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Job search in the presence of a stressor: Does financial hardship change the effectiveness of job search?

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ABSTRACT

Following a group of 2,973 Australian unemployed job seekers over time, we confirm predictions from Self-Determination Theory, Conservation of Resources Theory and Scarcity Theory that the presence of financial hardship during job search adversely affects job search quality and subsequently job search effectiveness (measured one year later). We show the importance in labor market research of controlling for a range of confounding factors including the impact of financial hardship on job search intensity. The implemented controls allow more precise inferences of the effect of financial hardship on job search quality/effectiveness, than so far achieved in this emerging body of literature.

1. Introduction

Research confirming adverse psychological wellbeing effects of a spell of unemployment is extensive (e.g. Hoang & Knabe, 2021; McKee-Ryan et al., 2005; Wanberg, 2012). The same applies to research confirming increases in psychological wellbeing once the unemployment spell is completed (e.g. Ferreira et al., 2015; Van der Meer, 2014). Consequently, identifying the conditions conducive to effective job search behavior is of imminent importance to the involuntarily unemployed as well as caseworkers and policymakers who operate and design the policy framework under which the unemployed search for jobs.

Job search effectiveness (or success) depends on the unemployed person's job search behavior and a set of factors that the unemployed person may (e.g. their education level) or may not control (e.g. the general state of the economy). Summarizing the literature on job search behavior, Wanberg et al. (2020b, p. 212) concluded that: "*Job search metacognition* [or job search quality] *and job search intensity are central indicators of the more cognitive related aspects of planning and assessing one's job search and the behavioral aspects of actual job search activity*".

Job search intensity refers to search quantity, often measured as the number of search hours in a given period (Kanfer et al., 2001). Job search quality relates to the thoroughness of job search (Van Hooft et al., 2020), which is more difficult to measure (Wanberg et al., 2020a). The few empirical studies that have tried to measure job search quality do so in terms of the search strategy used and the degree of self-regulation expressed in the search process (Van Hooft et al., 2020; Wanberg et al., 2020a, 2020b; Koen et al., 2016).

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Search strategy relates to the adopted approach to achieve the employment goal (Crossley & Highhouse, 2005). Self-regulation refers to the unemployed person's determination to pursue his/her employment goal or his/her ability to adapt his/her goal in light of changing circumstances (Karoly, 1993).

The extant literature measures job search effectiveness in terms of the employment status at some set point in time, the speed at which employment is secured, time in employment, or aspects of job quality if a job is found (e.g. wage levels or job stability).

Job search scholars also recognize that stressors (e.g. financial hardship) adversely affect job search effectiveness (e.g. Gerards & Welters, 2020, 2021; Groot et al., 2019; Koen et al., 2016; Van Hooft et al., 2013; Deci & Ryan, 2000). Numerous insights from the literature provide the theoretical underpinnings for this adverse effect. For instance, Self-Determination Theory (SDT) argues that if job search motivation is externally driven (e.g. due to financial hardship), job search behavior will be less engaging, determined and confident than when job search motivation is autonomous (Van Hooft et al., 2013; Deci & Ryan, 2000; Vansteenkiste & Van den Broeck, 2018). As a result, the source (or type) of motivation may have an impact on job search effectiveness. Moreover, drawing from Conservation of Resources Theory (COR) (Hobfoll, 1989), Lim et al. (2016) showed that the financial stresses associated with unemployment contribute to job search fatigue and lower reemployment quality, indicative of lower job search effectiveness. Additionally, Scarcity Theory (Schilbach et al., 2016; Mani et al., 2013) has been applied to argue that the financial stresses associated with unemployment preoccupy the cognitive resources of the unemployed, leaving fewer cognitive resources for effective job search (e.g. Gerards & Welters, 2020; Groot et al., 2019).

Recent empirical studies that explore the labor market outcomes of unemployed persons experiencing stressors during job search find that reemployment chances are lower (Koen et al., 2016) and jobs attained are of lower quality (e.g. Gerards & Welters, 2020, 2021; Herkenhoff et al., 2017; Lim et al., 2016; Caliendo et al., 2013) – despite a higher job search intensity (Gerards & Welters, 2020). This suggests that stressors such as financial hardship or benefit eligibility requirements with penalties for non-compliance indeed negatively affect job search effectiveness through job search quality, in line with SDT, COR and Scarcity Theory.

However, studies that untangled the negative effect of stressors on job search effectiveness into a component attributable to job search intensity and a component attributable to job search quality are rare. The difficulty in measuring job search quality directly (Wanberg et al., 2020a) may explain the paucity of studies that relate job search quality to measures of job search effectiveness (Van Hooft et al., 2020). There are two notable exceptions though. Koen et al. (2016) explored how reemployment counseling changes the unemployed person's job search motivation. Specifically, they showed that more autonomous (less external) job search motivation relates to more self-regulation exhibited during the job search process (higher search quality), which improves search effectiveness. They also found that an unemployed person who experiences external job search motivation is more likely to use suboptimal job search strategies (lower job search quality), lowering search effectiveness. (Wanberg et al., 2020b) explored how an unemployed person's perception of unemployment insurance generosity affects their perceptions of time pressure and job search priority. Specifically, they found that the unemployed who consider unemployment insurance generous indicate lower perceptions of time pressure and job search priority, which reduces job search metacognition and subsequently reemployment speed.

Both studies, however, only included a limited number of potentially confounding factors in their analysis. Neither of the studies controlled for family background/composition, personality traits or general labor market conditions, which may all obfuscate the tested relationships. It is, for example, quite conceivable that the general state of the (local) labor market affects perceptions of unemployment insurance generosity or the added value of employment counseling, whilst the state of the labor market may simultaneously affect job search quality and intensity (through the discouraged worker effect in depressed labor market conditions) and job search effectiveness.

Both studies acknowledged these potential shortfalls. Koen et al. (2016: p. 42) argued that “*the use of survey data limits our ability to infer causal relationships between experienced autonomy on the one hand and motivation, job search behavior and reemployment status on the other hand*”. Wanberg et al. (2020b: p. 224) recognized “*it is possible that the relationships between perceptions of UI generosity and the mediators and outcomes in our model may be due to an unobserved individual difference variable*”. Hence, both studies call for comparable research, but in a research setting that more holistically controls for confounding relations.

In a landmark study, Van Hooft et al. (2020) pooled together all relevant empirical research (including the Koen et al., 2016 & Wanberg et al., 2020b studies) to conduct a meta-analytical procedure. They revealed separate pathways between job search intensity and job search effectiveness and job search quality and job search effectiveness. However, as the authors duly acknowledged, the latter pathway is based on both a limited number of studies and a broad range of indicators of job search quality, reinforcing Wanberg et al.'s (2020b: p. 224) conclusion: “*because of the strong importance of this topic and the complexity of its examination, multiple studies are needed and worthy of scholarly effort to solidify research findings*”.

