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# **Underemployment and its Impact on Job Satisfaction: An Australian Study on Part-Time Employment**

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## **Abstract**

Utilising 2001-14 Household, Income and Labour Dynamics in Australia panel data, this study investigates the phenomenon of underemployment among part-time employees, and its impact on job satisfaction. Whilst the Macroeconomic effects are readily understood in terms of labour under-utilisation, underemployment has potential deleterious effects at the personal level on workplace productivity, should the underemployed suffer from lower levels of job satisfaction relative to the non-underemployed. Part-time underemployment is gender sensitive, affecting males proportionally more than females, though more females are actually underemployed given their significant presence in part-time employment. As expected, the underemployed exhibit lower levels of job satisfaction, and do so across all six domains of workplace satisfaction. Job satisfaction outcomes among the underemployed are gender sensitive, with females reporting higher levels of satisfaction across all domains. Results posit that part-time underemployment is a significant but well-hidden issue within the Australian labour market, and the consequence of this on job satisfaction and potentially productivity is pronounced, both between the underemployed and non-underemployed, and also by gender.

**Keywords:** Underemployment, Job Satisfaction, Panel Data, Gender Differences

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## **1. Introduction and Background**

The unemployment rate is a key pillar among a set of indicators of a country's economic and social wellbeing, and it does so by presenting data on the underutilisation of labour within an economy. It does, however, hide an increasingly important facet of a country's labour market insofar as it fails to account for the underutilisation of labour of some who are erstwhile employed. Whilst the labour underutilisation of the unemployed is obvious, the less than efficient utilisation of labour of the employed based on the negative difference between the actual hours worked and the hours they wish to work (herewith known as underemployment) is also present (Li et al., 2015) as it is harder to observe and largely left to the margins of the discussion on employment and employability. A falling unemployment rate is crowed from the rooftops, and yet the commensurating rise in underemployment that seemingly accompanies falling unemployment in Australia is largely ignored at all levels, be they economic, political and social.

As with underemployment, job satisfaction is also viewed as a measure of labour-underutilisation in the labour market, insofar as dissatisfied workers perform differently from satisfied workers, not least in terms of productivity but also as a signal of the existence of inefficiencies within the labour market (Clark, 1996, Kifle et al., 2014). This then raises the question of whether underemployment is related to job (dis)satisfaction, as underemployed workers are at the very least dissatisfied with their working hours, which could potentially spillover into other domains of workplace satisfaction. Sub-sections 1.1-1.2 below will discuss underemployment and job satisfaction in Australia before highlighting their real and perceived relationship in sub-section 1.3.

### **1.1 Underemployment in Australia**

There is a clear upward trend in underemployment in the post-Global Financial Crisis (GFC) period (Li et al., 2015), rising from 6.9% to 9% between November 2008 to November 2015

(Australian Bureau of Statistics [ABS], 2015), with the bulk of these (94.3%) afflicting those in part-time employment (ABS, 2015). While this positive relationship between part-time employment and underemployment should come as no surprise, given that the former are more likely to report a willingness to work more than their current allocated hours, its role in boosting the rate of underemployment deserves further mention given that the growth of part-time employment in Australia has far exceeded the general growth rate of job creation for a sustained period of time. According to ABS data (ABS, 2014a), we find that the rate of growth in part-time employment (91.13%) exceeded the growth rate of full-time employment (38.55%) by a factor of 2.36 between August 1992 and November 2013. This growth gap widened in the post-GFC period (November 2008 to November 2013), with the growth of part-time employment (15.64%) outpacing growth in full-time employment (5.77%) by a factor of 2.71. Given that the phenomenon of part-time underemployment is under-researched,<sup>2</sup> and given its highly significant role in driving overall rates of underemployment in Australia, it is an opportune time to conduct research concentrating solely on this sub-group of the labour market.<sup>3</sup>

The rate of growth in underemployment among part-time employees in the post-GFC period is highlighted in Figure 1, utilising both the cross-sectional ABS and panel HILDA datasets.<sup>4</sup>

According to the ABS dataset underemployment rose from 22.90% in September 2008 to

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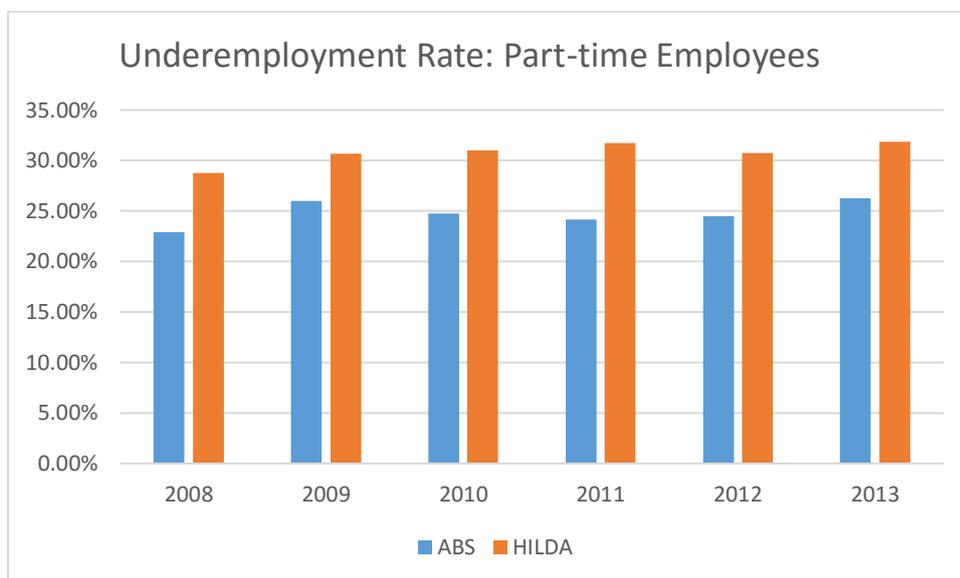
<sup>2</sup> Exceptions include studies by Wilkins (2004, 2007), who use cross-sectional data, though these studies do not wholly concentrate on part-time underemployment. As well, Kler et al. (2017) utilise the 2001-13 HILDA panel data to report on the determinants of the part-time underemployment phenomenon.

