PSYCHOSOCIAL AND OTHER WORKING CONDITIONS IN RELATION TO EMPLOYMENT ARRANGEMENTS IN A REPRESENTATIVE SAMPLE OF WORKING AUSTRALIANS

by

AMBER MAUREEN LOUIE

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Abstract

Objective: To understand empirically-derived employment categories in relation to job strain, effort/reward ratio, job hazards and other working conditions.

Method: A cross-sectional population-based survey was conducted by telephone from a random sample of White Pages listings in the state of Victoria, Australia (n = 1,101). I defined current employment arrangements in terms of work characteristics, and then compared eight employment categories in terms of socio-demographics, self-reported job insecurity and other working conditions. Using logistic regression I determined job strain and effort/reward ratio across these categories.

Results: Eight mutually exclusive employment status categories showed significant and consistent differences in work characteristics, socio-demographics and perceived job insecurity. Using the “other self-employed” (not working alone) as the reference category and adjusting for age and education, job strain was positively associated with permanent full-time (Odds Ratio [OR] = 4.11), permanent part-time (OR = 4.95), and casual part-time employment (OR = 4.08) in women but not in men. Job strain was positively associated with casual full-time (OR = 4.66) and labour hire (OR = 4.36) employment in men but not women. Men who were employed permanent full-time demonstrated the only significant odds for high effort/reward ratio (OR=3.92). Significant differences were also found between proportions across employment categories in terms of job hazards, shift work, excessive working hours and multiple job holding.

Discussion/Conclusions: Overall, this study revealed an association between precarious employment and unhealthy working conditions. While other studies tend to oversimplify non-permanent categories of employment, I found prominent differences in working conditions between casual, fixed term contract and labour hire employees. The empirically-derived and mutually exclusive categories provide greater discriminatory power than previously used classifications and may be of use to government agencies, policy makers and researchers. The use of multiple measures of occupational stress and hazard exposure also revealed a complex picture within particular job categories, demonstrating concentrations of exposures in certain groups. Further, more refined analysis that considers the gendered patterns revealed in this study would help us understand the differential impact of policies, programs and modern production organisation on workers in relation to employment arrangements and social context.
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Co-authorship Statement

Amber Louie, the thesis author, identified and designed the research program in consultation with her supervisory committee, performed the data analysis, drafted the thesis and was responsible for manuscript preparation.

Tony LaMontagne†, was the Senior Investigator on the Job Stress & Health Behaviours Survey project and Amber’s research supervisor at the University of Melbourne from February to June, 2005. Tony directed the data collection, contributed to the identification and design of the research program and assisted in the interpretation and presentation of the findings.

Aleck Ostry†, co-chair of Amber’s supervisory committee, contributed to the identification and design of Amber’s research program and assisted in the interpretation and presentation of the findings.

Jean Shoveller† contributed to the interpretation and presentation of the findings, and co-wrote the discussion section of Chapter 3.

Allan Best†, co-chair on Amber’s committee, contributed to the presentation of findings.

Michael Quinlan identified employment categories for data analysis, contributed to the interpretation and presentation of findings, and co-wrote the introduction and conclusion sections of Chapter 2.

Tessa Keegel and Samia Radi assisted in data analysis.

† Member of the supervisory committee.
CHAPTER 1

Introduction and Literature Review
Chapter 1: Introduction and Literature Review

Background & Relevance

Over the past 30 years one of the most significant changes in the labour markets of developed countries has been the growth of more flexible work arrangements (often labeled non-standard, contingent or precarious employment) (US Bureau of Labor Statistics, 1995; De Grip, Hoevenberg, & Willems, 1997; Cranford, Vosko, & Zukewich, 2003; Burgess & de Ruyter, 2000). In Australia, those holding a casual or temporary job and non-employees (self-employed, subcontractors, etc) constituted 28% of the workforce in 1982, 31% in 1988 and 40% in 1999 (Burgess et al., 2000). These types of employment have been associated with a system of weak labour market regulation, adverse work conditions, including job strain, and increases in work-related injury and illness (Lewchuk, de Wolff, King, & Polanyi, 2003; Quinlan, Mayhew, & Bohle, 2001a). Given the depth and scope of these labour market shifts, models of standard employment are not sufficient to inform labour laws and policies. A better understanding is needed of the employment and health risks that workers face in precarious employment, and how these differ from those in standard employment. As well, the casual and unorganized nature of certain types of employment pose challenges to data collection that need to be addressed. With clear indications that contractual situations have become more complex (Organization for Economic Co-operation and Development, 2000), there is a need for researchers and statistics agencies to use a more complex typology for status in employment and to investigate situations that do not fit existing categories (Elias, 2000). In this introductory chapter, I will first situate precarious employment in a context of broad and secular economic changes influencing employer decisions and forms of work organization. Second, I will describe the approaches used to define and measure precarious employment in the literature and third, provide an overview of prior research on precariousness in relation to safety and health-related outcomes. Finally, I will outline the objectives of this thesis, which is based on a cross-sectional population-based survey of a random representative sample of 1,101 working Australians.

Economic Globalization, Restructuring & Precariousness

Over the past quarter of a century, economic globalization has promoted a concentration of economic power to the advantage of capital and the disenfranchisement of labour worldwide. With the expanded power of new international organizations to enforce trade rules and remove trade barriers (Waters, 1995), globalization has been characterized by market de-regulation, the emergence of a single global market for money and credit, and a much freer flow of capital relative to labour (Harvey, 1989). At the same time, labour markets have shifted away from manufacturing employment, traditionally a source of full-time and unionized work, in favour of the service sector (Castells & Aoyama, 1994), and technological change has increased the demand for highly skilled workers relative to the less skilled workers (Saunders & Maxwell, 2003). As well, in the interests of market demands for competitiveness, immigration policies in developed countries have increasingly cherry picked skilled workers or entrepreneurs with capital as permanent immigrants, hampering the movement of unskilled workers in developed countries (Ostry, 2001).
Technological change and market competition associated with globalization have also created pressures for organizations to downsize, restructure, and use flexible work as cost saving measures (Brewster, Mayne, & Tregaskis, 1997; Morris, Cascio, & Young, 1999; Cascio, 1993). Downsizing and restructuring have been pervasive trends among employers since the mid-1980’s, being touted as the preferred route to corporate efficiency (Morris et al., 1999; Cascio, 1993). Over the past two decades, the literature has documented historically high unemployment and low job security, poor bargaining power for workers, reduced unionization, and weak forms of protective legislation (Quinlan et al., 2001a; Hobsbawm, 1994). These labour market and policy changes have been accompanied by increased use of non-traditional labour arrangements in developed nations such as self-employment, part-time work, shift work, multiple job holding, and casual/temporary work (Quinlan, 1998; Brewster et al., 1997; Quinlan et al., 2001a; Quinlan & Mayhew, 1999). The growth in part-time employment has been especially dramatic. Between 1973 and 1995, part-time employment in the 21 countries included in the Organisation for Economic Cooperation and Development (OECD) doubled from 8.2% to 16.7% (Quinlan et al., 1999). By 1989, the share of part-time workers in Sweden was 24%, in the United Kingdom 22%, in Japan and the United States 18%, and in Canada 15% (Livingstone, 1999). These trends in part-time employment are similar to trends observed in multiple job holding, self-employment, and other non-traditional work arrangements across OECD nations during this time (Navarro, 2002).

Defining and Measuring Precarious Employment

Flexible work arrangements were originally grouped under the labels of ‘non-standard’ or ‘atypical work’ to distinguish them from the ‘standard’ model of full-time, year-round, permanent employment (with statutory benefits and job security). There were limitations with these terms, not the least of which was a gender bias since short-term and insecure work arrangements had never been atypical for women (Vosko, 2000). More recently the omnibus terms ‘contingent work’ (originating in the US and popular in North America) and ‘precarious employment’ (originating in France and more popular in Europe and Australia) have been preferred.

For example, both these new terms embody a broader conceptualization and meaning than ‘non-standard’ or ‘atypical.’ Precarious employment is defined as ‘a cumulative combination of atypical employment contracts, limited social benefits, poor statutory entitlements, job insecurity, short tenure and low wages’ (Lewchuk et al., 2003, p. 23). While this notion was introduced more recently to characterize contemporary work conditions, it is related to older and well researched concepts of job strain and job insecurity (Strazdins, D'Souza, Lim, Broom, & Rodgers, 2004).

Further, Lewchuk and colleagues (2003) link precariousness to employment strain, a recently developed and more sophisticated measure based on Karasek’s (1979) job strain model (discussed in Chapter 3). Employment strain arises from the precarious nature of the employment relationship that reduces worker control over access to future work, work schedules and location of work, and also increases demands related to searching for work, travelling between multiple jobs and adapting to new work locations.

Job insecurity is considered to be a powerful stressor in the workplace, and this is accounted for in work stress questionnaires such as Siegrest’s effort-reward imbalance (Karasek, Kawakami, Brisson, Houtman, & Bongers, 1998). An international review of the
literature on occupational health and outsourcing and organizational restructuring/downsizing found that over 90% of the studies reported a positive association with ill health outcomes (Quinlan et al., 2001a). Job insecurity resulting from downsizing has also been connected to negative changes in long-standing illness, adverse sleep patterns, minor psychiatric morbidity (Ferrie, Shipley, Marmot, Stansfeld, & Smith, 1998); common infections (Mohren, Swaen, van Amelsvoort, Borm, & Galama, 2003); increase in sickness absence (Beale & Nethercott, 1998; Kivimaki, Vahtera, Pentti, & Ferrie, 2000); and somatic symptoms (changes in blood pressure) (Barling & Kelloway, 1996). Previous studies linking job insecurity to health have generally been limited to the impact of job insecurity as a psychosocial workplace stressor associated with the acute threat of layoff (Scott, 2004). However, job insecurity has recently been conceptualized in a manner more relevant to the shifts in the power dynamics of work occurring in the global economy, such that it is viewed as a permanent structural feature of the new labour market. Rather then a temporary break in an otherwise predictable work-life course, a structural-orientation views work-related insecurity as more chronic and widespread than in the past, with the risks to health being more akin to those associated with prolonged and traumatic forms of strain.

Underlying notions of employment precariousness and insecurity is a concern for worker vulnerability. Members of the labour force working for low pay, without representation, and with poor prospects of improving their conditions at work are vulnerable, in that their participation in the labour market leaves their well-being at risk (Saunders, 2003). As summarised in Table 1.1, authors have identified multiple factors which define precarious employment (Rodgers, 1989; Leiva, 2000; Lewchuk et al., 2003; Tucker, 2002; Burgess & Campbell, 1998; Saunders, 2003). Although aspects of vulnerability are associated with the growth of precarious employment, not all non-standard workers are necessarily more vulnerable to economic and health risks, for example, high income professionals categorized as own-account self-employed (Saunders, 2003). On the flip side, work-related uncertainties may be experienced by workers in 'permanent', unionized jobs (e.g. home care workers who do not know in advance how many hours or even whether they will work each week) (Lewchuk et al., 2003). Thus, indicators of precariousness allow ways of assessing issues of vulnerability more directly than employment status categories, and may be more sensitive to widespread work-related insecurity across all forms of employment.

Although such a definition of precariousness is inclusive of labour market vulnerabilities experienced regardless of employment category, many of its components are difficult to capture in a meaningful way. For example, data are lacking on workers who do not benefit from employment entitlements out of fear of complaining, although we expect this to be associated with a combination of low pay and lack of representation (Saunders, 2003). Furthermore, experiences of vulnerability are related to employment category in significant ways, with specific risks being more associated with particular forms of employment (Cranford et al., 2003; Quinlan et al., 2001a). A number of authors have concluded that a breakdown of mutually exclusive forms of employment is needed to understand the heterogeneity within the broad definition of non-standard employment, to build research agendas that better represent the new reality of the workplace and to contribute to more coherent and better labour and work-based health policy (Vosko, Zukewich, & Cranford, 2003).
Table 1.1 Factors Used to Define Precarious Employment

