access to particular forms of education and training opportunities may also be restricted or it may be sufficient for women to perceive that their opportunities are limited for them to reject atypical forms of training, in particular trade qualifications. These factors will be reflected in the gender composition of employees across occupations within workplaces, because organisations differ in the types of skills and level of experience required of their employees (Reskin et al, 1999, p. 338). This feminisation of some occupations tends to be self-reinforcing in the sense that the associated decline in pay, status and conditions deters male entry (Power, 1975).

Segmentation is a process in which different groups of labour market participants are compartmentalised and isolated, and receive different rewards and opportunities for otherwise comparable attributes (Rumberger and Carnoy, 1980, p. 117). In the original dual labour market model, the imperatives of technology and skill acquisition, through on the job training, gave rise to internal labour markets which underpinned the primary/secondary distinction. Watts and Rich (1992a) note that the fundamental problem with the segmentation literature is that occupational sex segregation does not mirror the primary/secondary division of the labour market (Rosenberg, 1989, pp. 388-390). Hence it is inappropriate to classify women as a monolithic group, belonging to the secondary sector (O’Donnell, 1984), particularly when they represent an increasing share of employment in Managerial and Professional occupations.

The basic premise of feminist theory is that patriarchy is manifested in women’s subordinate position in the family, the labour market and society as a whole (Anker, 1997). Under the gender division of labour the male is viewed as the breadwinner, whereas the female is assumed to be family centred, even though an increasing number of women participate in (full-time) employment and also head single parent families. The lack of congruence between perceptions and reality are alleged not to detract from gender-based discrimination against women. Feminist theories also emphasise the enormous overlap in the abilities and preferences of individual men and women.

Anker (1997) suggests that this division of labour impacts on the amount of education undertaken by women, their choice of the degree of vocational orientation of courses and their time profile of labour market participation and hence the extent of their labour market experience. The typical characteristics of “female” occupations, including a caring nature; skill and experience in household-related work; manual dexterity; and attractive

Women now represent the majority of undergraduate completions in Australia, but they tend to crowd into female dominated fields of study (Watts, 1997).
physical appearance mirror the common stereotypes of female abilities. Anker (1997) concludes from his empirical work based on detailed occupational data for 41 countries and territories that gender (feminist) theories provide the most compelling explanations of the presence of occupational gender segregation.

Charles (1998) and Chang (2000) both conduct cross-national studies of occupational segregation utilizing log linear models. Charles (1998, p. 108) finds that the patterns of occupational segregation across nine European countries are the product of gender egalitarian cultural norms which promote the integration of women in traditionally male-dominated managerial and professional occupations, and post-industrial economic structures which are associated with a concentration of women in sales and service work. In her study to explore whether patterns of gender segregation are converging across 14 industrialised countries, Chang (2000) emphasizes the institutional context in which regimes of segregation are imbedded and the potential role of the state in mediating the effects of family and market relations on women’s status, via, for example, Affirmative Action legislation. Substantive benefits can take the form of maternity leave provisions or improved access to affordable child-care. Chang speculates (p. 1667) that countries with strong equality of opportunity or affirmative action policies would experience desegregation in Professional and Managerial occupations (see also Watts and Rich, 1992a).

A major shortcoming of the broad spectrum of theories of segregation and the cross-national empirical work, with the exception of Chang (2000), is that they are largely static in conception and thus unable to provide an understanding of segregation trends over time.

On the other hand, time series empirical studies of economy-wide gender segregation which rely on the commonly used Index of Dissimilarity including the Australian work of Lewis (1982, 1985) and the US studies of Beller (1985), King, (1992) and Baunach (2002) adopt flawed index decomposition procedures (see Watts, 1992). A further shortcoming of some time series studies is the adoption of pairwise comparison of employment distributions, such as the distributions of white women and black women (King, 1992) and men and women with and without children (Lambert, Petridis and Galea, 1996). There is no simple relationship between these indexes and the overall index and the comparison of pairwise indexes is meaningless, because of unequal gender shares and occupational distributions (cf. Lambert, Petridis and Galea, 1996, p. 219).

3. The Measurement of Occupational Gender Segregation

A number of different indexes have been utilised in the literature, including the Index of Dissimilarity, Marginal Matching and the KM index, but there is no consensus about the correct measurement technique (see, for example, Blackburn, Jarman and Siltanen 1993, 1997 and Blackburn, Siltanen and...
Jarman, 1995; Karmel and Maclachlan, 1988; Watts, 1994, 1998a,b). Watts (2003) argues that in large part this reflects the failure of advocates to clearly outline the algebraic properties of their indexes.

Watts (1998a,b) argues in favour of the KM index\(^5\) which is defined as:

\[
IP = \frac{1}{T} \sum_{i=1}^{n} F_i - a(M_i + F_i)
\]

where \(T\), \(a\), \(n\) are total employment, the female share of total employment and the number of occupations, respectively. \(F_i, M_i\) are defined as the number of females and males respectively in the \(j\)th occupation. The index denotes the total employment that would have to relocate with replacement to achieve zero segregation by gender, but maintaining the occupational structure and the overall gender shares of employment.

