Search behaviour and the casualties of the (dual) labour market

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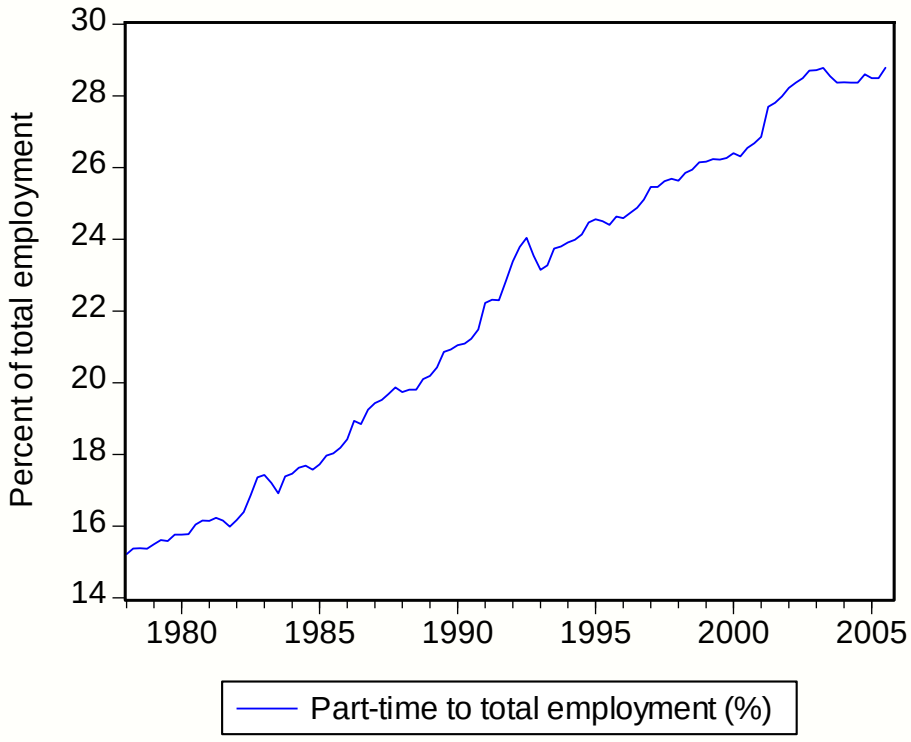
1. Introduction

Discretionary monetary and fiscal policy decisions from the Federal Government have prevented the Australian economy from generating enough jobs to match the preferences of the labour force, and enough hours of work to match the preferences of those who are employed. The result has been persistently high unemployment and rising levels of underemployment (Mitchell and Carlson, 2001).

Figure 1 shows the dramatic rise in importance of part-time work in Australia since 1978. A rising proportion of part-time work is now casual (Pocock *et al*, 2004). It is often argued that employers have simply responded to demographic and social changes and provided part-time and casual positions to match the preferences of the workers for more flexible working lives. However, it is now clear that the dramatic increase in part-time (casual) work since the late 1970s (and particularly since the end of the 1991 recession) has not been in line with the preferences of the workforce.

Figure 1 Part-time to total employment, Australia, 1978-2005, per cent



Source: ABS Labour Force Survey, AUSSTATS Data Cube 6291.0.55.001.

Underemployment has now become an entrenched problem after rising sharply after the 1991 recession (Mitchell, 2001; Wilkins, 2005). Wilkins (2005) notes that more than one in three part-time workers in Australia are underemployed and would like to work more hours (half of the part-time men and one-third of part-time women are underemployed).

In Section 2 we argue that the problem goes beyond the lack of work hours available. The characteristics of the increasing number of part-time 'non-standard' jobs – precarious tenure, low pay, non-standard working hours - mean that not only the quantity of hours has been insufficient but, increasingly, has the quality of the work experience deteriorated

(Borland, Gregory and Sheehan, 2001). Moreover, there is ample evidence to suggest that the Australian labour market has developed a stronger dual structure over time (Debelle and Swan, 1998; Song and Webster, 2003)

Given the emphasis on enhancing search in current labour market policy as a remedy for poor employment prospects, an interesting question arises. If there are increasing numbers of workers who are underemployed and facing declining job quality, then has this impacted on their search behaviour? Further, has it reduced the returns on search behaviour?

Dual labour market (DLM) theory argues that the labour market is segmented into two separate labour markets each with different processes for allocation and reward. The most basic demarcation is between the Primary Labour Market (PLM) and the Secondary Labour Market (SLM). The two markets are separated by rigidities which inhibit mobility across them. Accordingly, if a worker becomes 'trapped' into the SLM, access to the better outcomes in the PLM becomes severely limited if not intractable. Search behaviour in this model then depends on which market a worker operates within.

There is empirical evidence saying that the unemployed spend very little time actually searching for work (Burdett, 1978). Further, the majority of workers search 'on-the-job' – that is, they do not engage in spells of unemployment to search for their next employment opportunity. This raises questions about whether search behaviour differs according to the type of job one has, which in turn, has relevance for dual labour market theory.

Consistent with DLM theory, we thus hypothesise that on-the-job search behaviour is likely to be different according to which 'segment' the worker is employed within. The PLM worker who is typically employed in a tight internal labour market structure which provides for career advancement will use search activity to enhance his/her career aspirations. Conversely, the SLM worker may search for different reasons especially given the precariousness of their employment. Search thus may not be motivated by potential employment improvement, but might, rather, be fuelled by fear of future job loss.

This paper draws on data from the first three waves of the Household Income and Labour Dynamics Australia (HILDA) data set. The HILDA survey is funded by the Australian government and followed up on an annual basis since its introduction in 2001. The survey consists of three parts: a household questionnaire, a personal questionnaire and a self-completion questionnaire. We use the personal questionnaire which details the labour market status of respondents - job satisfaction; expectations about future labour market status; job search behaviour, and – since we use several waves – transition rates to different labour market positions. We test several hypotheses in relation to job search motivation, career advancement and search outcomes.