<table>
<thead>
<tr>
<th>Job Insecurity</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Type and average length or existence of contracts&lt;sup&gt;1,2,3&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Uncertainty as to hours or continuing availability of employment&lt;sup&gt;3,4&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Duration with employer of less than 2 years&lt;sup&gt;7&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Hours can be changed at will by the employer&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Employers can dismiss or lay off workers, or put them on short time without</td>
</tr>
<tr>
<td>great difficulty or with little prior notice&lt;sup&gt;4,5&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Performance and attitude evaluations on future offers of work&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Favouritism in getting new work&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Time spent looking for work&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Working part-time&lt;sup&gt;7&lt;/sup&gt;</td>
</tr>
<tr>
<td>Degree of control over work</td>
</tr>
<tr>
<td>• Lack of collective control through union membership&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Preference and choice of type of employment&lt;sup&gt;4,6&lt;/sup&gt;</td>
</tr>
<tr>
<td>• When employers can shift workers from one job to another at will or where</td>
</tr>
<tr>
<td>the content of the job can be altered or redefined&lt;sup&gt;4,5&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Length of advance notice of work schedule and location&lt;sup&gt;3,5&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Frequency of working in an unfamiliar location&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Regulatory and Social Protection</td>
</tr>
<tr>
<td>• Lack of protection by collective agreement&lt;sup&gt;1,3,5&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Problematic coverage by minimum employment standards legislation&lt;sup&gt;1,2,6&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Lack of access to 'standard' non-wage employment benefits such as sick leave and holidays&lt;sup&gt;4,5,6,7&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Lack of access to non-statutory benefits such as extended medical insurance, dental plans, parental leave, and private pension plans (e.g., part-time employees)&lt;sup&gt;6&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Lack of protection against discrimination, unfair dismissal, unacceptable working practices&lt;sup&gt;1,4&lt;/sup&gt;</td>
</tr>
<tr>
<td>Income Potential and Financial Security</td>
</tr>
<tr>
<td>• Workers with sustained low earnings, due to low wages and/or lack of stable employment&lt;sup&gt;1,3,4,5,6&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Payments are contingency-based (task work), not guaranteed, or not paid on time&lt;sup&gt;3,5&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Earnings vary monthly&lt;sup&gt;7&lt;/sup&gt;</td>
</tr>
<tr>
<td>• There is limited or no opportunity to gain and retain skills through access to education and training&lt;sup&gt;3,5&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Absence of written pay records&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Difficulty in planning on future earnings&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Number of household dependents&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Job Hazards</td>
</tr>
<tr>
<td>• The task performed or the health and safety practices at the workplace makes the job unhealthy or dangerous (e.g., inadequate training and underqualification)&lt;sup&gt;4,5&lt;/sup&gt;</td>
</tr>
<tr>
<td>Miscellaneous</td>
</tr>
<tr>
<td>• Holding more than one job&lt;sup&gt;5,7&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Time spent traveling between jobs&lt;sup&gt;3&lt;/sup&gt;</td>
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</tbody>
</table>


Vosko, Zukewich, and Cranford (2003) distinguish ‘non-standard work’ from ‘standard work,’ defined as a full-time, full-year, and permanent paid job where the worker has one employer, enjoys extensive statutory benefits and expects to be employed indefinitely. They then typify precarious employment in Canada by defining four types of non-standard employment situations: (1) part-time employment, (2) temporary employment with a predetermined end date (seasonal, casual, temporary agency, other), (3) own-account self-employment (defined as self-employment without paid employees), and (4) multiple job
holding. The Australian Bureau of Statistics (ABS) (2000b) also considers four types of
"non-traditional" employment arrangements in the Australian Social Trends (AST) survey:
(1) ongoing part-time employment, (2) casual employment (with no access to paid sick and
holiday leave), (3) restricted tenure employment (seasonal, temporary and fixed-term
employees), and (4) labour hire firm employment (payment received from a labour hire firm
with or without a preset period of employment). Of these four categories designated by the
ABS as "non-traditional," the last three groups are not mutually exclusive. While the ABS
classifications reflect important labour force conditions specific to Australia (such as the
definition and regulatory protection of casual employees), categories of non-traditional
employment tend to overlap, and self-employed figures are understated.

Layered with the broader dimensions of precariousness, employment categories can
be used to understand heterogeneity in non-standard employment by placing each category
on a continuum of precariousness. Canadian researchers using this approach ranked full-time
permanent jobs as the least precarious followed by full-time temporary, then part-time
permanent and part-time temporary as the most precarious (Cranford et al., 2003). Likewise,
Tucker (2002) concludes that in terms of employment conditions, a continuum of these non-
standard job categories exists. Tucker describes the 'higher end' of the continuum as
including some of the self-employed and part-time workers who are more likely to have
reasonable incomes, job stability and workplace autonomy. At the 'lower end' of the
continuum are some of the casual, temporary and fixed-term workers who are, generally
speaking, more likely to be in 'precarious' employment than those at the 'higher end.'
Various working conditions linked to the 'precarious' end of the spectrum are deemed
unhealthy and unsafe.

Health-related Effects of Precarious Employment

There is a growing body of research (using a wide range of indices and measures) on
stress and other health and safety effects of precarious work and job insecurity (Quinlan et
al., 2001a; Lewchuk et al., 2003; Benach, Benavides, Platt, Diez-Roux, & Muntaner, 2000;
Letourneux, 1998; Sverke, Gallagher, & Hellgren, 2000; Hurrell, 1998; Kivimaki et al.,
2003b). Reviews of this research revealed that a majority of studies linked job insecurity,
outsourcing, self-employment and (to a lesser extent) temporary employment to inferior OHS
outcomes such as increased illness, injury and fatality rates (Quinlan, Mayhew, & Bohle,
2001b; Quinlan & Bohle, 2004; Virtanen et al., 2005a).

Precarious forms of work also pose organizational challenges to unions and other
institutions responsible for protecting worker interests. The diminished power of labour and
trade unions in general contributes to work-related insecurity as a chronic and widespread
risk to worker health (Scott, 2004). Non-standard work complicates the definition of an
"employee" and the establishment of appropriate membership criteria for a bargaining unit
(Betcherman & Chaykowski, 1996). There are serious concerns for non-standard employees
-- especially those in temporary and contract work -- regarding effective representation.
Precarious workers are often excluded from or not well served by the jurisdictional
protections of labour law and occupational health and safety (OHS) regimes. OHS
regulations, originally designed to address issues common amongst standard and/or
permanent employees, rarely tackle challenges associated with precariousness, such as
working for multiple employers, in many worksites, in small workplaces and in several
consecutive short-term contract positions (Quinlan et al., 2001a).
Liability and workers’ compensation claim issues are problematic for some forms of precarious employment due to the irregularity and disorganized structure of employment (Quinlan et al., 1999). In Australia, workers found least likely to lodge compensation claims either were directly identified as precarious workers or belonged to groups (such as immigrants and women) who are concentrated in precarious jobs. The increased health risks among precarious workers also arise due to low remuneration and reward, high levels of work intensification, a lack of adequate training and experience, and poor lines of communication with co-workers, management and workers’ associations such as unions (Quinlan et al., 2001a). As well, precarious workers often lack access to employer-sponsored benefits such as extended health, dental and pension coverage, and so addressing adverse health outcomes can be a greater challenge (Fudge, Tucker, & Vosko, 2002).

Further health concerns arise when precarious employment is viewed in relation to work-life balance. A considerable amount of research has been carried out examining the effects of part-time work on work-family conflict and well-being with a great deal of debate regarding the benefits and disadvantages. Work-family conflict is defined as “a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect, where workers have insufficient energy or time or both to perform work and family roles successfully” (Jansen, Kant, Nijhuis, Swaen, & Kristensen, 2004, p. 139). The results of a recent study commissioned by Health Canada indicate that the majority of Canadians are grappling with balancing the paid and unpaid areas of their lives, leading to an increase in burnout and mental and physical health problems (Higgins & Duxbury, 2001). Part-time employees in the British Household Panel Survey reported less satisfaction with their social lives and emerged as the least financially secure in terms of income, wages, and accumulation of financial cushions in the form of assets (Walters et al., 1997). Thus, it is important to consider non-family domains and the longer-term economic and financial implications of work-life balancing strategies.

Non-standard forms of work allow the temporal and spatial boundaries of employment to be extended, potentially allowing more people, especially those with caring responsibilities, to participate in paid work (Perrons, 2003). However, precarious job characteristics, such as long and irregular hours, raise the concern as to whether these patterns of working are compatible with a work-life balance. The recent UK Institute for Employment Research (2001) survey, found that flexibility was sometimes allowed to permit long working hours. While flexible employment is viewed as a potential way to reduce gender inequality, research findings point to gendered patterns of precarious employment, work-life conflict, and negative health consequences (Perrons, 2003).

A number of studies have found that precarious employment disproportionately affects women workers in industrialized countries (De Grip et al., 1997; Vosko, 2000; Vosko et al., 2003; Cranford & Ladd, 2003; Brewster et al., 1997). Differing reasons for part-time work and self-employment between men and women (more women citing child-care responsibilities) illustrate the importance of attention to gender and balance of work and family in analysis of precarious work patterns (Vosko et al., 2003). Higgins, Duxbury, and Coghill (2003) contend that as work-life conflict intensifies in the wake of restructuring, women take on a disproportionate share of the responsibility at home along with the ill health consequences of unfavourable working conditions. Authors have begun to explore how gender, ethnicity and age relate to trends in precarious employment, identifying a serious
need for gender-based analysis and attention to social context (Vosko, 2000; Cranford et al., 2003).

Issues of precarious employment are just beginning to receive attention in relation to occupational stress (Lewchuk et al., 2003). As yet, the timing and length of working hours undertaken by contingent workers and the connected implications for hazard exposure and work-life conflict, has received limited attention (Bohle, Quinlan, Kennedy, & Williamson, 2004). Another neglected, but related, consideration is multiple job holding -- not an adverse exposure in itself, however, the cumulative hours entailed in multiple job holding may be conducive to fatigue and work/life conflict, while shifting between jobs may pose another set of risks (Rebitzer, 1995).

In summary, a better understanding is needed of the relationship between various employment arrangements and adverse occupational exposures. Many different categories of precarious employment are utilized in research and these are often based on a mix of job characteristics, worker characteristics, and even the adverse exposures that may arise from precarious work. When job, worker, and exposure characteristics are used to define precarious jobs, the categories are fundamentally flawed, impeding hypothesis testing and thereby limiting the ability to clearly establish links between particular employment arrangements and health-related outcomes. Therefore, it is necessary to develop a method of categorizing precarious employment arrangements that conceptually distinguishes job characteristics from adverse occupational exposures or other effects.

Organisation of this Thesis

The following two chapters in this manuscript-based thesis are presented in the form of publishable papers.

In chapter 2, this study sought to develop a more systematic method of characterizing precariousness by defining current employment arrangements in terms of objective job characteristics and socio-demographics. The ultimate aim was to construct a set of mutually exclusive and coherent employment status categories that would form the basis for a more refined comparison of the relationship between precarious employment and health-related outcomes than has been possible in previous studies. I also compared these categories in terms of self-reported job insecurity. Eight mutually exclusive employment categories were identified: Permanent Full-time, Permanent Part-time, Casual Full-time, Casual Part-time, Fixed Term Contract, Labour Hire, Own Account Self-employed, and Other Self-employed. The identified categories are empirically derived, making them strong candidates for widespread use by researchers and statistical agencies.

In chapter 3, I was able to measure the exposures associated with each of the categories I developed. In order to accomplish this, I used multiple measures, notably job strain and effort/reward imbalance, both well-established predictors of adverse health effects. Data was also collected on job hazards/dangerous work practices along with information on hours of work, multiple job holding, age, gender, family circumstances and other factors that enabled us to incorporate these potentially critical influences on exposure.
Objectives

Utilizing a cross-sectional population-based representative survey (n=1101) conducted by Tony LaMontagne and colleagues in the state of Victoria, Australia, the dual aim of this thesis is to:

(1) Contribute to improved conceptualization and measurement of precarious employment through the construction of empirically-based employment status categories; and

(2) Characterize employment arrangements in relation to adverse occupational exposures (two measures of stress and other working conditions) among Australian workers using logistic regression methods.
Bibliography


Morris, J. R., Cascio, W. F., & Young, C. E. (1999). Downsizing after all these years: Questions and answers about who did it, how many did it, and who benefited from it. *Organizational Dynamics, 27*, 78-87.


CHAPTER 2

Refining Measures of Employment Arrangements and Precariousness: Empirically-derived Categories in a Representative Sample of Working Australians\textsuperscript{*}

Amber M. Louie\textsuperscript{1-3}, Aleck S. Ostry\textsuperscript{2}, Michael Quinlan\textsuperscript{4}, Tessa Keegel\textsuperscript{3}, Jean Shoveller\textsuperscript{2}, J. Allan Best\textsuperscript{5}, Anthony D. LaMontagne\textsuperscript{3}

1. Individual Interdisciplinary Studies Graduate Program, University of British Columbia
2. Department of Health Care and Epidemiology, University of British Columbia
3. Centre for Health & Society, School of Population Health, University of Melbourne\textsuperscript{*}
4. School of Organisation and Management, University of New South Wales
5. Centre for Clinical Epidemiology & Evaluation, Vancouver Hospital & Health Sciences Centre

*Institution at which the study was based.

Corresponding Author:
Amber M. Louie
Department of Health Care and Epidemiology
University of British Columbia, Department
5804 Fairview Avenue
Vancouver, BC
V6T 1Z3 Canada

\textsuperscript{*} A version of this chapter has been submitted for publication.
Chapter 2: Refining Measures of Employment Arrangements and Precariousness: Empirically-derived Categories in a Representative Sample of Working Australians

Introduction

Over the past 30 years the economies of developed countries have shifted to more ‘flexible’ work arrangements (US Bureau of Labor Statistics, 1995; De Grip et al., 1997; Cranford et al., 2003; Burgess et al., 2000). In Australia, those holding a casual or temporary job and non-employees (self-employed, subcontractors, etc) constituted 28% of the workforce in 1982, 31% in 1988 and 40% in 1999 (Burgess et al., 2000).

