



Lancaster University
MANAGEMENT SCHOOL

Lancaster University Management School
Working Paper
2009/011

**Short Term Gain, Long Term Pain. The Effect
of Informal Job Search Methods on
Post-Displacement Outcomes.**

Colin Green

The Department of Economics
Lancaster University Management School
Lancaster LA1 4YX
UK

© Colin Green

All rights reserved. Short sections of text, not to exceed
two paragraphs, may be quoted without explicit permission,
provided that full acknowledgement is given.

The LUMS Working Papers series can be accessed at <http://www.lums.lancs.ac.uk/publications/>
LUMS home page: <http://www.lums.lancs.ac.uk/>

Short Term Gain, Long Term Pain. The Effect of Informal Job Search Methods on Post-Displacement Outcomes.*

Colin Green[†]

February 26, 2009

Abstract

Informal job search methods could alleviate short-term labour market difficulties of displaced workers by providing information on job opportunities, allowing them to signal their productivity and may mitigate wage losses through better post-displacement job matching. However if displacement results from reductions in demand for specific sectors/skills, the use of informal job search methods may increase the risk of job instability. We examine the effect of jobs search methods on post-displacement outcomes. While informal job search methods are associated with shorter unemployment duration, and lower wage losses, they lead to increased job instability and increased risk of subsequent job displacement.

KEYWORDS: Job Displacement, Search Methods, Job Security.

JEL CODE: J29, J45, M54.

*The author would like to thank Gareth Leeves, John Heywood, Jim Taylor, Ian Walker, Garry Barrett, Paul Miller and seminar participants at Lancaster University for comments and suggestions.

[†]Economics Department, Lancaster University, UK

I. INTRODUCTION

The sizeable individual welfare losses associated with worker displacement are well documented. For instance, displaced workers have problems with re-employment, and after re-employment are often underemployed and face significant wage reductions (Podgursky and Swaim 1987, Kletzer 1989, Farber 1993, Jacobson et al 1993, Burda and Mertens 2001). In addition, the experience of displacement is associated with ongoing job instability (Stevens 1997), and there is evidence displacement has negative intergenerational effects (Oreopoulos et al 2008).

This paper examines the effect of job search methods on re-employment outcomes for displaced workers. While there is a long standing interest in the job search methods of unemployed workers (Rees 1966, Bradshaw 1973, Datcher 1983, Holzer 1987a, Holzer 1988, Montgomery 1991, Osberg 1993, Addison and Portugal 2002), little is known about the role of job search methods in post-displacement outcomes. This paper presents evidence that informal job search methods, directly approaching employers or using friends/relatives, are associated with shorter unemployment duration after displacement and lower wage losses between the displacement and re-employment job when compared to formal job search methods. However, re-employment through informal methods is associated with markedly higher turnover rates, and in particular, an increased likelihood of experiencing another displacement episode. Together these results suggest that informal job search methods may help to alleviate the short term consequences of displacement but may lead to more long term problems with

ongoing employment instability.

There are a number of reasons why job search methods are of specific interest in the case of displaced workers. First, one source of the negative consequences of displacement relates to its potential to generate adverse signals of productivity to employers (Gibbons and Katz 1991, Abbring et al 2002). Employers may suspect selectivity in the lay-off patterns of the prior employer and take displacement as a signal of undesirable working qualities in the individual. Hence, displaced workers may find themselves stigmatised in the labour market. The use of inside knowledge of job opportunities and personal references may represent one way that the displaced can reduce adjustment problems and counteract the negative information conveyed to potential employers by job loss through displacement. Moreover, in the case that displacement was genuinely unrelated to work performance, the ability to use direct employer contacts or employment referrals by friends or relatives may allow individuals to signal their ‘true’ productivity to potential employers. Alternatively, social networks may provide increased information about employment opportunities. In both cases the use of informal job networks would be associated with shorter post-displacement unemployment duration. Whilst, the former potential role for informal job networks, as a productivity signal, would also be expected to reduce post-displacement wage losses.

Second, it has been demonstrated that a major source of post-displacement welfare losses are due to increased job instability in subsequent employment spells (Stevens 1997). Individuals are more likely to have informal job networks

in their own industry and/or occupation. Hence, the use of informal job search methods may be associated with a greater likelihood of being re-employed in a job similar to that which the worker was displaced from. If there is a general reduction in the demand for output associated with these jobs, the use of these networks by displaced workers may contribute to further job insecurity. Hence, while access to informal job networks may alleviate immediate post-displacement problems related to the initial unemployment spell it may also lead to poor quality job matches and ongoing job instability.

Evidence on the role of job search methods for the unemployed in general has demonstrated that the use of informal job search methods, such as contacting friends/relatives or directly approaching employers, is associated with more job offers and shorter durations of unemployment (Holzer 1988, Blau and Robins 1990, Bentolila et al 2009). Whereas formal methods, and in particular the use of Public Employment Agencies (PEA) are a relatively poor source of job offers and are associated with longer periods of unemployment (Blau and Robins 1990, Bishop 1993, Ports 1993, Gregg and Wadsworth 1996). It has also been suggested that the use of employee referrals may allow employers to avoid paying efficiency wages, insofar as the presence of friends/relatives (i.e. referrers) within the firm may provide alternative method of employee monitoring (Kugler 2003). As a result, whilst the use of informal job search methods may lead to less time in unemployment, it may be associated with lower subsequent wages.

This discussion leads to a number of research questions. Are there systematic differences in the method of re-employment used by displaced workers? Do

displaced workers who use informal job search have shorter periods of post-displacement labour market inactivity than those who use formal job search methods? What are the wage effects of finding re-employment through informal job search methods? Does re-employment through informal networks lead to further job insecurity and/or a greater risk of subsequent displacement?

This paper addresses these questions using Australian longitudinal data that is advantageous in analysing the link between job search methods and post-displacement outcomes. This data contains information on individuals' job search methods, job finding methods, displacement episodes along with detailed duration data and information on post-displacement employment outcomes. The empirical analysis proceeds in three steps. First, we utilise competing risk techniques to assess the effect of job search methods on the duration of post-displacement labour market unemployment. Second, we assess the influence of job search methods on re-employment earnings. Finally, we estimate the impact of job search methods on post-displacement job stability, with particular emphasis on the risk of further displacement. Hence, this study provides the first evidence on job search methods of displaced workers and is the first econometric study of the impact of job search methods on re-employment matching.

The remainder of this paper is set out as follows. Section 2 discusses the data used, section 3 presents the results and section 4 concludes.

II. DATA AND BACKGROUND

The data source used is the Australian Bureau of Statistics (ABS) Survey of Employment and Unemployment Patterns (herein referred to as SEUP). SEUP

covers the period from the start of September 1994 to the end of August 1997.

The survey was conducted in three waves:

1. Wave 1: 5th September 1994 to 3rd September 1995;
2. Wave 2: 4th September 1995 to 1st September 1996; and
3. Wave 3: 2nd September 1996 to 31st August 1997.

Whilst 7,572 people were originally interviewed, the sample size was reduced by attrition to 6,056 by the end of wave 3. Individuals selected for the survey were aged 15-59 and living in a private residence as at May 1995. SEUP has an unusual sample framework. Respondents were split into two subgroups, Jobseekers and a Population Reference Group (PRG). The PRG is a random sample of the population, the Jobseekers group oversamples those who are unemployed, “it comprises individuals who were considered to be potential candidates for a labour market program at the time of recruitment” (Le and Miller 1998). It must be noted that the PRG and Jobseeker group are not mutually exclusive, the PRG contains some Jobseekers.