There is consensus that an integrated distribution of employment is such that the share of (female) employment across the occupations is equal to the overall (female) share of employment, which is consistent with Jonung’s definition of segregation. Underpinning most index calculations is this distribution of employment.

There is no agreement on how to obtain the change in the value of the chosen index over time that just measures the change in the gender composition of the individual occupations. Most index measures conflate this change with the inevitable changes in the overall gender shares of total employment and in the occupational distribution of employment.

Two solutions can be found in the literature. First, an index can be employed, which, in addition to having other desirable properties (Watts, 1992, 1998a) is independent of the gender shares of total employment (composition invariance) and changes in the occupational structure (occupations invariance). Unfortunately no such index exists which satisfies all these properties. An index satisfying occupations invariance necessarily imposes a uniform set of occupation weights on the calculation (i.e. \(1/n\)). Thus all occupations are treated equally in the calculation, even though the underlying set of occupational shares of employment normally differ markedly (private correspondence with I. Jerby, 2002). The occupational classification is premised on skill differentiation, so that some occupations will have few employees. Watts (2003) argues that these occupations should have lower weight in the calculation of occupational segregation. Any index characterized by Occupations Invariance necessarily fails the property of Organisational Equivalence because the division of one occupation into two smaller occupations with equal female shares of employment does not leave the index unchanged.\(^6\)

\(^5\) The Karmel and Maclachlan index is used for monitoring segregation in the European employment strategy (Rubery et al, 2002) for both occupational and sectoral segregation, but it does not appear to have been decomposed to identify the impact of the changes in the gender composition of employment across occupations (see below).

\(^6\) Watts (1998a, p. 481) notes that the Charles Structural Index is Occupations Invariant, but does not exhibit Organisational Equivalence. This log index exhibits extreme volatility. It is also employed in the study by Chang (2000).
Alternatively, temporal changes in the chosen gross index of segregation can be decomposed to reveal a margin free component (Composition Effect). Advocates of index decomposition of the Dissimilarity Index include Blau and Hendricks (1979), Belli (1985) and Rubery (1988) but Watts (1992) argues that the actual procedures are flawed. On the other hand, Karmel and MacLachlan (1988, pp. 190-91) decompose changes in their index into Composition and Mix Effects where the latter can be divided into Occupation, Gender and Interaction Effects. A transformation of the first period distribution of employment by occupation and gender is undertaken, so that it has the same overall gender shares and occupational distribution of employment as the second period (base) distribution. The Composition Effect between periods 1 and 2 is based on the difference between the index magnitudes associated with these two distributions of employment. Thus, by construction, the measurement of the Composition Effect is not influenced by any changes in the occupational distribution of employment or overall gender shares, but it can be shown that the upper bound of the KM index depends on the overall (fe)male shares of total employment. Thus the index magnitudes are still conditioned by the overall gender share, but the Composition Effect is being derived from comparable index magnitudes with respect to occupational structure and overall gender shares. A researcher is typically attempting to explore changes in the extent of segregation through time or across countries, so that it is the relative magnitude of the index that assumes importance. These calculations require a consistent occupational classification, which can be a particular source of difficulty in cross-country studies, due to the limited compatibility of the data. Time series studies face the problem of the periodic re-classification of occupations.

In the past the acquisition of unpublished employment data by occupation has been costly in Australia. Consequently there has been a tendency to trace the evolution of gender segregation, via the linking of Composition Effects across discrete intervals, associated with peaks and troughs of the business cycle to identify any cyclical sensitivity in the pattern of segregation. This had lead to an inconsistent, disjointed series of calculations (see, for example, Watts and Rich, 1992a and Lambert, Petridis and Galea, 1996). A consistent time series measure of segregation must be based on an unchanging base employment distribution by occupation and gender.

Under an agreement between the Australian Vice Chancellors Committee and the Australian Bureau of Statistics university based researchers are now able to freely access a range of unpublished data, including highly

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7 The Composition Effect would be zero, if either the gender composition of each occupation remained unchanged, but the relative size of occupations changed, or the number of females and/or males changed uniformly across occupations.

8 This property of the index has been a source of criticism (Jones, 1992; Blackburn, Jarman and Siltanen, 1993, p. 395).

9 The study by Grusky and Charles (1998), however, is an exception in that the authors conduct an international study across 10 countries using a 64 category occupational classification which is based on a harmonised variant of the 1988 International Standard Classification of Occupations.
disaggregated employment and occupational data required for this study. In this paper, a quarterly time series of transformed index magnitudes is generated for each (base) distribution of employment by occupation and gender. Each (quarterly) observation can serve as the base distribution. These time series are highly correlated. The base distribution is chosen such that the associated time series of the index across All Occupations yields the highest average correlation with all the other time series for All Occupations.10

The use of a simple (single) aggregate measure of occupational segregation is based on the dubious premise that ‘universal segregative and integrative forces dwarf occupation specific forces’ (Weeden 1998, p. 4, see also Charles, 1998, p. 109) so that changes in the summary measure adequately capture the complexity of changes across groups of occupations.11

The calculations are straightforward using the KM Index, since it can be written as the normalized contributions of the individual Occupational Groups weighted by their overall employment shares:

\[ IP = \frac{1}{T} \sum_{i=1}^{n} F_i \left( \frac{a(F_i + M_i)}{T} - \frac{a(F_i + M_i)}{T} \right) \]

where \( T \) denotes total employment in \( i \)th occupational group. Using the ‘optimal’ base distribution yields a time series of the segregation index for each occupational group from which rates of change can be computed. The rates of integration or (re)segregation across these occupational groups provide an indication of the barriers which men or women face when trying to enter atypical occupations and yield some insights to assist in policy prescription.