Flexible work arrangements were originally grouped under the labels of ‘non-standard’ or ‘atypical work’ to distinguish them from the ‘standard’ model of full-time, year-round, permanent employment (with statutory benefits and job security). There were limitations with both these terms, not the least of which was a gender bias since short-term and insecure work arrangements had never been non-standard or atypical for women (Vosko, 2000). More recently the omnibus terms ‘contingent work’ (originating in the US and popular in North America) and ‘precarious employment’ (originating in France and more popular in Europe and Australia) have been preferred. Although the terms precarious employment and contingent work are often used interchangeably it can be argued they capture different aspects of flexible work. The term ‘precarious’ captures the insecurity of jobs where there is no ongoing presumption of permanency or long-term tenure while the term ‘contingent’ connotes labour purchased in a highly variable fashion at the specific times it is required.

There is an ongoing debate about what categories of work arrangement should be included or excluded under these two labels. On the one hand, there appears to be widespread agreement about the inclusion of own account self-employed workers (including many mobile or home-based workers), temporary (including on-call), leased (or labour hire) or short-term fixed contract workers. Even so, statistical agencies in the US and Australia have narrowed these inclusions by separating/excluding workers on the basis of their perceptions of continuity in their work – refinements that appear to owe something to political debate over the extent of insecure work (Wooden, 2001; Campbell & Burgess, 2001). On the other hand, opinion appears divided as to whether home-based work, telework or work in other people’s homes (like home-care providers) is contingent, precarious, partly both, or simply too diverse to neatly classify (Felstead, Jewson, Phizacklea, & Walters, 2001). Other potentially problematic inclusions are micro-small business workers (though many of these are self-employed subcontractors) and permanent part-time workers.

Attempts to refine either concept are further complicated since the presence of contingent workers can affect the working conditions of their permanent co-workers (for instance, leading to additional administrative, supervisory or training demands or a preference for contingent pay schemes) (George, Chattopadhyay, Lawrence, & Shulman, 2003) and these effects may become more profound as the level of contingent workers in the establishment, industry or society increases, or where contingent and non-contingent workers compete directly for tasks (Virtanen et al., 2005a; Saksvik, Nytrø, Eiken, & Torvatn, 2005). In short, longitudinal changes associated with the growth of contingent work or labour practices causing job insecurity may blur the distinction between nominally contingent and non-contingent workers at a workplace, industry or societal level.
There is a rapidly developing research literature on precarious employment and job insecurity, which explores the nature and effects (on wages and conditions, union membership, employability, training/skills development, job satisfaction and other attitudes to work, gender equity, work/life balance etc) of specific work arrangements like temporary work or self-employment (Smeaton, 2003; De Witte & Näswall, 2003; Korpi & Levin, 2001; Yamashita, 2005; Forrier & Sels, 2003; Connolly & Gallagher, 2004). There is also a large body of research on the health and safety effects of precarious employment and job insecurity (Quinlan et al., 2001a; Lewchuk et al., 2003; Benach et al., 2000; Letourneux, 1998; Sverke et al., 2000; Hurrell, 1998; Kivimaki et al., 2003a; Virtanen et al., 2005a). Most of these previous studies were restricted to comparisons between permanent workers and one or two other categories of work. More recent studies suggest that there is some heterogeneity of work arrangements within previously used groupings, such as ‘temporary employment’ (Saloniemi, Virtanen, & Vahtera, 2004). As has been increasingly recognised, there is a need to move beyond simple dichotomies to more refined classifications in order to better understand precariousness and its relationships to various employment arrangements (Cranford et al., 2003; Kivimaki et al., 2003c).

Categories of precarious employment utilized in research are often based on a mix of job characteristics, worker characteristics, and in some cases, the adverse exposures that may arise from precarious work. In the literature, factors used to define precarious employment include job insecurity, degree of control over work, regulatory and social protection, income potential and financial security, job hazards and multiple job holding (Rodgers, 1989; Leiva, 2000; Lewchuk et al., 2003; Tucker, 2002; Burgess et al., 1998; Saunders, 2003). When job, worker and exposure characteristics are used to define precarious jobs, the categories are fundamentally flawed, impeding hypothesis testing and thereby limiting the ability to clearly establish links between particular employment arrangements and health outcomes. Therefore, it is necessary to develop methods of categorizing employment arrangements that conceptually distinguishes job characteristics from adverse occupational exposures.

The purpose of this study was to characterize current employment arrangements among adult Australian workers using job characteristics. Operationally, our aim was to construct a set of mutually exclusive and coherent employment categories as the basis for a more refined study of precariousness, and the relationships between precariousness, occupational health and safety, and worker health.

Methods

Study Design & Sample

A cross-sectional population-based survey was conducted by telephone from a random sample of White Pages listings in the state of Victoria in Australia. To reflect general population occupational group proportions, quotas were set to match Australian Bureau of Statistics (ABS) census proportions of upper white-collar, lower white-collar, and blue-collar groups. The inclusion criteria were 1) age 18 years or older, and 2) working at the time of the survey for profit or pay. Interviews were completed in November 2003 with a 66% response rate from in-frame households to yield a representative sample of 1,101 working Victorians (526 men and 575 women).
**Measures**

Socio-demographic data were collected on gender (male or female), age (18-29, 30-40, 41-50, and ≥ 51 years), marital status (categorised as ‘married or living with partner’, ‘single’, ‘divorced/separated’, and ‘widowed’), number of children living at home, highest level of education completed (post-graduate qualifications, undergraduate qualifications, vocational qualifications, high school completion, and some primary or secondary school completion), and location (urban versus rural/regional, based on post code).

With regard to their current employment status, participants were asked whether they were employed as Permanent Full-time, Permanent Part-time, casual/temporary (with no annual or long service leave), Fixed Term Contract, Labour Hire, or self-employed. Those employed by Labour Hire agencies were further queried as to whether they were hired out to work in different workplaces, or alternatively, if they worked directly for the Labour Hire company (e.g., in the agency office).

Occupations were assigned to nine groups and collapsed into five ranked skill levels, according to the Australian Standard Classification of Occupations (ASCO) Second Edition, which is used for the classification of occupations, applying skill level and skill specialisation as major criteria (ABS, 1997). Income, based on average gross weekly earnings in all jobs, was treated categorically and collapsed into quintiles (0-$299, $300-499, $500-699, $700-999, and ≥ $1000) to approximate ABS percentile data on weekly total earnings (ABS, 2002). Weekly working hours in a main job were calculated as the average number of hours worked per week over the previous month, and treated categorically (<35 hours/week, 35-49 hours/week, and 50 hours/week, based on ABS cut-points for part-time/full-time hours and “very long working hours” (ABS, 2003). Average weekly hours for all jobs were totalled from hours in a main job and hours in all other jobs and treated categorically in the same way. Other employment characteristics in the questionnaire included number of jobs held, public versus private workplace, industrial sector (service versus manufacturing), union membership, payment arrangements (paid on the basis of performance, annual salary, hourly wage, or a combination of these), and paid overtime (paid for overtime always, sometimes, never, or no overtime worked), and establishment size (total number of people employed at the workplace location).

Job insecurity was operationalised using two items from Siegrist’s effort-reward imbalance model (Siegrist, 1996): 1) “My job security is poor” (agree or disagree) and 2) if agreed, “How distressed are you by this situation?” The second item was scored on a four-point scale ranging from not at all distressed to very distressed. These items were combined to create an ordinal variable (0=Job security is not poor, 1=Job security is poor, but not at all distressed, 2=Somewhat distressed by job insecurity, 3=Distressed by job insecurity, 4=Very distressed by job insecurity), and a dichotomous variable, ‘Distressed by job insecurity’ (0-1=yes, 2-4=no).

**Mutually Exclusive Employment Status Categories**

The Australian Bureau of Statistics (ABS) (2000a) defines “traditional employees” as having ongoing full-time employment, not receiving their remuneration through a Labour Hire firm, and having both paid sick and holiday leave. It contrasts this to four types of “non-traditional” employment arrangements in the Australian Social Trends (AST) survey:
Ongoing part-time employees are defined as those employed under the conditions of a traditional employee, but on a part-time basis (less than 35 hours per week).

Casual employees are those who do not have both paid sick and holiday leave and who also identified themselves as being employed as a casual (however, the definition of a casual employee used in other ABS surveys is an employee with no access to paid leave).

Restricted tenure employees are employees who have a preset period of employment. The group comprises seasonal, temporary and fixed-term employees.

Employees paid by a Labour Hire firm are employees who receive their payment from a Labour Hire firm and who may or may not have a preset period of employment.

Of these four categories designated by the ABS as "non-traditional," the last three groups are not mutually exclusive. ABS definitions of employment and non-employment forms further complicate quantification and analysis of the self-employed (Waite & Will, 2001). "Employees" include owner managers of incorporated enterprises, also known as limited liability companies, with or without paid help (ABS, 2000c). "Employers" and "own account workers" (formerly entitled self-employed) include persons who operates their own unincorporated economic enterprise or engage independently in a profession or trade. While the ABS classifications reflect important labour force conditions specific to Australia (such as the definition and regulatory protection of casual employees), categories of non-traditional employment tend to overlap, and self-employed figures are understated. In an attempt to quantify the diversity in casual employment, Murtough and Waite (2001) found that in 1999, one tenth of those categorized as casual employees by the ABS were owner managers. The Statistics Canada self-employment definition includes working owners of an unincorporated or incorporated business, and persons who work on their own account but do not have a business (Statistics Canada, 2002). Both Statistics Canada and the ABS dichotomise the self-employed into either own account workers (without paid help) and employers (with paid help).

Building on the ABS and Canadian measures, we evaluated the following eight mutually exclusive employment status categories: Permanent Full-time, Permanent Part-time, Casual Full-time, Casual Part-time, Fixed Term Contract, Labour Hire, Own Account Self-employed, and Other Self-employed. These employment status categories are based on responses to survey items about the person’s main job (Figure 1). The Own Account Self-employed reported that they work alone, while the Other Self-employed reported more than one person employed in their workplace.

Permanent employees could self-identify as part-time or full-time, allowing for comparisons between the workers' perceptions/expectations of the employment arrangement (perhaps based on the understanding at the onset of employment) and the actual hours worked. For example, of self-identified Permanent Full-time employees, 19 (3.8%) worked less than 35 hours weekly in the main job. Of self-identified Permanent Part-time employees, 33 (16.6%) worked 35 or more hours weekly in the main job, and 7 (3.5%) worked 50 or more hours in a main job they identified as part-time.

Casuals were divided into part-time and full-time employment according to the ABS definitions, with the exception that they are based on hours worked in the main job, rather than in all jobs held. According to the ABS (2004) definition using hours in all jobs worked, a person holding two ongoing part-time jobs could be counted as a full-time employee. This can over-estimate casual full-time work while under-estimating casual part-time work. Since 1997, Statistics Canada has defined part-time employment by hours per week at a main job.
We adopted this approach in order to capture differences between single job holders and multiple job holders.

The Labour Hire group contains those workers hired out by a Labour Hire company. It does not include 16 respondents who worked directly for a Labour Hire agency (e.g., in the agency office). These are contained in categories 1-4 (7 Permanent Full-time, 2 Permanent Part-time, 2 Casual Full-time, 5 Casual Part-time).

In addition to the 8-way employment status category variable, we created a 10-way variable in which Labour Hire and Fixed Term Contract were also divided into part-time and full-time employment, in order to assess job insecurity between the full-time and part-time non-permanent categories.

Analysis

For categorical socio-demographic and job characteristics, Chi-square tests were used to compare proportions of individuals across the eight employment status categories (p<0.05 significance). The association between hours worked and employment status category were tested using a median test. The analyses were performed using SPSS statistical software (Version 12, SPSS Inc., Chicago).

Results

Sample Characteristics

Sample characteristics are presented in Tables 2.1 and 2.2. Just over half of the sample were women, and 45.9% were living with at least one child. Nearly a quarter of the participants were under age 30. Almost 3 tenths held a bachelor degree or higher, one tenth had some postgraduate study, 18.4% had completed a high school diploma and 21.3% had completed some primary or secondary school. The majority of the study sample lived in urban Melbourne, with 28% of participants located in regional and rural areas of the state of Victoria.

One tenth had average weekly earnings less than $300, 16% earned $300-499, 21% earned $500-699, 19% earned $700-999, and 22% earned $1000 or more per week. Almost half worked in a service sector industry, 21% worked in a government workplace, 29% were union members, and 25% were in the lowest occupational level (ASCO skill level 1). Most (70%) were employed at their main job for over 2 years, and almost half worked in establishments employing fewer than 20 persons. Over one tenth of participants held more than one job. The median for hours/week worked in the main job was 35 for women and 40 for men with ranges 3-80 and 1-96 respectively. The median for hours/week worked in all jobs was 40 for both women and men with ranges 3-146 and 6-110. This is consistent with women’s higher likelihood of holding more than one job.

Employment Arrangements & Job Characteristics

Job characteristics across the eight employment categories are presented in Table 2.1. Employment status category was significantly associated with all job characteristics assessed.

Number of jobs: Overall, 13.0% of workers held multiple jobs. This figure is higher than an ABS (2001) estimate that 7.3% of the workforce (and 8.4% of female workers) held two or more jobs, but this survey preceded ours by 3 years and ABS surveys indicate a growth in
multiple jobholding. Most importantly, our survey found non-standard workers were much more likely to hold more than one job compared Permanent Full-time employees. Men in categories 3-6 (Casual Full-time, Casual Part-time, Fixed Term Contract, and Labour Hire) were more likely to hold 2 or more jobs than women in the same categories.