The definition of worker displacement is constrained by the question in SEUP that addresses reasons for retrenchment. This question uses the standard ABS labour force definition, whereby loss of work through retrenchment consists of dismissal due to business closing, dismissal for reasons of insufficient labour demand that does not involve a business closure and dismissal for poor performance for reasons unrelated to business conditions. The latter case is not generally considered a job loss due to displacement. However, Borland and McDonald (2001) report ABS findings that three quarters of ABS defined re-

trenchment is associated with the former two categories. Our sample consists of all individuals who lose a job through retrenchment during the first two waves of SEUP. This provides 1,584 individuals. In the case of an individual experiencing multiple displacement episodes we constrain our analysis to the first episode. In line with existing research on job displacement we focus on male displaced workers only, leaving 987 individuals. Appendix Table 1 provides selected summary statistics for this sample.

Before continuing it is worth mentioning the unemployment benefits scheme in Australia as it was at the time of SEUP. First, unemployment insurance was not means tested. Second, there is no unemployment insurance cut-off period in Australia or reduction in the replacement ratio over time. Individuals continue to have access to the same level of unemployment benefits irrespective of time in unemployment. Detailed information on unemployment insurance receipt was not available in SEUP.

A strength of SEUP as a data source lies in its episodic structure. For each of the waves, information is gathered for every employment, unemployment, not in labour force, training and social security episode experienced by the individual within the sample period. We observe, and have the characteristics of, every labour market episode that occurs during SEUP's sample period. In addition, SEUP contains detailed information on job search methods and it also identifies the method used to gain any employment episodes. Hence there is a distinction between job search methods, which relate to *ex ante* search behaviour (i.e. before finding a job), and job finding methods, which report the actual method

used to gain a given job. The specific job search methods reported in SEUP are direct employer contact; answering newspaper advertisements; checking factory or Public Employment Agency (PEA) noticeboards (which at the time of SEUP was the Commonwealth Employment Service, CES); registering with the PEA; contacting other employment agencies; advertised or tendered for work; and contacted friends or relatives. This information is recorded for every unemployment episode; and for every employment episode a job finding method is recorded. Job search methods are not mutually exclusive. Unemployed individuals can be recorded as undertaking multiple job search methods. Only one job finding method is recorded for each employment episode.

INSERT TABLE 1

Table 1 provides information on the *ex ante* job search method used by our sample of displaced workers, along with summary information on *ex post* job finding methods for displaced workers. Specifically, the job search method refers to any use of that job search method during the displacement-unemployment episode. Hence, it is a measure of incidence, not intensity, of use. The data suggest that the use of the PEA (70%), direct employer contact (71%) and answering newspaper advertisements (57.3%) are the main job search methods used by displaced workers. Displaced job seekers do not generally follow a single strategy for seeking a job. On average, the displaced used 2.49 different search methods.¹ It is worth noting that as this data refers to job search use during the unemployment spell, search methods that are associated with longer unemployment duration will be over-represented. In the last three columns we

report data that provides some indication of the relative effectiveness of job search methods. This data suggests that there are only small differences in the effectiveness of job search methods in terms of gaining employment. Of course, the fact that individuals use multiple job methods make any inference about effectiveness of job search methods based on this type of information at best approximate.

In the following analysis we aggregate search methods. Specifically, we group the use of the PEA and advertisements into one category, ‘formal’ job finding methods. This is necessary due to relatively small numbers of displaced workers finding work through each of these methods separately. As a result, exits from unemployment are assigned as being due to one of four types of job search methods: formal, direct approach, friends/relatives or other. Our primary interest is in the effect of the two ‘informal’ job search methods, direct approach and contacting friends/relatives on job search and subsequent labour market outcomes of displaced workers. As a result, formal methods are used as the omitted category in the empirical analysis of wages and post-employment stability. In addition, individuals may exit unemployment into self-employment, business ownership or other non-employee forms of work. Although these do not have an associated job search strategy, we treat these as a separate form of exit from unemployment rather than, for instance, treating them as censored unemployment spells.

INSERT TABLE 2

Table 2 presents an overview of characteristics of the first re-employment job,

along with information on general job stability after displacement, summarised by job finding method. It is immediately noticeable that a large proportion of these job spells finish before the end of the sample period (between 71 and 82 per cent). Moreover, the length of these job spells is relatively short, just over half a year. Job length appears particularly short for re-employment found through direct approach or friends/relatives. These job finding methods are also associated with a higher likelihood of subsequent displacement, perhaps reflecting a bias in informal job networks towards short-term or unstable jobs. Roughly half of displaced workers are re-employed in the same occupation group, whilst around a quarter are re-employed in a lower skill occupation. It is noticeable that job finding through either direct approach or friends/relatives is associated with a higher likelihood of re-employment in the same industry and occupation when compared to formal job finding methods. This is supportive of the view that workers' informal job networks are stronger and/or more effective within the same industry and occupation that they were displaced from. The link between changing occupation, industry and re-employment methods are investigated in more detail below.

III. RESULTS

A. Exits to Re-employment and Job Search Methods

Our first step is to examine any association between job search methods and re-employment outcomes for displaced workers. This is investigated by examining the relationship between the duration time in search (unemployment) after displacement, exit to re-employment and job search methods. To do this

we utilise competing risk models for duration data where re-employment by each respective job search method is treated as a separate exit state. Specifically, we allow for the following exit states: formal methods (advertisements and the public employment agency), direct approach, friends/relatives, other methods and self-employment. We adopt a semi-parametric competing risk approach with a gamma frailty to control for unobserved heterogeneity. More details of the estimation method are presented in appendix 1.

INSERT FIGURE 1.

Figure 1 displays the estimated quarterly baseline hazards across 18 months for the exit states associated with the four job search methods (and exit to self-employment). This is for exits to the first re-employment episode for individuals who had lost work through displacement. Estimates are from semi-parametric competing risk models. Baseline hazards are reported for models which include (solid line) and those that do not include a gamma frailty term to capture unobserved heterogeneity (dashed line). The overall shape of the two baseline hazard is of interest as they reveal time patterns of exit to re-employment by differing job finding methods. Differences between the homogenous and heterogenous estimates of the baseline hazard are of interest insofar as they reveal a potential role for unobserved job seeker attributes. Of particular relevance here is the effect of introducing a control for unobserved heterogeneity on estimated baseline hazards to employment via the two informal job finding methods, direct approach and friends/relatives. If the introduction of a term for individual unobserved heterogeneity ‘flattens’ these hazards in the early periods of job search

this reflects that individuals with superior unobservable attributes exit via this job search method early. This may be indicative of better quality displaced workers using informal job search methods to signal their underlying productivity.