Introduction

In this study the occupations are divided into five occupational groups, namely Managerial; Professional and Paraprofessional; Clerical, Sales and Service; Blue Collar Skilled and Unskilled.12

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10 For the second sample period, the average correlation between a particular time series and the remaining 24 ranged between 0.929 and 0.968 for full-time employment and 0.965 and 0.982 for total employment across All Occupations. The corresponding rates of change of the index magnitudes across the 25 time series over the period 1996(3)-2002(3) ranged from -0.23 per cent to 1.20 per cent (full-time) and -2.21 per cent and -3.36 per cent (total employment). Thus the use of a consistent time series of the index provides reasonably consistent orders of magnitude for rates of integration.

11 Likewise, Fossett, Calle and Kelly (1986, p. 423) are critical of the Dissimilarity Index and other indexes that measure ‘nominal differentiation not inequality’ by failing to differentiate between groups of occupations.

12 In earlier studies, (Watts and Rich, 1992a, 1993) Managers, Professionals and Paraprofessionals were grouped into one occupational group (Upper Tier) but the patterns of segregation appear to be some what different, with the female share of total Managerial employment being 25.5 per cent in August 2002, as compared to 46.9 per cent in Professional and Paraprofessional occupations.
In the Australian Standard Classification of Occupations 1\textsuperscript{st} Edition (ASCO-1) classification of 263 4-digit occupations, the Managerial occupational group is represented by Managers and Administrators (19 occupations); the Professional occupational group by Professional and Paraprofessional occupations (79); the Clerical, Sales and Service occupational group (41) is represented by Clerks, Salespersons and Personal Service Workers; the Skilled Blue Collar occupational group (56) is identified with the major occupational group, Tradespersons; and the Unskilled occupational group (68) consists of Plant and Machine Operators and Labourers and Related Workers.

The ASCO 2\textsuperscript{nd} edition (ASCO-2) classification system was introduced in 1996 with 300 4-digit occupations. The Managerial occupational group (22 occupations) is represented by Managers and Administrators; the Professional occupational group (105) by Professionals and Associate Professionals; the Clerical, Sales and Service occupational group (59) is represented by Advanced Clerical & Service Workers, Intermediate Clerical, Sales & Service Workers and Elementary Clerical, Sales & Service Workers; the Skilled Blue Collar occupational group (58) is identified with the major occupational group, Tradespersons & Related Workers; and the Unskilled occupational group (56) consists of Intermediate Production & Transport Workers and Labourers & Related Workers.

Employees in Managerial, Professional and Paraprofessional occupations normally engage in formal training, typically university study, prior to employment, while, in general, training is on-the-job (firm-specific) in the subordinate primary segment. In Skilled Blue Collar occupations, training typically takes the form of apprenticeships. Unskilled occupations tend to have the worst conditions of work and are the most accessible to potential employees.

ASCO-1 data covering 40 quarterly observations of both full-time and total employment data by gender and the 4 digit occupations are used for the period August 1986 – May 1996. ASCO-2, 4-digit level data are used for the shorter span of 25 quarterly observations for the period, August 1996 – August 2002. The female shares of part-time, full-time and total employment and the employment growth rates across 'All Occupations' (Total) and the broad occupations are shown in tables 1 and 2, respectively.

The change in the occupational classification has created a significant discontinuity in the female shares of full-time, part-time and total employment, except for All Occupations and Clerical, Sales and Service. There has been a declining trend in the female share of part-time employment. There has been a steady increase in the female full-time shares of Professional and Managerial employment over the period with the overall female full-time share showing a steady increase from 29.9 per cent to 33.8 per cent over the complete sample period. The female share of Blue Collar Skilled and Clerical, Sales and Service occupations has stayed largely unchanged.
Table 1 Percentage Female Shares of Part-Time, Full-Time and Total Employment