In this study, we estimate the effect of a stressor (financial hardship) on job search effectiveness, whilst isolating the effect attributable to job search quality from the effect attributable to job search intensity. To achieve this, we first explore the theoretical arguments arising from SDT, COR and Scarcity Theory to justify the proposition that financial hardship affects job search quality and effectiveness. We then empirically explore how the experience of financial hardship affects an unemployed person's job search effectiveness (measured as time-to-employment, time-in-employment and employment status at the conclusion of the twelve-month period in which we follow the unemployed person). To establish tentative causation in absence of experimental data, we must control for factors that confound the relationship between financial hardship and job search effectiveness. We will show how the inclusion of confounding factors in the analysis changes the findings of our study, that is, we demonstrate the sensitivity of our findings and likely those of comparable studies to the inclusion of confounding factors. Following, for instance, Gerards & Welters (2020, 2021), we use propensity score matching (PSM)—a research technique tailored for these circumstances. Applied to our case, PSM compares the job search effectiveness of two unemployed persons who are similar in terms of all the variables included in our analyses (such as labor market conditions, personality traits, mental health, and more; see section 3.3 for a full list and details), except that one experiences

financial hardship (the ‘treated’) and the other does not (the ‘non-treated’). Therefore, all confounding factors affect their job search effectiveness similarly; hence, they play no role in the difference in job search effectiveness between the two unemployed persons. Consequently, we can ascribe the difference in job search effectiveness (the ‘treatment effect’) to the only variance that remains between the two unemployed persons: the presence of financial hardship. Crucially, using instrumental variable techniques, we control for the effect of financial hardship on job search intensity, isolating the effect of financial hardship on job search effectiveness through its effect on job search quality.

We study the effect of financial hardship on job search effectiveness in the Australian context. Australia has the lowest net replacement rate of unemployment in the OECD (Grudnoff, 2021), hence the prevalence of financial hardship among the unemployed is likely high.

2. Literature review

In this section, we first discuss three theoretical lenses that are commonly used in the literature studying the (negative) effect of financial hardship on job search quality and concomitant job search effectiveness; SDT, Scarcity Theory and COR. Subsequently, we present our conceptual model, which—importantly—includes the broader setting of potential confounding factors within which unemployed persons search for work.

2.1. Theoretical lenses

2.1.1. Insights from Self-Determination Theory (SDT)

The likelihood of goal accomplishment, SDT argues, depends on the source of motivation that—applied to our case—the unemployed person uses to search for employment, which ranges from intrinsic to controlled (Deci & Ryan, 2000). Motivation is intrinsic if the person sets the goal volitionally and controlled if the person sets the goal for external reasons. SDT claims that both types of motivation spur the unemployed to set and attempt goals. However, if the orientation of motivation turns towards external, the likelihood of goal achievement declines. The types of motivation and their diverse impact on goal accomplishment have been empirically validated in various settings including human resource management (Fernandez & Moldogaziev, 2015), parenting (Van Petegem et al., 2015), sport and exercise (Gunnell et al., 2014) and energy-saving (Webb et al., 2013).

The causal negative effect of a spell of unemployment on psychological wellbeing is well established (e.g. McKee-Ryan et al., 2005). Hence, the unemployed person’s motivation to secure employment will contain self-endorsed—intrinsic—elements. However, if he or she simultaneously faces an external stressor (e.g. financial hardship), the orientation turns away from autonomy and motivation becomes more externally oriented (e.g. Vansteenkiste & Van den Broeck, 2018). Or as Klehe et al. (2012, p. 137) argued: “...*job search in the face of an economic stressor is mainly concerned with evading or freeing oneself from an aversive and threatening situation*”, as opposed to a self-authored desire to be employed. Therefore, the unemployed person who experiences financial hardship may display a job search that is less interested, engaging and confident than those whose motivation is more autonomously oriented (Deci & Ryan, 2000). As a result, SDT predicts that the unemployed person who experiences financial hardship will—all else being equal—exhibit lower job search quality, which then translates into inferior employment outcomes.

Empirical evidence from the psychology literature seems to confirm SDT predictions concerning external motivation, job search quality and effectiveness. This literature measures job search quality in terms of the degree to which the unemployed person self-regulates the job search process (Van Hooft et al., 2013) and in terms of the applied job search strategies (Crossley & Highhouse, 2005). Koen et al. (2016) found a positive association between autonomous job search motivation and self-regulation. Self-regulation, they found, is positively associated with reemployment. The meta-study of Van Hooft et al. (2020) confirmed this. Crossley & Highhouse (2005) distinguished three job search strategies: focused, exploratory and haphazard job search. They found that the unemployed who adopt haphazard rather than focused job search strategies receive fewer job offers and attain lower job satisfaction (if they obtain employment). They argued that “...*haphazard searchers may have an underdeveloped sense of person-job fit. On the job, this lack of fit may become apparent and lead to decreased satisfaction*” (Crossley & Highhouse, 2005: p. 265). Koen et al. (2010) found that external pressures drive the unemployed towards explorative rather than focused job search strategies. They argued that: “*the use of an exploratory job-search strategy should be avoided when searching for a suitable job, at least when people feel pressured to accept job-offers*” (Koen et al., 2010: p. 137), suggesting a link between the source of job search motivation and the type of job search strategy. Grant et al. (2011) demonstrated that external motivation decreases personal initiative in job search, which they in turn linked to fewer job offers received. Koen et al. (2016) indeed found a positive association between external motivation and the use of haphazard job search strategies, which—following Crossley & Highhouse (2005)—may explain lower job satisfaction as a result of job mismatch, which may subsequently undermine job stability.

SDT predictions are less definitive regarding the effect of external motivation on the intensity of job search. External motivation moves people to act (job search intensification), but simultaneously changes the orientation of overall job search motivation away from autonomous motivation, which may reduce engagement with the job search process (job search de-intensification). The empirical evidence is also mixed. Halvari et al. (2013) and Welters et al. (2014), studying employed job search, found positive effects of the presence of an external motivator (involuntary part time employment; and a combination of involuntary part time employment and non-permanent job contracts, respectively) on job search intensity. Moreover, Gerards & Welters (2020) found positive effects of the presence of an external motivator (financial hardship) on the job search intensity of the unemployed. Hence, these studies confirm the job search intensification effect of external motivation. However, Gerards & Welters (2021) did not find a significant job search intensification effect from mandatory participation in activities to fulfil unemployment benefit eligibility requirements. Relatedly,

Koen et al. (2015) demonstrated that the degree to which a mandatory training course is considered useful in the pursuit of employment (that is, the degree to which the external regulator is internalized), increases job search intensity of the unemployed; hence they confirmed the job search de-intensification effect of external motivation.

In any case, SDT considers the job search quality effect of external motivation to be more important than the job search intensity effect, or as Vansteenkiste & Van den Broeck (2018, p. 171) put it: “Yet, based on SDT, we maintain it is important to move beyond merely considering unemployed individuals’ intensity of motivation and to additionally consider the sort or type of motivation they display.”.