**Hours (main job):** Overall, the Other Self-employed tended to work the longest weekly hours in the main job, followed by Own Account Self-employed, Permanent Full-time, Casual Full-time, Fixed Term Contract, Labour Hire, Permanent Part-time, and Casual Part-time. We see a polarization of part-time and longer hours when weekly hours are stratified by gender, particularly in the self-employed categories, with men more likely to work longer hours and women more likely to work part-time hours. Men were more likely to work longer hours in a main job than women in the Permanent Full-time, Fixed Term Contract, Labour Hire, Own Account Self-employed, and Other Self-employed categories. Of those employed Permanent Part-time, women tended to work longer hours per week in a main job relative to men. Similarly, of those employed Casual Part-time, women tended to work longer hours per week in a main job relative to men (median of 15 versus 14).

**Hours (all jobs):** For average weekly hours worked in all jobs totalled, the Other Self-employed were again mostly likely to work longer hours, followed by Permanent Full-time, Casual Full-time, Own Account Self-employed, Fixed Term Contract, Labour Hire, Permanent Part-time, and Casual Part-time. The self-employed groups were most likely to work over 50 hours in their main job, and tended to move above 70 hours for all jobs relative to the main job. For Casual Full-time employees as a group (the mostly likely to hold more than one job), average weekly hours tend to be above 40 hours for all jobs when compared to the main job. For part-time workers, average weekly hours tend to move above 35 hours for jobs relative to the main job. For Labour Hire, the increase is into the range of 50-69 hours.

**Income:** Other Self-employed were most likely to be high-income earners (over $1000 per week), followed by Own Account Self-employed and Permanent Full-time employees. Casual Part-time employees were much more likely than any other category to be low-income earners (less than $299 per week), followed by Permanent Part-time employees. Casual Full-time, Fixed Term Contract, and Labour Hire employees were most likely to earn mid-range incomes ($500-699 per week). This is consistent with patterns across these categories in terms of education level and weekly hours worked.

**Occupation:** Corresponding to patterns in education, hours, and earnings across employment status categories, Casual Full-time employees were mostly likely to be employed in the lowest occupational level, followed by Casual Part-time employees, Labour Hire and Permanent Part-time. Fixed Term Contract workers were most likely to be employed in managerial/professional and intermediate level occupations, followed by Other Self-employed, Permanent Full-time and Own Account Self-employed. The own account and Other Self-employed categories also had the largest proportions of tradespersons.

**Workplace characteristics:** While there was a fairly even split between total respondents in the manufacturing and service sectors, Permanent Part-time employees, Casual Part-time employees, and Labour Hire workers were more likely to be working in the service sector. Employment status categories seemed to have an even distribution of public and private workplaces, though Fixed Term Contract workers, Own Account Self-employed, and Casual Part-time employees seemed to be slightly more likely to be in private workplaces than the
other categories. Permanent Full-time employees were most likely to be union members followed by Fixed Term Contract holders, Permanent Part-time employees, Labour Hire workers, Casual Part-time employees, Casual Full-time employees, Other Self-employed, and Own Account Self-employed. Fixed Term Contract workers were most likely to work in larger establishments (20 or more employees), followed by Permanent Full-time employees, Labour Hire workers. Other Self-employed tended to work in smaller establishments, and by definition, all Own Account Self-employed work alone.

**Duration of employment:** The overwhelming majority of Own Account and Other Self-employed have been employed at their main job for over 2 years, as have the majority of Permanent Full-time and Permanent Part-time. Of those employees who self-identified as non-permanent (categories 3-6), 63 out of 195 (32.3%) respondents had been employed at the same workplace for more than two years.

**Overtime:** Casual Part-time employees were the least likely to work overtime hours, with 31.4% reporting no overtime hours worked. They were followed by Permanent Part-time, Labour Hire, Fixed Term Contract, Permanent Full-time, and Casual Full-time employees. Fixed Term Contract workers were most likely to work overtime hours not paid, followed by Permanent Full-time, Casual Full-time, Permanent Part-time, Casual Part-time employees, and Labour Hire. Self-employed participants skipped this item.

**Employment Arrangements & Socio-demographics**

Socio-demographic characteristics across the eight employment status categories are presented in Table 2.2. Employment status category was significantly associated with gender, age, education, children at home, and location (urban versus rural/regional).

**Gender:** Women were more likely to be employed part-time and non-permanently, holding the majority of Permanent Part-time (83.7%) and Casual Part-time (67.6%) jobs, and just over half of Fixed Term Contract and Labour Hire jobs. Men held just over half of Permanent Full-time jobs. Men were more likely to be self-employed, holding 72.0% of Own Account jobs and 59.0% of Other Self-employment.

**Age:** There was a fairly even age distribution within the two permanent categories. The self-employed tended to be older, with 34.8% over age 50. Mainly self-employed men drove this difference, with 44.7% over age 50 for Own Account and 29.2% for Other Self-employed. However, self-employed women also tended to be older, 38.6% over age 50 for Own Account and 29.8% for Other Self-employed. Workers under age 30 made up large proportions of the Casual Part-time, Casual Full-time, and Labour Hire categories. Male temporary workers tended to be younger, with 38.5% (five out of thirteen) under age 30 for Casual Full-time, 56.0% for Casual Part-time, and 50% for Labour Hire. Female Casual Part-time workers also tended to be younger, with 38.2% under age 30. Workers over age 30 made up large proportions of Fixed Term Contract holders.

**Children at home:** Permanent Part-time employees were most likely to be living with at least one child, while Casual Full-time employees were least likely. Of women, those working Casual Part-time were most likely to be single with children, followed by Permanent Part-time and Own Account Self-employed. Women working as "Other Self-employed" were most likely to be partnered with children, followed by Permanent Part-time, and Fixed Term Contract. Women working Casual Full-time were most likely to not live with any
children, followed by Labour Hire workers and Permanent Full-time. Of men, those working for Labour Hire were most likely to single and report children at home (22.2%, n=4), however, all of these 4 were aged 18-24, suggesting that the children in their households were siblings or dependents of other adults in the household. Men working Permanent Full-time were most likely to be partnered with children, followed by Own Account Self-employed and Other Self-employed. Men working Casual Part-time were most likely to not live with any children, followed by Casual Full-time, and Permanent Part-time.

**Location:** Casual Full-time employees and Own Account Self-employed were more likely to live outside of Melbourne than other categories of workers. Workers living outside of Melbourne were less likely to hold Permanent Full-time jobs than those living in Melbourne. Workers living inside of Melbourne were more likely to be hired out by a Labour Hire agency than workers living outside of Melbourne.

**Education:** Consistent with their age distribution, Fixed Term Contract holders were more likely to hold a bachelor degree or higher than any other category, followed by Labour Hire workers. The permanent employee categories showed similar patterns in education level attained to the overall sample, with Permanent Full-time slightly more likely than part-time to hold a bachelor degree or higher. The self-employed categories also showed similar patterns in education level to the overall sample, though Own Account Self-employed were slightly less likely than Other Self-employed to hold a bachelor degree or higher. Casual Part-time employees were most likely to have complete high school only while Casual Full-time employees were most likely to have attended some primary or secondary school.

**Employment Arrangements & Job Insecurity**

When job insecurity was assessed across the eight employment status categories, we found prominent divisions between permanent and non-permanent employment (all non-permanent employment categories ranking the highest in terms of job insecurity). In terms of job insecurity (based on “My job security is poor”), we also found striking differences between employees and the self-employed, and between the own account and Other Self-employed (Table 2.3). Permanent Full-time employees reported slightly higher job insecurity than part-time permanent employees, and close to the same amount of associated distress. When Labour Hire and fixed term employees were divided by weekly hours worked to create a 10-way employment status category variable, Full-time casual, Full-time Fixed Term, and Full-time Labour Hire employees ranked in relatively close range (Table 2.4). Labour Hire Part-time and Fixed Term Part-time employees reported substantially higher job insecurity relative to Casual Part-time. Significant associations were found with job insecurity using each of the employment status category variables (8-way and 10-way).

**Summary & Discussion**

Building on ABS and Canadian 4-way classifications, eight mutually exclusive employment categories were developed using job characteristics. Employment status category was significantly associated with income, weekly hours, occupation, union membership and all other job characteristics assessed, such that we decided to retain this 8-way categorisation (instead of a 6-way classification that was also considered). Significant associations were also found between employment status category and gender, age, education, children at home, location (urban versus rural/regional) and perceived job
insecurity and (Tables 2.2 and 2.3). This is consistent with prior research finding that temporary work is associated with perceived job insecurity (Näswall & De Witte, 2003; Sverke et al., 2000; Klein Hesselink & van Vuuren, 1999; Letourneux, 1998).

**Permanent Full-time** employees tended to have attained more education, earn higher incomes and work longer hours. They were the most likely to be union members and work in large establishments, and the least likely to hold more than one job. Counter to a priori expectation, this group did not report the lowest perceived job insecurity. Overall, it appears that the *self-employed* categories were more similar to Permanent Full-time employees than the other groups, although they were the least likely to be union members, more likely to work in a small establishment, and more likely to hold more than one job than Permanent Full-time employees. The *Other Self-employed* reported the lowest job insecurity and tended to be older, more educated, work longer hours, earn high incomes, and hold managerial, professional and trade occupations. The *Own Account Self-employed* appeared to be similar to the Other Self-employed with respect to education and income, but were more likely to be male and somewhat less likely to work longer hours. This group reported higher job insecurity and a higher performance component in payment than Other Self-employed. **Permanent Part-time** employees also showed similarities to Permanent Full-time employees in terms of age, education, length of employment, and perceived job insecurity. However, they tended to earn lower incomes and be employed in lower occupational levels. Permanent Part-time employees were predominantly women, they were the most likely category to be living with children, and they were more likely to hold more than one job than Permanent Full-time employees.

Overall, the non-permanent employee categories (3-6) tended to report the highest job insecurity. That non-permanent employees tend to be younger is consistent with precarious employment forms being a growing phenomenon, in particular for new entrants to the labour market. Other recent research has also found a very high concentration of young workers (including children) in casual employment (New South Wales Commission for Children and Young People, 2005). Men in these groups of employees were more likely to hold more than one job and to be younger than women in the same groups. **Casual Full-time** employees tended to earn mid-range incomes and be employed in the lower occupational levels. They were the most likely group to hold more than one job, and the least likely to be living with children. They were more likely to work in smaller establishments and live in rural/regional areas (outside Melbourne). **Casual Part-time** employees tended to earn lower incomes and be employed in the lowest occupational level. They were most likely to be under age 30 and the most likely to be single living with children. **Fixed Term Contract** workers tended to be more educated, earn mid-range incomes, and be employed in managerial/professional and intermediate level occupations in larger establishments. **Labour Hire** workers were mainly employed in lower occupational levels and in larger establishments. They were the least likely to have been employed at their main job for more than 2 years. It is noteworthy that of those employees who self-identified as non-permanent, 32.3% had been employed at the same workplace for more than two years. Consistent with the shifting of traditional/standard jobs toward more flexible employment, lengthy periods of tenure among temporary employees may also demonstrate the contrast between worker’s understanding of the terms of employment agreed to and the actual experience of permanence. Pocock et al. (2004) have drawn attention to the phenomenon of ‘permanent casuals’ in Australia: those who often hold long-term and regular jobs, in which workers build up lengthy periods of tenure. In 2003,
57% of casual workers were reported to have more than one year's tenure, with a mean of 2.6 years. ‘Permanent casual’ jobs diverge from standard jobs by virtue of inferior rights and entitlements, including a lack of paid annual leave and paid sick leave, as well as other disadvantages associated with casual status. Identifying whether there are particular clusters of short and long tenure casual employees (by industry, age, etc.) (Junor, 2004), and whether the problems of casual employment are most severe for ‘permanent casual’ employment, warrants attention in future research.

Although some cell sizes in this study were small, it appears that non-permanent employees form a heterogeneous population suggesting the potential for additional subcategories. When Labour Hire workers were divided by weekly hours worked, the full-time and part-time Labour Hire categories ranked side by side in terms of job insecurity (Table 2.4). Full-time and part-time fixed term categories also ranked side by side, occupying the two highest rankings of job insecurity. This supports the need to investigate Labour Hire and Fixed Term Contract arrangements as distinct from other non-permanent employment forms. Future research based on larger samples should distinguish between different types of temporary contracts (Aronsson, Gustafsson, & Dallner, 2002; Gimeno, Benavides, Amick, III, Benach, & Martinez, 2004; Virtanen et al., 2005d).

It is possible to rank categories on a continuum of precariousness according to specific criteria, such as job insecurity. Using three indicators of precariousness (union membership, firm size and hourly wage), Cranford and colleagues (2003) found that forms of employment in Canada increased in precariousness along a continuum in the same order for each indicator: permanent full-time (least precarious), temporary full-time, permanent part-time and temporary part-time. These authors also cite job insecurity as a key dimension central to establishing whether a job is ‘precarious.’ Using eight employment status categories, we find a ranking order for job insecurity that differs from the Canadian ranking: Other Self-employed (least insecure), Permanent Part-time, Permanent Full-time, Casual Part-time, Own Account Self-employed, Casual Full-time, Labour Hire and Fixed Term Contract (Table 2.3). Specific employment arrangements may also be associated with different adverse occupational exposures such that a single linear continuum would not capture the different ways in which each category is more or less precarious or otherwise disadvantageous. Thus, it would seem preferable to assess associations with each exposure independently.