The paper is organised as follows. The changing nature of the Australian labour market and its growing dualisation over time is presented in Section 2, which also outlines the HILDA data to be used. Section 3 discusses some key aspects of DLM theory and Human Capital theory (HCT) particularly with regard to job search behaviour. Section 4 describes the econometric methods and discusses the estimation results in relation to our hypotheses. Concluding remarks follow.

2. The changing nature of the Australian labour market

Underemployment has now become an entrenched problem in Australia after rising sharply after the 1991 recession. Wilkins (2005) estimated that total underemployed (600,000) has now overtaken the official unemployment count (around 530,000). The rise in underemployment occurred during the 1991 recession as employers shed full-time jobs and replaced them with part-time (casual) jobs. While there has also been a trend increase in the relative importance of part-time work, it remains that a substantial portion of part-time employment work represents a response to the deficiency of demand over this period.

The problem goes beyond the lack of work hours available. The characteristics of an increasing number of part-time 'non-standard' jobs – precarious tenure, low pay, non-standard working hours - mean that not only the quantity of hours has been insufficient but, increasingly, so has the quality of the work experience deteriorated (Borland, Gregory and Sheehan, 2001). OECD (2002) data shows that the trend towards increasingly insecure employment in Australia is in contradistinction to the general OECD trend. Pocock *et al* (2004) provide an updated analysis of the different states of employment security across OECD economies.

Table 1 documents this dramatic change in the Australian labour market over the last 25 years. In the 12 months to October 2005, 55 per cent of all new jobs have been part-time (around 30 per cent in the early 1980s). What is not often understood is the sheer decline in full-time job opportunities during the 1990s. Between December 1979 and December 1989, 1,009.8 thousand full-time jobs and 668.6 thousand part-time jobs were created (the latter being 40 per cent of total employment change). In the following decade (December 1989-December 1999) the net change in full-time employment amounted to 388.4 thousand with 668.9 thousand part-time jobs created net (the latter being 63 per cent of net total employment change). In the five year period from October 2000 to October 2005, full-time employment in net terms rose by 426.1 thousand and part-time 535.1 thousand (56 per cent of the net total employment change). In other words, while there has been some recovery in full-time career oriented employment, the underlying trend towards increasingly fractionalised employment has continued and has eroded career opportunities for increasing numbers of Australian workers.

Table 1 Full-time, part-time and total employment changes, Australia, 1980-2005

Period	ΔFull-time Employment (000s)	Δ Part-time Employment (000s)	ΔTotal Employment (000s)	% Part-time in New Jobs (per cent)
1980	217.5	83.7	301.2	28
1985	188.1	86.6	274.8	32
1990	-59.4	39.4	-20.0	-197
1995	200.5	79.0	279.6	28
2000	88.0	86.4	174.5	50
2001	-62.0	142.8	80.8	177
2002	147.1	134.7	281.7	48
2003	123.2	29.8	153.1	19
2004	171.0	93.3	264.3	35
2005	104.4	128.7	233.1	55

Source: ABS Labour Force Survey, AUSSTATS Data Cube 6291.0.55.001. Δ refers to the absolute change from December the previous year to December in the year shown in thousands. For 2005 the changes are from October 2004 to October 2005.

The ABS also publishes data on employees without paid entitlements which allow us to gauge the extent to which casualisation (represented by an absence of annual leave entitlements) has permeated the Australian labour market. Table 2 compares November 2001 and 2005 (the last two publications available). The stagnant nature of full-time employment growth is indicated by the comparison. However, there has been a decline in the percentage of workers without paid leave entitlements largely driven by a spurt in part-time work in the four year period that carried such entitlements. Overall, 21 per cent of people in the labour force are without paid leave entitlements.

The HILDA data also provides evidence to support our claims (see also Borrooah and Mangan, 2004). We use the first three waves of the HILDA survey and select respondents that replied to all three waves, which reduces the sample set to 10,777. From that sample, we selected respondents who are part of the labour force and the unemployed who are not seeking for a job because they believe no work is available. This reduces the sample set to 7,064 respondents in 2001 (7,135 and 7,051 in 2002 and 2003, respectively).

Appendix Table I summarises the data we use in our analysis. The Table contains sector and occupational job level statistics for unemployed, which refers to their last job. Since the unemployed may use more channels at one time, the search channels do not add to 100 per cent. Finally, transition variables have no statistics for 2003 because a fourth wave (2004) is needed to calculate them. The data shows that 31 per cent of employees work part-time (27 per cent involuntary and 4 per cent voluntary). Further, over 30 percent of all employees work on a casual or fixed term contract. Finally, workers appear to lack confidence in their ability to find another job when sacked (about 63 on a scale 0-100).

Table 2 Employees leave entitlements, November 2001 and 2005, 000s

	November 2001			November 2005		
	Full time	Part time	Total	Full time	Part time	Total
Males						
Without paid leave entitlements	435.7	435.2	870.9	305.7	556.5	862.2
All males	3276.8	542.6	3819.4	3695.4	1629.9	5325.3
% without paid leave entitlements	13.3%	80.2%	22.8%	8.3%	34.1%	16.2%
Females						
Without paid leave entitlements	229.8	939.8	1169.6	170.9	955.8	1126.7
All females	1960.9	1520.9	3481.8	1858.1	2457.6	4315.7
% without paid leave entitlements	11.7%	61.8%	33.6%	9.2%	38.9%	26.1%
Persons						
Without paid leave entitlements	665.6	1375.0	2040.6	476.6	1512.3	1988.9
All persons	5237.8	2053.6	7291.4	5553.5	4087.5	9641.0
% without paid leave entitlements	12.7%	67.0%	28.0%	8.6%	37.0%	20.6%

Source: ABS 6359.0. Without leave entitlements includes all employees without any paid work entitlements who may be employed as casual or on fixed term contracts. The totals for each group include owners/managers.