2.1.2. Insights from Scarcity Theory and Conservation of resources Theory (COR)

As opposed to SDT, which focuses on the effect of financial hardship on motivation, Scarcity Theory and COR focus on the effect of financial hardship on cognitive capacity to predict changes in job search quality and subsequently effectiveness. Scarcity Theory (Schilbach et al., 2016; Mani et al., 2013) argues that decision-making occurs in two separate parts of the brain. Intuitive, automatic and effortless decision-making takes place in one part of the brain; slow, deliberate and effortful decision-making in another part. Crucially, that second part of the brain is only available if a person has sufficient cognitive resources, or ‘bandwidth’, to access it. However, if a person is burdened with (for example) poverty, the financial concerns usurp the bandwidth, blocking access to the second part of the brain, leaving the person with intuitive and automatic decision-making which is more prone to error than slow and deliberate decision-making (Mani et al., 2013).

Translating Scarcity Theory to job search, it seems plausible that thoroughness of job search (that is, job search quality), for example, through the application of focused rather than haphazard job search strategies, requires slow, deliberate and effortful decision-making. Hence, financial hardship adversely affects job search quality through its effect on higher-level cognitive function (e. g., Gerards & Welters, 2020; Groot et al., 2019). Scarcity Theory predicts that financial hardship reduces job search intensity if job search intensity requires access to the slow, deliberate and effortful decision-making part of the brain. That is likely the case if high levels of job search intensity require determinedness or tenacity on the part of the unemployed person to continue searching for job opportunities. However, if an unemployed person can intensify their job search through the routine extension of the same job search procedure to more vacancies (that is, access to the intuitive, automatic and effortless decision-making part of the brain), financial hardship may increase job search intensity, since the blockage of the higher-level parts of the brain leaves more time for intuitive, automatic and effortless decision-making.

COR argues that the availability of resources (such as objects, states and conditions) are necessary for individuals to set and pursue goals and to complete tasks (Hobfoll, 1989). Crucially, to gain more resources in the future (such as re-employment), individuals must invest some of their current resources, which in the case of unemployed job seekers can be for instance time and effort. As resources are limited, individuals who “...direct a greater portion of their resources towards combating a stressor are left with fewer resources to cope with other threats, and are less able to actively increase their resource pool.” (Lim et al., 2016, p. 70). Financial hardship is a critical resource constraint for the unemployed (McKee-Ryan et al., 2005; Lim et al., 2016). Thus, unemployed persons who have to spread limited resources between job search and combating financial hardship, will be more resource constrained and will be more likely to experience fatigue in the job search process (Lim et al., 2016; Hobfoll, 1989) compared to the unemployed who do not face the additional stressor of financial hardship. Job search fatigue likely reduces both job search intensity and quality, hence their ability to acquire new resources, such as (good quality) re-employment.

In sum, COR predicts that the experience of financial hardship will limit the ability to complete any other decision-making tasks

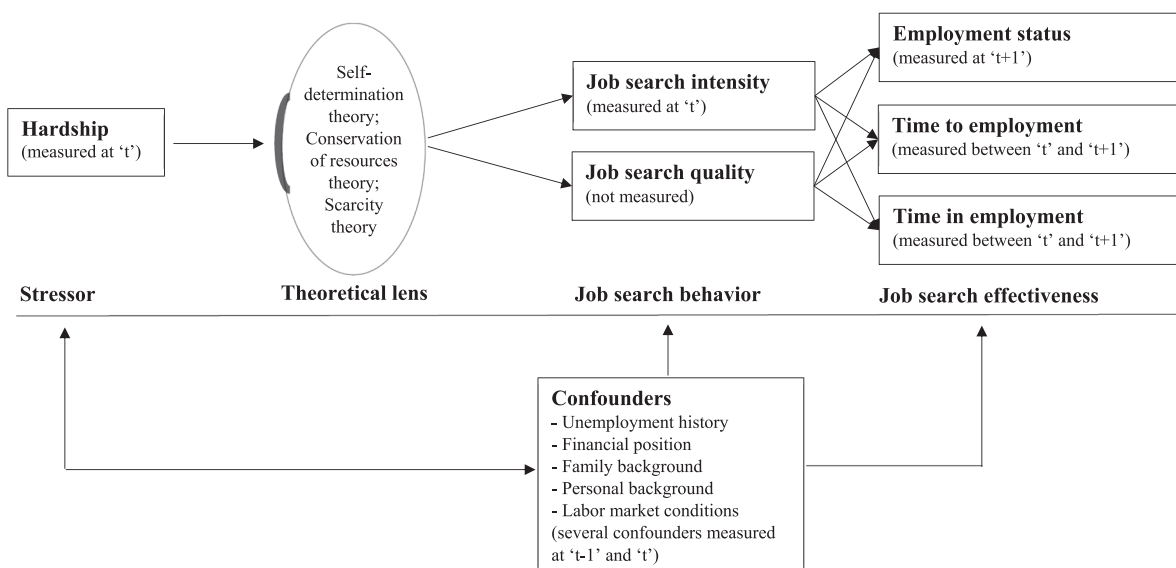


Fig. 1. Conceptual model.

(such as job search). Scarcity Theory argues that financial hardship only compromises higher-level decision-making tasks, including high quality job search. Finally, the motivational effects (SDT) and the cognitive capacity-constraining effects (Scarcity Theory / COR) of financial hardship on job search quality can coincide (and therefore be reinforced).

2.2. Conceptual model

Drawing upon SDT, COR and Scarcity theory, we conceptualize financial hardship as providing controlled job search motivation and absorbing cognitive capacity. Consistent with our three theoretical lenses, we expect financial hardship to reduce job search quality.

The theoretical lenses are less clear and united about the effect of financial hardship on job search intensity but agree that an effect may exist. Hence, if we wish to isolate the effect of financial hardship on job search effectiveness through job search quality, we need to control for the effect of financial hardship on job search effectiveness through job search intensity. However, controlling for job search intensity may not be enough. It is quite conceivable that financial hardship will affect job search effectiveness through pathways other than job search quality and intensity. It is also conceivable that factors exist that simultaneously affect the incidence of financial hardship and job search effectiveness. Consequently, to establish the effect of financial hardship on job search effectiveness through job search quality, we also need to control for the broader setting of potential confounding variables in which job search takes place.

Fig. 1 portrays our conceptual model, acknowledging the broader setting in which job search takes place. All the potentially confounding variables that we control for are detailed in section 3.3 and are here summarized into several groups: the (un)employment history of the unemployed person, their financial position, their personal background, their family background and the labor market conditions in which they search for work. We measure job search effectiveness in three ways commonly encountered in both the economics and applied psychological literature (e.g. [Caliendo et al., 2015](#); [Gerards & Welters, 2020, 2021](#); [Wanberg et al., 2020b](#)): employment status one year after the incidence of financial hardship and—recognizing the transitory nature of employment status—time to and time in employment in the first year following the incidence of financial hardship. Time to employment measures the reemployment speed ([Wanberg et al., 2020b](#)); time in employment indicates employment stability ([Caliendo et al., 2015](#)).