Counter to a priori expectation, Permanent Full-time employees reported perceptions of job insecurity on par and slightly higher than their part-time counterparts. This might be explained in part by lower expectations of job security held by part-time workers since Casual Full-time employees also reported much higher job insecurity than their part-time counterparts.

Also counter to a priori expectation, a self-employment category showed the lowest perceived job insecurity (rather than a permanent employment category). We did not divide the self-employed categories into part-time versus full-time self-employment, however, we did find a polarization of hours by gender, with the majority of self-employed women working part-time hours in the main job and while self-employed men tended to work longer hours. Like non-permanent employment there is also independent evidence that self-employment is a heterogenous category (Smeaton, 2003).
Conclusion

In epidemiological research on precarious employment, permanent full-time employment is usually designated as the reference category. However, our findings suggest this category may no longer represent an appropriate reference group in terms of either precariousness or job insecurity. It is likely that experiences of vulnerability are related to employment arrangements in various ways, and future research is needed to investigate how specific exposures are associated with particular forms of employment independently. Our study highlights the importance of including all working persons in studies of employment arrangements and adverse exposures at a population level in order to inform policy and practice. Future research should further differentiate subcategories of temporary employees, clusters of short and long tenure casuals and different types of self-employment. We have identified mutually exclusive employment status categories which show significant and consistent differences in job characteristics, and in relation to socio-demographics and perceived job security. These categories are empirically derived, and an improvement over previously used categories of non-standard work because they reflect the current labour market in Australia. These categories may be of use to government agencies, researchers and policy makers.

Funding sources

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Figure 2.1 Mutually Exclusive Employment Status Categories

What is your employment status?

- Permanent Full-time
- Permanent Part-time
- Casual/Temporary
- Fixed Term Contract
- Labour Hire

Are you employed or self-employed?

- Self-employed

Over the past month, how many hours did you work a week, on average?

- ≥ 35 hours
- < 35 hours

How many people in total are employed in your workplace?

- Work alone
- > 1 persons

- Own Account SE
- Other SE

511, 46.4%
202, 18.3%
30, 2.7%
102, 9.3%
40, 3.6%
82, 7.4%
105, 9.5%

§0.5% missing (3 cases with reported employment status “other,” and 3 casuals with unreported weekly hours in main job) ¶Casual/temporary (with no annual or long service leave)
<table>
<thead>
<tr>
<th>Job characteristics</th>
<th>Employees</th>
<th>Self-employed</th>
<th>Total</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS Income Quintile</td>
<td>FT (#299) %</td>
<td>1.7</td>
<td>22.1</td>
<td>15.4</td>
</tr>
<tr>
<td>300-499</td>
<td>9.3</td>
<td>36.5</td>
<td>15.4</td>
<td>27.6</td>
</tr>
<tr>
<td>$500-699</td>
<td>26.9</td>
<td>17.7</td>
<td>42.3</td>
<td>12.2</td>
</tr>
<tr>
<td>$700-999</td>
<td>29.1</td>
<td>14.9</td>
<td>15.4</td>
<td>6.1</td>
</tr>
<tr>
<td>≥ $1000</td>
<td>33.0</td>
<td>8.8</td>
<td>11.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Number of jobs held (≥2)</td>
<td>6.5</td>
<td>19.8</td>
<td>26.7</td>
<td>19.0</td>
</tr>
<tr>
<td>Women</td>
<td>7.6</td>
<td>17.3</td>
<td>17.6</td>
<td>14.5</td>
</tr>
<tr>
<td>Men</td>
<td>5.2</td>
<td>22.4</td>
<td>38.5</td>
<td>24.0</td>
</tr>
<tr>
<td>Weekly hours in main job (median, range)</td>
<td>40</td>
<td>24</td>
<td>40</td>
<td>15</td>
</tr>
<tr>
<td>Women</td>
<td>40</td>
<td>24</td>
<td>40</td>
<td>15</td>
</tr>
<tr>
<td>Men</td>
<td>45</td>
<td>22</td>
<td>40</td>
<td>14</td>
</tr>
<tr>
<td>Weekly hours in all jobs (median, range)</td>
<td>42</td>
<td>25</td>
<td>42</td>
<td>16</td>
</tr>
<tr>
<td>Women</td>
<td>40</td>
<td>40</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>Men</td>
<td>40</td>
<td>40</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>Public/private workplace (public)</td>
<td>22.7</td>
<td>23.1</td>
<td>23.3</td>
<td>18.1</td>
</tr>
<tr>
<td>Service/manufacturing sector</td>
<td>38.8</td>
<td>70.8</td>
<td>43.3</td>
<td>68.6</td>
</tr>
<tr>
<td>Occupation level (Skill level)</td>
<td>28.6</td>
<td>22.3</td>
<td>6.7</td>
<td>11.4</td>
</tr>
<tr>
<td>Skill level 2</td>
<td>8.0</td>
<td>5.9</td>
<td>3.3</td>
<td>9.5</td>
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<td>Skill level 3</td>
<td>22.3</td>
<td>12.4</td>
<td>6.7</td>
<td>5.7</td>
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<tr>
<td>Skill level 4</td>
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<td>29.7</td>
<td>30.0</td>
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<tr>
<td>Skill level 5</td>
<td>16.8</td>
<td>29.7</td>
<td>53.3</td>
<td>50.5</td>
</tr>
<tr>
<td>Union member (Yes)</td>
<td>36.4</td>
<td>32.3</td>
<td>13.3</td>
<td>15.2</td>
</tr>
<tr>
<td>Paid Overtime (Always)</td>
<td>36.8</td>
<td>41.1</td>
<td>40.0</td>
<td>32.4</td>
</tr>
<tr>
<td>Sometimes</td>
<td>9.2</td>
<td>7.4</td>
<td>13.3</td>
<td>9.5</td>
</tr>
<tr>
<td>Never</td>
<td>42.5</td>
<td>33.2</td>
<td>36.7</td>
<td>26.7</td>
</tr>
<tr>
<td>Don't do overtime</td>
<td>11.5</td>
<td>18.3</td>
<td>10.0</td>
<td>31.4</td>
</tr>
<tr>
<td>Establishment size &lt;20 workers</td>
<td>33.1</td>
<td>43.4</td>
<td>50.0</td>
<td>49.5</td>
</tr>
<tr>
<td>Length of employment &gt;2 years</td>
<td>75.7</td>
<td>72.8</td>
<td>46.7</td>
<td>44.8</td>
</tr>
</tbody>
</table>
† 125 (11.4%) cases missing. Of these, 41 (44.2%) were self-employed. § 26 cases missing. ° 35 cases missing. ‡ Skill Level 1 - Managers and administrators and Professionals, Skill Level 2 - Associate professionals, Skill Level 3 - Tradespersons and related workers and Advanced clerical and service workers, Skill Level 4 - Intermediate production and transport workers and Intermediate clerical, sales and service workers, Skill Level 5 - Elementary clerical, sales and service workers and Labourers and related workers (Australian Bureau of Statistics, 2004). △ Self-employed skipped this item.
### Table 2.2 Employment Arrangements and Socio-demographics

<table>
<thead>
<tr>
<th>Socio-demographic variables</th>
<th>Employees</th>
<th>Self-employed</th>
<th>Total</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (Women) %</td>
<td>43.6</td>
<td>83.7</td>
<td>36.7</td>
<td>67.6</td>
</tr>
<tr>
<td>Age (under 30) %</td>
<td>22.5</td>
<td>22.3</td>
<td>33.3</td>
<td>46.7</td>
</tr>
<tr>
<td>30-40</td>
<td>31.1</td>
<td>26.2</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td>41-50</td>
<td>27.2</td>
<td>28.7</td>
<td>23.3</td>
<td>21.0</td>
</tr>
<tr>
<td>≥51</td>
<td>19.2</td>
<td>22.8</td>
<td>23.3</td>
<td>12.4</td>
</tr>
<tr>
<td>Women (Single with children) %</td>
<td>10.8</td>
<td>14.2</td>
<td>0.0</td>
<td>20.3</td>
</tr>
<tr>
<td>Partnered with children</td>
<td>23.9</td>
<td>52.7</td>
<td>9.1</td>
<td>29.0</td>
</tr>
<tr>
<td>Not living with children</td>
<td>65.3</td>
<td>33.1</td>
<td>90.9</td>
<td>50.7</td>
</tr>
<tr>
<td>Men (Single with children)</td>
<td>6.3</td>
<td>6.1</td>
<td>5.3</td>
<td>9.1</td>
</tr>
<tr>
<td>Partnered with children</td>
<td>43.1</td>
<td>21.2</td>
<td>21.1</td>
<td>3.0</td>
</tr>
<tr>
<td>Not living with children</td>
<td>50.7</td>
<td>72.7</td>
<td>73.7</td>
<td>87.9</td>
</tr>
<tr>
<td>Education (Primary/secondary) %</td>
<td>21.3</td>
<td>22.4</td>
<td>53.3</td>
<td>43.9</td>
</tr>
<tr>
<td>Completed high school</td>
<td>15.0</td>
<td>21.4</td>
<td>6.7</td>
<td>43.6</td>
</tr>
<tr>
<td>Vocational qualifications</td>
<td>20.7</td>
<td>16.4</td>
<td>16.7</td>
<td>9.9</td>
</tr>
<tr>
<td>Undergraduate college</td>
<td>32.1</td>
<td>29.9</td>
<td>20.0</td>
<td>27.7</td>
</tr>
<tr>
<td>Some postgraduate study</td>
<td>11.0</td>
<td>10.0</td>
<td>3.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Location (Rural/Regional) %</td>
<td>23.3</td>
<td>27.7</td>
<td>40.0</td>
<td>31.4</td>
</tr>
</tbody>
</table>

1 Living with one or more children in the household and single (never married, separated/divorced, or widowed).
Table 2.3 Employment Arrangements (8 Categories) and Job Insecurity

<table>
<thead>
<tr>
<th>Job Insecurity Variable</th>
<th>Employment Status Categories (8-way)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Other SE n=105 Perm PT n=202 Perm FT n=511 Casual PT n=102 Own Acct SE n=82 Casual FT n=30 Labour Hire n=40 Fixed Term n=23</td>
<td></td>
</tr>
<tr>
<td>My job security is poor (agree) Count</td>
<td>10 28 85 22 23 15 17 16</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>10.2 14.1 16.9 21.8 29.1 51.7 43.6 72.7</td>
</tr>
<tr>
<td>Distressed by job insecurity %</td>
<td>5.1 11.1 11.7 14.9 22.8 27.6 35.9 68.2</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Table 2.4 Employment Arrangements (10 Categories) and Job Insecurity

<table>
<thead>
<tr>
<th>Job Insecurity Variable</th>
<th>Employment Status Categories (10-way)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Other SE n=105 Perm PT n=202 Perm FT n=511 Casual PT n=102 Own Acct SE n=82 Labour FT n=30 Labour Hire n=16 Fixed Term FT n=17 Fixed Term PT n=6</td>
<td></td>
</tr>
<tr>
<td>My job security is poor (agree) Count</td>
<td>10 28 85 22 23 9 8 15 10 6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>10.2 14.1 16.9 21.8 29.1 40.9 50.0 51.7 62.5 100.0</td>
</tr>
<tr>
<td>Distressed by job insecurity %</td>
<td>5.1 11.1 11.7 14.9 22.8 36.4 37.5 27.6 56.3 100.0</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Bibliography


Australian Bureau of Statistics (2000b). *Forms of Employment Survey (Cat. 6359.0)* Canberra: ABS.


Australian Bureau of Statistics (2002). *Employee Earnings and Hours (Cat. 6306.0)* Canberra: ABS.

Australian Bureau of Statistics (2003). *Australian Social Trends 2003 - Longer working hours (Cat. 4102.0)* Canberra: ABS.

Australian Bureau of Statistics (2004). *Australian Social Trends 2004 (Cat. 4102.0)* Canberra: ABS.


CHAPTER 3

Psychosocial and other Working Conditions in Relation to Precarious Employment in a Representative Sample of Working Australians*

Amber M. Louie1-3, Aleck S. Ostry2, Jean Shoveller2, Michael Quinlan4, Samia Radi3, J. Allan Best5, Anthony D. LaMontagne3

1. Individual Interdisciplinary Studies Graduate Program, University of British Columbia
2. Department of Health Care and Epidemiology, University of British Columbia
3. Centre Health & Society, University of Melbourne*
4. School of Organisation and Management, University of New South Wales
5. Centre for Clinical Epidemiology & Evaluation, Vancouver Hospital & Health Sciences Centre

*Institution at which the study was based.