<sup>3</sup> There is no universally accepted definition of underemployment. However, the International Labour Organisation (ILO) defines 'time-related' underemployment as covering those who wish to work additional hours, are available to work those extra hours, and currently work fewer hours than a threshold 'to be chosen according to national circumstances', which Wilkins (2006) and Li et al. (2015) note for Australia to be the 35 hour threshold to move from part-time to full-time employment. This is based on the argument that part-time employees are more likely to require extra hours of work in order to reach an income threshold to live a dignified life. Given Australia's high minimum wage, it is highly unlikely that any full-time employee wishing to work extra hours are in significant need of extra income to live a dignified life and as such, this study opines that calculating underemployment by including full-time employees in Australia does not match the spirit of the ILO definition.

<sup>4</sup> The ABS changed the question it used to define underemployment in 2008, thus making comparisons with the years up to 2007 problematic (ABS, 2014). Thus, this paper can only compare ABS and HILDA data from 2008-13 only. Nevertheless, as this study makes use of the panel HILDA dataset only, the full 2001-14 dataset will be used in the estimation section of the paper. As well, we note that the latest ABS data at the time of writing ends at 2013, so no comparison with 2014 HILDA data is currently available.

26.27% in September 2013. The HILDA data shows a similar trend, with a higher magnitude of estimated underemployment.<sup>5</sup> The 2009-13 period shows underemployment to always breach the 30% mark, unlike 2008, where it stood at 28.79%. Indeed, the 2013 figure for both datasets evince a significant uptick in underemployment, which increases again in the 2014 HILDA dataset (from 31.89% in 2013 to 35.39% in 2014), thus suggesting that this particular labour under-utilisation is getting increasingly marked within the Australian labour market, irrespective of dataset and definition used.

**Figure 1: Underemployment Rate for Part-time Employees (2008-13)**



ABS data taken from various years from the ABS’ ‘Underemployed Workers’, Catalogue No. 6265.0 (ABS, 2014).

Figure 2 and Table 1 show that underemployment among part-time employees is gender sensitive, proportionally affecting males more than females (data for full-time underemployment in Table 1 is shown for comparison purposes only). This is in contrast to

<sup>5</sup> This has to do with differences in definition between the two datasets, fully elucidated in Appendix Box 1. The main difference lies in that the HILDA questionnaire asks respondents to consider the change to their income when contemplating whether their preferred working hours would differ from their current working hours, a factor absent in both the original and amended definitions utilised by the ABS.

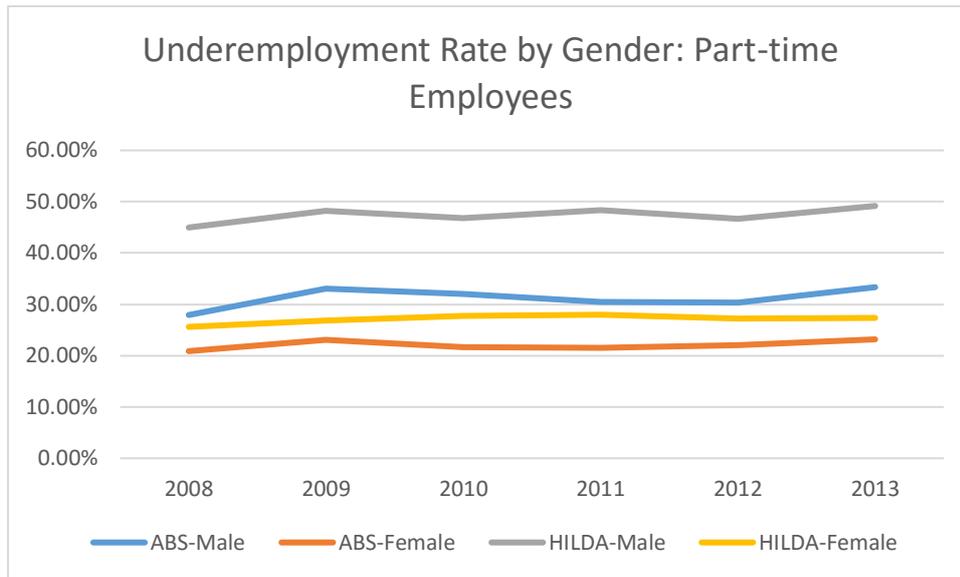
most commentary that states underemployment is mainly an issue that affects females. Nevertheless, both these assertions are essentially correct, as the former concentrates on the percentage underemployed, whereas the latter studies the numbers of underemployed. Table 1 is thus consistent with both claims given that more females (3,799) than males (1,455) in part-time work are underemployed, yet males in part-time work are more likely to find themselves underemployed (48.83%) relative to their female counterparts (28.04%).

The fact that more females in part-time employment are underemployed can at least be partially attributed to far more females being engaged in part-time work (69.4%) relative to males (ABS, 2015).<sup>6</sup> On the other hand, one possible reason for the high rate of male part-time underemployment is the sharp increase in their part-time employment, which rose by 132.84% between August 1992 to November 2013, far exceeding the 77.37% increase for females (ABS, 2014). This tends to increase underemployment among the part-time employed because males in part-time work are more likely to want to work more hours compared to their female counterparts. We find (utilising the HILDA dataset) that among part-time employees, 23.09% (8.51%) of males (females) declare they work part-time because they could not obtain full-time work. When restricted to just those part-time employees who are underemployed, the percentage of males (females) settling for part-time work because they could not get full-time work rises to 40.21% (23.95%). As well, we note that the representative underemployed part-time male employee would wish to work an additional 15.32 hours a week extra above his weekly hours of 20.92 as opposed to his composite female peer, who wishes to work an extra 11.88 hours above her average weekly hours of 18.70.