Looking at the baseline hazards, re-employment through both informal job search methods displays negative duration dependence. The conditional probability of exit to re-employment is approximately 9% and 6% in the first quarter of search for friends/relatives and direct approach, respectively. These probabilities decline to around 2%-3% for those still in search after a year. The overall estimated hazard of exit via informal job search is markedly higher than that for formal job search methods. The combined probability of exit in the first quarter of search is approximately 15% for informal job search as compared to approximately 6% for formal methods. Unlike the raw data presented in Table 1, this suggests marked variations in the underlying effectiveness of informal versus formal job search methods for displaced workers. Exits to employment via friends/relatives decline rapidly after 3 months of job search. This suggests that displaced workers exhaust effective social job networks relatively early during the unemployment spell. However, controlling for unobserved heterogeneity leads to marked flattening of the baseline hazard for re-employment via direct approach, to the extent that there is no longer any noticeable duration dependence. Hence, the high early hazard rate in the homogeneous model is generated primarily by individuals with superior unobservable characteristics using this method early in the search period to find re-employment. This is supportive of the view that

(relatively) high productivity displaced workers use this type of informal job search to signal their productivity early in the post-displacement period. There is, however, no difference in the estimated baseline hazard between heterogeneous and homogeneous models for exits to re-employment by using friends/relatives (or also formal methods). There is some slight reduction in the hazard rate to re-employment via formal methods over time in search.

INSERT TABLE 3

Table 3 presents covariate estimates from competing risk models of re-employment. To aid interpretation, for each covariate and for each exit state we report the simulated marginal effect of the covariate on probability of exit (Pr). These are computed as set out in (8-10) within the appendix. We restrict our comments to those covariates that are statistically significant at standard levels. Older displaced workers are less likely to exit to re-employment through direct approach. Workers aged 40 to 49 were more likely to exit unemployment via the use of friends/relatives. There is some indication that those with diploma/vocational training qualifications or who were employed in a medium skill occupation (trade and intermediate production) are more likely to exit through informal job search methods. Generally, however, there are only limited effects related to the characteristics of displaced workers.

B. The Wage Impact of Re-employment Method

A key issue for displaced workers is the loss of earnings that occurs across displacement and re-employment jobs. We seek to gauge the link between search methods and post-displacement wage losses. First, we examine the effect of the

job finding method on the change between pre and post-displacement wages.

This can be specified as:

$$\ln W_i^r - \ln W_i^d = \alpha_0 + \beta X_i + \delta JSM_i + \varepsilon_i \quad (1)$$

Where the superscripts r and d refer to the re-employment and displacement episode, respectively; $\ln W_i$ is the log weekly wage of the i th individual; X_i is a vector of controls; JSM_i is the job finding method for the i th individual; and ε_i is an I.I.D. error term. Through this approach our primary aim is to examine how job search methods mitigate (or worsen) post-displacement wage losses. The controls in the vector X_i are generally standard, however one deserves further discussion. Changes in wages between displacement and re-employment jobs will be related to the loss of job, occupation and industry specific human capital. To address this we include tenure in the displacement job in the control vector.

INSERT TABLE 4

Column 2 of Table 4 presents OLS estimates of equation (1). The sample for this model excludes individuals who exited to a ‘non-employee’ labour market state as these individuals did not generally report wage earnings.² There is evidence that finding re-employment via direct approach, friends/relatives or ‘other’ methods is associated with a higher wage change (12-13%) when compared to displaced workers who were re-employed using formal methods, the omitted category. Other estimates suggest that displaced workers with degree qualifications experience substantial wage rate growth, all other things being

equal, between the displaced and reemployment job. Having longer tenure and hence more job-specific human capital in the displaced job is associated with wage rate reductions, although the magnitude of this effect is not large. More explicitly, one may want to control for whether the worker changed occupation or industry between the two jobs. Variants of (1) were estimated that included controls for whether the worker changed industry or occupation between displacement and re-employment job. Whilst the estimates were negative signed, as would be expected, neither were statistically significant at standard levels.

The previous section demonstrated a link between job finding method and duration of unemployment. If reservation wages vary across time in unemployment this may lead to a link between job search methods that have lower average associated unemployment duration and the average wages associated with gaining a job through these methods. To investigate this we included a control for duration of time in unemployment following displacement and re-estimated (1). The resultant estimates were not statistically significant. Critically, the inclusion of this control did not change the magnitude and statistical significance of the point estimates for job finding methods. This was also true of the inclusion of controls for changing industry and occupation. Hence, it does not appear that the higher wages, all others equal, related to informal job finding methods relative to formal methods are a result of variations in unemployment duration or the likelihood of changing industry/occupation across job finding methods.

A potential problem with the OLS estimates is that we do not observe re-employment wages if the displaced worker does not re-enter employment within

the sample period. Furthermore, it seems unlikely that these individuals will be a random subsample of displaced workers insofar as they are more likely to possess characteristics (both observed and unobserved) that make it less probable that they will find employment. In the case that these individuals are a non-random subsample of displaced workers, OLS estimates of wages changes will be biased. To investigate this, we utilise a two-stage model that aims to control for sample selectivity in the estimates of wage change (Heckman 1979). The first stage is to estimate the probability of re-employment:

$$\Pr(E_i) = \gamma_0 + \beta X_i + \mu_i \tag{2}$$

We do not observe the underlying probability of being employed, E_i^* , instead we observe a dummy variable, E_i , defined as $E_i = 1$ if $E_i^* > 0$ and $E_i = 0$ otherwise. Equation (2) is estimated by maximum likelihood and the inverse mill's ratio is used to correct equation (1). This approach seeks to correct the estimates of the covariates in the wage equation for bias due to the non-random partial observability of wages.

We identify the model using an instrumental variable approach. The instrument we adopt is whether the individual had a working partner. This fulfills the basic statistical requirements of an instrumental variable. It has a statistically significant relationship to the probability of being re-employed (p-value = 0.019), but is statistically unrelated to wage changes between displacement and re-employment jobs. To test further for instrument validity we employed

a Hausman exogeneity test. This involved including the residuals from (2) in (1) and estimating by OLS. A necessary compromise in this approach was to estimate (2) by OLS so as to retrieve the residuals. This test indicates that the instrument is exogenous to the log wage differential.³ A number of studies have shown that the presence of a working spouse affects re-employment probability and unemployment duration, but generally a working spouse has been found to decrease re-employment probability.⁴ However, previous Australian research demonstrates substantial positive correlations between female employment and male employment within households (Dawkins et al 2005). Our data fits with this previous Australian evidence insofar as having a working partner increases the probability of male re-employment.

Column 3 and 4 of Table 4 present the estimates from the selection equation and the wage change regression that incorporates a correction for sample selection. The latter estimates provide some suggestion that the impact of job finding methods indicated by the OLS regression may be upwardly biased. Point estimates of re-employment method effects are not, however, statistically significantly different between the OLS and corrected models.

Overall there appears to be evidence that informal job search networks, when compared to formal methods, may reduce wage losses between displacement and re-employment spells. This appears to run counter to suggestions that employee referrals and social networks are associated with lower wages (Kugler 2003, Bentolila et al 2009). Instead our estimates are more supportive of a view of informal job networks as allowing displaced workers to signal their productivity

and providing superior information on match quality. If this latter case is true, we would expect relative flat wage-tenure profiles for displaced workers who found re-employment through friends/relatives. Unfortunately, SEUP does not have a sufficiently long duration for this to be investigated.

