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Locked-in casual employment

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1. Introduction

Australia experienced strong economic growth between 1992 and 2008 and the subsequent employment growth has resulted in generational low rates of unemployment. A significant part of that employment creation has been of casual nature, that is, jobs which do not enjoy the entitlements that permanent employment delivers. So casual workers have low levels of job security, no holiday and/or sick leave, little opportunities to train, but may receive higher wages. If secure and permanent employment was available, casual work would only likely be the first-choice option to those who have no ambition to develop a career in that line of work. This would apply, for example, to students who use casual work to help support their studies.

However, when secure and permanent employment opportunities are constrained, casual employment would also become an attractive alternative, if it provides a pathway to non-casual employment (that is, are conduit between unemployment and non-casual employment) that would otherwise be unattainable for that person.

Table 1 shows transition rates from various labour market origins to destinations, derived from the Households, Income and Labour Dynamics in Australia (HILDA) dataset (Waves 1 to 7 covering the period 2001 to 2007). When comparing unemployment and casual employment as origin states, we observe that casual employment outperforms unemployment in preventing workers from exiting the labour force. However, the figures provide no clear evidence that transiting towards non-casual work is easier when casually employed than when unemployed. Although, on first glance, the transition rate from casual to non-casual work was higher than the transition rate from unemployment to non-casual employment in the early years of the sample that difference vanished towards the end of the economic upturn in 2007.

The scant longitudinal research in Australia that has been conducted to date which has aimed to assess whether casual employment serves as a stepping stone, reflects the findings in Table 1. For example, Gaston and Timcke (1999); Chalmers and Kalb (2001) and Buddelmeyer *et al.* (2006) fail to find any conclusive evidence to support the stepping stone hypothesis.

In a previous paper (Mitchell and Welters, 2008) we adopted a methodology that was vastly different to that which has been applied in the extant literature noted in the last paragraph. The previous studies had taken an exclusively supply-side approach and could therefore not fully appreciate the impact of labour demand and the macro-economic influences on the transition rate towards non-casual employment. We showed that industry-type, occupation, firm size, overall macroeconomic labour market conditions and the degree of urbanisation of the region all affect the transition rate from casual to non-casual employment. We concluded that our results implied that studies which assume such differences away over- simplify the capacity of casual employment to serve as a pathway towards non-casual employment.

However, data limitations stopped us from testing the duration dependence hypothesis, that is, does casual employment lock in workers in casual employment? A positive finding would be consistent with previous findings that casual employment does not function as a stepping stone towards non-casual employment.

Table 1 Labour market transition rates, 2001-2007, percentage probabilities

	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
Not in labour force to:						
- Not in labour force	87.5	88.8	87.5	86.5	87.1	86.9
- Unemployed	3.3	2.9	3.1	3.0	3.3	2.9
- Casual employment	5.7	4.6	5.5	6.0	6.2	6.1
- Fixed term employment	0.7	0.8	0.5	1.0	0.9	0.7
- Permanent employment	2.7	2.9	3.3	3.6	2.5	3.5
Unemployed to:						
- Not in labour force	27.4	27.0	24.4	25.7	22.7	22.3
- Unemployed	30.8	26.2	27.7	21.1	22.1	22.3
- Casual employment	24.6	23.8	26.1	28.9	26.9	27.7
- Fixed term employment	4.3	5.0	4.5	6.1	5.1	5.1
- Permanent employment	12.9	18	17.4	18.2	23.2	22.6
Casual employment to:						
- Not in labour force	11.6	12.0	13.1	11.2	13.0	11.7
- Unemployed	4.7	4.0	3.8	4.0	4.0	4.4
- Casual employment	59.0	55.7	56.4	57.7	57.7	54.9
- Fixed term employment	5.0	4.6	5.4	5.3	5.9	6.0
- Permanent employment	19.7	23.7	21.2	21.8	19.4	23.0
Fixed-term employment to:						
- Not in labour force	3.1	6.2	6.5	2.5	5.4	6.0
- Unemployed	2.3	2.0	2.0	2.5	1.4	1.6
- Casual employment	6.4	8.5	6.5	6.9	8.6	6.8
- Fixed term employment	40.7	39.2	37.1	41.8	38.8	37.0
- Permanent employment	47.5	44.1	47.9	46.4	45.8	48.6
Permanent employment to:						
- Not in labour force	4.1	3.6	3.8	3.8	3.6	3.3
- Unemployed	1.3	1.1	0.9	1.3	1.1	1.0
- Casual employment	5.5	4.8	4.5	4.8	5.2	4.9
- Fixed term employment	6.2	5.1	4.8	5.2	5.3	5.7
- Permanent employment	82.8	85.5	85.9	85.0	84.9	85.0

Source: HILDA (2001-2007).