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<sup>6</sup> Latest available data at time of writing was November 2015.

**Figure 2: Underemployment Rate by Gender for Part-time Employees (2008-13)**



ABS data taken from various years from the ABS' 'Underemployed Workers', Catalogue No. 6265.0 (ABS, 2014).

**Table 1: Underemployment Rate, 2001-2014 average using the HILDA Panel Dataset**

	Rate of underemployment (%)		
	Both Gender	Male	Female
Part-time employees	31.79 (5,254)	48.83 (1,455)	28.04 (3,799)
Full-time employees	6.99 (3,591)	8.90 (2,853)	3.82 (738)
Aggregated	13.03 (8,845)	12.30 (4,308)	13.80 (4,537)

Note: Observations presented in brackets.

## 1.2 Job Satisfaction in Australia

Job satisfaction in Australia, much like underemployment, is gender sensitive, and the paradox of females enjoying higher levels of job satisfaction relative to males despite facing greater labour market hurdles (Bender and Heywood, 2006; Clark, 1997; Kaiser 2007; Kifle, et al., 2014; Sloane and Williams, 2000; Sousa-Poza and Sousa-Poza, 2000, 2003, 2007), observed in a majority of researched Western countries applies equally to Australia (Long, 2005; Kifle et al., 2014). These Australian studies do, however, note the heterogeneity of the female labour market cohort, and suggest that educated as well as young females without children tend to exhibit the same levels of job satisfaction as their male counterparts. The higher prevalence of female job satisfaction is thus largely driven by less educated females, and those with children.

Given that the latter are more likely to be working part-time, this also opens up the discussion space on differences in job satisfaction between part-time and full-time employees in Australia.

International and Australian studies fail to find any clear relationship between part-time employment and job satisfaction (Bardasi and Francesconi 2004; Booth and van Ours 2007; D'Addio et al. 2007; Manning and Petrongolo 2004; Wooden and Warren 2004). The Productivity Commission (2008) use 2005 HILDA data to note that across six workplace satisfaction domains<sup>7</sup>; part-timers seemingly have higher levels of job satisfaction with working hours and work-life balance (flexibility) with little difference in other domains. Gender – wise they report that females in part-time work are more likely to be satisfied relative to their female counterparts in four workplace domains, whereas for males, the differences are much less pronounced. We attempt to replicate their findings (see Table 2) by utilising the 2001-14 HILDA dataset. Results indicate a modicum of support for their findings. For the combined gender and female only sample, part-timers are more satisfied with hours worked and work-life balance (flexibility), but also with overall job satisfaction. For males, this is only true for work-life balance. Further mention of the working hours satisfaction domain will be discussed in sub-section 1.3.

Table 2 compares gender differences by working hours (i.e. comparing part-time employed males and females as well as full-time employed males and females). Females in part-time employment are more satisfied than their male counterparts in all workplace satisfaction, whereas for the full-time comparison, the picture is rather more nuanced. Females are more satisfied with overall job satisfaction and also job security and type of work undertaken. Males enjoy a satisfaction premium with respect to hours worked and work-life balance whilst there is no statistical difference between gender in full-time employment when it comes to satisfaction with pay.

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<sup>7</sup> There are six workplace satisfaction domains used by the HILDA dataset. See Appendix Box 2 for a detailed look at the exact questions asked to respondents regarding their job satisfaction.

**Table 2: Job Satisfaction between Part-time (PT) and Full-time (FT) Employees**

Job Satisfaction Domains	Both Gender		Male Only		Female Only	
	PT	FT	PT	FT	PT	FT
Overall	7.73***	7.59	7.40***,a	7.56 <sup>a</sup>	7.80***	7.64
Pay	6.98***	7.13	6.77***,a	7.14	7.01***	7.12
Job Security	7.82***	8.04	7.39***,a	7.97 <sup>a</sup>	7.92***	8.15
Hours	7.48***	7.19	6.92***,a	7.21 <sup>b</sup>	7.61***	7.16
Work	7.55***	7.60	7.35***,a	7.58 <sup>a</sup>	7.59***	7.65
Flexibility	7.90***	7.19	7.79***,a	7.23 <sup>a</sup>	7.93***	7.13
Obs.	16,527	51,374	2,980	32,044	13,547	19,330

\*\*\*, \*\* and \* denote 1%, 5% and 10% level of statistical significance between the part-time and full-time groups. <sup>a</sup>, <sup>b</sup> and <sup>c</sup> denote 1%, 5% and 10% level of statistical significance between gender within (i) the part-time and (ii) full-time groups.

### 1.3 Relationship between Underemployment and Job Satisfaction in Australia

The fact that part-timers (gender combined and female) are more likely to enjoy a satisfaction premium with working hours is unsurprising given general evidence that most part-timers prefer part-time hours (Wooden et al., 2009). This is especially so for women and matches with the discussion in sub-section 1.1 that show that the bulk of females in part-time work are not reporting themselves as being underemployed. The finding for males is less clear cut for however, given that just under half consider themselves underemployed, and by definition, not happy with their working hours.<sup>8</sup>

Wilkins (2004, 2007) investigates underemployment and job satisfaction (using cross-sectional 2001 HILDA data) and reports that the underemployed are less satisfied than those who report no working hour mismatch between actual and desired hours, for both gender. As well, female underemployed have a higher rate of overall job satisfaction relative to their male counterparts. When delineated by part-time and full-time employment status, he reports that for both gender, the underemployed in the former category are less job satisfied than their matched peers, whereas for the full-time sample, there is no statistical evidence of significant job satisfaction deviations between the underemployed and matched employees. Wooden et al. (2009) using 2001-5 HILDA data also report higher job satisfaction ratings for matched employees in part-time employment relative to their underemployed peers irrespective of gender, though part-

<sup>8</sup> It should be noted that a while we define a part-time employee who wishes to work more hours underemployed, that does not necessarily mean they wish to work full-time hours. For instance, an employee working 18 hours a week who wishes to extend his or her hours by 5 hours a week will still be a part-time employee should that desire be met.

time employed underemployed females (7.5 out of ten) outscore their male counterparts (7). We study this relationship, both statistically and econometrically in Section 3.