C. Re-employment Characteristics, Displacement Risk and Job Duration

Stevens (1997) presents evidence that a major source of welfare losses for displaced workers is ongoing job instability. Search methods used to enter re-employment may be a critical factor in so far as individuals are more likely to have informal job networks in the industry and/or occupations from which they were displaced. As a result, jobs found through these methods are likely to be associated with an elevated risk of displacement, particularly as firms may operate last in, first out firing policies in the face of poor demand conditions. More generally, job instability may occur due to matching difficulties inherent in the job search process (Jovanovic 1979, Pries 2004). In this case we would expect there to be a link between displacement and ongoing instability, but this would not necessarily be associated with any given job search method.

We examine these issues in two main ways, first we model the risk of separation from re-employment job, without distinguishing between different reasons for separation. Through this, we seek to determine if there are any general associations between search methods and job instability for the displaced. Second, we explicitly examine the impact of search method on risk of displacement in the re-employment job.

To model the likelihood of separation from the re-employment job, we utilise

a single risk analogue of the semi-parametric competing risk hazard model used above to estimate time until separation from the re-employment job and include job search methods as regressors. To the extent that an employer-employee separation represents a revealed poor job match and the time taken to reveal this will generally be inversely related to how 'poor' this match is, this approach provides some evidence on the link between job search method and job match quality for displaced workers.

INSERT FIGURE 2

Figure 2 presents the estimated baseline hazard from this model. Again this is plotted for both the baseline hazard from the homogeneous model (dotted line) and the model including a control for individual level unobserved heterogeneity (smooth line). The first thing to note is the magnitude of the probability of exit from the first post-displacement job. Even after introducing a control for unobserved heterogeneity the expected underlying probability of exit from the post-displacement job is over 30% within the first 90 days. Both models suggests a degree of negative duration dependence. The ongoing magnitude of risk of exit between 15% and 25% for the first 18 months of the post-displacement job supports the view that post-displacement employment is characterised by instability (Stevens 1997).

INSERT TABLE 5

Table 5 presents the covariate estimates from this model. The results suggest that when compared to job finding through formal search methods, informal job search methods are associated with a higher risk of subsequent separa-

tion. Hence, while results presented earlier suggested that informal job search methods were associated with shorter post-displacement time in search and a reduced loss of wages, they are associated with less stable post-displacement employment. Separate models were also estimated (but not reported) including controls for whether the individual changed occupation or industry. These provided some indication that changing occupation reduces the likelihood of separation, but had no impact on the estimates of job search method effects.

INSERT TABLE 6

A critical issue is the extent to which individuals who are displaced face on-going, or even an increased, risk of being displaced in later jobs. Table 6 presents results from a probit regression, where the dependent variable is a dummy that indicates whether individuals lost their first re-employment job through displacement (displacement risk). To aid interpretation all estimates are reported as marginal effects. Re-employment through informal methods, friends/relatives or direct approach, is associated with a subsequent displacement risk of between 14 and 16 percentage points higher than those re-employment jobs found through formal methods. This suggests that displaced workers who use informal job search methods to find re-employment may be exposing themselves to an increased risk of further displacement episodes. In the second model we introduce variables indicating whether the worker changed occupation and/or industry when they took their post-displacement job. These results suggest that those who change occupation are 9 percentage points less likely to be subsequently displaced from their re-employment job. There is no evidence that changing

industry reduces displacement risk. The occupation effect could occur for one of two reasons. These individuals may have moved from an occupation with declining demand, where the underlying risk of displacement is high, to another occupation for which demand is not in decline. Alternatively, the ability to move occupation may indicate the individual has more general skills and/or higher productivity, which will be associated with lower displacement risk irrespective of industry or occupation of employment.

INSERT TABLE 7

If informal networks are stronger in the industry and occupation within which the worker has previously been employed, the use of informal job search methods may reduce the likelihood of changing occupation. If, in turn, changing occupation (or industry) reduces displacement risk, the use informal job search methods may increase the subsequent risk of displacement. Table 2 suggests that there is a relationship between job finding method and the likelihood of changing occupation/industry. To investigate this we re-estimate the main model in Table 6 separately according to whether the individual changed occupation or changed industry. Estimates are reported in Table 7 where for brevity only the estimates of job finding method are reported. If the reason why informal job search methods increase displacement risk is due to workers re-entering jobs similar to their displaced job where there is ongoing poor demand conditions the impact on displacement risk should be larger when workers do not change industry or occupation. This does not appear to be the case. The heightened risk of displacement associated with informal job search methods is apparent

irrespective of whether the worker changed occupation or industry. The only exception being perhaps workers who changed industry and used direct approach. Here the associated displacement risk is not statistically significantly higher than that for formal methods. In unreported estimates a similar strategy was adopted for separations as a total. Again there did not appear to be marked differences between the impact of informal job search methods on separation risk according to whether workers changed occupation/industry. Together these estimates suggest that the heightened separation and displacement risk associated with informal job search methods is not due to re-employment in occupations or industries with poor demand conditions. Instead they suggest that these job search methods are associated more generally with unstable employment.

IV. CONCLUSION

This paper has investigated the role of job search methods for displaced workers. The use of informal job search methods is associated with shorter post-displacement unemployment search duration and increased likelihood of exit overall when compared to formal job search methods. Furthermore, informal job search methods appear to generate superior wage outcomes in the initial re-employment job. There is evidence that re-employment through friends/relatives reduces wage losses between displacement and post-displacement jobs, relative to formal methods. This is supportive of the view that informal job networks allow displaced workers to signal productivity and provide superior information on match quality (Simon and Warner 1992), and runs counter to suggestions that employee referrals and social networks are associated with lower wages

(Kugler 2003, Bentolila et al 2009)

A critical issue for displaced workers is job stability. It has previously been demonstrated that recurring job loss is a major source of ongoing welfare losses for displaced workers (Stevens 1997). In our data, the first re-employment job appears to be short-lived. Approximately three quarters of re-employment jobs end within the sample period. Those who find these jobs through informal methods face a particularly high rate of separation, and moreover a 14 to 16 percentage point increase in displacement risk. These results suggest that displaced workers who use informal job networks as a method of gaining re-employment are more likely to face ongoing labour market difficulties.

One explanation for these results is that informal job search is more likely to result in jobs that are similar to the occupation and industry from which the worker was displaced from. Whilst displaced workers who find re-employment through informal job methods are less likely to change industry and occupation, we find no evidence that this is the source of their greater probability of separation and risk of displacement. Instead, our results suggest that jobs found through informal methods are associated generally with unstable employment.

REFERENCES

- Addison, J. and Portugal, P. (2002). Job Search Methods and Outcomes, Oxford Economic Papers, Vol. 54, pp. 505-533.
- Abbring, J., van den Berg, G., Gautier, P., van Lomwell, A., van Ours, J. and Ruhm, C. (2002). Displaced Workers in the United States and the Netherlands, in P.Kuhn (ed), Losing Work, Moving on: Worker Displacement in International Perspective, William Upjohn Institute, Kalamazoo.
- Andrews, M., Bradley, S. and Stott, D. (2002). Matching the Demand for and the Supply of Training in the School-to-Work Transition, Economic Journal, Vol. 112, pp. 201-219.
- Bentolila, S., Michelacci, C. and Suarez, J. (2009) Social Contacts and Occupational Choice, *Economica* (forthcoming).
- Bishop, J. (1993). Improving Job-Worker Matching in the US Labor Market' Brookings Papers on Economic Activity, Microeconomics, Vol. 1, pp. 335-400.
- Blau, D. and Robins, P. (1990). Job Search Outcomes for the Employed and Unemployed, *Journal of Political Economy*, Vol. 98, pp. 637-655.
- Borland, J. and McDonald, J. (1999) Displaced Workers in Australia 1984-1996, Macroeconomic Conditions and Structural Change, University of Melbourne Research Paper No. 824.