In this paper, we attempt to test that duration dependence hypothesis in a hazard rate setting using information contained in the HILDA dataset, which refers to career developments before the inception of the data collection in 2001. Thus, we make use of retrospective data to model worker choices and opportunities. We use this information to test whether duration dependence affects both the likelihood of transiting upwards (towards non-casual employment) and transiting downwards

(towards unemployment). If both transition rates decrease over time, then it is reasonable to conclude that workers are locked into casual employment. If the former reduces over time and the latter increases or is unaffected by time in casual employment, then it is reasonable to conclude that workers cycle through casual employment, unemployment and/or stay outside the labour force, without any realistic future to move upwards.

The paper is organised as follows. Section 2 provides a literature overview relevant to our research focus. Section 3 develops the key research hypotheses that are formally tested in the paper, while Section 4 details the data source and the construction of the survival analysis dataset. Section 5 presents the formal econometric analysis and Section 6 provides concluding comments.

2. Literature overview

The scant Australian literature on the merits of casual employment in the labour market primarily focuses on its alleged ability to provide a "stepping stone" capacity between unemployment and non-casual employment (Gaston and Timcke, 1999; Chalmers and Kalb, 2001; Buddelmeyer *et al.*, 2006). These econometric studies use longitudinal data to study whether the transition rate from casual to non-casual employment is higher than the transition rate from unemployment to non-casual employment. The studies do not find conclusive evidence to support their suppositions. This implies that they found no conclusive evidence that casual employment functions as a stepping stone towards non-casual employment in the Australian labour market.

Moreover, due to the methodological design, we consider that these studies do not appreciate the variety of circumstances under which casual employment can arise, which may impact on the transition rate of workers in casual employment towards non-casual employment. In Mitchell and Welters (2008), we demonstrate the shortcomings of contemporary studies that treat casual employment as a homogenous form of employment.

We proposed an alternative strategy to determine the merit of casual employment in the Australian labour market. Instead of focusing on the stepping stone function of casual employment, that is, comparing the pathway towards non-casual employment starting from unemployment or from casual employment, we focused on the determinants of the transition rate from casual to non-casual employment, using a hazard rate methodology.

In doing so, we established various factors that influence that transition rate, which are largely external to the casually employed worker. We found that transition rates are sector, occupation, and firm size dependent and are dependent on labour market conditions and the degree of urbanisation of the place of residence. Once a worker has finished their formal education and accepted a casual job, all these factors are, by and large, outside of his/her immediate control.

However, our methodology did not allow us to test the hypothesised stepping stone capacity of casual employment. But, the methodology does allow us to test for the related concept of duration dependence - the potential lock-in effect in casual employment. If present, that lock-in effect would further reduce the credibility of the view that casual employment serves as a stepping stone towards non-casual employment.

Unfortunately, we could not credibly test the validity of the hypothesis that casual employment contained a "lock-in" effect because we only had six waves of data at our disposal and faced the problem of left censoring (that is, we could not fully cover uncompleted spells of casual employment that started before 2001). We could have decided to focus our analysis on casual spells that started in 2001 or later, but that would have biased our data sample towards short spells of casual employment, which – if lock-in effects are present – have higher transition rates. Moreover, favourable labour market conditions over the period 2001 and 2007 also increased transition rates. A more balanced view would be gained if the data sample spanned an entire business cycle, which is not the case. The fact that the business cycle finally ended in 2008 will ensure that future HILDA waves will provide a more balanced view, but the problem of left censoring will only slowly disappear once more data waves are added.

Consequently, the existing literature focuses on the stepping stone function of casual employment in a longitudinal setting assuming all types of casual jobs have similar transition rates. Our 2008 paper attributed different transition rates to different types of jobs and circumstances, while leaving the longitudinal aspects (lock-in effects) aside for reasons related to the limitations of the data source.

With those limitations in mind, in this paper we attempt to include longitudinal aspects into the hazard rate study, to capture some of the time effects that might influence any potential lock-in effects arising from casual employment after controlling for the wide variety of casual jobs that are available.