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Part-time</th>
<th>Full-time</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Administrators &amp; Associate Professionals</td>
<td>Professionals*</td>
</tr>
<tr>
<td></td>
<td>Aug-1986</td>
<td>79.31</td>
<td>73.85</td>
</tr>
<tr>
<td></td>
<td>May-1996</td>
<td>74.29</td>
<td>66.25</td>
</tr>
<tr>
<td></td>
<td>Aug-1996</td>
<td>73.89</td>
<td>70.18</td>
</tr>
<tr>
<td></td>
<td>Aug-2002</td>
<td>70.56</td>
<td>65.08</td>
</tr>
<tr>
<td></td>
<td>Aug-1986</td>
<td>29.93</td>
<td>17.44</td>
</tr>
<tr>
<td></td>
<td>May-1996</td>
<td>32.60</td>
<td>20.35</td>
</tr>
<tr>
<td></td>
<td>Aug-1996</td>
<td>33.02</td>
<td>18.76</td>
</tr>
<tr>
<td></td>
<td>Aug-2002</td>
<td>33.81</td>
<td>21.61</td>
</tr>
<tr>
<td></td>
<td>Aug-1991</td>
<td>32.13</td>
<td>21.16</td>
</tr>
<tr>
<td></td>
<td>Aug-1986</td>
<td>39.13</td>
<td>22.31</td>
</tr>
<tr>
<td></td>
<td>May-1996</td>
<td>42.99</td>
<td>24.52</td>
</tr>
<tr>
<td></td>
<td>Aug-1996</td>
<td>43.20</td>
<td>23.47</td>
</tr>
<tr>
<td></td>
<td>Aug-2002</td>
<td>44.35</td>
<td>25.62</td>
</tr>
<tr>
<td></td>
<td>Aug-1991</td>
<td>42.13</td>
<td>25.50</td>
</tr>
<tr>
<td></td>
<td>Nov-2000</td>
<td>43.81</td>
<td>24.53</td>
</tr>
</tbody>
</table>

Source: AUSSTATS Labour Force data.

Notes: The dates shown in bold are those chosen as the base quarters for the index computations (see below).

* Under the ASCO Division 1 classification, the occupations are Professional and Para-Professional.

Turning to total employment, the female share of Professional employment again shows a distinct increase, along with a marginal increase for Clerical, Sales and Service occupations. The remaining occupational groups have not shown a significant change. The female share of employment rose from 39.1 per cent to 44.4 per cent over the sixteen-year period. Across all occupational groups there has been a long-term systematic decline in the full-time share of employment with a sharp decline in the Clerical, Sales and Service occupational group.

Table 2 reveals that full-time employment growth has been driven by the Managerial and Professional occupations since 1996. On the other hand, there has been significant part-time employment growth in all the occupational groups. The breakdown of the sample periods by peaks and troughs in the unemployment rate shows up clearly in the disparate rates of employment growth although the occupational groups differ in the extent to which their employment growth is pro-cyclical with total Managerial employment being less pro-cyclical than Professional and Clerical, Sales and Service occupations.15

15 A crude measure of cyclical sensitivity is used, namely the correlation between employment in the particular occupational group and employment in the other occupational groups.
Table 2 Percentage Growth Rates of Full-Time and Total Employment over the Phases of the Cycle

<table>
<thead>
<tr>
<th>Phases of the Cycle</th>
<th>Full-time</th>
<th>Professionals &amp; Associate Administrators</th>
<th>Professinals*</th>
<th>Sales &amp; Service &amp; Clerical</th>
<th>Tradespersons &amp; Related Workers</th>
<th>Low Skilled/Unskilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug-86-Nov-89</td>
<td>10.66</td>
<td>13.08</td>
<td>15.08</td>
<td>10.17</td>
<td>6.86</td>
<td>9.59</td>
</tr>
<tr>
<td>Nov-89-Feb-93</td>
<td>-5.99</td>
<td>1.41</td>
<td>1.25</td>
<td>-3.89</td>
<td>-11.56</td>
<td>-14.08</td>
</tr>
<tr>
<td>Feb-93-May-96</td>
<td>7.23</td>
<td>1.52</td>
<td>18.47</td>
<td>8.41</td>
<td>6.29</td>
<td>7.04</td>
</tr>
<tr>
<td>Aug-96-Aug-00</td>
<td>6.54</td>
<td>1.59</td>
<td>0.71</td>
<td>3.24</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td>Aug-00-Aug-02</td>
<td>-0.08</td>
<td>8.01</td>
<td>-1.28</td>
<td>-3.32</td>
<td>-2.52</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>13.92</td>
<td>13.28</td>
<td>16.78</td>
<td>15.84</td>
<td>7.47</td>
<td>14.13</td>
</tr>
</tbody>
</table>

Source: AUSSTATS Labour Force data.

Notes: The calculations reflect the change in the occupational classification in 1996(3) and the phases of the cycle which are based on the highs and lows of the 3 month average of the monthly unemployment rate centred on the quarterly observations. To classify as a global peak (trough) the average unemployment rate must be greater (less) than the 4 observations before and after.

**Trends in Gender Segregation**

In this section the trends in gender segregation by full-time and total employment are reported, utilizing the base years of August 1991 and November 2000 for the two sample periods. The two time series are crudely spliced together by a simple multiplicative adjustment, so that the August 1996 index value under the ASCO 2nd Edition is set equal to the May 1996 index value under the ASCO 1st Edition. The time series of the segregation index for All Occupations and the occupational groups by full-time employment are shown in figure 1.