#### **1.4 Contribution of this Study**

To the best of our knowledge, there has not been any prior research fully focussed on the impact of underemployment on job satisfaction, and this will thus be the first encompassing study on this relationship. More specifically, we pose the question whether one form of labour underutilisation (underemployment) could result in lower rates of productivity, should (as the literature intimates - see for instance Bockerman and Ilmakunnas, 2012; Hoboubi et al., 2017; Tsang, 1987; Tsang et al., 1991) lower levels of job satisfaction be associated with lower morale and a general lack of interest in the work undertaken leading to a less than stellar work performance. This would be conducted via the utilisation of a panel dataset, study not just the link between underemployment and overall job satisfaction but also five other specific domains of workplace satisfaction that may otherwise not be picked up by simply studying the ‘catch-all’ overall job satisfaction workplace domain, as well as concentrate on part-time employment that is driving underemployment rates higher in Australia.

In sum, the main focus of this paper is to analyse the impact of underemployment (among part-time employees) on the six domains of workplace satisfaction elucidated in Appendix Box 2. More specifically, given that both underemployment and job satisfaction exhibit gender sensitivity, any analysis on job satisfaction and underemployment must account for the role of gender. In the interest of transparency, results for the non-underemployed sample are also provided so as to consistently highlight the differences between these groups. Nevertheless, the focus remains primarily on the underemployed sample.

In brief, this study finds that the part-time underemployed suffer from lower levels of job satisfaction across workplace domains, relative to their non-underemployed peers, and that this occurs for both gender. As well, irrespective of underemployment status, females generally exhibit higher levels of job satisfaction, justifying a gender split when discussing results. Robustness tests via the use of alternate measures of workplace satisfaction as well as econometric methodology do not qualitatively change the results. The rest of the paper is as follows. Section 2 discusses the data and methodology, which is followed by the presentation and discussion of results in Section 3. Results from altering the workplace satisfaction domains (a robustness test) are shown in Section 4 whilst Section 5 concludes.

## **2. Data and Methodology**

Data are obtained from the first fourteen waves (2001–2014) of the HILDA survey. It provides information about economic and subjective well-being, labour market as well as family dynamics. The survey provides a rich source of information on labour market outcomes and performance. There is information on occupation and industry type, qualification levels attained and earnings. After excluding observations with incomplete information and restricting the sample to those employed, the dataset is left with 67,901 observations, of whom just under a quarter (16,527) form the part-time sample. The part-time sample is highly skewed towards females who comprise 81.97% of the sub-sample.<sup>9</sup> The full set of variables used are available as Appendix Table A1.

## 2.1 Econometric Methodology

Our dependent variables (various job satisfaction measures) have an ordinal scale with 11 categories ranging from 0 (totally dissatisfied) to 10 (totally satisfied). Whilst econometric estimations of ordinal dependent variables normally utilise ordered probit (or ordered logit) techniques, our econometric model treats the dependent variable as though it were continuous by using a generalised least squares (GLS) technique. Ferrer-i-Carbonell and Frijters (2004) and Clark et al. (2010) find that estimated results do not differ significantly whether one assumes happiness and/or satisfaction scores to be ordinal or cardinal. One reason for utilising the GLS method is that, compared to the random effects ordered probit method, it has the advantage of being easily interpretable as results are linearised.

The random effects (RE) GLS model can be written as

$$y_{it} = \mu + \mathbf{x}'_{it}\boldsymbol{\beta} + \varepsilon_{it} = \mu + \mathbf{x}'_{it}\boldsymbol{\beta} + \alpha_i + v_{it} \quad i = 1, \dots, N; t = 1, \dots, 14 \quad (1)$$

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<sup>9</sup> The underlying reasons for these have been previously discussed in Section 1.

where the distribution of  $\alpha_i$  and  $v_{it}$  are assumed respectively to be  $\alpha_i \sim i.i.d[0, \sigma_\alpha^2]$  and  $v_{it} \sim i.i.d[0, \sigma_v^2]$ .  $\mathbf{x}'_{it}$  is a vector of observable time invariant and time-varying factors including wages, individual socio-demographic characteristics, family and household characteristics, information on working conditions, geographical location, year dummies, and other control variables.  $\mu$  is a non-random intercept,  $\boldsymbol{\beta}$  is a vector of coefficients and  $\mathcal{E}_{it}$  is the error term. The random noise component of the composite ( $\mathcal{E}_{it} = v_{it} + \alpha_i$ ) error term, that is,  $v_{it}$  is a time and individual specific error term and is assumed to be uncorrelated with the explanatory variables. The individual specific component of the composite error term, that is,  $\alpha_i$  is assumed to be a random-component constant over time and uncorrelated with the explanatory variables. Such a strong assumption that the individual-specific error term is uncorrelated with the explanatory variable may not hold, and thus an approach proposed by Mundlak (1978) is used (by adding the within-group means of all independent variables) to resolve the issue. This model has the advantage of controlling for unobserved time-invariant individual heterogeneity. As the panel used in this study is relatively short, this implies that differences across individuals rather than changes within an individual have more influence on overall job satisfaction. Thus, it is reasonable to use random effects instead of fixed effects (Lancaster, 2000). The Mundlak terms can be thought of as the ‘long term’ impacts of a change in a particular variable (Datta and Kristensen, 2008). However, for the sake of testing the robustness of our results we also carried out estimation using random effects ordered probit model, the details of which are elucidated in Appendix 1.