Consistent with the existence of a SLM, a high proportion of the unemployed are also lowly educated – over 50 per cent of unemployed persons has at most a secondary school completion compared to 33 per cent of all employees. About 50 per cent of unemployed had previously been labourers or elementary workers, as opposed to less than 10 per cent of the employees. Long-term unemployment is almost 55 per cent of total unemployment in 2003.

3. Dual labour market theory versus human capital theory

Human capital (HCT) theory became a central pillar of neo-classical microeconomics in the 1960s. It was in sharp contradistinction to the notions developed by DLM theory. Accordingly, HCT considers wage differentials to be a function of investment decisions made by individuals about their own capacity development. The outcomes of education and training are thus 'carried by' the individual into the labour market and are manifest in the form of high productivity. HCT thus embeds into marginal productivity theory to provide an explanation of the differences in earnings. Moreover, job search behaviour is constructed within the concept of the individual as a rational, maximising agent. Unemployment is considered a productive activity (Phelps, 1970). While on the surface the unemployed worker is in that state because they are unable to find work (invoking notions of demand deficiency), in fact, according to early search theory, he/she is engaging in search. The search for work involves the worker continually testing the market for his/her 'real value' which generates a feedback loop whereby the market information and the workers perception of his/her 'real value' (embodied in the

reservation wage) interact to condition the decision making. Search involves time. Human capital theory suggests that job search is triggered by the prospect of finding a job or – in case of on-the-job search – finding a better one. Therefore, it predicts that job search will improve the allocation of workers over jobs and moreover, that job search will hand unemployed and low wage employees the opportunity to escape the bottom side of the labour market.

HCT also provides support for the neoclassical notion of compensating differentials whereby variations in the non-pecuniary characteristics of employment provide market signals which compel the employer to offer extra pay to compensate workers for the bad job characteristics. Precarious employment, other things equal should be rewarded more fully than secure employment.

However, DLM theory challenges this conception of individual labour market dynamics. If SLM jobs carry low wages, and truncated or non-existent career ladders then an individual's life cycle outcomes may not resemble those predicted by HCT. Further, DLM theory considers job quality characteristics (good or bad) to be clustered within labour market segments. Accordingly, PLM jobs offer high quality employment uniformly with high pay while the SLM tends to offer jobs that are of low quality and low pay.

The neoclassical notion of compensating differentials is not consistent with cumulative clusters of bad and good job characteristics. A risk-averse worker who places higher store on negative income changes than positive will typically prefer secure/good employment and hence has to be paid higher lifetime earnings to take an unstable/bad job (Abowd and Ashenfelter, 1988). Conversely, dual labour market theory considers good and bad job characteristics to be cumulative and segmented. Dickens and Lang (1988: 132) say that "if firms pay high wages to reduce shirking . . . they will find it advantageous to provide stable employment … [and] … secondary firms that do not pay high wages may well have a comparative advantage in serving unstable demand." Workers on the secondary labour market are more likely to cycle through regular spells of unemployment and insecure work.

Tests of these predictions, perhaps not surprisingly, have encountered numerous difficulties. Ehrenberg and Smith (1991) suggest that an empirical verification of the compensating differentials hypothesis is inherently hampered by the ceteris paribus assumption, i.e. the need to control for the effects of age, education, gender, region, race, union status, etc. This need, together with the problem of specifying a priori disagreeable job characteristics, has made supportive empirical evidence for the underlying hypothesis scarce or disputed.

Drago and Wi (1995) used cluster analysis in an Australia study using job characteristics as the way of defining the demarcation between the segments. He concluded that segments do exist and three key factors – the internal promotions ladder, on-the-job training and unexplained wage differentials are found to be consistent with those predicted by Gordon *et al* (1982).

Flatau and Lewis (1993) employ cluster analysis on an occupational basis to determine three separable groups (secondary, intermediate and primary). Their approach also is a multi-dimensional analysis of job characteristics. They considered a range of characteristics such as wages, employment conditions, training ladders, job security to be

important and able to be discriminated into groupings which would be consistent with dual labour market theory.

It is clear that the key dual labour market theory proposition of definable and entrenched differences in pay systems across defined labour market groupings requires rigidities between the 'segments' to be strong and persistent. However, empirical efforts to identify distinct segments have not been entirely successful. Another way of thinking about this is to investigate the way in which jobs are rationed in the economy and whether we can detect definable 'individual' worker characteristics interacting with 'job' characteristics in any systematic way. DLM theory requires that disadvantaged workers are restricted in their realistic aspirations and hence outcomes by their relative confinement to the SLM.

If there are distinct features of primary and secondary jobs along the lines specified by DLM then this would have implications for job search motivation. Primary workers typically will seek career advancement and gather information accordingly. However, these workers will also typically be in a tight internal labour market structure which provides for career advancement in a more or less orderly manner. Whereas employed job search (and unemployed job search) at the bottom end of the labour market is unlikely to be triggered by the prospect of a better job (a new job), but rather by the fear of losing one's current job (fear of sanctions if remaining unemployed). The latter type of job search is extrinsically motivated; the former intrinsically. We use this difference in job search motivation in our empirical analysis to add a new element to the empirical DLM theory literature.

Our hypotheses are as follows:

First, intrinsic motives not only lead to more job search, but also to an improved labour market position in terms of the quality of the new job as compared to the previous job.

Second, extrinsic motives also lead to more job search, but not to an improved labour market position in terms of the quality of the new job as compared to the previous job.