2.3. Financial hardship and job search effectiveness

Empirical evidence of the effect of financial stress on job search effectiveness of the unemployed shows mixed results. On the one hand, studies that focus on liquidity or wealth effects (e.g., [Basten et al., 2014](#); [Card et al., 2007](#); [Corsini, 2012](#)), benefit exhaustion / sanction effects (e.g., [Svarer, 2011](#); [Tatsiramos & Van Ours, 2014](#); [Filges et al., 2015](#)) or lower perceived unemployment insurance generosity ([Wanberg et al., 2020b](#)) show an increase in the hazard rate (to employment) and a reduction in the length of the unemployment spell. This suggests that the unemployed may have raised their job search intensity and/or quality. On the other hand, research that examines the effect of the presence of a stressor (benefit exhaustion or the threat of a benefit penalty) on the quality of the job found (measured in terms of wages, employment stability or perceived fit) indicates a negative relationship (e.g. [Gaure et al., 2012](#); [Caliendo et al., 2013](#), [Wanberg et al., 2020b](#); [Gerards & Welters, 2021](#)).

These findings suggest that a financial stressor may reduce job search quality (for example through the stressor's effect on external motivation, see [Koen et al. 2016](#)), which adversely affects the employment status over time, but not necessarily the immediate employment outcome that hazard rate studies measure. However, studies that explore the effect of a stressor on job search effectiveness through its effect on job search quality generally do not control for the broader setting of potential confounding factors within which unemployed persons search for work ([Koen et al. 2016](#); [Wanberg et al., 2020b](#)). Moreover, studies that do control for that broader setting, generally do not isolate the effect of a stressor on job search quality from the stressor's effect on job search intensity ([Van Ours, 2014](#); [Filges et al., 2015](#); [Gaure et al., 2012](#); [Caliendo et al., 2013](#), [Gerards & Welters, 2020](#)). One of the main contributions of our study is that it explores the effect of a stressor on job search effectiveness through its effect on job search quality, while controlling for both the broader setting as well as for the stressor's effect on job search intensity. We will incrementally introduce elements of the broader setting into the analysis to demonstrate result sensitivity.

3. Materials and methods

We exploit data from all nineteen annual waves of the Household, Income and Labour Dynamics in Australia (HILDA) data, covering 2001 to 2019. In 2001, all adult family members of 7,682 households were first interviewed. In 2011, 2,153 new households were added to the survey. The survey focuses on areas including labor market dynamics, income, wealth and wellbeing, making it Australia's equivalent to the German Socio-Economic Panel (G-SOEP), United Kingdom Households: a Longitudinal Study (UKHLS) and US's Panel Study of Income Dynamics (PSID). Given its comparability, the HILDA survey is also included in the Cross-National Equivalent File. Data collection takes place through telephone (personal and household questionnaires) and self-completion questionnaires.¹ We exploit information from all three questionnaires. Although all longitudinal household surveys suffer to some extent from non-response and sample attrition, the HILDA survey has always been considered nationally representative and it is known for high re-interview rates (usually above 94%) ([Watson & Wooden, 2012](#)). Furthermore, although [Watson & Wooden \(2009\)](#) find that

¹ See [Summerfield et al. \(2020\)](#) for detailed information on the HILDA data.

part of the non-response is non-random and can be related back to observable characteristics, they conclude that there is a very large random component to non-response. Nevertheless, we conduct attrition sensitivity analyses with regard to a range of key variables, which shows no attrition selectivity (see section 4). This is in line with other studies that find that there are no serious concerns regarding attrition bias in HILDA data (e.g. [Wooden & Watson, 2007](#)).

We focus our analysis on respondents who report being unemployed, looking for work, are between 15 and 65 years of age and available in at least three subsequent waves. This leaves us with a sample of 2,973 unemployed respondents. Before discussing the estimation strategy, we first describe how we measure the variables in our estimation.

3.1. Financial hardship

The experience of financial hardship is the treatment variable in the PSM analysis. We follow [Bray \(2001\)](#), [Breunig & Cobb-Clark \(2006\)](#) and [Kiely et al. \(2015\)](#) who used the HILDA data to construct a financial hardship measure, which others have successfully implemented in psychiatry (e.g. [Butterworth et al., 2012](#); [Kiely et al., 2015](#)) and economics (e.g. [Gerards & Welters, 2020](#); [La Cava & Simon, 2005](#); [Breunig & Cobb-Clark, 2006](#)). Evaluating our financial hardship measure against other established criteria for hardship or deprivation, we note the conceptual similarity between this measure and other widely accepted measures (e.g. as compared to the basic life-style deprivation items in [Whelan et al. \(2001\)](#)). We consider a respondent to have experienced financial hardship in year '20XX' if they answer 'Yes' to any of the following four statements preceded by the question: 'Since January 20XX did any of the following happen to you because of a shortage of money?' (interviews usually occur in October):²

- (i) Pawned or sold something
- (ii) Went without meals
- (iii) Was unable to heat home
- (iv) Asked for help from welfare / community organizations

If none of these four statements applies, we assume the respondent has not experienced financial hardship. Consequently, the financial hardship variable, measured at year ' t ', takes the form of a binary variable (the experience of financial hardship is one; zero otherwise). Extensive testing for construct validity of these items on the HILDA data has been performed by for instance [Butterworth & Crosier \(2006\)](#) and recently for the HILDA waves 2001–2017 by [Gerards & Welters \(2020\)](#) – showing that these items load onto one factor. Our own factor analyses based on a tetrachoric correlation matrix on these four items of financial hardship for waves 2001–2019 – consistent with previous findings – show one eigenvalue above 1 and factor loadings between 0.73 and 0.91 across all years. Since these items load onto one factor, we can use Cronbach's alpha as a measure of the strength or unidimensionality of the construct ([Cortina, 1993](#)). Across all years, Cronbach's alpha coefficients are between 0.61 and 0.69 and cannot be increased by omitting any item. These values are satisfactory considering we have only four dichotomous items and that Cronbach's alpha underestimates true reliability in the case of dichotomous items (e.g. [Sun et al., 2007](#)) and that Cronbach's "...alpha is very much a function of the number of items in a scale..." ([Cortina, 1993, p.102](#)). [Table 1](#) presents the incidence of financial hardship and its components. Nearly one in three unemployed respondents in the sample experienced financial hardship.

3.2. Job search intensity

We measure job search intensity as the number of hours spent on job search activities in the week the respondent was surveyed. This type of job search intensity measure (time spent on job search activities in a specific period) is widely used and accepted in all relevant strands of the literature (e.g., [Barron & Mellow, 1981](#); [Gerards & Welters, 2020, 2021](#); [Kanfer et al., 2001](#); [Wanberg et al., 2012](#); [Wanberg et al., 2020a, 2020b](#)) and has been shown by [Wanberg et al. \(2005\)](#) to correlate highly with multiple-item measures of job search intensity. [Table 3](#) shows that the unemployed experiencing hardship at year ' t ' exhibit more intense job search at year ' t ' than the unemployed not experiencing hardship.