Changes in the respective indexes through time can be analysed, because they are based on a common underlying occupational distribution of employment and overall gender shares. On the other hand, simple comparisons between the absolute index magnitudes for the occupational groups must be made with caution, because the extent of the occupational disaggregation within each occupational group, as well as the relative size of the occupations, will influence the absolute level of segregation. However it can be argued that between 1986 and 1996 the most segregated occupational group by full-time employment was Clerical, Sales and Service, followed by Skilled Blue Collar, Unskilled and Professional, since the number of occupations in each occupational group is inversely related to its index magnitude. Due to the small number of occupations in the Managerial occupational group, it is not possible to place this occupational group.\(^4\) Turning to August 2002, under the new classification, Professional

\(^4\)The index magnitude (number of occupations) for full-time employment in August 1986 for the occupational groups was as follows: Managerial 0.146 (19); Professional 0.242 (79); Clerical, Sales and Service 0.352 (41); Skilled Blue Collar 0.278 (36); and Unskilled 0.242 (68).
is the least segregated, followed by Unskilled, Skilled Blue Collar and Clerical, Sales and Service, but this ordering is premised on the assumption that increased occupational disaggregation at worst leads to a pro-rata increase in the index magnitude. Again it is not possible to place the Managerial occupational group.

Figure 1 Spliced Full-Time Segregation Indexes for All Occupations and by Occupational Group, August 1986 – August 2002

Source: See Table 1.
Notes: There are clearly errors in the data for both February and August 1987. Consequently the average of the levels of employment for the adjacent quarters was used. The substantive results are unaffected.

The time series indexes for all occupations and the occupational groups for total (full-time plus part-time) employment are shown in figure 2. The inclusion of part-time employment in the computation of the segregation indexes raises the absolute levels of segregation for all occupations and for the Managerial and Skilled Blue Collar occupational groups in particular. Again the Professional occupational group was least segregated followed by Unskilled, with some ambiguity for the Skilled Blue Collar and Clerical, Sales and Service occupational groups and the Managerial occupational group unable to be ranked.

Figure 2 Spliced Total Segregation Indexes for All Occupations & by Occupational Group, August 1986 – August 2002

Source: see Figure 1.

15 The index magnitude (number of occupations) for full-time employment in August 2002 for the occupational groups was as follows: Managerial 0.168 (22); Professional 0.186 (105); Clerical, Sales and Service 0.327 (59); Skilled Blue Collar 0.318 (58); and Unskilled 0.245 (56).
In table 3 we show the rates of change of the index magnitudes over the phases of the business cycle. Watts and Rich (1991) noted that over the period 1978-89 full-time employment integrated faster than total employment which reflected a more or less consistently faster rate of integration (or lower rate of segregation) for full-time employment across all the occupational groups over the sub-periods. The modest integration of total and full-time employment over this period was driven by integration of the Upper Tier (Managers and Administrators, Professional and Para-Professional) and Unskilled occupations.

Since 1989, this pattern has changed with total employment consistently integrating faster than full-time employment, but, as noted, in absolute terms full-time employment is less segregated than total employment. There were increased opportunities for part-time employment across a broader range of occupations and the female share of part-time employment fell which counteracted the past history of concentration of part-time female employees in a limited number of occupations. This issue is investigated in more detail in the next section.

Since February 1993 the Managerial Occupations have re-segregated by full-time employment. With the exception of August 1996-August 2000, Sales, Service and Clerical occupations have exhibited consistent integration by both full-time and total employment since August 1986. These occupations along with Professionals and Associate Professionals are the main sources of the overall rates of integration for full-time and total employment. The female share of employment continued to grow in the female dominated Professional occupations, which could reflect women representing the majority of undergraduate completions. Employment growth must be concentrated in the occupations with high female shares of employment, because integration continued between August 2000 and August 2002 by both full-time and total employment. On the other hand, the female share of both full-time and total employment has fallen in Sales, Service and Clerical occupations since 2000 and this has been associated with gender integration. Over the whole period of analysis, the Tradesperson occupational group has become more segregated by both full-time and total employment, whereas the Unskilled occupations became more segregated by full-time employment. The other groups of occupations have exhibited modest integration.

Finally the correlations of the index magnitudes and the corresponding levels of both full-time and total employment are negative and significant for All Occupations and all occupational groups for the first 10 years of the analysis, except for the Unskilled occupational group (full-time employment). This result shows that the rate of gender integration was pro-cyclical, which is consistent with other studies. On the other hand, this strong relationship collapses for full-time employment for All Occupations and the Professional, Clerical, Sales and Service and Skilled occupational groups (total employment too) over the second period which commenced in August 1996.

This result points to the difficulty in drawing inferences about trends in gender segregation from summary statistics of female shares by occupational group which can hide changing occupational shares within the occupational group.
Table 3 Rates of Integration over Selected Phases of the Cycle: Australia