3. Hypothesis development

To investigate lock-in effects we have to look at both upward (towards non-casual employment) and downward (towards unemployment and labour force exit) labour market transitions. In this paper, we test both transition rates separately.

3.1 Casual to non-casual employment hazard rate

We use all seven waves of the HILDA dataset (2001 to 2007) within a hazard rate econometric model. The hazard rate, $h^{c\text{-}nc}(t)$ is defined as the probability of exiting casual (c) employment to non-casual (nc) employment, given the time spent in casual employment. However, we only start measuring the time spent in casual employment in 2001. Consequently, any spell of casual employment that started prior to 2001 will be treated in our model as having started in 2001 and subsequently will not be fully captured in our analysis.

Though data collection starts at 2001, the dataset provides some information about the career of workers prior to 2001. We have the following useful information:

- the length of the period since the worker left full time education, which we define as the career length;
- the length of the period since the worker started working in his current occupation;
- the length of the period since the worker started working for his current employer; and
- the number of years the worker spent in unemployment or outside the labour force since completing full-time education, which allows us the calculate the share of non-employment years in the total career length.

Though none of these variables can be used to create additional waves of data which we could use to increase the number of potential hazard moments in the hazard rate model (that is, increase the number of years t in Equation (1)), we can use these variables as independent covariates, x_k, in the model. In other words, the effects of this additional variables on duration dependence (that is, lock-in effects) will not run through the baseline hazard, $h^{c\text{-}nc}{}_0(t)$, but through the β coefficients of the variables.

The hazard rate equation is given by:

$$(1) \qquad h^{c-nc}(t) = h_0^{c-nc}(t)\exp(\beta_1 x_1 + \ldots + \beta_k x_k)$$

where $h^{c\text{-}nc}(t)$ is the observed hazard rate from casual employment to unemployment; $h^{c\text{-}nc}{}_0(t)$ is the baseline survival function (the duration effect) and x_k are the explanatory variables.

To advance our understanding of the casual labour market we propose the following four conjectures:

Hypothesis one: Lock-in effects are present, if a worker's chances to transit from casual to non-casual employment are negatively related to time spent in his current occupation.

Hypothesis two: Lock-in effects are present, if a worker's chances to transit from casual to non-casual employment are negatively related to time spent at his current employer.

Hypothesis three: Lock-in effects are present, if a worker's chances to transit from casual to non-casual employment are negatively related to the length of the career.

Hypothesis four: Lock-in effects are present, if a worker's chances to transit from casual to non-casual employment are negatively related to time spent in non-employment.

The first three hypotheses refer to lock-in effects in the current casual job; the fourth hypothesis refers to a broader lock-in effect: locked in casual or non-employment.

3.2 Casual employment to unemployment hazard rate

To fully appreciate lock-in effects in casual employment, we also need to study alternative 'escape' routes. As Table 1 shows, that casually employed workers not only transit to non-casual employment but also to other labour market states, such as not in the labour force and permanent employment. Around 15 per cent of all casually employed workers transit towards unemployment or even out of the labour force. Since there can be a multitude of reasons for leaving the labour force, which are not necessarily linked to the precariousness of the job (such as retirement) we choose to abstract from these specific transitions in this study. Instead, we focus on the workers transiting from casual employed to unemployment. Note however that the transition rate from casual to non-labour force status is much higher than the transit rate from any form of non-casual employment to non-labour force status. This gap warrants further research, but is beyond the scope of this paper.

For this cohort, we add the following conjectures:

Hypothesis five: Lock-in effects are present, if a worker's chances to transit from casual to unemployment are negatively related to time spent in his current occupation.

Hypothesis six: Lock-in effects are present, if a worker's chances to transit from casual to unemployment are negatively related to time spent at his current employer.

Hypothesis seven: Lock-in effects are present, if a worker's chances to transit from casual to unemployment are negatively related to the length of the career.

Hypothesis eight: Lock-in effects are present, if a worker's chances to transit from casual to unemployment are negatively related to time spent in non-employment.

To test hypotheses five to eight, we will estimate a second hazard rate model with an identical structure to Equation (1) but where the hazard rate represents the transition rate from casual employment to unemployment. It is represented as:

$$(2) \qquad h^{c-u}(t) = h_0^{c-u}(t)\exp(\beta_1 x_1 + \ldots + \beta_k x_k)$$

where $h^{c\text{-}u}(t)$ is the observed hazard rate from casual employment to unemployment; $h^{c\text{-}nc}{}_0(t)$ is the baseline survival function (the duration effect) and x_k are the explanatory variables.