3.3. Job search effectiveness

We construct three measures of job search effectiveness, which we use as outcome variables in the PSM analysis (these measures are common in the related literature (e.g. [Caliendo et al., 2015](#); [Gerards & Welters, 2020, 2021](#); [Wanberg et al., 2020b](#))). First, employment status in year $t + 1$. We distinguish two possible outcomes in year $t + 1$: unemployment and employment, hence also our outcome variable is binary (employment is one; unemployment is zero). [Table 2](#) shows that respondents who experienced financial hardship in year t , are significantly less likely to be employed in year $t + 1$ than the unemployed who did not experience financial hardship in year t . Second and third, we construct 'months in employment' and 'months to employment' in the period between year t and $t + 1$. [Table 2](#) shows that respondents who experienced financial hardship in year t need more months to find employment and spend less time in employment (if they find it at all) between ' t ' and ' $t + 1$ ' compared to those who did not experience financial hardship. Obviously, these are bivariate effects. We need to test these in a multivariate setting controlling (among others) for potential

² In the 2010 survey, this question incorrectly referred to January 2009 instead of January 2010, rendering the 2010 answers to this question unusable. Therefore, the HILDA data do not contain answers to this question for 2010.

Table 1
Incidence of financial hardship in our sample of unemployed respondents.

N = 2,973	Frequency	% of total sample
<i>Survey items indicating financial hardship</i>		
Pawned or sold something	509	17.1
Went without meals	439	14.8
Was unable to heat home	224	7.5
Asked for help from welfare / community organizations	519	17.5
<i>Composite financial hardship measure</i>		
Total sample size	2,973	100
Experience of financial hardship (one or more of the above four items)	943	31.7
Non-experience of financial hardship (none of the above four items)	2,030	68.3

Table 2
Job search effectiveness by financial hardship.

Outcome variable	Treatment variable		
	No hardship		Hardship
Employed in year $t + 1$ (1 if yes)	0.65	***	0.50
Months to employment between 't' and 't + 1'	5.60	***	6.65
Months in employment between 't' and 't + 1'	6.49	***	5.16
Number of observations	2,030		943

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$ on two-sided t -tests.

differences in job search intensity between the two groups.

3.4. Estimation strategy: Covariates to satisfy conditional independence

The PSM technique exploits differences in employment status in year $t + 1$ (ES_{t+1}) between those who experienced financial hardship in year t ($FH_t = 1$) and those who did not ($FH_t = 0$). Employment status of the 'treated' then is ($ES_{t+1}|FH_t = 1$); employment status of the 'non-treated' is ($ES_{t+1}|FH_t = 0$). A straight comparison of ($ES_{t+1}|FH_t = 1$) and ($ES_{t+1}|FH_t = 0$) only produces a valid estimate of the treatment effect if the 'treated' and 'non-treated' unemployed persons are otherwise similar. This will be the case, if there are no covariates that jointly determine the incidence of financial hardship and employment status one year later (that is, treatment and outcome are independent). If such covariates do exist—which is likely the case—differences between the 'treated' and 'non-treated' emerge, which matter for employment status one year later, but are not a result of treatment (financial hardship). For instance, financial hardship is more likely to occur in a depressed labor market. Finding employment is more difficult in a depressed labor market. Labor market conditions are therefore a joint determinant of financial hardship and employment outcomes. Establishing the relationship between financial hardship and employment outcomes without controlling for labor market conditions, leads to an overstatement of the relationship.

If we know the covariates that jointly determine treatment and outcome, we may still be able to establish a valid estimate of the treatment effect. That is, we can use an unemployed person's values for the covariates that jointly determine treatment and outcome to predict their propensity to experience treatment: financial hardship (stage 1 of PSM). Then PSM compares the employment status one year later of two unemployed persons who had similar predicted propensities to experience financial hardship (stage 2 of PSM) (for example, compare two unemployed persons, one with financial hardship, one without, but both operate in similar labor market conditions).³ The only difference between the matched unemployed persons is that one experienced financial hardship; the other did not. Since the joint determinants influence both unemployed persons' employment status one year later similarly, they no longer affect the difference in employment status one year later between the two unemployed persons (that is, treatment and outcome are conditionally independent).

The empirical task is to elucidate the joint determinants of treatment and outcome and use them to match 'treated' to 'non-treated' unemployed persons (that is, satisfy conditional independence). We follow Gerards & Welters (2020, 2021), who identify five potential sources of joint determination of financial hardship and labor market behavior. First, the employment record before the current unemployment spell may affect both the likelihood of current financial hardship (that is, sustained periods of previous employment may have allowed the unemployed person to accrue assets) and the likelihood of re-employment (that is, the employment record is a predictor of future employment). Second, the length of the current spell of unemployment may affect both the likelihood of current

³ Technically, we use a kernel-matching algorithm, which means we compare the 'treated' unemployed person to a weighted average of 'non-treated' unemployed persons. The weight attached to a respondent in the 'non-treated' group depends (negatively) on the propensity score gap between herself and the 'treated' respondent to whom we match him/her.

financial hardship (as a result of running down assets) and the likelihood of re-employment (as a result of skill obsolescence and employer stigma).⁴ Third and fourth, time-variant and time-invariant heterogeneity may affect both the likelihood of current financial hardship and the likelihood of re-employment. Fifth, variables, which—according to the literature—affect financial hardship, may also (weakly) affect labor market behavior and vice versa.

Table 3 provides descriptive statistics for the variables we use to cover the five sources of joint determination. We have direct measures of the first two sources, showing that those with hardship have both poorer employment records prior to the current unemployment spell and are currently out of employment for longer. To cover time-variant heterogeneity we include household income, changes in household income, household savings, household credit card debt, home ownership, household composition, changes in household composition and access to unemployment benefits in 't' and 't-1'—known as joint determinants of financial hardship and labor market behavior (Doiron, 2004; La Cava & Simon, 2005; Breunig & Cobb-Clark, 2006; Gong & Breunig, 2014; Caliendo et al., 2015). Following Wanberg et al. (2020b), we also include a validated short-form construct of mental health (Ware et al., 2007). We observe that the unemployed experiencing hardship have a lower household income, lower household savings, lower household credit card debt, report lower mental health, are more likely to be renters and single (with or without dependent children) and are more likely to have experienced a change in household composition and (sustained) access to unemployment benefits.