<table>
<thead>
<tr>
<th>Phase</th>
<th>Managers &amp; Administrators</th>
<th>Professionals*</th>
<th>Professionals</th>
<th>Total</th>
<th>Sales, Service &amp; Clerical</th>
<th>Tradespersons &amp; Related Workers</th>
<th>Low Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug-86-Aug-02</td>
<td>-2.73</td>
<td>-2.57</td>
<td>-4.60</td>
<td>-7.25</td>
<td>4.30</td>
<td>1.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug-86-Nov-89</td>
<td>-0.90</td>
<td>-3.92</td>
<td>-3.74</td>
<td>-2.02</td>
<td>3.35</td>
<td>0.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov-89-Feb-93</td>
<td>-1.43</td>
<td>-4.70</td>
<td>-0.11</td>
<td>-2.58</td>
<td>2.12</td>
<td>-2.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb-93-May-96</td>
<td>-0.64</td>
<td>2.93</td>
<td>-0.97</td>
<td>-0.56</td>
<td>-1.60</td>
<td>-1.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug-96-Aug-00</td>
<td>1.44</td>
<td>2.65</td>
<td>2.16</td>
<td>1.08</td>
<td>-1.21</td>
<td>4.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug-00-Aug-02</td>
<td>-1.01</td>
<td>0.71</td>
<td>-1.94</td>
<td>-3.33</td>
<td>1.87</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Emp correlation
86(3)-96(2) 0.483 0.648 -0.515 -0.497 -0.358 0.510
96(3)-02(3) 0.050 -0.378 -0.015 0.401 -0.008 -0.509

Total
Aug-86-Aug-02 -6.57 -1.16 -10.81 -7.32 1.32 -9.12
Aug-86-Nov-89 -0.54 3.49 -2.87 -1.11 2.33 -1.30
Nov-89-Feb-93 -1.93 -6.91 -2.24 -2.42 0.81 -1.49
Feb-93-May-96 -1.28 5.09 -0.32 -0.30 -1.64 -5.47
Aug-96-Aug-00 -0.08 -2.54 -0.39 0.19 -2.00 2.57
Aug-00-Aug-02 -2.89 0.16 -5.40 -3.65 1.89 -3.60

Emp correlation
86(3)-96(2) -0.786 -0.423 -0.645 -0.749 -0.340 -0.214
96(3)-02(3) -0.322 -0.428 -0.294 -0.171 0.002 -0.343

Source: See Figure 1.
Notes: The correlations are based on the raw index values and the corresponding levels of employment across all occupations and the OGS. The growth calculations are based on the index values from the corresponding time series. Integration is represented by a negative growth rate.

The Impact of Part-Time Employment
Historically women have predominated in part-time employment through their need to balance work and family responsibilities. An increasing number of young people combine education and part-time work. Also over the last two recessions there has been a sharp increase in male (and total) part-time employment. With part-time employment representing approximately 28 per cent of total employment in 2002, it has an increasingly important influence on occupational segregation.

A comparison of the values of the full-time and part-time segregation indexes (not reported) would not reveal the respective contributions of full-time and part-time employment to the measure of segregation by total employment because these index magnitudes are based on unequal aggregate gender shares and distributions of employment across the occupations. Thus they are not strictly comparable.
One way of examining the significance of part-time employment in the level and rate of change of gender segregation associated with total employment is to 'correct' the gender distribution of part-time employment across occupations for each year so that its own segregation taken in isolation is reduced to zero, whilst maintaining the occupational distribution of total employment and the gender composition of full-time employment. Thus for example, females represented 89.1 per cent of all part-time employees in 1989. Thus 89.1 per cent of part-time employment in each occupation is assumed to be female.

This synthetic part-time integrated segregation index, $IP_{rr}$, is then calculated for this new distribution of total employment by gender across the occupations. The impact on the index of the high female share of part-time employment remains, but the disparate distribution of part-time gender shares across occupations is neutralised. It is the dispersion of the full-time gender shares across the occupations which is largely being measured by the $IP$ index. A synthetic index, $IP_{rr}$, can also be calculated by integrating full-time employment rather than part-time employment across occupations. The significance of the distribution of part-time employment by gender in the measurement of overall segregation can be assessed by reference to the following index.

$$100 \times \frac{(IP_{rr}/E_{rr})/(IP_{rr}/E_{rr})}{E_{rr}/E_{rr}}$$

where $E_{rr}$, $E_{rr}$ represent aggregate full-time and part-time employment respectively.

An index value in excess of 100 implies that the distribution of part-time employment by gender across the occupations is disproportionately responsible for the overall level of segregation, thereby retarding gender integration. Over the period August 1986 to May 1996 the index drops from 151.2 to 117.4. Over the remaining period to August 2002, it drops from 132.4 to 122.2, under the ASCO-2 occupational classification system. This indicates that the concentration of part-time females in certain occupations is declining.

Another dimension of part-time employment is the extent to which it is distributed across the occupations, as compared to being confined to a small number, particularly Clerical, Sales and Service occupations. The KM index based on total full-time and part-time employment is computed by occupation, again using the same base quarters. We find that over the period 1986(3) to 1996(2), the index declined by 2.21 percent based on August 1991. For the second period the index drops by 4.5 per cent, but using the sub-periods 1996(3) - 2000(3) and 2000(3)-2002(3) the index declines 1.47 per cent and then 3.07 per cent.\footnote{It should be noted that an increasing percentage of part-time workers seek more hours of work with the figure being about 25 per cent in August 2002.
(this is highly cyclical and much higher for males), so that the preferences of employers concerning the organisation of work remain significant, rather than the structure of employment being an expression of workers’ preferences for hours of work.

5. An Explanation
The analysis of the index magnitudes reveals that the evolution of occupational gender segregation is highly complex, given the disparate rates of growth in employment across the occupations, along with the increasing impact of part-time employment and its disparate gender shares. Further the overall change in gender segregation by full-time and total employment hides disparate rates of integration across the occupational groups.