Third, building on hypothesis one, employed job seekers in the SLM and unemployed job seekers compete for the same jobs, where the latter are less successful competitors. There is evidence to support the notion that more skilled workers 'bump' less skilled workers out of their normal job markets when there is demand deficiency (Buck and Gordon, 1987). If both of these groups of job seekers indeed search in the same labour market segment, they face similar labour demand conditions. Putting pressure on unemployed to accept a job, does – in those circumstances – not raise employment, but only leads to a reshuffling of the unemployment pool.

4. Econometric model and results

4.1 Intrinsically versus extrinsically motivated job search

Our first aim is to verify whether intrinsic and extrinsic motives to search for a job indeed lead to job search, as hypotheses 1 and 2 predict. Table 3 contains the logit regression results for job search decisions of employees and – if searching - their success in finding a new job.[2]

Controlling for tenure effects, older employed workers are significantly less likely to search for another job than the first age cohort. Moreover, employed men are

significantly more likely to search for a job than women, though they are not more successful in finding a job. Tenure reduces job search as a person builds up firm-specific skills which make the worker more productive in her current position than outside.

Table 3 Determinants of job search and its success (employed and unemployed), 2001-2003

Independent variables	Dependent variables			
	Employed job search	Employed success	UN job search	UN success
Constant	1.75** (0.22)	0.86 (0.45)	89.25*** (1.35)	0.37 (0.73)
Personal characteristics:				
Age cohort:				
16–30 years	reference	reference	reference	reference
31–40 years	1.03 (0.07)	0.97 (0.14)	0.56 (0.99)	0.75 (0.40)
41–50 years	1.02 (0.07)	0.74** (0.15)	0.26 (0.94)	1.60 (0.40)
51–65 years	0.71*** (0.10)	1.01 (0.22)	0.07*** (0.92)	0.52 (0.47)
Female	reference	reference	reference	reference
Male	1.24*** (0.06)	1.19 (0.12)	2.47 (0.55)	1.39 (0.34)
Living outside major SR	reference	reference	reference	reference
Sydney	0.88* (0.08)	0.83 (0.16)	0.91 (0.70)	1.39 (0.40)
Melbourne	1.01 (0.07)	0.87 (0.15)	1.57 (0.80)	1.71 (0.42)
Brisbane	1.18* (0.09)	0.87 (0.19)	0.34 (0.80)	0.71 (0.53)
Adelaide	0.98 (0.11)	1.08 (0.22)	0.20* (0.88)	0.69 (0.55)
Perth	1.11 (0.10)	0.96 (0.22)	0.23 (0.95)	1.76 (0.71)

Intrinsic search motivation:				
Involuntary part-time	reference	reference		
Full time	0.33*** (0.12)	0.90 (0.22)		
Voluntary part-time	0.26*** (0.12)	0.84 (0.22)		
Confidence to find another job	1.005*** (0.00)	1.002 (0.00)	1.02* (0.01)	1.01** (0.00)
Probability lo leave job voluntarily	1.02*** (0.00)	1.01*** (0.00)		
Satisfaction about hours worked	0.92*** (0.01)	1.01 (0.03)		
Satisfaction about pay	0.93*** (0.01)	1.02 (0.02)		
Satisfaction about job security[a]	0.91*** (0.01)	0.95** (0.03)		
Short-term unemployed			reference	reference
Long-term unemployed			0.30** (0.61)	0.38*** (0.32)
Extrinsic search motivation:				
Fixed term contract	reference	reference		
Casual contract	0.96 (0.10)	0.83 (0.21)		
Permanent contract	0.88 (0.09)	0.89 (0.19)		
Fear to lose the current job	1.003*** (0.00)	1.003 (0.00)		
No search requirement (Centre Link)				reference
Search requirement (Centre Link)				0.34*** (0.33)
(Previous) Job characteristics:				
Tenure	0.96*** (0.01)	0.95*** (0.01)		

Reason for job loss:				
Ran out of contract			reference	reference
Employer initiated break-up			0.79 (0.82)	0.65 (0.39)
Employee initiated break-up			0.81 (1.07)	1.27 (0.47)
Self employed			1.40 (1.47)	0.11 (1.49)
Health or personal reasons			0.28 (0.78)	0.57 (0.44)
Search channels applied:				
Centre link				reference
Advertisements				1.23 (0.34)
Employment agency (private)				1.89** (0.31)
Informal search				0.93 (0.38)
Educational level:				
(Pre-)primary/secondary school	reference	reference	reference	reference
Certificate	1.13* (0.07)	0.76* (0.15)	0.88 (0.60)	0.70 (0.33)
Advanced diploma and diploma	0.37*** (0.11)	0.86 (0.22)	0.13** (0.84)	0.47 (0.69)
(Post) Graduate, Bachelor degree	1.50*** (0.08)	0.99 (0.17)	0.35 (0.79)	1.50 (0.49)
Rest	1.25 (0.26)	0.41 (0.62)	0.15 (1.11)	0.89 (0.92)
Industry level (last job):				
Private sector	reference	reference	reference	reference
Public sector	1.15** (0.07)	0.71** (0.14)	2.99 (0.71)	1.29 (0.40)

Occupational level (last job):				
Labourers	reference	reference	reference	reference
Elementary workers	1.04 (0.12)	0.67 (0.25)	1.54 (1.02)	1.72 (0.51)
Intermediate production workers	1.11 (0.13)	0.51** (0.27)	1.58 (0.81)	2.15 (0.49)
Intermediate clerical workers	1.24* (0.11)	0.85 (0.23)	7.22** (0.93)	1.51 (0.52)
Advanced clericals	1.55** (0.18)	1.01 (0.37)	0.81 (1.36)	16.76** (1.29)
Tradespersons	1.01 (0.13)	0.67 (0.26)	0.41 (0.85)	3.94*** (0.52)
Associate professionals	1.29** (0.12)	0.70 (0.26)	1.11 (0.85)	4.87** (0.64)
Managers, professionals	1.28** (0.12)	0.63* (0.24)	2.03 (0.91)	2.76* (0.60)
Year:				
2001	reference	reference	reference	reference
2002	1.004 (0.06)	1.13 (0.11)	0.31 (1.29)	1.70 (0.62)
2003	1.02 (0.06)		0.48 (1.34)	
No of observations	15,284	1,609	407	300
No where dependent variable is 1	2,404	675	377	149

* 10% significance, ** 5% significance, *** 1% significance. Standard errors in parentheses.