4. Data sources and data construction

Formal testing of the hypotheses developed in Section 3 is thus performed using hazard rate analysis using data between 2001 and 2007. Mitchell and Welters (2008) used a similar estimation strategy but their data sample ended in 2006. Consistent with the previous study, we continue to:

- use the same definition of casual employment which means we rely on the judgement of the respondent as to whether they are casually employed or not. Some cross checking reveals that that judgement accords well with the official definition of casual employment (for example, no holiday and/or sick leave entitlements);
- exclude owner managers of businesses from our definition of casual employees. The ABS classifies them as being casually employed because they typically report that they do not take paid leave entitlements. For our analysis it seems fair to exclude them from the analysis, because their labour market and financial position is typically not precarious
- exclude workers who combine school/study and work. Students who used casual work to support studies which then enable them to enter skilled work upon graduation are clearly not examples of casual workers making successful transition to permanent work as a result of the casual work *per se*. For these employees the type of casual employment typically will be unrelated to the industry that they enter after finishing school/studies. Therefore limited transition possibilities to non-casual employment are not relevant to them and their inclusion in the sample will distort the estimate of the true transition probability.

The richness of the HILDA dataset allows us to control for a broad range of individual characteristics of workers which may affect the transition rate from casual to non-casual employment, such as age, gender, ethnicity and educational attainment. Furthermore, we add the job, firm, labour market characteristics that proved to be significant in our previous study into the analysis (firm size, occupation, sector, labour market conditions and urbanisation). Finally, to test our hypotheses we include tenure in current occupation, tenure at current employer, career length, and share of career spent in non-employment in the analysis.

5. Regression analysis

5.1 Casual to non-casual employment hazard rate

The results of the casual to non-casual employment regression model (Equation 1) are presented in Table 2. The first column presents the findings of our previous paper, updated for the 2007 wave of data. The inclusion of the latest wave of data has not changed the results. Job, sector and labour market conditions are still more significant determinants of the transition rate from casual to non-casual employment than the individual characteristics of the worker. However, the metropolitan dummy variable is no longer significant, which is due to the inclusion of a categorical variable for Australian states and territories (not shown in Table 2), which shows some significant variations across Australian states. Though this is an interesting finding, further investigation is beyond the scope of this paper.

In the second column we include the tenure related variables to the model. The following conclusions can be drawn from the estimation results:

- Tenure in the current occupation reduces the hazard rate. But given that the estimated coefficient is not significantly different from zero we cannot confirm Hypothesis one.
- Tenure at the current employer reduces the hazard rate significantly, which implies that Hypothesis two is not rejected by the data.
- Both the length of the career and the share of time spent in non-employment reduce the hazard rate significantly. This means the data does not reject Hypotheses three and four.

Table 2 Determinants of hazard rate out of casual employment, 2001-2007, (Weibull)

Covariates		to non-casual employment	to non-casual employment
Personal characteristics:			
Age:	16-20 years	0.58 ***	0.00
	21-30 years	0.41 ***	– 0.04
	31-45 years	reference	reference
	46-60 years	– 0.45 ***	0.02
	61 and older	– 1.01 ***	– 0.08
Gender:	Male	0.09	0.12 **
	Female	reference	reference
Ethnicity:	Indigenous Australian	0.16	0.10
	Non-indigenous Australian	reference	reference
	Non-Australian	0.03	– 0.00
Education:	University degree	0.07	0.04
	Certificate / diploma	reference	reference
	Year 12 or less	0.02	0.03
Firm size:			
2 – 9 employees		– 0.82 ***	– 0.68 ***
10 – 19 employees		reference	reference
20 – 49 employees		0.10	0.09
50 – 99 employees		0.18 **	0.16 **
100 or more employees		0.17 **	0.17 **
Local labour market conditions:			
State level unemployment rate		1.59 ***	1.61 ***
Metropolitan labour markets:			
Metropolitan area		0.07	0.05
Non-metropolitan area		reference	reference
Tenure:			
in current occupation (years)			– 0.00
at current employer (years)			– 0.11 ***
Career:			
Time since completion fulltime studies (years)			– 0.01 ***
Share of time spent in unemployment / outside labour force			– 0.03 ***
Log likelihood		– 1,391	– 1,218

Note: * is 10 per cent level of significance, ** is 5 per cent and *** is 1 per cent.
Controlled for sector, occupation and Australian states/territories.