- Bradshaw, T. (1973). Job Seeking Methods Used by Unemployed Workers, *Monthly Labor Review*, Vol. 96, pp. 35-40.
- Burda, M. and Mertens, A. (2001). Estimating Wage Losses of Displaced Workers in Germany, *Labour Economics*, Vol. 8, pp. 15-41.
- Datcher, L. (1983). The Impact of Informal Networks on Quit Behaviour, *Review of Economics and Statistics*, Vol. 65, pp. 491-495.
- Dawkins, P., Gregg, P. and Scutella, R. (2005) Employment Polarisation in Australia, *Economic Record*, Vol. 81, pp. 336-350
- Dynarski, M. and Sheffrin, S. (1990). The Behavior of Unemployment Durations over the Cycle, *The Review of Economics and Statistics*, Vol. 72, pp. 350-356.
- Farber, H. (1993). The Incidence and Costs of Job Loss, 1982-91, *Brookings Papers on Economic Activity, Microeconomics*. Vol. 1, pp.75-119.
- Farber, H. (1999). Alternative and Part-Time Employment Arrangements as a Response to Job Loss, *Journal of Labor Economics*, Vol. 17, pp.
- Gibbons, R. and Katz, L. (1991) Layoffs and Lemons, *Journal of Labor Economics*, Vol. 9., pp. 351-380.
- Gregg, P and Wadsworth, J. (1996). How Effective are State Employment Agencies: Jobcentre Use and Job Matching in Britain, *Oxford Bulletin of Economics and Statistics*, Vol. 58, pp. 43-67.
- Heckman, J. (1979). Sample Selection Bias as a Specification Error, *Econometrica*, Vol. 47, pp. 153-161.

- Holzer, H. J. (1987a). Job Search by Employed and Unemployed Youth, *Industrial and Labor Relations Review*, Vol. 40, pp. 601-611.
- Holzer, H. J. (1987b). Informal Job Search and Black Youth Unemployment, *The American Economic Review*, Vol. 77, pp. 446-452.
- Holzer, H. J. (1988). Search Method Use by Unemployed Youth, *Journal of Labor Economics*, Vol. 6, pp. 1-19.
- Jacobson, L., LaLonde, R. and Sullivan, D. (1993). Earnings Losses of Displaced Workers, *American Economic Review*, Vol. 83, pp. 685-709.
- Jovanovic, B. (1979). Job Matching and the Theory of Turnover, *Journal of Political Economy*, Vol. 87, pp. 972-990.
- Kugler, A. (2003). Employer Referrals and Efficiency Wages, *Labour Economics*, Vol. 10, pp. 531-556.
- Kletzer, L. (1989). Returns to Seniority After Permanent Job Loss, *American Economic Review*, Vol. 79, pp. 536-543.
- Le, A. T. and Miller, P. W. (1998). The ABS Survey of Employment and Unemployment Patterns, *Australian Economic Review*, Vol. 31, pp. 290-297.
- Montgomery, J. (1991). Social Networks and Labour Market Outcomes: Toward an Economic Analysis, *American Economic Review*, Vol. 81, pp. 1408-1418.
- Oreopoulos, P., Page, M. and Stevens, A.H. (2008). The Intergenerational Effects of Worker Displacement, *Journal of Labor Economics*, Vol. 26, pp.455-483.

- Osberg, L. (1993). Fishing in Different Pools: Job-Search Strategies and Job-Finding Success in Canada in the Early 1980s, *Journal of Labor Economics*, Vol. 11, pp. 348-386.
- Podgursky, M and Swaim, P. (1987). Job Displacement Earnings Loss: Evidence from the Displaced Workers Survey, *Industrial and Labor Relations Review*, Vol. 49, pp. 17-29.
- Ports, M. (1993). Trends in Job Search Methods, *Monthly Labor Review*, Vol 116, pp. 63-67.
- Pries, M. (2004). Persistence of Employment Fluctuations: A Model of Recurring Job Loss, *Review of Economic Studies*, Vol. 71, pp. 193-215.
- Rees, A. (1966). Information Networks in Labor Markets, *American Economic Review*, Vol. 56, pp. 559-566.
- Simon, C. and Warner, T. (1992). Matchmaker, Matchmaker: The Effect of Old Boy Networks on Job Match Quality, Earnings and Tenure, *Journal of Labor Economics*, Vol. 10, pp. 306-330.
- Solon, G. (1985). Work Incentive Effects of Taxing Unemployment Benefits, *Econometrica*, Vol. 53, pp. 295-306.
- Stevens, A.H. (1997). Persistent Effects of Job Displacement: The Importance of Multiple Job Losses, *Journal of Labor Economics*, Vol. 15, pp. 165-188.

Notes

¹This is similar to figures reported for the unemployed in general, see for instance Addison and Portugal (2002).

²Furthermore, in the case that wage/salary earnings were reported it is not clear whether self-employed were receiving other remuneration, such as profits, from their employment.

³ $F(1,964) = 0.73$, p-value = 0.392.

⁴For instance Solon (1985) finds that having a working spouse has a negative effect on gaining re-employment, but only for women, while Dynarski and Sheffrin (1990) finds that individuals with working spouses are less likely to gain re-employment if they are in receipt of unemployment insurance.

1 Technical Appendix

Exits to a new employment episode for individual i can be described as a continuous process with a hazard of:

$$\theta_i(t) = \lambda(t) \exp(x_i' \beta) \quad (3)$$

where $\lambda(t)$ is the baseline hazard and x is a vector of observable covariates (time-invariant) and β is a vector of unknown coefficients. This provides a version of (3) for estimation. We utilise the discrete time version of this model. Each individual exits to a new employment episode during interval $t \rightarrow t + 1$ with a given probability given they were still in their initial labour force state (i.e. unemployed) at time t . The discrete time hazard is given by

$$\theta_i(t) = 1 - \exp \left\{ - \int_{t_i}^{t+1} \theta_i(u) du \right\} = 1 - \exp \{ - \exp(x_i' \beta) \gamma(t) \} \quad (4)$$

where:

$$\gamma(t) = \int_t^{t+1} \lambda(u) du \quad (5)$$

denotes the integrated baseline hazard. No particular parametric form is assumed for $\gamma(t)$ and the model is estimated semi-parametrically. The log likelihood contribution of a spell of length d_i is:

$$L_i = c_i \ln \theta_i(d_i) + \sum_{t=1}^{d_i-1} \ln \{1 - \theta_i(t)\} \quad (6a)$$

$$= c_i \ln \left(1 - \exp \left[- \exp \{x_i(d_i)' \beta + \gamma(d_i)\} \right] \right) \quad (6b)$$

$$- \sum_{t=1}^{d_i-1} \exp \{x_i' \beta + \gamma(t)\}$$

where c_i is a censoring indicator that takes the value 1 if d_i is uncensored and zero otherwise. This specifies a single risk model where the γ 's are interpreted as the log of a non-parametric piece-wise linear baseline hazard. The data form a panel with each individual supplying $j = 1, 2, \dots, d_i$ observations. Each exit state denotes an exit to a different destination state. For each destination state, all observations are zero except the last, where the last is unity only if the individual exits to that state. Hence, there is a hazard for each j time period for each exit state. Equation above (6) is estimated separately for each exit state (m). We assume proportional hazards and so the covariates affect the hazard through the complementary log-log link.