The consistent integration between 1978 and 1989 of Upper Tier occupations by full-time employment which was a major force in overall occupational integration (Watts and Rich, 1992a) has not been sustained. The combining of the Professional and Managerial occupational groups hid the slow rate of integration of the latter. Second, while the structure of part-time employment by gender and occupation is shown to have inhibited occupational integration, the impact is now diminishing. The part-time share of employment has continued to rise, but the female share has fallen and part-time employment is now distributed more widely across occupations. Ironically the growth of part-time employment across all occupational groups has facilitated the entry of women into atypical occupations, and at the same time the growth of male part-time employment has contributed to integration of the Clerical, Sales and Service occupations.

Gender segregation by full-time employment in the Clerical, Sales and Service occupations is diminishing. Possibly the influence of increased participation in part-time employment by males in these occupations has led to them becoming more acceptable as full-time career options. Blue Collar Skilled employment continues to stagnate and remains highly segregated with a high full-time share of employment. While many females have trade qualifications few actually use them in these occupations, which could reflect the culture of the typical workplace. There is little prospect of these occupations exhibiting gender integration in the future. As a residual category the Unskilled occupational group exhibits no consistent pattern of change.

The index calculations do not reveal the causal mechanisms that are operating. Whether the gender composition of employment by occupation is a reflection of realistic choices by prospective employees, particularly those seeking full-time employment, remains an open question. Certainly some international studies of gender socialisation and the ensuing

17 The differentiation is greater if the sub-periods 1996(3) – 1999(4) and 1999(4) – 2002(3) are used, with the corresponding changes being 2.72 per cent and –7.03 per cent respectively.
18 In the sense that aspirations must be linked to a preparedness to secure relevant qualifications and experience.
occupational aspirations point to a preference on the part of young women for occupations in which women already predominate. The manner in which these aspirations are formed then assumes importance. In her outline of preference theory Hakim appears reluctant to acknowledge the influence of social and economic factors in the formation of aspirations.

The work of Kidd and Meng (1995) reveals that men and women are not efficiently allocated across the occupational structure, but these outcomes could reflect, at least in part, the gender-biased aspirations of workers. More recent unpublished data are available from the ABS publication Transition from Education to Work (Cat. 6227.0) to explore the relationship between educational attainment and occupational status by gender for the period May 1997 to May 2002.  

The data can be expressed as a matrix \( R \) where \( r_{ij} \) is the share of workers with education level \( j \) who work in occupation \( i \). \( Q \) denotes the column vector of the number of individuals with each qualification. Then denoting the time periods as 1 and 2 and using the superscripts \( F, M \) to denote female and male, the difference in employment by occupational group of females and males in period 2 can be expressed as:

\[
R_2 Q_2 - R_2^M Q_2^M = R_2^F (Q_2^F - Q_2^M) + [R_2^F - R_2^M]Q_2^F + R_2^M (Q_2^F - Q_2^M) + \\
[R_2^F - R_2^M]Q_2^M + R_2^M (Q_2^F - Q_2^M) + [R_2^F - R_2^M]Q_2^F = A + B + C + D + E + F
\]

where the terms pick up respectively the change in women’s qualifications over the five years (A); the change in requirements for women’s educational qualifications (B); differences in men’s and women’s qualifications (C); differences between women and men in the educational requirements for occupational attainment (D); the change in men’s qualifications (E) and the change in the educational requirements for occupational attainment (F). In table 4 we show the percentage breakdown in the difference between the number of men and women in the five occupational groups in May 2002, utilising the specification outlined above.

A few observations can be made. First, the change in female qualifications (A) has had a major positive impact on the number of women available to work in Professional occupations. Second the significance of the increased educational requirements for females (B) has been relatively small. Third, the difference between female and male qualifications (C) in 1997 has a particularly significant impact on their different patterns of occupational attainment with respect to Professional employment and also Clerical, Sales and Service employment, but men were significantly under-represented in the latter.

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19 The levels of educational attainment are as follows: Higher Degree, Postgraduate Diploma, Bachelor Degree, Undergraduate Diploma, Associate Diploma, Skilled Vocational Qualification, Basic Vocational Qualification, Completed Highest Year of Secondary School and Did Not Complete Highest Year of Secondary School.

20 There are limited consistent data available for the earlier period because the categories of educational attainment change to the current breakdown in 1994.
Table 4 Decomposition of Gender Difference in Occupational Attainment, May 2002