The feasible GLS estimator of the random effects model in (1) called GLS random effects estimator, can be calculated from the OLS estimation of the transformed model<sup>10</sup>:

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<sup>10</sup> See Cameron and Trivedi (2005) (Sec 21.7) for the detailed proof.

$$y_{it} - \tilde{\lambda}\bar{y}_i = (1 - \tilde{\lambda})\mu + (\mathbf{x}_{it} - \tilde{\lambda}\bar{\mathbf{x}}_i)' \boldsymbol{\beta} + \xi_{it}$$

where  $\bar{y}_i = \frac{1}{T} \sum_{t=1}^T y_{it}$ ,  $\bar{\mathbf{x}}_i = \frac{1}{T} \sum_{t=1}^T \mathbf{x}_{it}$ ,  $\bar{v}_i = \frac{1}{T} \sum_{t=1}^T v_{it}$ ,  $\xi_{it} = (1 - \tilde{\lambda})\alpha_i + (v_{it} - \tilde{\lambda}\bar{v}_i)$  is asymptotically

independent and identically distributed (i.i.d), and  $\tilde{\lambda}$  is a consistent estimator for

$$\lambda = 1 - \frac{\sigma_v}{\sqrt{\sigma_v^2 + 14\sigma_\alpha^2}}$$

### 3. Results

Our *a priori* suggestion in sub-section 1.4 that underemployment potentially leads to adverse productivity shocks (transmitted via job satisfaction as a proxy) is found to be both statistically and econometrically sound (Table 3).<sup>11</sup> Particular attention is called for satisfaction with hours worked where the magnitude difference is at its greatest, both statistically and econometrically, further highlighting the fact that the part-time underemployed wish to have more hours, whereas the part-time non-underemployed are relatively satisfied with theirs. As can be seen in column four, underemployed part-time employees have, on average, 1.68 points lower satisfaction with hours of work compared to non-underemployed part-time employees. Overall this set of results are suggestive to the assertion that underemployment leads to relative job dissatisfaction, and thus potentially also to lower levels of productivity. The random effects ordered probit model produces results qualitatively similar to the GLS method, and suggests that results are robust to alterations in econometric methodology.

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<sup>11</sup> Each regression controlled for a rich set of personal, employment, family and educational characteristics noted in Appendix Table A1. In the interest of parsimony, only the results for the underemployment dummy are presented. Full results are available on request.

**Table 3: Job Satisfaction among Part-time Employees**

Job Satisfaction Domains	Statistical Analysis		Econometric Analysis	
	Underemployed	Non-Underemp	GLS	RE Ordered Probits
			Underemployment Dummy	
Overall	7.27***	7.94	-0.47*** (0.04)	-0.37*** (0.02)
Pay	6.50***	7.18	-0.53*** (0.04)	-0.34*** (0.02)
Job Security	7.23***	8.10	-0.52*** (0.04)	-0.30*** (0.02)
Hours	6.04***	8.15	-1.68*** (0.04)	-1.05*** (0.02)
Work	7.32***	7.65	-0.16*** (0.04)	-0.09*** (0.02)
Flexibility	7.59***	8.05	-0.28*** (0.04)	-0.21*** (0.02)
Obs.	5,254	11,273	16,527	

\*\*\*, \*\* and \* denote 1%, 5% and 10% level of statistical significance between the underemployed and non-underemployed group. For the econometric analysis, robust standard errors are presented in the bracketed terms.

Given statistical evidence of gender sensitivity with respect to both underemployment and job satisfaction, it is imperative to present an amalgam of the two phenomena. Table 4 replicates Table 3, but split by gender. Results are qualitatively similar to Table 3. Irrespective of gender, the underemployed suffer from lower levels of job satisfaction, utilising both statistical and econometric analyses. Again, the greatest workplace penalty accruing to the underemployed lies in the domain of satisfaction with hours worked, where male (female) underemployed part-time employees have, on average, 1.80 (1.64) points lower satisfaction with hours of work compared to non-underemployed part-time employees.

**Table 4: Job Satisfaction among Part-time Employees by Gender**

Job Satisfaction Domains	Panel A: Males			
	Statistical Analysis		Econometric Analysis	
	Underemployed	Non-Underemp	GLS	RE Ordered Probits
			Underemployment Dummy	
Overall	6.93***	7.85	-0.63*** (0.08)	-0.48*** (0.06)
Pay	6.23***	7.28	-0.70*** (0.09)	-0.45*** (0.06)
Job Security	6.85***	7.90	-0.69*** (0.10)	-0.40*** (0.06)
Hours	5.70***	8.07	-1.80*** (0.09)	-1.14*** (0.06)
Work	7.13***	7.55	-0.13* (0.07)	-0.10* (0.06)
Flexibility	7.47***	8.08	-0.32*** (0.09)	-0.25*** (0.06)
Obs.	1,455	1,525	2,980	
Job Satisfaction Domains	Panel B: Females			
	Statistical Analysis		Econometric Analysis	
	Underemployed	Non-Underemp	GLS	RE Ordered Probits
			Underemployment Dummy	
Overall	7.40***	7.95	-0.43*** (0.04)	-0.35*** (0.03)
Pay	6.61***	7.17	-0.48*** (0.05)	-0.31*** (0.03)
Job Security	7.38***	8.13	-0.47*** (0.05)	-0.27*** (0.03)
Hours	6.18***	8.17	-1.64*** (0.05)	-1.04*** (0.03)
Work	7.39***	7.67	-0.16*** (0.04)	-0.09*** (0.03)
Flexibility	7.64***	8.04	-0.26*** (0.04)	-0.19*** (0.03)
Obs.	3,799	9,748	13,547	

\*\*\*, \*\* and \* denote 1%, 5% and 10% level of statistical significance between the underemployed and non-underemployed group. For the econometric analysis, robust standard errors are presented in the bracketed terms.