To control for time-invariant heterogeneity, we include five personality traits—recognized joint determinants of financial hardship and labor market behavior (Kanfer et al., 2001; Brown & Taylor, 2014; Uysal & Pohlmeier, 2011; Viinikainen & Kokko, 2012; Xu et al., 2015). We observe that the unemployed experiencing hardship report higher 'openness to experience' and lower 'conscientiousness' and 'emotional stability'. Further, we include a variable capturing whether the respondent grew up in a household in which at least one parent was employed and a variable capturing whether English was the first language learned. If yes, the respondent is less likely to have grown up in poverty (and associated hardship), which—following the intergenerational poverty literature (Cobb-Clark, 2010; OECD, 2010)—suggests they are less likely to experience poverty (unemployment) now. Simultaneously, exposure to hardship during childhood may equip the respondent with strategies or resolve to prevent hardship in later life. We observe that the unemployed experiencing hardship are more likely to have grown up in a household in which English was the first language learned and that childhood exposure to parental unemployment lowers the likelihood of financial hardship now, as expected.

Finally, we include (1) a set of demographics, which the literature specifically links to hardship (La Cava & Simon, 2005; Breunig & Cobb-Clark, 2006; Butterworth et al., 2012; Kiely et al., 2015), but which are generally also included as determinants of labor market outcomes (age, gender, educational attainment and indigenous status) and (2) three variables capturing the labor market environment in which the unemployed operate ('residing in a major metropolitan area', 'regional unemployment rate' and 'vacancy rate'), which affects labor market success and—quite conceivably—also the likelihood of hardship. We note that the unemployed experiencing hardship tend to be younger, lower educated and Indigenous, and tend to live outside metropolitan Australia and in higher unemployment rate environments.

3.5. Isolating the effect of financial hardship on job search quality

The PSM model described so far will produce the treatment effect of the experience of financial hardship in year t expressed in a change in the employment status in year $t + 1$. This treatment effect includes both the expected reduction in job search quality because of financial hardship and the expected job search intensification because of financial hardship. To isolate the effect of job search quality, we need to control for the job search intensity effect. The descriptive statistics in Table 3 indeed show the positive association between the experience of financial hardship and job search intensity (weekly number of hours searched for employment), where presumably the former causes the latter. To control for the job search intensification effect in the PSM analysis, we include job search intensity in stage one, that is, as a determinant of the propensity score. Not because we have reasons to believe that job search intensity jointly determines financial hardship in year t and employment status in year $t + 1$, but to match 'treated' and 'non-treated' respondents in stage two conditional on job search intensity. The concern is that by doing this, we introduce reverse causality into the PSM analysis, that is, we would specify that more intensive job search causes the experience of financial hardship, while it is likely the reverse. If unresolved, it will compromise the PSM analysis. That is, the 'treated'—because of financial hardship—will exhibit higher job search intensity than the 'non-treated'. If one then matches the 'treated' and 'non-treated' on job search intensity, the matched 'non-treated' respondents must exhibit some other drivers of job search intensity to which the 'treated' are not exposed or no close matches might be found at all, resulting in bias. Either way the result is that respondents are no longer identical in all other relevant aspects besides the experience of financial hardship.

To resolve this concern, we use an instrumental variable approach to obtain predicted values of job search intensity, which vary independently of financial hardship. As an instrumental variable, we make use of a question that asks respondents whether they had 'Written, phoned or applied in person to an employer for work?' in the four weeks leading up to the survey. We will refer to this variable as 'open application'. The two-sample t -test in Table 3 for this variable open application does not suggest any relationship between the experience of financial hardship and having done an open application (p -value = 0.823). Importantly, there is also no a priori theoretical reason to assume that the experience of financial hardship among the unemployed is a function of having done an open application when already controlling for the covariates described in section 3.3. Hence, we accept that the open application variable is unrelated to the error term of an equation that intends to establish the propensity to experience financial hardship.

⁴ da Motta Veiga & Gabriel (2016) show that job search orientation becomes more external as the job search process lengthens—another reason to include the length of the current unemployment spell as a control in the analysis.

Table 3
(Differences in) means by hardship for variables included in our matching analysis.

	No hardship		Hardship
<i>Unemployment history</i>			
Time in unemployment as a share of time since completing full-time education	0.23	***	0.30
Time (months) currently in unemployment	8.89	**	11.67
Unemployment benefit recipient at time 't-1' and 't'			
Both at 't-1' and 't' (sustained dependence)	0.12	***	0.22
Only at 't-1', not at 't' (recently became ineligible)	0.02		0.03
Not at 't-1', only at 't' (recently became eligible)	0.22	***	0.35
Neither at 't-1' nor at 't' (sustained independence)	0.64	***	0.40
<i>Financial position</i>			
Gross weekly household income (x1,000\$)	1.39	***	0.80
Change in household income (income 't' / income 't-1')	1.22		1.28
Household bank account savings (x1,000\$)	19.21	***	6.24
Household credit card debt (x1,000\$)	1.41	**	1.02
Home ownership			
Own outright	0.21	***	0.12
Own paying off mortgage	0.31	***	0.15
Renting (or pay board)	0.44	***	0.69
Live here rent free / life tenure	0.04		0.05
<i>Family background</i>			
At least one parent employed when respondent was 14 (1 if yes)	0.93	*	0.91
Native speaker of English (1 if yes)	0.90	*	0.93
Household composition			
Couple without dependent children	0.26	***	0.20
Couple with dependent children	0.37	***	0.25
Single with dependent children	0.10	**	0.14
Single without dependent children	0.05		0.05
Single	0.14	***	0.27
Single with non-related adults	0.08		0.09
Household composition change between 't-1' and 't'			
No change	0.91	***	0.84
Couple to single	0.05	***	0.08
Single to couple	0.05	***	0.08
<i>Personal background</i>			
Age cohort			
15–29	0.47		0.47
30–39	0.17		0.19
40–49	0.19		0.20
50–64	0.17	*	0.14
Educational attainment			
Year 12 or below	0.53	*	0.57
Certificate III or IV	0.23	*	0.26
Advanced diploma	0.07		0.06
Bachelor degree or higher	0.18	***	0.10
Gender (1 if male)	0.53		0.51
Indigenous			
Non-Indigenous Australia born	0.75		0.76
Non-Indigenous born elsewhere	0.20	***	0.14
Indigenous	0.06	***	0.10
Mental health (MHI-5 subset of the SF36)	69.67	***	60.11
<i>Big Five Personality traits</i> †			
Openness to experience	4.31	***	4.53
Extroversion	4.36		4.32
Agreeableness	5.25		5.29
Conscientiousness	4.79	**	4.66
Emotional stability	4.93	***	4.64
<i>Other background variables relevant to financial hardship or labor market behavior</i>			
Residing in a major metropolitan area (1 if yes)	0.57	***	0.49
Regional unemployment rate	5.33	**	5.45
Vacancy rate	1.44		1.43
<i>Variables relevant to our Instrumental variable analysis</i>			
Job search intensity: Weekly number of hours searched for employment	5.91	***	6.89
Written, phoned or applied in person to an employer for work ('open application') (1 if yes)	0.75		0.76
Number of observations	2,030		943

Notes: †The Big Five Personality traits are scored from one (not applicable) to seven (very applicable).