Following Andrews et al (2002), we note that the coefficient estimates on the covariates in these competing risk regressions are difficult to interpret. The exit risk to state m (Π_m) and the expected waiting time until exit via risk m (E_m) both depend on hazards to each state, through the overall survival function as shown by:

$$\Pi_m = \sum_{t=1}^{\infty} \theta_{mt} S_{t-1}, E_m = \frac{1}{\Pi_m} \sum_{t=1}^{\infty} t \theta_{mt} S_{t-1}, S_t = \prod_{s=1}^t \left(1 - \sum_{m=1}^M \theta_{ms} \right) \quad (7)$$

Where s is the survival function at time t .

Hence, we estimate the probability of exit via state m conditional on exiting during interval t denoted as:

$$P_{mt} = \frac{\theta_{mt}}{\sum_{m=1}^M \theta_{mt}}, m = 1, 2, \dots, M. \quad (8)$$

The baseline hazards used to compute the probabilities are:

$$\hat{\theta}_{mt} = 1 - \exp \left[- \exp \left\{ \bar{x}' \hat{\beta} + \hat{\lambda}_{mt} \right\} \right] m = 1, 2, \dots, M. \quad (9)$$

where \bar{x} is the sample mean. In the empirical chapters we report the marginal effect of x on the conditional exit probability, which is given by:

$$\delta_m \equiv \frac{\partial P_{mt}}{\partial x} = \frac{\theta_{mt} \sum_{k \neq m} \theta_{kt} (\beta_m - \beta_k)}{\left[\sum_{m=1}^M \theta_{mt} \right]^2} \quad (10)$$

These equations can be used to compute the expected waiting time for each destination state (E). These waiting times can then be re-estimated with covariates given a value of 0 and 1 for dummy variables (for continuous variables \bar{x} is moved by one standard error) These provide simulated marginal effects of each covariate on the expected waiting time til exit to state (E), $(\Delta E / \Delta x)$

In addition we include a gamma frailty term in an attempt to control for individual level unobserved heterogeneity. With this term included, the conditional continuous time hazard can be specified as:

$$\theta_i(t) = \lambda(t) \exp(x_i' \beta + v_i) \quad (11)$$

where the assumption is made that v are random variables (one for each exit state) distributed as a Gamma variate of unit mean and variance σ^2 and they are independent across each exit state hazard. The log likelihood function is then given by:

$$L_i = \ln \left[\begin{array}{l} \left(1 + \sigma^2 \sum_{t=a_i+1}^{a_i+b_i-1} \exp \{ x_i' \beta + \gamma(t) \} \right)^{-\frac{1}{\sigma^2}} \\ -c_i \left(1 + \sigma^2 \sum_{t=a_i+1}^{a_i+b_i-1} \exp \{ x_i' \beta + \gamma(t) \} \right)^{-\frac{1}{\sigma^2}} \end{array} \right] \quad (12)$$

Figure 1: Estimated Baseline Hazards, Competing Risk to Re-employment by Job Finding Method.

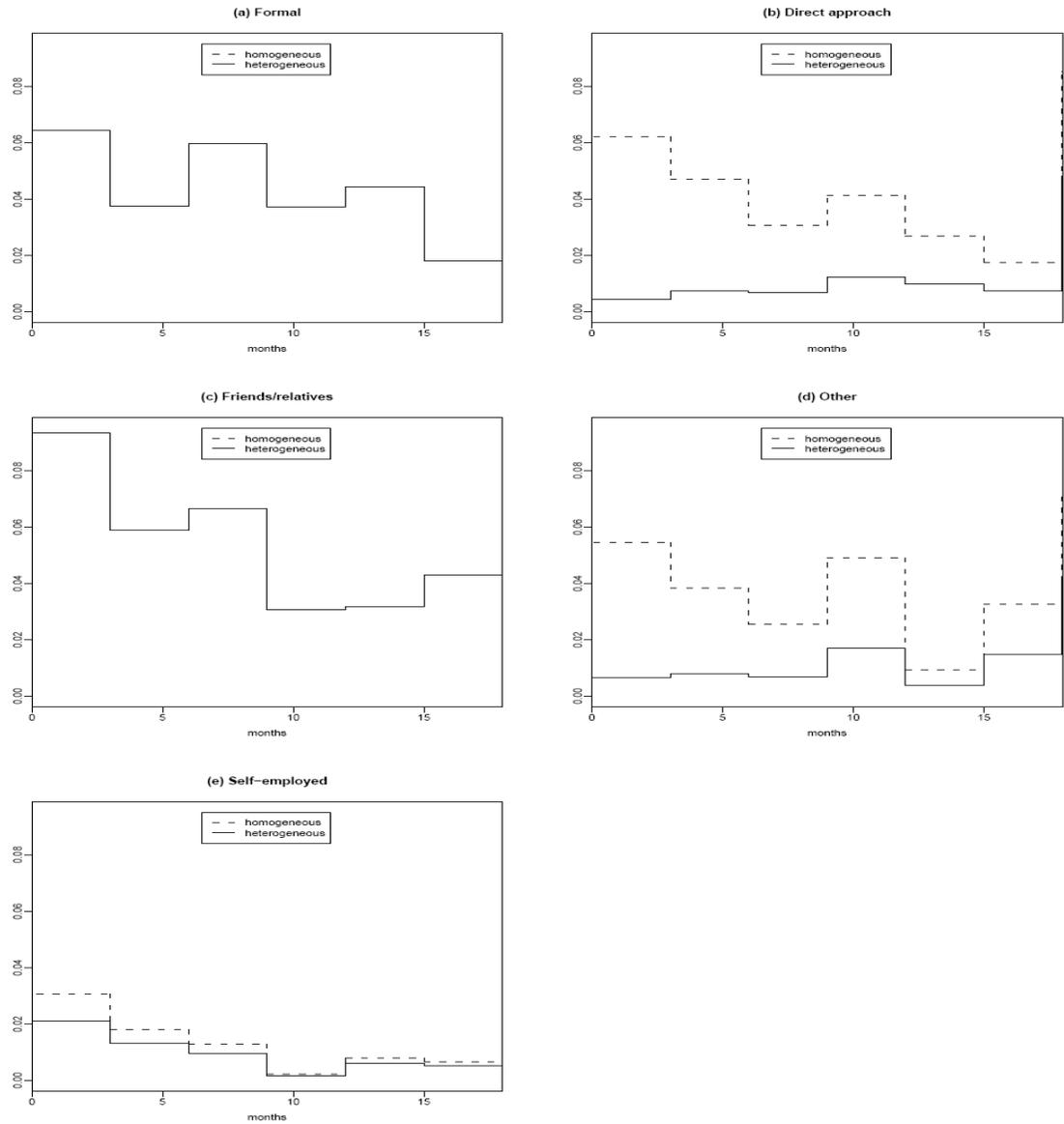


Figure 2: Baseline Hazard, Separation from Re-employment.