Having established that the part-time underemployed possess lower levels of job satisfaction relative to their non-underemployed peers, irrespective of gender, we now look at how gender differences within the job satisfaction space is exhibited by underemployment-non-underemployment status. Table 4’s statistical analysis section is thus re-formatted with a new econometric section to explicitly highlight this phenomenon below in Table 5.

**Table 5: Job Satisfaction among Part-time Employees by Gender (statistical analysis reformatted from Table 4)**

Job Satisfaction Domains	Panel A: Underemployed			
	Statistical Analysis		Econometric Analysis	
	Male	Female	GLS	RE Ordered Probits
			Female Dummy	
Overall	6.93***	7.40	0.35*** (0.09)	0.25*** (0.06)
Pay	6.23***	6.61	0.46*** (0.10)	0.28*** (0.06)
Job Security	6.85***	7.38	0.28*** (0.10)	0.17*** (0.06)
Hours	5.70***	6.18	0.23** (0.10)	0.12** (0.05)
Work	7.13***	7.39	0.03 (0.09)	0.05 (0.06)
Flexibility	7.47**	7.64	0.01 (0.09)	0.02 (0.06)
Obs.	1,455	3,799	5,254	
Job Satisfaction Domains	Panel B: Non-Underemployed			
	Statistical Analysis		Econometric Analysis	
	Male	Female	GLS	RE Ordered Probits
			Female Dummy	
Overall	7.85**	7.95	0.14** (0.07)	0.15*** (0.06)
Pay	7.28**	7.17	0.20*** (0.08)	0.19*** (0.06)
Job Security	7.90***	8.13	-0.01 (0.08)	0.05 (0.06)
Hours	8.07**	8.17	0.04 (0.07)	0.08 (0.05)
Work	7.55**	7.67	0.08 (0.08)	0.08 (0.06)
Flexibility	8.08	8.04	0.06 (0.08)	0.07 (0.06)
Obs.	1,525	9,748	11,273	

\*\*\*, \*\* and \* denote 1%, 5% and 10% level of statistical significance between the underemployed and non-underemployed group. For the econometric analysis, robust standard errors are presented in the bracketed terms.

More specifically, Table 5 showcases the statistical analysis of gender differences in job satisfaction among underemployed (Panel A) and non-underemployed (Panel B) part-time employees. Some differences are evident. Among the underemployed, males are statistically less satisfied at work across all six domains compared to underemployed females, whereas for the non-underemployed sample the differences deserve closer scrutiny. For one, satisfaction with work-life balance exhibit no statistical differences between gender, and for another, a higher satisfaction with pay value is attached to males rather than females. Econometric results also note a divergence, intimating that gender job satisfaction differences within either underemployment or non-underemployment status are not as strong as that suggested by statistical analysis. Among the underemployed, econometric testing finds that the female job

satisfaction advantage disappears for both satisfaction with type of work undertaken as well as satisfaction with work-life balance, whereas for the non-underemployed, significant differences are only evident for overall job satisfaction and satisfaction with pay. The latter deserves closer scrutiny as well, because the gender advantage flips from lying in favour of males using statistical analysis to females following econometric testing.

While hardly definitive, this does suggest that gender differences in job satisfaction is somewhat sensitive to underemployment status. Statistical analysis on the underemployed is consistent with our previous statement on males being more likely to be in involuntary part-time employment given that they seek greater working hours; thus they are more likely to be both underemployed and unhappy at work relative to their female peers. In particular, we note the role of satisfaction with hours worked, and link it to the statements made in sub-section 1.1 where we state that among the underemployed, many more males (40.21%) than females (23.95%) work part-time because they are unable to obtain full-time work. Econometric results in Panel A of Table 5 supports this statement, as we see that female underemployed part-time employees have, on average, 0.23 points higher satisfaction with hours of work compared to their male reference group.

#### **4. Changing the Job Satisfaction Variables as an Additional Robustness Check**

As HILDA also includes a self-completion questionnaire that includes similar workplace satisfaction questions as the ones utilised above, this study is able to run robustness tests for some, though not all, of the satisfaction domains. These are satisfaction with pay, satisfaction with job security, two alternate measures of satisfaction with work and work-life balance (flexibility). More information is available in Appendix Table A2. Table 6 presents GLS analysis econometric results, this time simply concentrating on the underemployed sample only for parsimonious reasons, given that this study has established that the difference between the

two samples exist with respect to job satisfaction.<sup>12</sup> Workplace satisfaction female dummy results from the self-complete questionnaire are consistent with that found in Table 5 (Panel A), suggesting that the initial findings are robust to variations in the definition of workplace satisfaction.

**Table 6: Female Dummy Workplace Satisfaction for the Part-time Underemployed: Self-complete Questionnaire**

Alternative Domains of Job Satisfaction	Econometric (GLS) Analysis	
	Female Dummy	Observations
Pay	0.22*** (0.08)	4,534
Job Security	0.37*** (0.08)	4,520
Work 1	-0.04 (0.08)	4,531
Work 2	-0.08 (0.08)	4,531
Flexibility	-0.01 (0.08)	4,535

\*\*\*, \*\* and \* denote 1%, 5% and 10% level of statistical significance between gender.