5.2 Casual employment to unemployment hazard rate

The results of the casual employment to unemployment hazard rate model (Equation 2) are presented in Table 3. The first column replicates the findings of the casual to non-casual regression. The second column reports the findings for the hazard rate from casual employment to unemployment. As in the case of casual to non-casual transition, individual characteristics do not play a major role in determining the transition rate from casual employment to unemployment. Age plays an ambiguous role and Indigenous Australians are more likely to transit from casual employment to unemployment. Other personal characteristics do not explain the downward transition. The state level unemployment rate plays an expected role and so do occupational levels (not shown): casually employed workers in lower level occupations are more likely to transit to unemployment.

If we turn to the tenure and career related variables we can test Hypotheses five to eight. The following conclusions can be drawn from the estimation results in this regard:

- Both tenure in the current occupation and tenure at the current employer reduce the transition rate from casual employment to unemployment, which means that the data cannot reject Hypotheses five and six.
- Both length of the career and the share of time spent in non-employment do not affect the hazard rate significantly. This means that Hypotheses seven and eight are not supported by the data.

Table 3 Determinants of hazard rate out of casual employment, 2001-2007, (Weibull)

Covariates		to non-casual employment	to unemployment
Personal characteristics:			
Age:	16-20 years	0.00	1.01 ***
	21-30 years	– 0.04	0.14
	31-45 years	reference	reference
	46-60 years	0.02	0.58 **
	61 and older	– 0.08	0.62
Gender:	Male	0.12 **	0.10
	Female	reference	reference
Ethnicity:	Indigenous Australian	0.10	0.68 ***
	Non-indigenous Australian	reference	reference
	Non-Australian	– 0.00	– 0.06
Education:	University degree	0.04	– 0.01
	Certificate / diploma	reference	reference
	Year 12 or less	0.03	0.02
Firm size:			
2 – 9 employees		– 0.68 ***	– 0.37 **
10 – 19 employees		reference	reference
20 – 49 employees		0.09	– 0.01
50 – 99 employees		0.16 **	– 0.26
100 or more employees		0.17 **	– 0.23
Local labour market conditions:			
State level unemployment rate		1.61 ***	1.50 ***
Metropolitan labour markets:			
Metropolitan area		0.05	0.11
Non-metropolitan area		reference	reference
Tenure:			
in current occupation (years)		– 0.00	– 0.02 **
at current employer (years)		– 0.11 ***	– 0.12 ***
Career:			
Time since completion fulltime studies (years)		– 0.01 ***	– 0.01
Share of time spent in unemployment / outside labour force		– 0.03 ***	0.21
Log likelihood		– 1,218	– 1,232

Note: * is 10 per cent level of significance, ** is 5 per cent and *** is 1 per cent.
Controlled for sector, occupation and Australian states/territories.

5.3 Summarising the results for the lock-in effect in casual employment

In summarising the results we conclude that tenure at an employer both reduces the chance to transit from casual employment to non-casual employment and from casual employment to unemployment. Hence, the longer the casual tenure with an employer the more likely a worker will experience lock-in effects.

Tenure in an occupation does not affect the transition rate towards non-casual employment, but it does provide a safety net as it reduces the likelihood of transiting towards unemployment. The opposite holds for length of career and the share of time spent in non-employment. Both factors reduce the chance of transiting towards non-casual employment, but do not affect the chance of transiting towards unemployment.

6. Conclusion

The time frame of data collection of the HILDA dataset is not long enough to formally test the duration dependence hypothesis in relation to casual employment. That test is the most elegant way to investigate whether the length of the spell in casual employment reduces the chance of transiting to non-casual employment (that is, locks in workers) in a hazard rate model. However, the HILDA dataset does contain information about the career of workers prior to its inception in 2001. We exploit that information to test the lock-in effect. That test does not run through the baseline hazard rate, but instead through the covariates of the model.

We find that (a) longer tenure at an employer locks in a worker in casual employment as it reduces both the chance to transit upwards (non-casual employment) and downwards (unemployment); (b) longer tenure in an occupation reduces the likelihood to transit downwards, but does not affect the upward transition rate; (c) both the length of the career and the share of time spent in non-employment reduce the likelihood to transfer upwards, but does not affect the downward transition rate.

We conclude that casual employment does lock in workers, which is in line with findings from studies who cannot find conclusive evidence that casual employment functions as a stepping stone towards non-casual employment.

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