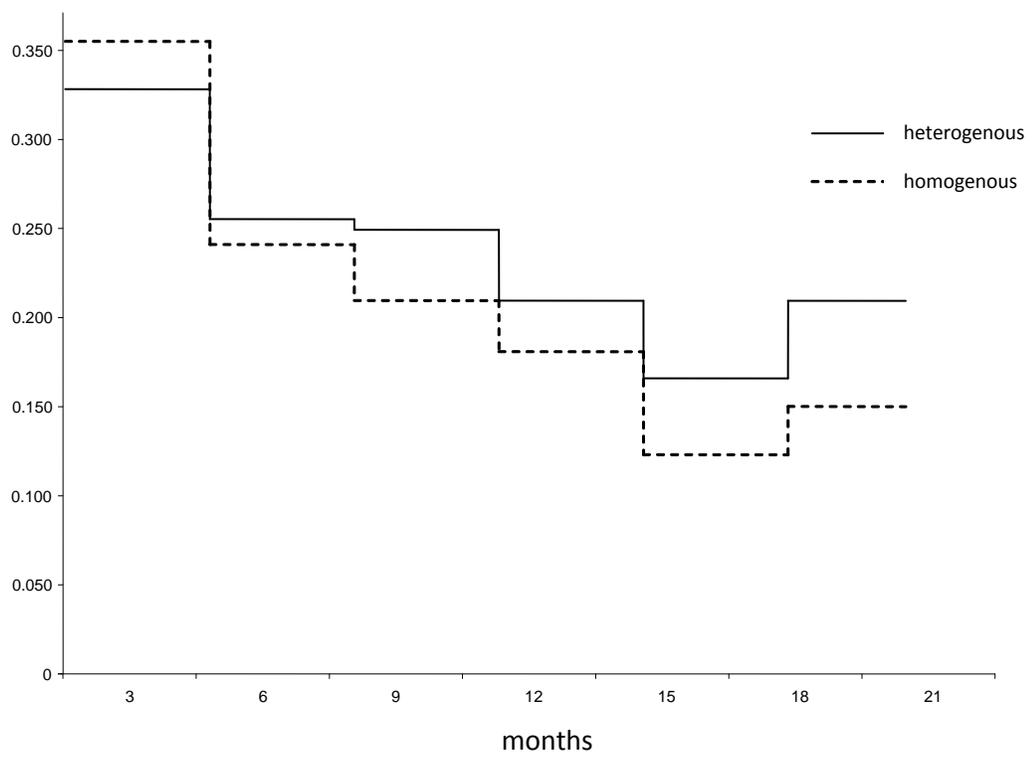


Table 1: Job Search and Job Finding Methods - Displaced Workers

	Number (%) using search method	Number (%) finding a job	Number (%) using a job search method who found job by that method	Number (%) employed by job finding method
Formal methods			120 (16.6%)	168 (17.0%)
Newspaper advertisement	566 (57.3%)	416 (73.5%)		
PEA	694 (70.3%)	512 (73.8%)		
Advertised/tendered for work	92 (9.3%)	70 (76.1%)		
Informal methods				
Direct employer contact	710 (71.9%)	533 (75.1%)	126 (17.8%)	163 (16.5%)
Friends or relatives	424 (43.0%)	313 (73.8%)	70 (16.5%)	184 (18.4%)
Other	68 (6.9%)	53 (77.9%)	12 (17.7%)	151 (15.3%)
Individuals	987			

Source: *SEUP*.

Table 2: Characteristics of Re-employment Job, Displaced Male Workers

	How Re-Employment Job Was Found		
	Formal	Direct approach	Friends
Re-employed in Same Occupation Group	0.435	0.503	0.484
Re-employed in lower skill Occupation	0.310	0.214	0.231
Re-employed in Same Industry	0.330	0.411	0.373
Separated from Re-employment Job (in sample)	0.726	0.822	0.774
Duration of First Re-employment Job (days)	232.51	197.48	184.604
Displaced from Re-employment job	0.202	0.337	0.319
Observations	168	163	184

Source: *Seup*

Table 3: Covariate Estimates, Exit to First Post-Displacement Job

	Formal (168 Exits)		Direct Approach (163 Exits)		Friends/Relatives (184 exits)		Other Methods (151 exits)		Self Employed (106 Exits)	
	β	Pr	β	Pr	β	Pr	β	Pr	β	Pr
High School	-0.037 [0.23]	-0.067	0.349 [0.435]	0.010	0.318 [0.203]	0.083	-0.265 [0.425]	-0.018	0.009 [0.397]	-0.008
Diploma/Voc. Train	0.179 [0.196]	-0.061	0.127 [0.402]	-0.010	0.400** [0.190]	0.031	0.766** [0.386]	0.020	0.637** [0.325]	0.020
Degree	0.292 [0.372]	-0.023	1.062 [0.722]	0.035	0.338 [0.358]	0.018	0.718 [0.644]	0.019	-0.791 [0.743]	-0.070
Urban	0.194 [0.198]	-0.002	-0.079 [0.377]	-0.013	0.223 [0.198]	0.010	0.623** [0.378]	0.019	-0.023 [0.283]	-0.014
Non-English Speaking	-0.322 [0.232]	-0.036	-0.974** [0.405]	-0.034	0.020 [0.205]	0.112	-0.313 [0.404]	-0.004	-0.827*** [0.491]	-0.038
Background										
Age 30 to 39	-0.058 [0.210]	0.003	-0.904** [0.447]	-0.039	-0.077 [0.195]	-0.005	0.099 [0.370]	0.008	0.440 [0.355]	0.033
Age 40 to 49	-0.021 [0.220]	0.089	-1.281* [0.515]	-0.048	-0.448** [0.239]	-0.090	-0.029 [0.391]	0.010	0.363 [0.344]	0.039
Age 50 to 59	-0.517 [0.319]	-0.0003	-2.337* [0.806]	-0.084	-0.428 [0.310]	0.039	-0.866 [0.584]	-0.0161	0.437 [0.437]	0.061
<i>Displaced Job</i>										
<i>Characteristics</i>										
Manufacturing	0.286 [0.182]	0.079	0.333 [0.379]	0.013	0.026 [0.181]	-0.010	-0.544 [0.385]	-0.027	-0.809** [0.422]	-0.055
Part Time	-0.193 [0.227]	0.028	-0.512 [0.464]	-0.012	-0.192 [0.211]	0.032	-0.636 [0.438]	-0.0172	-0.744*** [0.420]	-0.031
Tenure	-1.3e-06 [4.1e-05]	5.7e-06	-9.3e-06 [4.8e-05]	6.2e-06	2.0e-04* [6.8e-05]	-0.0001	3.3e-05 [3.8e-05]	6.0*e-06	1.7e-06 [4.9e-05]	2.0e-06
Professional/Manager	0.165 [0.333]	0.043	0.468 [0.679]	0.019	0.09 [0.349]	-0.078	-0.541 [0.625]	-0.028	0.730*** [0.447]	0.043
Para Professional	0.225 [0.191]	0.018	0.420 [0.396]	0.011	-0.117 [0.188]	-0.051	0.269 [0.352]	0.004	0.447 [0.311]	0.017
Medium Skill	0.168 [0.183]	-0.018	0.791** [0.384]	0.027	0.233 [0.171]	0.009	0.620*** [0.354]	0.019	-0.367 [0.329]	-0.037
Large Firm	-0.219 [0.192]	-0.051	0.343 [0.372]	0.020	0.014 [0.179]	0.047	-0.237 [0.334]	-0.007	-0.227 [0.325]	-0.009
Job Seeker	0.421 [0.328]	-0.156	-0.925*** [0.545]	-0.044	-0.069 [0.284]	-0.044	-0.292 [0.464]	-0.015	-0.782*** [0.421]	-0.052
Observations	3,157									
Log Likelihood	-638.487		-607.460		-662.570		-577.973		-332.631	