<table>
<thead>
<tr>
<th>Employment Difference</th>
<th>A (%)</th>
<th>B (%)</th>
<th>C (%)</th>
<th>D (%)</th>
<th>E (%)</th>
<th>F (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers &amp; Administrators</td>
<td>-331,841</td>
<td>-6.8</td>
<td>1.0</td>
<td>9.8</td>
<td>80.5</td>
<td>12.8</td>
</tr>
<tr>
<td>Professionals &amp; Associate Professionals</td>
<td>-203,841</td>
<td>-128.0</td>
<td>7.0</td>
<td>84.3</td>
<td>30.0</td>
<td>111.8</td>
</tr>
<tr>
<td>Sales, Service &amp; Clerical</td>
<td>1,188,289</td>
<td>8.9</td>
<td>3.3</td>
<td>-41.9</td>
<td>135.0</td>
<td>-3.0</td>
</tr>
<tr>
<td>Tradespersons &amp; Related Workers</td>
<td>-940,941</td>
<td>-2.3</td>
<td>2.4</td>
<td>25.9</td>
<td>70.6</td>
<td>10.9</td>
</tr>
<tr>
<td>Low skilled/Unskilled</td>
<td>-782,955</td>
<td>0.3</td>
<td>0.0</td>
<td>18.9</td>
<td>78.1</td>
<td>-2.9</td>
</tr>
</tbody>
</table>

Source: ABS Transition from Education to Work (Cat. 6227.0)

There is a fundamentally different relationship between educational attainment and occupational status for males and females (D), which leads to women being under-represented in Managerial, Professional, Skilled and Unskilled occupations, but over-represented in Clerical, Sales and Service occupations. The increase in qualifications for males has had a significant impact on their access to Professional occupations. The upgrading of educational requirements has had a relatively small impact on the distribution of male employment.

These results must be seen in perspective. There is a limited disaggregation of occupations. The matrices summarise the aggregation of employers' hiring decisions which also take into account years of experience and other personal characteristics of the job seekers who choose to apply for their jobs. However, the results do suggest that males are formally qualified for Clerical, Sales and Service occupations, but whether they apply for these jobs is a separate question.

On the other hand, the results from Riach and Rich (1987) revealed that prerogatives of employers led to unequal treatment of men and women. The explanation put forward in earlier studies for occupational integration in the Managerial and Professional occupations was the increasing educational attainment of women in higher education and the associated growth of female full-time employment. The increased segregation of Managerial occupations may well reflect the crowding of women into certain occupations which could be a manifestation of the glass ceiling, although the occupational classification does not clearly identify the vertical differentiation of occupations. This requires further investigation which is beyond the scope of this paper.21

21 An examination of the female shares of employment across the Managerial occupational group does not convey any obvious explanation.
6. Conclusions and Policy Perspectives

The measurement of occupational segregation has been a contentious issue in the literature, but Watts (2003) argues that the lack of clarity on the part of researchers about the algebraic properties of the indexes under consideration is primarily responsible. More significant for measurement in this study, has been the degree of occupational disaggregation. The researcher can utilise minor occupations with minimal disaggregation or data by unit group that are employed in this study. The results are not consistent, particularly for Managerial occupations.

The use of the decomposed KM index has enabled the detailed analysis of the disparate trends for the Occupational Groups. It reveals that the dynamic process of gender segregation is highly complex. The generation of a consistent time series measure of segregation will advance our understanding of the underlying processes that cause and perpetuate gender segregation, by enabling econometric and other forms of quantitative analysis in future work. This will overcome one of the complaints about index construction that it constitutes measurement without theory.

To the extent that gender segregation is the outcome of the interaction of constrained labour market choices for women resulting from the demands of social reproduction and the exclusion strategies of male workers, and statistical discrimination by employers, it is a policy issue (Watts and Rich, 1993, p.171). It signifies both the inequality of the treatment of women and the inefficiency of labour market matching processes.

The economy wide analysis in this paper neglects the extreme occupational gender segregation at the workplace level (Watts, 2002). While Australia can be considered formally egalitarian, using Chang's terminology, Affirmative Action legislation in Australia has been watered down, as part of the broad thrust of labour market policy since the late 1980s (with award restructuring) to reduce institutional intervention in the operation of firms and to increase managerial prerogative, despite evidence of general failures of corporate governance. The limited influence of the then AA Agency to monitor and assess the work practices of organisations through the submission of Annual Reports has been removed with reporting requirements reduced under the new legislation.

Also in an era of enterprise bargaining and minimal safety net provisions, there is little likelihood of wage disparities between men and women within occupations being addressed or indeed inter-occupational wage differences that do not reflect comparable worth. Thus the prospects of gender equality are limited.

22 Under the ASCO 2nd Division classification there are 35 2-digit occupations, namely 3 (MA), 10 (PR), 8 (CS), 7 (SK) and 7 (US).
23 Harrison (2002) focuses on the female share of employment within the workplace, rather than intra-workplace segregation by occupation per se.
24 Despite the thrust of policy being to reform the supply side, political realities have dictated that economic disadvantage be addressed, such as measures to guarantee workers' entitlements.
25 Also to the extent that pay differences reflect differences in seniority, there is also little likelihood of promotion practices of individual enterprises being subject to scrutiny.
in the labour market with respect to both occupational access and pay would appear to be poor, notwithstanding the modest gender integration in Australia.

A major driver of gender integration appears to be employment growth with a persistent negative correlation between the index magnitudes and the corresponding employment levels at least for total employment. This was also found in a study of workplace gender segregation (Watts, 2002). A tight labour market and the increased competition for workers should also lead to improved pay and conditions for women, after their abilities are recognized, following improved occupational access. In such an economy the employers have less discretion about their hiring practices.

References
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