## 5. Summary and Conclusion

Underemployment is becoming increasingly prevalent within the Australian job market, driven mainly by the rise of part-time employment, with the growth rate of the latter among males particularly significant. Gender differences abound, with males more likely to seek additional hours, despite the fact that far more of their female peers are identified as being underemployed due to the sheer number of females present in part-time employment. As well, the part-time underemployed (of either gender) do suffer from lower levels of job satisfaction, potentially affecting productivity given findings in the literature researching the relationship between job satisfaction and productivity. Nevertheless, underemployed females do enjoy higher levels of job satisfaction relative to their male peers, consistent with the majority of findings in the job satisfaction literature. This is particularly pronounced with respect to hours worked, and points

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<sup>12</sup> The number of observations differ because the self-complete questionnaire is not monitored when filled in, and as such respondents are not prompted to review missing responses. Full results (including those for the non-underemployed sample as well as for the alternate econometric test [random-effects ordered probits]) are available on request.

to the strong possibility that males in part-time work are far more likely than their female reference group to be unhappily settling for part-time employment when they would instead prefer to be engaged in full-time employment (or at least be engaged in working additional hours relative to the female reference group).

The general consensus in the Australian media, and thus one that is accepted with little or no debate, is that underemployment is largely a female issue. This is almost certainly due to general observation; far more females than males are underemployed. However, more complex analysis highlights the fact that males are more likely to report being underemployed, suggesting that part-time employment is a labour market mechanism that is voluntarily utilised more by females to maintain a relationship with the labour market, probably due to cultural and child-rearing factors (Jaumotte, 2003; Kifle et al., 2014a). The reverse is then the case for males, who are more likely to be in part-time employment due to an inability to find full-time work.

This raises difficult policy issues-how can governments tackle underemployment when part-time employment is clearly a type of employment that tends, on average, to suit females more than males. Any policy to actively intervene in a flexible labour market to cap the increase in part-time employment in order to put the brakes on underemployment may end up hurting those who cannot (or do not want to) work extra hours, and this will disproportionately affect females with young children, who may be forced to choose between full-time employment or to totally remove themselves from the labour force. Indeed, this should also be considered of those younger and older workers who are transitioning into and out of the labour force as well, so it is not simply a gender issue. Proponents of labour market flexibility will also object to this and suggest that a job with limited hours does at least keep unemployment at a lower level than what it would be if part-time employment was to be made more difficult to source.

Yet underemployment does signify a form of labour market inefficiency insofar as some workers would like to be employed for longer hours, which will lead to a higher income. Collectively, these higher incomes can increase the tax base and alleviate welfare spending, thus reducing the stress on public budgets. Short of making the heroic suggestion that governments need to boost economic growth to cap the rise of underemployment (and obviously unemployment), this dilemma leaves policy-makers with a lot to consider. Any move back towards a more traditional labour market will leave females disadvantaged, whereas allowing the situation to perpetuate will lead to further labour market inefficiencies, a potential productivity penalty, lower tax revenues as well as greater welfare spending. At the very least, policy-makers will need to familiarise themselves with the determinants of underemployment so as to better understand the phenomenon. Undoubtedly, underemployment must be elevated into the consciousness of policy makers before it becomes an unavoidable political, social and economic issue.

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## Appendix

### Appendix Box A1: Definition of Underemployment

#### ABS Definition (up to 2007)

Would you prefer a job in which you worked more hours a week?

Individual would be defined as being underemployed if they respond 'yes'.

#### ABS Definition (since 2008)

Would you prefer to work more hours than you usually work?

Individual would be defined as being underemployed if they respond 'yes'.

#### Utilising the HILDA Dataset (2001-14)

If you could choose the number of hours you work each week, *and taking into account how that would affect your income*, would you prefer to work...

- Fewer hours than you do now?
- About the same hours that you do now?
- Or more hours than you do now?
- Don't know

Note: This question is only considered (in this study) for those defined as being part-time employed (i.e. those who in the past one week worked 35 hours or less). Those who answered 'or more hours than you do now' are the only ones considered for being defined as underemployed.

## Appendix Box A2: Workplace Satisfaction Question in Wave 1 of the HILDA Person

### Questionnaire

E36 I now have some questions about how satisfied or dissatisfied you are with different aspects of your job.

*If not currently employed:* These questions refer to the most recent job you were working in the last 7 days.

I am going to read out a list of different aspects of your job and, using the scale on SHOWCARD 36, I want you to pick a number between 0 and 10 to indicate how satisfied or dissatisfied you are with the following aspects of your job. The more satisfied you are, the higher the number you should pick. The less satisfied you are, the lower the number.

- a Your total pay
- b Your job security
- c The work itself (what you do)
- d The hours you work
- e The flexibility available to balance work and non-work commitments
- f All things considered, how satisfied are you with your job?

## Appendix 1: Random Effects Ordered Probit Model

The random effects ordered probit model carries the following form:

$$y_{it}^* = \mu + \mathbf{x}'_{it}\boldsymbol{\beta} + \varepsilon_{it} = \mu + \mathbf{x}'_{it}\boldsymbol{\beta} + \alpha_i + v_{it} \quad i = 1, \dots, N; \quad t = 1, \dots, 14 \quad (\text{A.1})$$

The individual overall job satisfaction ( $y^*$ ) cannot be observed instead a categorical but ordered random variable  $y_{it}$  is estimated as a function of the explanatory variables and a set of cut-off points  $z_j$  ( $j = 0, 1, \dots, 10$ ).

$$y_{it} = \begin{cases} 0 & \text{if } y_{it}^* \leq z_1 \\ 1 & \text{if } z_1 < y_{it}^* \leq z_2 \\ 2 & \text{if } z_2 < y_{it}^* \leq z_3 \\ \cdot & \\ \cdot & \\ 10 & \text{if } z_{10} < y_{it}^* \end{cases}$$