Consequently the worker is less likely to search for a new job and once searching less likely to accept a job given her higher reservation wage. There is also a positive link between employed job search and the educational level, though a higher educational level does not affect the chance to find a new job once employed. The recent cuts in public sector employment have induced those who are still employed in the sector to search for employment elsewhere. The fact that they have to search outside their own sector for new employment, might explain the low success rate of public sector workers.

Table 3 summarises the estimation results of the impact of intrinsic and extrinsic job search motivation on actual job search. The data reports voluntary and involuntary (wants to work more hours but cannot find a suitable job) part-time employment. By controlling for type of contract, we identify differences in job search behaviour between the voluntary and involuntary part-time employees arising from intrinsic motivation. Table 3 shows that involuntarily part-time employment leads to more job search, though it does not raise the chance of finding a new job. Under hours worked, we present two direct measures of intrinsic search: (a) confidence to find another job at least as good as the

current; and (b) the probability to leave the current job voluntarily. Both variables are linked positively to job search. The latter also leads to a more successful search process. Next we include three job satisfaction measures. The less satisfied an employee is about her current job, in terms of pay, hours worked, and job security, the more we expect her to search for a better job.[3] Since these workers experience no immediate risk of job loss which forces them to search, this type of search is intrinsic.

We observe that less work satisfaction on all three aspects indeed leads to more job search, though only to more success for those looking for more job security. Consequently, we find support for the first part of hypothesis 1: intrinsic motives lead to more job search.

We explore different proxies for extrinsic job search. Initially we use type of contract and expect that an employee holding a casual or fixed-term contract to be motivated extrinsically to search for a job. However, the results fail to show that such employees search significantly more than employees with a permanent contract or – if searching – have a better chance of finding a job. Next we use a perception variable (fear of loss of current job within the next year). The results show that it triggers job search but does not increase the success rate. Thus, we also find support for the first part of hypothesis 2: extrinsic motives lead to more job search.

The last two columns in Table 3 explore the effects of intrinsic and extrinsic search on unemployed job search and subsequent successful job search. We include two proxies for intrinsic job search: (a) the unemployed person's confidence in finding a job; and (b) the duration of the uncompleted spell of unemployment. We expect the long-term unemployed to be too demoralised to continue to search after receiving several rejections after job interviews. Both variables provide support for a positive influence of intrinsic motivation on both job search and successful job search.

To measure extrinsic motivation, we use the information pertaining to whether the unemployed has been handed a deadline by Centrelink to find a job. That is, Centrelink might require the person to 'work for the dole' if they fail to find a job within a given period. The results show that the unemployed, who are extrinsically motivated to search, are significantly less successful than others. Given the range of control variables – including unemployment duration – this suggests that pressuring the unemployed to search when there are demand constraints is not an effective way to lead the unemployed back into employment, which is in line with hypothesis 3.[4] It should be noted that our analysis is only studying the supply side of the matching process. Firms might use the information that unemployed have been motivated extrinsically to stigmatise them, which also explains their lower chance to find a job.

4.2 Determinants of job improvement following job change

Though the unemployed might be satisfied with finding any job, employed job seekers would prefer to shift to a better job. We therefore focus on the quality of the new job of the employed job searcher relative to the quality of the job she leaves. As in the previous section we explore how intrinsic and extrinsic search affect the quality outcome arising from a job change, in an attempt to clarify the second part of hypotheses 1 and 2.

To measure the quality improvement of a job change we use the HILDA variables: pay, job security and hours worked satisfaction (each measured on a 0-10 scale). We focus on

employees that changed jobs between waves, which provides an indication of the increase in job satisfaction as a result of the job change. Table 4 provides the logit results. In the first three regressions we analyse the separate effects of the quality factors that might indicate a quality improvement following a job change. The fourth regression combines the three factors.

The pay improvement regression shows that the probability of gaining a pay increase following a job change decreases with age, but increases with tenure. The latter effect might occur because our definition of job change includes occupational change within the same firm. This allows for job changes within the PLM. In terms of intrinsic job search the results suggest that those who were unsatisfied about their pay in their previous job make amends in their next job. There is no evidence that high satisfaction in terms of the two other satisfaction measures is a necessary condition to achieve pay improvement. Consequently, having an otherwise high quality job is no prerequisite to achieve pay improvement. Confidence in finding another job adds to finding a better paying job, whereas a high probability of leaving the current job does not. Turning to extrinsic motivation we observe that all variables have negative signs. Fear of losing the previous job is the only significant variable, indicating that extrinsically motivated search lowers the probability to enjoy a wage increase following a job change.

The hours worked regression shows that women are more likely to improve the number of hours worked following a job change than men, which may reflect the fact that women more often start from a part-time job. As in the pay improvement case, employees who are not satisfied about their working hours and hence search intrinsically to improve this item in a future job, succeed in doing so. Other intrinsic and extrinsic variables do not affect the chances of finding a new job characterised by more satisfaction with 'hours worked'.