Notes: Pr are the simulated marginal effects; β are the standard errors. *, **, *** denote significance at the 1%, 5% and 10% level, respectively. Omitted categories are aged under 30, non-urban location, less than high school level education, full-time, non-manufacturing job, low skill occupation and displaced from a small firm

Table 4: Log Weekly Wage Change: Displaced Job to Re-employment Job, Age 20-59

	Wage Change	Probit (Re-employed)	Corrected Wage Change Estimate
Direct Approach	0.114*** [0.062]		0.104*** [0.062]
Friends	0.125*** [0.066]		0.113*** [0.060]
Other	0.117** [0.057]		0.111*** [0.064]
High School	0.113 [0.071]		0.120*** [0.067]
Diploma / Vocational Training	-0.001 [0.049]	0.170 [0.122]	0.040 [0.057]
Degree	0.323** [0.155]	0.236** [0.102]	0.374* [0.102]
Urban	0.066 [0.061]	0.414** [0.193]	0.112*** [0.060]
Non-English Speaking Background	0.025 [0.062]	0.261* [0.100]	-0.009 [0.069]
Age 30 to 39	-0.060 [0.060]	-0.242** [0.115]	-0.070 [0.062]
Age 40 to 49	-0.076 [0.065]	-0.153 [0.112]	-0.122*** [0.069]
Age 50 to 59	0.079 [0.145]	-0.294* [0.119]	-0.037 [0.100]
Job Seeker	0.138*** [0.080]	-0.522* [0.154]	0.211** [0.087]
Tenure in Displaced Job (yrs)	-0.009*** [0.005]	0.502* [0.140]	-0.009*** [0.005]
Working Partner		0.250** [0.113]	
Constant	-0.271* [0.114]	-0.234 [0.166]	-0.513* [0.133]
ρ		0.495* [0.127]	
ρ^2	0.056		
Observations	623		

Notes: [] are the standard errors. *, **, *** denote significance at the 1%, 5% and 10% level, respectively. Omitted categories are aged under 30, non-urban location, less than high school level education, full-time, non-manufacturing job, low skill occupation and displaced from a small firm.

Table 5: Exit from Re-employment job, Hazard Estimates

	Coeff
JSM - Direct Approach	0.392** [0.185]
JSM - Friends	0.420** [0.180]
JSM - Other	0.158 [0.166]
High School	-0.342** [0.169]
Diploma/Vocational Training	-0.272*** [0.144]
Degree	-0.212 [0.259]
Urban	-0.144 [0.142]
Non-English Speaking Background	-0.414** [0.181]
Age 30 to 39	-0.179 [0.149]
Age 40 to 49	-0.307*** [0.169]
Age 50 to 59	-0.152 [0.222]
<i>Reemployed Job Characteristics</i>	
Manufacturing	-0.340** [0.152]
Professional/Manager	-0.459*** [0.267]
Para Professional	-0.129 [0.149]
Medium Skill	-0.220 [0.139]
Large Firm	-0.411** [0.178]
Job Seeker	0.737* [0.251]
Observations	1864
Log Likelihood	-1001.838

Notes: [] are the standard errors. *, **, *** denote significance at the 1%, 5% and 10% level, respectively.

Table 6: Risk of Displacement from Re-employment Job - Marginal Effects

	(I)	(II)
JSM - Direct Approach	0.161* [0.048]	0.150* [0.049]
JSM - Friends	0.144* [0.048]	0.136* [0.048]
JSM - Other	0.037 [0.051]	0.027 [0.052]
High School	-0.035 [0.048]	-0.024 [0.048]
Diploma/Vocational Training	-0.079*** [0.042]	-0.078*** [0.042]
Degree	-0.055 [0.084]	-0.054 [0.084]
Urban	0.095** [0.045]	0.089** [0.045]
NESB	-0.094*** [0.052]	-0.0869*** [0.052]
Age 30 to 39	0.058 [0.045]	0.052 [0.045]
Age 40 to 49	0.035 [0.049]	0.027 [0.049]
Age 50 to 59	0.060 [0.068]	0.063 [0.068]
<i>Reemployed Job Characteristics</i>		
Manufacturing	0.039 [0.042]	0.036 [0.042]
Changed Industry		-0.030 [0.037]
Professional/Manager	-0.142 [0.090]	-0.131 [0.090]
Para Professional	-0.060 [0.046]	0.061 [0.046]
Medium Skill	0.042 [0.0456]	0.050 [0.042]
Changed Occupation		-0.087** [0.036]
Large Firm	-0.042 [0.046]	-0.035 [0.045]
Job Seeker	0.031 [0.060]	0.033 [0.060]
Observations	679	
Log Likelihood	-377.233	-372.96
pseudo r ²	0.048	0.052

Notes: [] are the standard errors. *, **, *** denote significance at the 1%, 5% and 10% level, respectively. Omitted categories in sets of dummy variables are formal methods, less than high school completion, Age 20-29 and low skill occupation.

Table 7: Risk of Displacement from Re-employment Job, Changing Occupation and Changing Industry - Marginal Effects

	Changed Occupation	Did Not Change Occupation	Changed Industry	Did Not Change Industry
JSM - Direct Approach	0.161* [0.048]	0.150* [0.049]	0.187* [0.068]	0.122 [0.095]
JSM - Friends	0.144* [0.048]	0.136* [0.048]	0.120** [0.064]	0.209** [0.095]
JSM - Other	0.037 [0.051]	0.027 [0.052]	-0.004 [0.065]	-0.003 [0.072]
Observations	362	317	422	257
Log Likelihood	-174.448	-189.128	-219.502	-147.651
pseudo r ²	0.075	0.058	0.060	0.069

Notes: [] are the standard errors. *, **, *** denote significance at the 1%, 5% and 10% level, respectively. All other controls as per Table 6. Omitted categories in sets of dummy variables are formal methods, less than high school completion, Age 20-29 and low skill occupation.

Appendix Table A1 Summary Statistics, Male Displaced Workers

Variable	Mean
<i>Age</i>	
15 to 29	0.508
30 to 39	0.216
40 to 49	0.174
50 to 59	0.102
Non-English Speaking Background	0.159
<i>Highest Educational Qualification</i>	
Less than High School	0.489
High School Completion	0.160
Diploma/Vocational Training	0.292
Degree or higher	0.059
Capital City/Urban Area	0.772
Rural Area	0.228
Job Seeker	0.892
<i>Displaced Job Characteristics</i>	
Tenure (days)	839.095
Manufacturing Sector	0.220
Primary Sector	0.209
Service Sector	0.571
Professional/Managerial	0.079
Para Professional	0.280
Medium Skill	0.294
Low Skill	0.347
Large Firm (100+ Employees)	0.262

Source: SEUP.