*** p < 0.001, ** p < 0.01, * p < 0.05 on two-sided t-tests.

Additionally, we reject both under identification (Kleibergen-Paap rk LM statistic = 57.78; $\chi^2(1)$ p -value < 0.001) as well as weak identification (Kleibergen-Paap rk Wald F statistic = 61.66; Stock & Yogo, 2005; 10% critical value = 16.38), and, hence, accept the instrument. Consequently, we first run a regression of job search intensity on all covariates in the PSM analysis plus the open application variable (the instrument). Then we save the predicted values of job search intensity (which now vary independently of financial hardship), which we include in stage one of the two-stage PSM analysis.

4. Results

4.1. Results and quality of the propensity score matching

Table A1 in the supplementary online materials shows the results of stage one, which confirm some of the bivariate relationships with financial hardship described in Table 3. The unemployment benefit status (sustained dependence), household income (low household income), household savings (lower savings), home ownership (renters), household composition (singles and singles with dependent children), changes to household composition (single to couple), the personality trait openness to experience, the regional unemployment rate (higher unemployment rate), mental health (lower mental health) and—new in the multivariate regression analysis— change in household income (increasing income) and the personality trait extroversion all contribute to the propensity to experience financial hardship. The predicted value of job search intensity has no statistically significant relationship with financial hardship, that is, the instrumental variable analysis has resolved the reverse causality problem in the PSM analysis. The relevance of a broad range of confounding factors for the incidence of our stressor (financial hardship) is a first indication of the importance of their inclusion when testing relationships between a stressor and labor market behavior and outcomes.

Figure A1 in the supplementary online materials shows the propensity score distribution for the experience of financial hardship. We observe considerable overlap between ‘treated’ and ‘non-treated’ in terms of the propensity scores to experience financial hardship (that is, there is a wide region of common support in the data), indicating the ability to match ‘treated’ to otherwise similar ‘untreated’ respondents. Only three observations fall outside the standard common support restriction that we impose.

To obtain the matching results presented in Table 4, we follow among others Gerards & Welters (2020) and Caliendo et al. (2015) and use an Epanechnikov kernel with a bandwidth of 0.06. The choice of using a 0.06 bandwidth implies the matches are close, which leads to high matching quality as evidenced by the matching quality indicators in Table A2 of the supplementary online materials. This is evidenced by the p -value of the joint significance test and the Pseudo- R^2 . Mean and median standardized biases post matching are both well below the 3%–5% that Caliendo & Kopeinig (2008) consider satisfactory. The mean of the predicted value of job search intensity is 6.423 and 6.395 h a week after matching for ‘treated’ and ‘non-treated’ respectively, which is not statistically different (t -test yields a p -value of 0.795), suggesting the matching is not only strong overall, but also on the key covariate job search intensity.

4.2. Main estimation results

Table 4 contains the results of three models that we ran for each of our three dependent variables (nine analyses in total). The first three models, the ‘no controls’ models, identify the treatment effect (the experience of financial hardship in year t) on employment status in year $t + 1$, time-to-employment and time-in-employment, without controlling for any confounding relationships that stem from the broader setting of potential confounding factors within which unemployed persons search for work. The second set of models, the ‘some controls’ models, mimics Wanberg et al., 2020b and control for age, gender, ethnicity, education, unemployment duration and mental health. The third set of models, the ‘full controls’ models, mimics Gerards & Welters (2020) with the addition of mental health, to include all control variables listed in Table 3. To isolate the effect of financial hardship on job search effectiveness through job search quality, all three sets of models control for job search intensity.

Table 4

Main estimation results of the effects of financial hardship on job search effectiveness through job search quality.

	Coefficient (ATT)	P-value	S.E.	N	n treated	n untreated	Off support
1. No controls							
Employed at ‘t + 1’	– 0.160***	0.000	0.022	2,973	940	2,030	3
Months to employment between ‘t’ and ‘t + 1’	1.150***	0.000	0.216	2,973	940	2,030	3
Months in employment between ‘t’ and ‘t + 1’	– 1.439***	0.000	0.222	2,973	940	2,030	3
2. Some controls							
Employed at ‘t + 1’	– 0.108***	0.000	0.023	2,973	943	2,030	0
Months to employment between ‘t’ and ‘t + 1’	0.611**	0.005	0.218	2,973	943	2,030	0
Months in employment between ‘t’ and ‘t + 1’	– 0.854***	0.000	0.223	2,973	943	2,030	0
3. Full controls							
Employed at ‘t + 1’	– 0.061*	0.013	0.024	2,973	940	2,030	3
Months to employment between ‘t’ and ‘t + 1’	0.189	0.424	0.236	2,973	940	2,030	3
Months in employment between ‘t’ and ‘t + 1’	– 0.367	0.125	0.239	2,973	940	2,030	3

Notes: The coefficient we report is the average treatment effect on the treated (ATT). Results are based on Epanechnikov kernel matching with common support and a bandwidth of 0.06. Off support is the number of observations outside the common support area. Standard errors were calculated using 499 bootstrap replications clustered on the individual. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

We note that the results are quite sensitive to the inclusion of the broader setting of potential confounding factors within which unemployed persons search for work. The results in Table 4 show that if controlling for job search intensity but no other confounding relationships ('no controls'), the treatment effect (the experience of financial hardship in year t) on (a) employment status in year $t + 1$ is negative, (b) time-to-employment is positive, and (c) time-in-employment is negative. All three effects are statistically significant with p -values < 0.001 . Adding a limited number of confounding relationships ('some controls'), in line with the confounders that Wanberg et al., 2020b include in their analysis, decreases treatment effects (the coefficients), but still produces treatment effects for all three job search effectiveness measures which are statistically passable and consistent with results from the 'no controls' models. To do justice to the broader setting of potential confounding factors within which unemployed persons search for work, we include our full list of control variables in the third set of analyses. We observe a further narrowing of treatment effects. Only the treatment effect on employment status in year $t + 1$ remains statistically significant. Our finding is in line with the theoretical lenses, which all predict that financial pressure adversely affects job search effectiveness, through reduced job search quality.⁵

4.3. Sensitivity analyses and correction for multiple hypothesis testing

In our estimator sensitivity analysis, we imposed different bandwidths, different matching algorithms and trimming strategies. Table A3 in the supplementary materials shows that the results are robust to different choices. Further, the attrition sensitivity analyses in Table A4 show no evidence of systematic attrition.

Since we test multiple (three) hypotheses on the same data set, we must correct the p -values in Table 4 for the Family Wise Error Rate of hypothesis tests, or multiple hypothesis testing (e.g. Romano & Wolf, 2005; Clarke et al., 2019). Table A5 in the supplementary materials shows the corrected p -values (for the 'full controls' models only). We continue to accept that the treatment effect (the experience of financial hardship in year t) on employment status in year $t + 1$ is negative and statistically significant (p -value 0.042).