Corresponding Author:
Amber M. Louie
Department of Health Care and Epidemiology
University of British Columbia, Department
5804 Fairview Avenue
Vancouver, BC
V6T 1Z3 Canada

* A version of this chapter has been submitted for publication.
Chapter 3: Psychosocial and other Working Conditions in Relation to Employment Arrangements in a Representative Sample of Working Australians

Introduction

Over the past 30 years one of the most significant changes in the labour markets of developed countries has been the growth of more flexible work arrangements. Variously referred to as non-standard, contingent or precarious employment, this phenomenon includes temporary, seasonal and fixed term employment as well as own-account self-employment (US Bureau of Labor Statistics, 1995; De Grip et al., 1997; Cranford et al., 2003; Burgess et al., 2000). This trend has seen a corresponding decline in permanent full-time employment, as well as an increase in downsizing, restructuring, and outsourcing activities by private and public sector employers that often leads to heightened job security concerns among surviving ‘permanent’ employees.

Since the mid-1990s, there has been a rapid growth in research into the effects of job insecurity and flexible work arrangements on occupational health and safety (OHS) outcomes, including consideration of hazardous exposures (e.g., safety hazards), effects on health (e.g., injuries, psychological well-being), and effects on organizations (e.g., regulatory accountability and compliance). Reviews of this now substantial body of published research reveal that a large majority of studies linked job insecurity, outsourcing, self-employment and (to a lesser extent) temporary employment to inferior OHS outcomes (Quinlan et al., 2001b; Quinlan et al., 2004; Virtanen et al., 2005a).

At the same time, there are number of limitations in this body of research (Saloniemi et al., 2004; Silla, Gracia, & Peiro, 2005). In terms of specific employment categories, many studies treat precariousness too simplistically, often as a dichotomy such as ‘precarious’ (such as temporary workers) versus non-precarious (usually permanent/ongoing employees). Other studies, however, point to the heterogeneity of temporary employment arrangements (e.g., on-call casuals/fixed term appointments, and leased or agency workers) (Aronsson et al., 2002; Gimeno et al., 2004; Saloniemi et al., 2004) and of heterogeneity within the population of temporary employees (in terms of age, gender, financial/family commitments, contract preference and employability) (Silla et al., 2005). Others have begun to explore how gender, ethnicity and age relate to trends in precarious employment, identifying a striking need for gender-based analysis and attention to social context (Vosko, 2000; Cranford et al., 2003). To this could be added the difficulty of international comparisons given regulatory and institutional differences that shape employment arrangements, and differences due to overall level of non-standard employment in a particular workplace, industry or society (Olsen & Kalleberg, 2004).

With respect to occupational health hazards, precarious employment has only recently begun to receive attention in relation to occupational stress (Lewchuk et al., 2003). Karasek’s demand/control model (DCM) (Karasek, 1979), the most widely used and validated in epidemiological studies of occupational stress and health outcomes, focuses on task-level job characteristics. Postulating that psychological “job strain” results from the interactive combination of low control and high demands, the DCM may have special relevance for workers in precarious work arrangements (Lewchuk et al., 2003). Another influential and well-validated framework, Siegrist’s effort/reward imbalance (ERI) model (Siegrist, 1996), may also be important among workers who lack the entitlements and
security traditionally accompanying full-time, permanent employment. It proposes that low reward received when expending high efforts at work is particularly stressful and predictive of ill health. Rewards include income, social approval and feeling valued, job security, and opportunity for career advancement, while effort is the degree of work intensity.

The role of hours of work and multiple job holding also needs to be considered in the study of precarious employment and health. Many temporary workers (especially youth/students) work part-time or shift work (especially in industries like hospitality), others work seasonally (in harvesting, food processing, etc.), while others, like many self-employed workers (Smeaton, 2003), work very long hours. As yet, the timing and length of working hours undertaken by precarious workers and the connected implications for hazard exposure and work-life conflict, has received limited attention (Bohle et al., 2004). Another neglected, but related, consideration is multiple job holding, which our own survey found far more prevalent amongst part-time, non-permanent and self-employed workers (Louie et al., in review). We also found that more multiple jobholders (17.4%) reported distress caused by job insecurity than single jobholders (14.2%) (data not shown). Although multiple job holding is not an adverse exposure in itself, the cumulative hours entailed in multiple jobholding may lead to fatigue and work-life conflict, while shifting between jobs may pose another set of risks (Rebitzer, 1995). A review of health and safety problems associated with long working hours found that overall, the existing data support the view that weekly hours which exceed 50 are associated with increased occupational stress (Spurgeon, Harrington, & Cooper, 1997). Long work hours greater than 55-60 hours per week have shown associations with myocardial infarction and elevated blood pressure (Landsbergis, 2004). Another study found increased risks of cardiovascular disease in association with daily hours of work greater than 8.5 (42.5/week) (Emdad, Belkic, Theorell, & Cizinsky, 1998). Shift work as also been found to predict coronary heart disease and other health problems (Steenland, 2000).

In short, a better understanding is needed of the relationship between various employment arrangements and adverse occupational exposures. Toward this end, we recently developed a new measure of employment arrangements, based on job characteristics, in a representative sample of working Australians (Louie et al., in review). The measure consists of eight mutually exclusive categories, including two categories of `permanent’ work, four categories of `temporary,’ and two categories of self-employment. In this report, we systematically characterise patterns of adverse psychosocial and other working conditions in relation to these categories. The central focus is on job stress, for which we have used predictively validated measures (in relation to cardiovascular disease and mental disorders)—the demand/control and effort/reward imbalance models. We have also assessed patterns of working hours, shift work, chemical and safety hazards, and other working conditions while accounting for socio-demographic and other covariates. This approach allows the disentangling of employment arrangements from the adverse exposures and other working conditions associated with those arrangements, as will be required to determine the mechanisms through which precarious employment may affect health.

Methods

Study Design and Sample

A cross-sectional population-based survey was conducted by telephone from a random sample of White Pages listings in the state of Victoria in Australia. In order to reflect
general population occupational group proportions, quotas were set to match Australian Bureau of Statistics (ABS) census proportions of upper white-collar, lower white-collar, and blue-collar groups (29%, 30%, and 41%, respectively). We also quota sampled for urban/Melbourne (72%) versus rural/regional Victoria (28%). To address the tendency of younger people to be harder to reach in telephone surveys, we asked to interview the youngest working person in each in-frame household (i.e., where it was determined that more than one person was working for profit or pay aged 18+ at the household/number contacted). The inclusion criteria were 1) being aged 18 years or older, and 2) working at the time of the survey for profit or pay (including self-employed). Interviews were completed in November 2003 with a 66% response rate from in-frame households to yield a representative sample of 1,101 working Victorians. Detailed socio-demographic and job characteristics of this sample are reported elsewhere (Louie et al., in review).

**Measures**

**Independent Variables**

Socio-demographic data were collected on age (18-29, 30-40, 41-50, and ≥ 51 years), and highest level of education completed (post-graduate qualifications, undergraduate qualifications, vocational qualifications, high school completion, and some primary or secondary school completion). Hostility was assessed using the sum of a 3-item 5-point Likert scale with higher scores indicating greater hostility (Koskenvuo et al., 1988).

With regard to their current employment status, participants were asked whether they were employed as permanent full-time, permanent part-time, casual/temporary (with no annual or long service leave), fixed term contract, labour hire, or self-employed. Weekly working hours in a main job were calculated as the average number of hours worked per week over the previous month. Casuals were divided according to the ABS (2004) cut-points into Casual Part-time (less than 35 hours/week) and Casual Full-time (35 hours/week or more) employment. Based on the total number of people employed at the workplace location, the self-employed were divided into own account (working alone) and Other Self-employed (with more than one person employed in their workplace). This resulted in eight employment status categories: Permanent Full-time, Permanent Part-time, Casual Full-time, Casual Part-time, Fixed Term Contract, Labour Hire, Own Account Self-employed, and Other Self-employed. In a preceding study, these eight categories were assessed for coherence based on objective job characteristics (e.g., income, union membership) and socio-demographics (Louie et al., in review).

**Dependent Variables**

The demand/control model (DCM) (Karasek, 1985) was used to measure psychological demand (sum of 3 items, Cronbach's alpha = 0.66) and control (2 equally weighted scales of 6 and 3 items measuring skill discretion and decision authority respectively, Cronbach's alpha = 0.80). The two dimensions were dichotomised at the median and combined to create four categories: low strain (low demand and high control), active jobs (high demand and high control), passive jobs (low demand and low control), and job strain (high demand and low control). In subjects with missing data, scores were recalculated using the lower and the higher theoretical score for each missing item and dimensions dichotomised according to their median. If the classification of participants was the same for any possible value of the missing item, participants were considered as having non-missing
answers for the dimension of interest (38/88 participants with missing data). If the classification differed according to the replaced value, participants were considered as having a missing answer for the dimension. Job strain affected the upper quartile (24%) of the sample.

Siegrist’s effort/reward imbalance (ERI) model (Siegrist, 1996) was used to measure effort (5 items, Cronbach’s alpha = 0.80), reward (11 items, Cronbach’s alpha = 0.81), and over-commitment (6 items, Cronbach’s alpha = 0.82). Effort and reward items were summed into scales. A ratio of effort to reward was computed using a correction factor to give equal weight to both scales. When the ratio was dichotomised using a cut-point of 1, only 4% of the sample showed a ratio greater than 1 (indicating that effort was higher than reward). Because this small proportion made statistical modelling infeasible, the ratio was dichotomised using the upper quartile (ER ratio > 0.54 versus other), following the job strain prevalence and allowing comparison of the two exposures. For participants who did not answer each question in the scale, scores were calculated if at least 80% of the items were answered (4/5 items for effort and 9/11 items for reward) (Pikhart et al., 2004). Participants exposed to overcommitment were defined as those in the sample upper tertile (Siegrist et al., 2004).

One item distinguished multiple jobholders from workers holding one job only. Weekly working hours in all jobs were calculated as the average number of hours worked per week over the previous month, and dichotomised into excessive working hours (≥ 50 hours/week) versus other (< 50 hours/week). Shift work was defined as work performed at least partly during the night, excluding day shift work and those who worked exclusively during the day. Ten items on various self-reported hazardous working conditions were also included (Mausner-Dorsch & Eaton, 2000).

Analysis

For all independent variables, chi-square tests were used to compare proportions across the eight employment status categories (p<0.05 two-sided significance). Logistic regression models were developed separately for men and women, and separately for job strain and high effort/reward ratio as exposure outcomes. Employment categories were dummy coded and unadjusted Odds Ratios (OR) were first estimated, followed by adjustment for age, education and hostility. All presented final models are adjusted for the same set of potential confounders (age, educational level, and hostility), and high effort/reward ratio was additionally adjusted for overcommitment. Model goodness of fit was tested using the Hosmer and Lemeshow goodness-of-fit test; all models presented had acceptable test statistics (p > 0.2). All analyses were performed using SPSS statistical software (version 12, SPSS Inc., Chicago, 2003).

Results

Prevalence of Adverse Psychosocial Working Conditions

Table 3.1 shows the prevalence of established measures of psychosocial working conditions and their components across employment arrangements and in the total sample in men and women. Overall, women had a higher prevalence than men of job strain, passive jobs, low control, and high psychological demands. Women had a slightly higher prevalence than men of high effort/reward ratio, high effort and overcommitment. Women and men
were almost equally likely to have active jobs. Men were more likely than women to report low strain as well as low reward.

In men, differences in proportions across the 8 employment categories were significant for all DCM and ERI components. Labour Hire men were most likely to work under job strain, followed by Casual Full-time, Permanent Full-time, Permanent Part-time, Casual Part-time, Own Account Self-employed, Fixed Term Contract and Other Self-employed. Casual Part-time men had the highest proportion of passive jobs, followed by Permanent Part-time and Casual Full-time. Fixed Term Contract men were most likely to report active jobs (5/10=50.0%) followed by Other Self-employed. Own Account Self-employed men had the highest proportion of low strain, followed by Other Self-employed. Casual Full-time men had the greatest tendency to report low control (84.2%), followed by Permanent Part-time, Casual Part-time, Labour Hire and Permanent Full-time. Fixed Term Contract men had the greatest proportion of high demands, followed by Permanent Full-time, Labour Hire, and Casual Full-time.

In women, differences in proportions across the 8 employment categories were significant for all DCM components, high effort and overcommitment, but differences were not significant for low reward or high effort/reward ratio. Women employed as Permanent Part-time were most likely to report being to be exposed to job strain, followed by Casual Part-time, Labour Hire, Permanent Part-time, Casual Full-time (2/11=22.2%), Fixed Term Contract (2/13=16.7%), Own Account Self-employed, and Other Self-employed. Casual Full-time women had the highest proportion of passive jobs (6/11=66.7%), followed by Casual Part-time, and Labour Hire. Fixed Term Contract women were most likely to report active jobs (5/13=41.7%), followed by Other Self-employed. Own Account Self-employed women had the highest proportion of low strain, followed by Other Self-employed. Casual Full-time women had the greatest tendency to report low control (90.9%), followed by Casual Part-time, Labour Hire and Permanent Part-time. Fixed Term Contract women had the greatest proportion of high demands, followed by Permanent Full-time, Permanent Full-time and Permanent Part-time.

Multi-variate Analysis of Occupational Stress Measures

Multi-variate analyses were used to test the null hypothesis that occupational stress does not differ significantly across employment status categories. Table 3.2 shows the logistic regression results for job strain and high effort/reward ratio in relation to employment arrangements in men and women.