The job quality regression shows that employees looking for more job security find it, regardless of other qualities of the job. However, extrinsic search motives reduce the chance to find a more secure job. That is, fear of losing the previous job or motivation driven by coercion (no renewal of an expiring contract, sacking or close of business) to leave the job, leading to extrinsic search, reduce the probability to find a more secure job.

Table 4 Job change and quality improvement, 2001-2002

	Dependent variables: Improvement in			
Independent variables	Pay	Hours wkd	Job security	Overall
Threshold one	22.66*** (0.47)	71.29*** (0.49)	131.34*** (0.51)	0.00*** (0.43)
Threshold two				0.00*** (0.42)
Threshold three				0.00*** (0.40)
Threshold four				0.01*** (0.39)
Threshold five				0.08*** (0.38)

Personal characteristics:				
Age cohort:				
16–30 years	reference	reference	reference	reference
31–40 years	0.80* (0.13)	0.94 (0.14)	0.95 (0.14)	0.79** (0.10)
41–50 years	0.78 (0.15)	1.01 (0.16)	0.83 (0.16)	0.74*** (0.12)
51–65 years	0.83 (0.20)	1.29 (0.20)	0.67* (0.22)	0.80 (0.15)
Female	reference	reference	reference	reference
Male	1.18 (0.12)	0.81* (0.12)	0.84 (0.12)	0.93 (0.09)
Living outside major SR	reference	reference	reference	reference
Sydney	0.91 (0.15)	1.11 (0.16)	0.87 (0.16)	0.95 (0.12)
Melbourne	1.06 (0.15)	1.06 (0.15)	0.91 (0.16)	0.96 (0.12)
Brisbane	0.69** (0.19)	0.86 (0.19)	1.08 (0.19)	0.96 (0.14)
Adelaide	1.06 (0.21)	1.11 (0.21)	1.23 (0.22)	0.91 (0.17)
Perth	1.01 (0.20)	0.84 (0.21)	1.10 (0.21)	0.95 (0.16)
Intrinsic search motivation:				
Involuntary part-time	reference	reference	reference	reference
Full time	0.86 (0.27)	0.72 (0.27)	1.41 (0.29)	0.59** (0.22)
Voluntary part-time	1.19 (0.27)	0.72 (0.28)	1.20 (0.29)	0.65* (0.22)
Pay satisfaction (previous job)	0.55*** (0.03)	1.04 (0.03)	0.98 (0.03)	0.76*** (0.02)
Hours satisfaction (previous job)	1.02 (0.02)	0.51*** (0.03)	1.003 (0.03)	0.76*** (0.02)
Job security satisfaction (previous job)	0.98 (0.03)	1.02 (0.03)	0.50*** (0.04)	0.74*** (0.02)
Confidence to find another job	1.005** (0.00)	1.002 (0.00)	1.000 (0.00)	1.004*** (0.00)
Probability to leave job voluntary	1.001 (0.00)	1.002 (0.00)	1.000 (0.00)	0.999 (0.00)

Extrinsic search motivation:				
Fixed term contract	reference	reference	reference	reference
Casual contract	0.93 (0.20)	0.92 (0.21)	0.99 (0.22)	0.84 (0.17)
Permanent contract	1.19 (0.18)	0.87 (0.19)	1.07 (0.19)	1.04 (0.15)
Fear to lose the previous job	0.996* (0.00)	0.997 (0.00)	0.995* (0.00)	0.998 (0.00)
Forced to leave previous job	0.91 (0.14)	0.90 (0.15)	0.67** (0.16)	0.67*** (0.12)
Job characteristics (previous job):				
Tenure	1.03*** (0.01)	1.001 (0.01)	1.01 (0.01)	1.02** (0.01)
Was looking for a new job	0.80* (0.13)	0.995 (0.13)	0.91 (0.13)	1.01 (0.10)
Educational level:				
(Pre-)primary/secondary school	reference	reference	reference	reference
Certificate	1.03 (0.14)	0.89 (0.14)	0.93 (0.14)	0.94 (0.11)
Advanced diploma and diploma	0.83 (0.21)	1.21 (0.21)	0.84 (0.21)	0.85 (0.17)
(Post) Graduate, bachelor degree	1.19 (0.16)	0.89 (0.17)	0.76 (0.18)	0.96 (0.14)
Rest	0.43 (0.60)	1.01 (0.55)	0.27** (0.62)	0.58 (0.40)
Industry level (last job):				
Private sector	reference	reference	reference	reference
Public sector	1.06 (0.15)	1.17 (0.15)	0.97 (0.16)	1.13 (0.11)

Occupational level (last job):				
Labourers	reference	reference	reference	reference
Elementary workers	1.15 (0.23)	1.03 (0.23)	1.01 (0.23)	0.90 (0.19)
Intermediate production workers	1.59 (0.26)	0.90 (0.27)	0.98 (0.27)	1.02 (0.21)
Intermediate clerical workers	1.02 (0.21)	1.03 (0.21)	0.83 (0.22)	0.84 (0.18)
Advanced clericals	1.52 (0.35)	1.11 (0.35)	1.15 (0.37)	1.28 (0.30)
Tradespersons	1.25 (0.24)	1.43 (0.24)	0.91 (0.25)	1.04 (0.19)
Associate professionals	1.10 (0.23)	0.82 (0.24)	1.05 (0.24)	0.83 (0.20)
Managers, professionals	1.03 (0.23)	0.77 (0.23)	0.88 (0.24)	0.84 (0.19)
Year:				
2001	reference	reference	reference	reference
2002	1.17 (0.06)	1.12 (0.11)	1.16 (0.11)	1.12 (0.08)
No of observations	2,192	2,200	2,198	2,190
No where dependent variable is 1	991	934	889	

* 10% significance, ** 5% significance, *** 1% significance. Standard errors in parentheses

Finally, the last regression in Table 4 (overall improvement) is based on a dependent variable constructed to take all three quality measures into account. We do this to find confirmation that a quality improvement in one aspect of the job is not at the expense of another. Since hours worked and job security did not influence the change in pay satisfaction once a new job was found (and *vice versa*), we had an indication that a quality improvement in one aspect of the job will not be at the expense of another. The results confirm this. Five out of six variables related to intrinsically motivated job search indicate that intrinsic job search leads to a better job. Extrinsic search on the other hand does not lead to a higher quality job and in the case of forced reasons for job loss to a significantly lower quality job. Subsequently, we also find support for the second part of hypothesis 1 and 2.