5. Discussion

SDT, Scarcity Theory and COR provided us with theoretical lenses to postulate that stressors (e.g. financial hardship) impact the quality and to a lesser degree the intensity of an unemployed person's job search—emphasizing the former. The change in job search quality and intensity may adversely impact his/her job search effectiveness. Consequently, to establish the impact of financial hardship on labor market success through its effect on job search quality, one needs to control for the simultaneous impact of financial hardship on labor market success through job search intensity. Moreover, one needs to control for the broader setting of potential confounding factors within which unemployed persons search for work, that may simultaneously influence the incidence of financial hardship and labor market success.

The article follows 2,973 unemployed persons over time, some of whom experience financial hardship. We explore how the incidence of financial hardship indirectly affects their employment status up to one year later as a result of a change in job search quality. We do this in a propensity score matching (PSM) setting to ensure we control for the broader setting of confounding factors and for job search intensity. Pre stage one, we establish predicted values of job search intensity, which vary independently of financial hardship (using instrumental variable techniques). In stage one, we estimate the propensity (to experience financial hardship) scores for all 2,973 unemployed persons. Then in stage two, we match unemployed persons who experienced financial hardship to those with similar propensity scores, but who did not experience financial hardship. In doing so, we perform our analyses using three increasingly comprehensive sets of control variables starting from 'no controls', to 'some controls' (in line with Wanberg et al., 2020b), to 'full controls' (building on Gerards & Welters (2020)). We observe that the more comprehensive the set of included confounding factors, the smaller and less significant the results become. Ultimately, in our preferred specification (the 'full controls' models), we find a significant negative effect on employment status one year later for those who experienced financial hardship. In the intervening time, we find no evidence that the experience of financial hardship affects time-to-employment (comparable to the employment hazard) and time-in-employment.

Our findings are in line with Koen et al. (2016), who used SDT as a theoretical framework. They found that a stressor causing more externally oriented job search motivation (e.g. financial hardship) changes the unemployed person's job search strategy in ways that deteriorate labor market success. Importantly, we demonstrate the link between financial hardship and labor market success controlling for a broader setting of confounding factors, which other studies such as Koen et al. (2016) and Wanberg et al., 2020b have not achieved so far. Koen et al. (2016) found that external motivation induces the unemployed to use haphazard search strategies, whilst autonomous motivation increases the degree of self-regulation of the job search process, leading to the overall conclusion that "autonomous motivation is preferable [rather than external motivation or amotivation] in the job search process" (Koen et al., 2016: p. 40).

However, also theories (e.g., Scarcity Theory and COR) that focus on the cognitive capacity limiting effect of a stressor can explain the adoption of haphazard search strategies. If haphazard rather than focused job search strategies require less cognitive capacity (COR) or less higher-level cognitive capacity (Scarcity Theory), the presence of a stressor such as financial hardship may lead to the adoption of haphazard job search strategies. Our data set is not rich enough to tease out these differences (bearing in mind that the

⁵ Of the 2,030 untreated respondents in our sample who did not experience financial hardship, 510 (25%) experienced a less severe form of liquidity constraint known as 'cash-flow problems' (see Gerards & Welters, 2020, for details about this measure) and 1,520 (75%) experienced no liquidity constraints at all. Therefore, as this comparison group of 2,030 consists of 25% of respondents who experienced a milder form of liquidity constraint – and as such could be considered 'lightly treated' – our results are likely to be on the conservative side.

motivational and cognitive capacity limiting effects of a stressor need not be mutually exclusive). We encourage others to study the relationship between the presence of a stressor and the adopted search strategy through the stressor's effect on cognitive capacity.

Regarding the relation between job search strategies and employment outcomes, Crossley & Highhouse (2005) found that focused rather than haphazard job search strategies lead to better quality jobs, enhancing job stability. It is quite conceivable that focused job search strategies take more time to culminate in employment than haphazard approaches. Studies that establish a positive effect of a stressor on the employment hazard (e.g. Filges et al., 2015; Tatsiramos & Van Ours, 2014; Corsini, 2012; Wanberg et al., 2020b) may perhaps register the quick 'trial and error' employment opportunities that haphazard strategies produce. Studies that establish a negative effect of a stressor on employment status at some point in time after the experience of the stressor (Koen et al., 2016; Gerards & Welters, 2020, Wanberg et al., 2020b and this study) may start to register the instability of employment that haphazard job search strategies produce. We included time-to-employment and time-in-employment in the intervening period in our analysis, but our findings are inconclusive. It is therefore important that future research studies the effect of financial hardship (or similar stressors) on labor market outcomes using a broader set of labor market outcomes including longer-term outcomes. Future studies could also look at the effect of financial hardship on labor market outcomes for specific groups (e.g., women vs. men or young vs. old).

The HILDA data we used in this study are well equipped to capture the broader setting in which unemployed job search occurs, but poorly equipped to measure job search quality directly. Our indirect approach to measuring job search quality requires us to control for other pathways between financial hardship and job search effectiveness. Whilst we have made every effort to be comprehensive, it remains possible that we may have missed a pathway (one that is unrelated to any of the pathways that we controlled for), which—if applicable—would contaminate our indirect measure of job search quality.

A limitation of the propensity score matching estimator is that the treatment variable must be binary, thus limiting our analysis to the effect of the presence of financial hardship on job search effectiveness. It does not allow us to explore how job search effectiveness varies with the severity of financial hardship. For that reason, we refrain from any quantitative interpretation of the results. Moreover, as several of the measures we use are self-reported, they could suffer from recall and reporting errors and biases.

6. Conclusions

This article uses Australian longitudinal data to demonstrate that the presence of a stressor (that is, the experience of financial hardship) during the job search process reduces an unemployed person's chances to be in employment one year later. The finding accords SDT, Scarcity Theory and COR, which we used as theoretical lenses to postulate that stressors (e.g. financial hardship) provide external motivation, reduce cognitive function and reduce cognitive resources to search for employment, respectively. This refracts to the same outcome for all three lenses: lower job search quality compromising job search effectiveness (success). The article is the first to show the effect of financial hardship on job search effectiveness controlling for both job search intensity (which financial hardship may also affect) and a comprehensive broader setting of factors that confound the relationship between job search quality and job search effectiveness. We show that the inclusion of the broader setting of factors that confound the relationship between job search quality and job search effectiveness matters for the outcome and encourage others to include a rich set of confounders in their analysis. Our results have implications for public policy. Our main result that a stressor, in our case financial hardship, affects unemployed job search effectiveness through reduced job search quality despite increased job search intensity - which several other empirical studies and theories suggest may be due to the adoption of a more haphazard search strategy - suggests that reintegration policies could benefit from being packaged together with policies aimed at ameliorating the financial hardship situation. More broadly, reintegration policies could benefit from mapping all stressors that unemployed clients face, in order to attempt to help determine which stressors may need to be tackled in order to facilitate a higher quality job search effort.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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