**Job strain.** Because the Other Self-employed category had the lowest prevalence of job strain in both men and women, we used this group as the reference in logistic regression using the six-way employment status variable. There was a trend (0.05<p<0.10) for men aged under 30 (OR=2.05), which was eliminated after adjustment for hostility. In women, there was a significant association with age 30-40 (OR=2.09), and a trend for age 41-50 (OR=2.00).

Among men, adjusted Odds Ratios for job strain ranged from 1.12 for Fixed Term Contract to over 4 for casual full time and Labour Hire. Only Casual Full-time and Labour Hire were significantly elevated. Among women, adjusted Odds Ratios for job strain ranged from 1.22 for Own Account Self-employed to over 4 for Casual Part-time, Permanent Full-time, Labour Hire and Permanent Part-time (with increasing odds, respectively).

**High effort/reward ratio.** Although the part-time temporary category category had the lowest prevalence of high effort/reward ratio in both men and women, we used the Other
Self-employed group as the reference category to enable comparison with results for job strain. Overcommitment was significant in both men (OR=17.27) and women (OR=14.05). While age was not a significant covariate in men, significant association was found for women aged under 30 (OR=2.47) and aged 41-50 (OR=2.36). In both men and women, Odds Ratios for all education levels below postgraduate study were less than unity (protective). In men, however, these associations were not significant. In women, significant associations were found for vocational qualifications (OR=0.35), high school completion (OR=0.26) and primary/secondary school (OR=0.18). Hostility showed significance in men (OR=2.05), but not in women (OR=1.48).

Among men, adjusted Odds Ratios for high effort/reward ratio ranged from almost unity for Casual Part-time to over 3 for Fixed Term Contract and Permanent Full-time employees. Only Permanent Full-time was significant, although the unadjusted model showed a trend (0.05<p<0.10) in Permanent Part-time men (OR=3.48) (which was eliminated after adjustment for age). In women, adjusted Odds Ratios for high effort/reward ratio ranged from 0.82 for Fixed Term Contract to almost 2 for Casual Full-time employees. None of these were significant.

Prevalence of Multiple Job holding, Excessive Hours, and Shift Work

Table 3.3 shows the prevalence of multiple job holding, excessive working hours and job hazards across employment arrangements and in the total sample for men and women. In both men and women, differences in proportions across the 8 categories were significant for multiple job holding, excessive hours, and shift work.

Overall, women and men were almost equally likely to hold multiple jobs, however, men were twice as likely as women to work excessive hours. There was an equal likelihood of performing shift work among men and women. In men, multiple job holding was much more prevalent among Permanent Part-time (30.3%) and Casual Full-time (26.3%) compared to Permanent Full-time (6.9%). The Other Self-employed men were most likely to work excessive hours (61.7%), followed by Own Account Self-employed and Permanent Full-time. Permanent Part-time and Casual Part-time employed men were most likely to perform shift work. In women, multiple job holding was most likely among Casual Full-time (27.3%) and Labour Hire employees (23.1%), compared to Permanent Full-time (5.8%). Excessive working hours were most common in women among the Other Self-employed and Casual Full-time employees. Shift work was most prevalent in women among the Other Self-employed and Casual Full-time employees.

It was also observed that female multiple job holders, compared to female single job holders, had a higher prevalence of job strain overall (31.1% versus 24.6%, respectively). In contrast, male multiple job holders, compared to male single job holders, had a lower prevalence of job strain (12.5% versus 19.5%, respectively).

Prevalence of Hazardous Working Conditions

Differences in proportions across the 8 employment categories were significantly elevated under certain arrangements for largely separate sets of job hazards for men and women: in men, for dangerous work methods, dangerous equipment, air pollution, and excessive noise; and in women for dangerous chemicals, risk of catching diseases on the job, and unwanted sexual advances, with a trend for second-hand smoke (p=0.06) (Table 3.3). Differences for fire, burns or shocks were significant in both men and women.
For most hazardous conditions, men were over twice as likely to report exposure compared to women (e.g., dangerous work methods, dangerous equipment, fires/burns/shocks, air pollution, excessive noise). However, women had a higher likelihood than men of reporting unwanted sexual advances and risk of catching diseases on the job.

Men employed Casual Full-time were most likely to be exposed to dangerous work methods (78.9%), dangerous equipment (73.7%), things placed or stored dangerously, dangerous chemicals, air pollution, and second-hand smoke. Men employed Permanent Full-time were most likely to be exposed to excessive noise (50.0%) followed by Own Account Self-employed (49.2%) and Other Self-employed (45.2%). Other Self-employed and own-account self-employed had the highest likelihood of exposure to fire, burns or shocks, and these categories also had a high prevalence of exposure to air pollution (over a half). Fixed Term Contract men were most likely to experience risk of catching diseases on the job (50.0%).

Of employment categories for women, Casual Full-timers were the most likely of being exposed to dangerous work methods, dangerous chemicals, air pollution, excessive noise, and second-hand smoke. The Other Self-employed women had the highest prevalence of exposure to dangerous equipment, followed by Casual Full-time. Casual Part-time women were significantly most likely to be at risk of fire, burns or shocks, followed by Casual Full-time and Labour Hire. Risk of catching diseases on the job was significantly more likely among Permanent Part-time and Labour Hire (50.0%), followed by Fixed Term Contract, Permanent Full-time, and Casual Full-time, compared to Other Self-employed (14.0%). Women employed Fixed Term Contract and Casual Full-time and were significantly more likely to be exposed to unwanted sexual advances (about 30%) compared to Permanent Full-time (3.6%).

**Discussion**

Using an empirically-derived set of mutually exclusive employment arrangement categories, we were able to disaggregate the conventional dichotomy of ‘permanent full-time’ versus ‘precarious’ employment, and to assess a range of adverse psychosocial and other working conditions across these groups. The use of multiple OHS outcome measures was an additional study strength, demonstrating concentrations of exposures within particular employment categories. Our findings in some instances confirmed *a priori* hypotheses—that non-permanent employment would be associated with higher prevalence of job stress—and in other instances were unexpected—such as the Other Self-employed being the reference group instead of Permanent Full-time employees. While there is a clustering of adverse working conditions in the ‘precarious’ groups, there are some notable adverse exposures in other groups as well (e.g., highest ER ratios among Permanent Full-time employees, highest prevalence of excessive working hours among Other Self-employed). The population-based representative sample used supports generalisation of findings to the Australian working population, thus indicating broad policy and practice implications.

**Job Strain**

Overall, our findings suggest that women are disproportionately at risk for job strain across a number of employment arrangements (e.g., Permanent Part-time, Permanent Full-time, Casual Part-time, and Labour Hire). The associations between job strain and women’s employment arrangements were most pronounced for Permanent Part-time employees, who
were also the most likely to be living with children (Louie et al., in review); moreover, Casual Part-time employees were most likely to be single mothers. Women employed in Labour Hire positions were more likely to report job strain than Permanent Full-time women workers. If we consider traditional gender roles, then it may be reasonable to surmise that the demands of women's "second shift" at home (e.g., childcare) may increase the impact of additional demands and strains in the workplace (Duxbury, Higgins, & Lee, 1994). For those women in Labour Hire arrangements, the strain may be further exacerbated, perhaps because they are much more likely to do shift work, which increases their likelihood of working in low control jobs and makes it challenging for them to access childcare during their working hours (e.g., during night shifts or irregular work shifts). Prior studies have also pointed out that job decision latitude can function both at a structural level, through women's limited career options (Johnson & Hall, 1996), and at a task level (i.e., in most specific occupations examined, men reported higher levels of control than women, even within female-segregated jobs) (Hall, 1991).

In men, Casual Full-time and Labour Hire employment was associated with increased odds of job strain. This association in men is driven to a great extent by low control. Men in these employment categories tended to be younger than women in the same groups; they also were more likely to be employed in the lower occupational levels and hold more than one job. Expressions of job strain also were concentrated amongst men less than age 30 overall, potentially reflecting insufficient job training and unrealistic job demands for young workers (who may be expected to accept and perform new on-the-job "challenges" in the hopes of securing future employment opportunities). In addition, hegemonic conceptualizations of masculinity purport that "real men" have power and authority over decisions and material resources, can exert control over and manipulate their environments, and have the autonomy to determine how their bodies are used (Courtenay, 2000; Connell, 1995). Thus, in addition to being exposed to potentially dangerous physical working conditions, men working in jobs that are characterized by low skill discretion and low decision authority also are exposed to a complex set of conflicting and distressing social and psychological strains.

**High Effort/Reward Ratio**

Men who were employed Permanent Full-time demonstrated the only significant odds for high effort/reward ratio. Because ERI taps into "deserved" rewards in relation to education, achievements and efforts, it is possible that men employed Permanent Full-time (presumably with benefits and paid leave) would have higher expectations of the employment relationship and be more likely to perceive insufficient rewards in relation to their efforts and skills. Notably, men working in Fixed Term Contract positions were most likely to report high effort/reward ratios, possibly reflecting their frustration with being tenured in precarious forms of employment and earning only mid-range incomes despite being highly educated and skilled (Louie et al., in review).

In women, employment arrangements were not significantly associated with high effort-reward ratios. Even though they consistently reported higher effort and earned lower incomes, women were slightly less likely to report low rewards than men. This might be due in part to stereotypical feminine ideals of non-confrontation and modesty translating into a tendency to underestimate deserved rewards and exerted efforts. In addition, previous research in Australia has noted that those least likely to lodge compensation claims (i.e., accessing their entitlements) self-identified as precarious workers or belonged to groups such
as women and immigrants concentrated in these jobs (Quinlan et al., 1999). Interestingly, the odds of women reporting high effort/reward ratios increased with educational attainment, alluding to the idea that better educated, highly skilled female workers are perhaps more likely to express their frustrations with a system that undervalues their competencies and contributions. Overall, in light of both men’s and women’s effort/reward ratios, our data help to deconstruct the myth that any individual may reap the rewards of the economic system by making use of available opportunities.

Hazardous and Other Working Conditions

For most hazardous conditions, men were over twice as likely to be exposed as women. Differences in proportions across employment status categories were significant for largely separate sets of job hazards: in men, related more to physical conditions and technology in the working environment, and in women, to hazardous contacts with people in the workplace. That Casual Full-time employees were the most likely group to be exposed to each of six hazardous conditions further suggests that this group may be under trained, while at the same time receiving less protection from job hazards. This explanation concurs with studies of occupational injuries among temporary employees (Aronsson, 1999; Kochan, Smith, Wells, & Rebitzer, 1994). Women employed Casual Full-time and Fixed Term Contract were about three times as likely as women in other categories to report unwanted sexual advances. With the bulk of Casual Full-time women working in accommodations, cafes and restaurants (Louie et al., in review), it is not surprising, although unacceptable, to note frequent reports of unwanted sexual advances. The majority of Fixed Term Contract women were employed in education, a field where women comprise most of the front-line workers (e.g., teachers and secretaries) and where men continue to be disproportionately represented in the senior and administrative ranks (e.g., principals). The combination of potentially limited tenure with occupations that situate women in reduced power positions may put women at risk of experiencing sexual harassment.

In both men and women, multiple job holding was more prevalent among Casual Full-time and least prevalent among Permanent Full-time employees. Being the most likely group to hold the lowest level occupations (4/5 multiple job holding men were in the bottom two occupational levels), Casual Full-time employees who already worked at least 35 hours/week (in their main job), presumably held additional jobs to supplement low wages. Consistent with this explanation, an ABS survey undertaken in 2000 indicated that 36.5% of casual employees would have preferred more hours compared to only 15.3% of ongoing employees (ABS, 2001). This challenges the argument that flexible work arrangements provide desired choices to working people. For both male and female Casual Full-time employees, total average weekly working hours tended to exceed 40 hours/week when multiple jobs were held. Excessive working hours (≥ 50 hours/week) were most common among the Other Self-employed in both men and women, with men being twice as likely to work excessive hours in general. While Casual Full-time employees may need to seek multiple jobs in their struggle to meet living expenses, the self-employed may work excessive hours in response to demands generated by the nature of entrepreneurial activity.

Non-permanent Employee Categories

A key strength of this study was its attention to non-permanent employees as a heterogeneous population. Fixed Term Contractors stood out as a very distinct sub-group,
being most likely to hold health-promoting active jobs, yet reporting high effort/reward ratios (consistent with the tendency of this group to be highly educated and employed in managerial/professional and intermediate level occupations – although, working temporarily and earning only mid-range incomes) (Louie et al., in review). Casual Full-time, Casual Part-time, and Labour Hire categories also stood out as distinct, with different patterns of adverse occupational exposures observed in men and women. Among non-permanent employees overall, women were more likely to hold multiple jobs than men, and to experience job strain at the same time, suggesting that these work situations may pose difficulty in meeting social expectations of women as caregivers at home. Our findings support the argument that future research should distinguish subcategories of temporary work (Aronsson et al., 2002; Gimeno et al., 2004; Virtanen et al., 2005c).

Concentrations of Exposures

Because we found that the Other Self-employed category had the lowest prevalence of job strain, it emerged as the reference group. As a previous analysis of these data indicate (Louie et al., in review), this category reported the lowest job insecurity and tended to be older, more educated, earn higher incomes, and hold managerial, professional and trade occupations. However, both men and women in this category were also likely to report high effort, air pollution, dangerous equipment and excessive working hours. Thus, our findings demonstrate how specific employment arrangements are associated with differing patterns of occupational hazards with concentrations of exposures occurring in certain groups previously considered “precarious” (e.g., casuals), as well as in Permanent Full-time employment, traditionally considered “least precarious.”