The conditional probability of a given observation can be expressed as:

$$\begin{aligned} \Pr(y_{it} = j / \mathbf{x}_{it}) &= \Pr(z_j \leq \mu + \mathbf{x}'_{it}\boldsymbol{\beta} + \varepsilon_{it} < z_{j+1}) \\ &= \Pr(z_j \leq y_{it}^* < z_{j+1}) \end{aligned}$$

where  $\dot{j}$  in our case is overall job satisfaction score ranging between 0 and 10. The probability of an employee choosing an overall job satisfaction level of  $\dot{j}$  given the explanatory variables ( $x_{it}$ ) corresponds to the region of the distribution where  $y_{it}^*$  falls between  $z_j$  and  $z_{j+1}$ . The parameters of interest for the random effects ordered probit model in (A.1) are estimated using a maximum likelihood estimator.

**Table A1: Variable List and Description**

<b>List</b>	<b>Description</b>
<b>Personal Characteristics</b>	
Male	Individual is a male
Female	Individual is a female
Aged between 16-24	Individual is aged between 16-24 years
Aged between 25-34	Individual is aged between 25-34 years
Aged between 35-44	Individual is aged between 35-44 years
Aged between 45-54	Individual is aged between 45-54 years
Aged between 55-65	Individual is aged between 55-65 years
Non-Cohabiting	Individuals not married or living in <i>de facto</i> relationships
Married / <i>de facto</i>	Individual is either married or living in a <i>de facto</i> relationship
ABRs	Australian Born Residents
ESB Immigrants	Immigrant from the UK and Ireland, USA, Canada, New Zealand, South Africa and Zimbabwe
NESB Immigrants	Immigrant from countries not covered by 'ESB Immigrant'
Tenure – Current Occupation	Tenure (in years) in current occupation
Tenure – Current Employer	Tenure (in years) with current employer
Years Worked	Years worked since finishing full-time education for the first time
Years Unemployed	Years spent looking for work since finishing full-time education for the first time
Years Out of the Labour Force	Years out of the labour force since finishing full-time education for the first time
<b>Job Satisfaction</b>	
Overall	Satisfaction with the job, all things considered
Pay	Satisfaction with pay
Job Security	Satisfaction with job security
Hours	Satisfaction with hours worked
Work	Satisfaction with type of work undertaken
Flexibility	Satisfaction with work-life balance (flexibility)
<b>Type &amp; Hours of Work</b>	
Log of Hourly Wage	The log of hourly wage. Using real wages based on 2001 figures.
Casual	Individual on a casual

Agency Worker	Individual is hired via an agency/labour-hire firm
<b>Workplace Characteristics</b>	
Small Firm	Individual works for an employer that employs less than 20 people
Medium Sized Firm	Individual works for an employer that employs between 20 and 99 people
Large Firm	Individual works for an employer that employs 100 or more people
Union Member	Individual belongs to a union
Non-Union Member	Individual does not belong to a union
Supervisory Responsibilities	Individual's work includes supervising other employees
No Supervisory Responsibilities	Individual's work does not include supervising other employees
<b>Occupation</b>	
Managerial	Individual is employed as a manager
Professional	Individual is employed as a professional
Technical Trade	Individual is employed as a technician or trade worker
Personal Services	Individual is employed as a community or personal service worker
Clerical	Individual is employed as a clerical or administrative worker
Sales	Individual is employed as a sales worker
Machinery	Individual is employed as a machinery operator or driver
Labour Work	Individual is employed as a labourer
<b>Industry</b>	
Agriculture	Individual employed in the agriculture, forestry and fishing industry
Mining	Individual employed in the mining industry
Manufacturing	Individual employed in the manufacturing industry
Power	Individual employed in the electricity, gas, water and waste industry
Construction	Individual employed in the construction industry
Wholesale Trade	Individual employed in the wholesale trade industry
Retail Trade	Individual employed in the retail trade industry
Hospitality	Individual employed in the accommodation and foodservices industry
Transport	Individual employed in the transport, postal and warehousing industry
Communication Services	Individual employed in the information media and telecommunications industry
Finance	Individual employed in the finance and insurance industry
Property	Individual employed in rental, hiring and real estate industry

Technical	Individual employed in the professional, technical and scientific services
Administration	Individual employed in the administrative and support services
Public Services	Individual employed in the public administration and safety industry
Education	Individual employed in the education and training industry
Health	Individual employed in the health care and social assistance industry
Arts	Individual employed in the arts and recreation services
Other Services	Individual employed in other services
<b>Geographical Location</b>	
City	Individual resides in a major metropolitan area
Regional	Individual resides in a regional area
Remote	Individual resides in a rural area
<b>Family Characteristics</b>	
No Child(ren)	Individual never had a child
Child	Individual has had a child
<b>Education</b>	
Masters & Ph. D	Individual highest qualification level attained – Masters or Doctorate
Post-grad. Dip. & Cert.	Individual highest qualification level attained – Post-Graduate Diploma or Certificate
Degree	Individual highest qualification level attained – Degree
Diploma	Individual highest qualification level attained – Diploma
Certificate	Individual highest qualification level attained – Certificate
Year 12	Individual highest qualification level attained – Completed Year 12 in high school
Year 11 or less	Individual highest qualification level attained – Completed Year 11 or less

**Table A2: List of Workplace Satisfaction Domains Taken from HILDA's Self-complete Questionnaire**

Variable	Explanation (list a score between 1-7)
Pay	I get paid fairly for the things I do in my job
Job Security	I have a secure future in my job
Work1	I have a lot of freedom to decide how I do my own work
Work2	I have a lot of say about what happens on my job
Flexibility	I have a lot of freedom to decide when I do my work