4.3 Locating intrinsic and extrinsic job search

The notion of intrinsic and extrinsic motivated job search fits nicely into DLM theory. As outlined in Section 3 the DLM approach predicts job quality improvements to occur in the PLM segment only. In terms of intrinsic and extrinsic motivated job search, we expect intrinsic search to be found in the primary segment, whereas extrinsic search should be a typical feature of the SLM.

Though a clear division of the PLM and SLM along the lines of educational, sector and occupational levels is not yet available, we expect to find more highly educated employees in the higher occupational jobs in the primary sector. Therefore, we run two least squares regressions using an intrinsic job search variable (confidence to find an

Table 5 Locating intrinsic and extrinsic search, 2001-2003

Independent variables	Dependent variables	
	Confidence to find an equal or better job	Fear to lose the job
Constant	61.64***	16.05***
	(1.31)	(0.89)
Personal characteristics:		
Age cohort:		
16–30 years	reference	reference
31–40 years	–3.89***	0.54
	(0.73)	(0.50)
41–50 years	–6.30***	1.91***
	(0.76)	(0.52)
51–65 years	–14.59***	3.15***
	(0.88)	(0.59)
Female	reference	reference
Male	–2.82***	1.04**
	(0.60)	(0.41)
Living outside capital cities	reference	reference
Sydney	4.85***	1.89***
	(0.78)	(0.53)
Melbourne	4.40***	1.61***
	(0.74)	(0.50)
Brisbane	4.24***	0.54
	(0.93)	(0.63)
Adelaide	8.29***	–0.05
	(1.09)	(0.75)
Perth	5.31***	–0.58
	(1.07)	(0.72)
Type of contract:		
Tenure	–0.77***	–0.34***
	(0.04)	(0.03)

Educational level:		
(Pre-)primary/secondary school	reference	reference
Certificate	1.78**	0.87*
	(0.69)	(0.47)
Advanced diploma and diploma	4.12***	–0.36
	(1.11)	(0.76)
(Post) Graduate, bachelor degree	7.79***	0.84
	(0.86)	(0.58)
Rest	2.18	0.16
	(2.49)	(1.70)
Industry level:		
Manufacturing	reference	reference
Agriculture	5.65***	1.33
	(1.92)	(1.31)
Mining	–5.51**	2.86*
	(2.18)	(1.48)
Electricity, water, gas	–9.82***	2.20
	(2.82)	(1.89)
Construction	9.03***	0.56
	(1.48)	(1.01)
Wholesale	3.43**	–0.01
	(1.54)	(1.05)
Retail / Restaurants	10.23***	–4.18***
	(1.07)	(0.73)
Transport	4.10***	–2.96***
	(1.56)	(1.06)
Finance / property business	4.55***	0.43
	(1.08)	(0.73)
Government	4.30***	–4.65***
	(1.01)	(0.69)
Cultural services	2.09	–3.98***
	(1.31)	(0.89)

Occupational level:		
Managers, professionals	5.08***	–1.58***
	(0.90)	(0.61)
Associate professionals	0.36	–1.53**
	(0.99)	(0.67)
Tradespersons	4.38***	–0.77
	(1.13)	(0.77)
Advanced clericals	5.40***	–3.56***
	(1.61)	(1.08)
Intermediate clerical workers	reference	reference
Intermediate production workers	0.31	0.81
	(1.20)	(0.82)
Elementary workers	–0.92	–0.46
	(1.10)	(0.75)
Labourers	–2.51***	2.50***
	(1.16)	(0.78)
Year:		
2001	reference	reference
2002	–0.11	–3.32***
	(0.64)	(0.43)
2003	–0.22	–3.67***
	(0.64)	(0.43)
No of observations	15,648	15,908

10% significance, ** 5% significance, *** 1% significance. Standard errors in parentheses.

equal or better paying job) and an extrinsic job search variable (fear to lose the job) as dependent variables, respectively, in an attempt to locate both types of search. The results are summarised in Table 5.

The first regression shows that intrinsic search indeed takes place in the PLM segment, consistent with DLM theory. More highly educated employees are more confident of finding another job. Given the analyses in Sections 2 and 3 we expect these employees also to succeed in finding higher quality jobs.

The contrary holds for employees searching extrinsically. The final column in Table 5 suggests that extrinsic search is a phenomenon that occurs predominantly in lower occupational level jobs. Given our earlier finding that extrinsic job search is less likely to lead to job quality improvements than intrinsic job search; this is in line with DLM theory.

5. Conclusion

This paper has considered DLM theory from a new angle by concentrating on search behaviour. Our hypothesis is that such behaviour should be different across the PLM and the SLM. We employed HILDA survey data from 2001-2003 to test our job search behaviour hypothesis. Important elements of the behaviour are intrinsic motivation to search for a new job, which presumably dominates on the PLM, and extrinsic motivation, which presumably dominates in the SLM.

With respect to employed job search, we find that both intrinsic and extrinsic motivation is linked positively to job search. However, the former leads to a more successful search process, whereas the latter does not. Moreover, we find that intrinsic and extrinsic motivation affects unemployed job search in a similar way. This suggests that pressurising the unemployed (i.e. extrinsic motivation) is not an effective mechanism to lead the unemployed back into employment.