In epidemiological research on precarious employment, Permanent Full-time work is usually designated as the reference category. However, in our analysis, this job category was associated with increased odds of occupational stress, suggesting it no longer represents an appropriate ‘non-precarious’ comparison group. Plausibly linked to an increase in flexible employment arrangements and a reduction in job security, this association is consistent with the finding that the presence of temporary workers can place additional responsibilities on permanent workers, negatively impacting their perceptions of organizational justice (George et al., 2003).

Limitations

Because the survey was conducted by telephone, we expect those using mobile phones (often youth) and working multiple jobs, longer hours, and shift work to be underrepresented. Almost the entire study population (97%) reported English as their main language spoken at home, reflecting the lack of contact with non-English speaking respondents. Recent immigrants facing language barriers were underrepresented in this study (only 4% of respondents had been in Australia for less than 10 years). This is a noteworthy limitation given evidence that ethnicity, in combination with gender, strongly shapes employment situations (Cranford et al., 2003). These limitations of the survey are most likely to lead to an underestimation of the differences between reference and other groups.

While gender stands out as crucial to understanding how working conditions are experienced and expressed (Messing et al., 2003), the concept is generally treated in quantitative research as a binary variable, excluding experiences that destabilize this assumption, such as transgender and intersex workers. This operationalisation misses an
important goal of gender-based analysis: to address heteronormativity and to challenge traditional structures of gender relations. Despite evidence that psychosocial work factors vary across sexual identities (Ragins & Cornwell, 2001b), sexual orientation is largely absent from the occupational stress literature. Although efforts within organised labour are emerging to address this issue (Hunt & Rayside, 2000; Hunt, 2002a; Krupat & McCreeery, 2000), future research is needed to better understand the intersecting relationships of work with gender, age, class, ethnicity and sexuality.

Conclusion

Overall, the study revealed an association between specific employment arrangements and unhealthy working conditions. However, our analysis of a differentiated set of employment categories revealed a more complicated pattern of association between employment arrangements and OHS by gender than most previous research. Our findings also indicated that permanent full-time employment cannot be presumed as a benchmark for non-precarious work, and that there is significant variation in working conditions within particular subcategories of non-permanent work.

Methodological integrity was reinforced by the use of empirically-derived categories that reflect the current labour market in Australia. This study was also strengthened by the use of multiple measures of occupational stress and other hazardous exposures, revealing a complex picture within particular job categories and demonstrating concentrations of exposures in certain groups. Over the life course, an accumulation of exposure to hazards and poor psychosocial working conditions may make people more vulnerable to hazards in the future (Bartely, 2004). The traditional workplace basis of longitudinal occupational health research is no longer applicable for those very groups who are at greatest health risks from hazardous working conditions. Both research and policy frameworks must be rethought in order to address this issue.

As flexible employment arrangements continue to grow, the promotion of safe and healthy work environments will be increasingly essential. Further refined analysis that considers the gendered patterns revealed in this study would help us understand the differential impact of policies, programs and modern production organisation on workers in relation to employment arrangements and social context.
Table 3.1 Psychosocial Working Conditions Across Employment Arrangements in Men and Women

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
<th>p value</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>% (Count)</td>
<td>% (Count)</td>
<td>% (Count)</td>
<td>% (Count)</td>
</tr>
<tr>
<td><strong>Employees</strong></td>
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<td></td>
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<td>1. Perm</td>
<td>56.4 (288)</td>
<td>43.6 (223)</td>
<td>47.7 (522)</td>
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</tr>
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<td>2. Perm</td>
<td>16.3 (33)</td>
<td>83.7 (169)</td>
<td>59.0 (62)</td>
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<td>3. Casual</td>
<td>63.3 (19)</td>
<td>36.7 (11)</td>
<td>56.5 (13)</td>
<td>&lt;0.001</td>
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<td>4. Casual</td>
<td>32.4 (33)</td>
<td>36.7 (11)</td>
<td>56.5 (13)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>5. Fixed</td>
<td>43.5 (10)</td>
<td>55.0 (22)</td>
<td>41.0 (43)</td>
<td>&lt;0.001</td>
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<td>6. Labour</td>
<td>45.0 (18)</td>
<td></td>
<td>52.3 (573)</td>
<td>&lt;0.001</td>
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<td>7. Own</td>
<td>72.0 (59)</td>
<td></td>
<td>59.0 (62)</td>
<td></td>
</tr>
<tr>
<td>8. Other</td>
<td>59.0 (62)</td>
<td></td>
<td>47.7 (522)</td>
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<td>41.0 (43)</td>
<td>41.0 (43)</td>
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<td>47.8</td>
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<td>47.8</td>
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<td>47.8</td>
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<td>47.8</td>
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<td>47.8</td>
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Table 3.2 Logistic Regression Results for Job Strain and High Effort/Reward Ratio in Relation to Employment Arrangements: Unadjusted and Adjusted Odds Ratios (OR) in Men and Women

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†Adjusted for age, education, and hostility. ‡Adjusted for overcommitment. §Reference category.
*0.05<p<0.10. **0.01<p<0.05. ***p<0.01. °Job strain versus Other. ▲High effort/reward ratio versus Other.
Table 3.3 Multiple Jobs, Excessive Working Hours and Job Hazards Across Employment Arrangements in Men and Women

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CHAPTER 4

Conclusion
Chapter 4: Conclusion

While adopting a positivist approach to data generation and analysis, this thesis does not claim value neutrality, and cannot ignore the social context, or the practical implications of the results. “Neutrality” and “objectivity” often support those who currently hold positions of power in the workplace, ignoring those who challenge them (Johnson, 2005). I examined the results from a perspective of social justice. Thus, I considered the interests of those who have less power and who are “often forced to bear the greatest burden of adverse exposures, and ultimately ill health, in modern work organisations” (Johnson, 2005; Farmer, 2003). I sought to recognise the imbalance of interests represented in modern economic organisation, as reflected in my discussion of the results in Chapter 3 that drew attention to issues of social inequity. Thus, the study was strengthened in being sceptical of value neutrality and discussing people’s employment realities in relation to the distribution of power among social groups.

This investigation was also strengthened by the application of a critical lens to existing research on precarious employment. Most studies, in parallel with my conclusions, point to vulnerabilities associated with particular forms of work. However, careful appraisal of the literature found a common problem of circular logic in studies purporting a link between employment arrangements and various exposures. While existing measures of occupational exposures, such as job strain and ERI, are well validated, previous employment status classifications were too simplistic. Often based on a mix of job characteristics, worker characteristics, and even the adverse exposures that may arise from precarious work, the categories are fundamentally flawed, impeding hypothesis testing and thereby limiting the ability to clearly establish links between particular employment arrangements and health-related outcomes. Therefore, I developed a systematic way of measuring the precariousness of employment arrangements that conceptually distinguished job characteristics from adverse occupational exposures or other effects. Thus, before exploring employment status in relation to established exposure measures, I devoted an entire study to the construction of empirically based and mutually exclusive employment status categories. This important groundwork provided the necessary foundation to test hypotheses about employment arrangements in relation to precarious working conditions.

Key Findings

Overall, my findings suggest that women are disproportionately at risk for job strain in Permanent Part-time, Permanent Full-time, and Casual Part-time jobs, with Casual Full-time and Labour Hire work associated with increased odds of job strain among men. For most hazardous conditions, men were over twice as likely to be exposed as women. If we consider traditional gender roles, then it may be reasonable to surmise that the experiences and impacts of demands, strains and hazards in the workplace are influenced by hegemonic conceptualizations of masculinity, stereotypical feminine ideals, and social expectations of male breadwinners and female caregivers. The channelling of youth (who appear to be concentrated in high strain job categories) into low skill occupations may also be related to reports of low control and job strain.

Interestingly, the odds of women reporting high effort/reward ratios increased with educational attainment, while men who were employed Permanent Full-time demonstrated
the only significant odds for high effort/reward ratio. Because ERI taps into "deserved" rewards in relation to education, achievements and efforts, it is possible that men employed Permanent Full-time (presumably with benefits and paid leave) and better educated, highly skilled female workers would have higher expectations of the employment relationship and be more likely to perceive insufficient rewards in relation to their competencies and contributions. Therefore, these data help to deconstruct the myth that any individual may reap the rewards of the economic system by making use of available opportunities.

While other studies tend to oversimplify non-permanent categories of employment, I found prominent differences in working conditions between casual, Fixed Term Contract and Labour Hire employees. Although some cell sizes were small, Fixed Term Contractors stood out as a distinct group, being most likely to hold active jobs, and tending to report high effort/reward ratios (consistent with the tendency of this group to be highly educated and employed in managerial/professional and intermediate level occupations — although, earning only mid-range incomes). Casual Full-time, Casual Part-time, and Labour Hire categories also stood out as distinct, with different patterns observed in men and women. Future research based on larger samples should distinguish between different types of temporary contracts, particularly as these workers form an increasingly large sub-group in the labour markets of developed nations (Aronsson et al., 2002; Gimeno et al., 2004; Virtanen et al., 2005b).

A Non-precarious Comparison Group?

In epidemiological research on precarious employment, Permanent Full-time work is usually designated as the reference category. However, in my analysis, this job category was associated with increased odds of occupational stress in women and high effort/reward ratio in men, suggesting it no longer represents an appropriate ‘non-contingent’ comparison group. Also, counter to a priori expectation, Permanent Full-time employees reported perceptions of job insecurity on par and slightly higher than their part-time counterparts. This might be explained in part by lower expectations of job security held by part-time workers since Casual Full-time employees also reported much higher job insecurity than their part-time counterparts. In addition, repeated rounds of downsizing/restructuring by private and public employers have arguably undermined the job security of workers holding nominally permanent jobs.

Because I found that the Other Self-employed category had the lowest prevalence of job strain, I used this category as the reference group. This highlights the importance of including all working persons in studies of employment arrangements and adverse exposures. The Other Self-employed also reported the lowest job insecurity and tended to be older, more educated, earn higher incomes, and hold managerial, professional and trade occupations. However, Other Self-employed men and women were also likely to report high effort, job hazards, and excessive working hours, so that it is not possible to consider them as a ‘non-precarious’ comparison group. In addition, like non-permanent employment there is evidence that self-employment is a heterogenous category and it might also be necessary to identify the effects on particular cohorts over time (Smeaton, 2003). While the Own Account Self-employed did not receive as much attention in this thesis (due to small cell sizes), this group did appear to be associated with a specific set of working conditions that deserves further investigation.
Concentrations of Exposures

To some extent, these findings echo the conclusions of other researchers who ranked job categories along a continuum of precariousness. For example, Canadian researchers (Cranford et al., 2003) ranked full-time permanent jobs as the least precarious followed by full-time temporary, then part-time permanent and part-time temporary as the most precarious. Likewise, in New Zealand, Tucker (2002) describes the 'higher end' of the continuum as including some of the self-employed and part-time workers who are more likely to have reasonable incomes, job stability and workplace autonomy. At the 'lower end' of the continuum are some of the casual, temporary and fixed-term workers who are, generally speaking, more likely to be in 'precarious' employment than those at the 'higher end.' Similar to these rankings, this study finds concentrations of vulnerabilities within specific categories that, in some ways, could be labelled more precarious (e.g., non-permanent/temporary employees) relative to comparison categories (e.g., self-employed and permanent employees). For instance, Casual Full-time employees were the most likely group to be exposed to each of six hazardous conditions, while at the same time reporting high job strain and appearing to seek multiple jobs in their struggle to meet living expenses. In contrast, the self-employed reported the lowest job strain and job insecurity, and while they appear to work excessive hours, they also earned higher incomes. Unlike prior studies, this research used multiple exposure measures to provide a more refined and complicated picture of how specific employment arrangements are associated with particular working conditions.

Difficult to Reach Populations & Future Research

As flexible employment arrangements continue to grow, the promotion of safe and healthy work environments will be increasingly essential. Further analysis that considers the gendered patterns revealed in this study would help us understand the differential impact of policies, programs and modern economic organization on workers in relation to employment arrangements and social context. In this study, there is an underrepresentation of some of the most vulnerable members of the labour force: recent immigrants facing language barriers, and those working multiple jobs, longer hours, and shift work. Also, the treatment of gender as a binary variable, while more fitting to quantitative analysis, excludes experiences that may have special relevance to precariousness and occupational health, such as transgender and intersex workers. Evidence suggesting that psychosocial work factors vary across sexual identities (Ragins & Cornwell, 2001a) and efforts emerging within organised labour to address this issue (Hunt et al., 2000; Hunt, 2002b; Krupat et al., 2000) highlight sexual orientation as an additional gap in occupational health and precarious employment research. In general, difficult to reach populations, including workers in the informal economy (e.g., domestic helpers, sex workers, street vendors, agriculture workers), deserve special attention and further conceptual and methodological consideration in relation to precarious employment. Future inquiry, including qualitative and participatory action research, is needed to better understand the intersecting relationships of precarious work with gender, age, class, ethnicity and sexuality.
Bibliography