We also explore the effect of intrinsic and extrinsic search on the quality of the new job of the employed job searcher relative to the quality of the job she leaves. We find that intrinsic search leads to a better job. Extrinsic search on the other hand does not lead to a higher quality job and in the case of forced reasons for job loss to a significantly lower quality job.

Finally we try to identify the incidence of intrinsic and extrinsic job search of employed workers. We expect intrinsic search to be found in the primary segment and extrinsic search to be a typical feature of the secondary market. Our results yield occupational and educational levels patterns of intrinsic and extrinsic search which are consistent with DLM theory.

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Appendix:

Table I Descriptive statistics (shares, unless mentioned otherwise), HILDA 2001-2003

variables	respondents	employees			unemployed		
		2001	2002	2003	2001	2002	2003
Age cohort:	16-30 years	0.24	0.24	0.23	0.37	0.39	0.31
	31-40 years	0.27	0.26	0.25	0.19	0.21	0.24
	41-50 years	0.28	0.28	0.29	0.21	0.21	0.20
	51-65 years	0.21	0.21	0.23	0.23	0.20	0.25
Male		0.53	0.53	0.53	0.50	0.45	0.42
Residence:	Living outside major stat. region	0.43	0.43	0.43	0.45	0.44	0.44
	Sydney	0.16	0.16	0.16	0.17	0.17	0.19
	Melbourne	0.18	0.18	0.18	0.17	0.17	0.18
	Brisbane	0.09	0.09	0.10	0.10	0.09	0.07
	Adelaide	0.06	0.06	0.06	0.06	0.07	0.06
	Perth	0.07	0.07	0.07	0.06	0.06	0.06
Hours worked:	Full time	0.71	0.70	0.70			
	Voluntary part-time	0.03	0.03	0.04			
	Involuntary part-time	0.26	0.27	0.27			
Type of contract:	Fixed term contract	0.09	0.10	0.09			
	Casual contract	0.23	0.24	0.22			
	Permanent contract	0.68	0.66	0.69			
Education:	(Pre-)primary/secondary school	0.33	0.33	0.32	0.51	0.53	0.52
	Certificate	0.29	0.31	0.32	0.29	0.28	0.28
	Advanced diploma and diploma	0.07	0.08	0.07	0.06	0.03	0.05
	(Post) Graduate, bachelor degree	0.29	0.28	0.27	0.12	0.13	0.13
	Rest (unknown)	0.01	0.01	0.01	0.02	0.02	0.01
Public sector		0.36	0.36	0.28	0.21	0.26	0.24
Occupation:	Managers, professionals	0.33	0.32	0.32	0.12	0.11	0.15
	Associate professionals	0.12	0.13	0.13	0.10	0.06	0.05
	Tradespersons	0.12	0.11	0.11	0.11	0.07	0.09
	Advanced clericals	0.04	0.04	0.04	0.03	0.01	0.01
	Intermediate clerical workers	0.17	0.17	0.17	0.18	0.17	0.17
	Intermediate production workers	0.07	0.08	0.08	0.12	0.11	0.04
	Elementary workers	0.09	0.08	0.09	0.14	0.19	0.18
	Labourers	0.08	0.08	0.08	0.22	0.29	0.32

Reason job loss:	Ran out of contract				0.16	0.21	0.14
	Employer initiated break-up				0.31	0.32	0.22
	Employee initiated break-up				0.12	0.18	0.28
	Self employed				0.02	0.02	0.06
	Health or personal reasons				0.40	0.27	0.30
Search channels:	Centre link				0.58	0.50	0.52
	Advertisements				0.48	0.38	0.35
	Employment agency (private)				0.41	0.35	0.25
	Informal search				0.66	0.62	0.56
Looking for a job in last four weeks		0.15	0.14	0.14	0.86	0.79	0.74
Job changers		0.40	0.42		0.47	0.49	
Forced reasons to leave the previous job		0.19	0.17	0.18			
Share of long-term unemployment in total unempl.					0.51	0.52	0.54
Tenure in years (mean)		7.09	6.80	6.97			
Pay satisfaction: scale 0-10 (mean)		6.68	6.71	6.81			
Hours worked satisfaction: scale 0-10 (mean)		7.13	7.10	7.11			
Job security satisfaction: scale 0-10 (mean)		7.66	7.82	7.92			
Confidence to find another job: scale 0-100 (mean)		62.89	63.00	62.44			
Fear to lose the current job: scale 0-100 (mean)		13.73	10.47	10.12			
Prob. to leave the job voluntarily: scale 0-100 (mean)		21.96	22.06	21.79			
Respondents (numbers)		6,425	6,559	6,558	539	576	493

[1] The authors are Professor of Economics and Director of Centre of Full Employment and Equity at the University of Newcastle, Australia (Mitchell); Professor of Economics and Director of CofFEE-Europe at the University of Maastricht, The Netherlands; and Postdoctoral Fellow, Centre of Full Employment and Equity at the University of Newcastle, Australia (Welters).

[2] In Tables 3 and 4 we present odds ratios in stead of logit coefficients. The odds ratio is defined as the ratio of the odds of an event occurring in one group to the odds of it occurring in the control group. The odds ratio can be computed taking the natural exponent of coefficients of a logit regression.

[3] Since we control for the fear to lose the job in all regressions, those looking for more job security do not do so because they fear unemployment, but look for more stability in their career, which is an intrinsic, not an extrinsic, motive.

[4] Since discouraged unemployed (unemployed that do not search for work) hardly face pressure from Centrelink to find a job, we cannot include the 'Centrelink pressure' variable in the job search regression of unemployed.