Job Search, Emotional Well-Being and Job Finding in a Period of Mass Unemployment:

Evidence from High-Frequency Longitudinal Data

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Abstract

This paper presents findings from a survey of 6,025 unemployed workers who were interviewed every week for up to 24 weeks in the fall of 2009 and winter of 2010. Our main findings are: (1) the amount of time devoted to job search declines sharply over the spell of unemployment; (2) we do not observe a rise in job search or job finding around the time Unemployment Insurance (UI) benefits expire; (3) unemployed workers express much dissatisfaction and unhappiness with their lives, and their unhappiness rises the longer they are unemployed; (4) the unemployed appear to be particular sad during episodes of job search, and they find job search more depressing over the course of unemployment; (5) in the Great Recession the exit rate from unemployment was low at all durations, and declined gradually over the spell of unemployment; and (6) the amount of time devoted to job search and the reservation wage help predict early exits from Unemployment Insurance (UI).

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1. Introduction

For the first time since the early 1980s, mass unemployment is a problem in the United States. The unemployment rate reached 10.1 percent in October 2009, more than double its rate a year and half earlier. In addition, nearly half of the unemployed were out of work for 27 weeks or longer in early 2011, and the mean duration of an ongoing spell of unemployment lasted around 9 months. Extended unemployment carries with it the risk that many of those out of work will lose relevant skills and become discouraged from looking for work, raising the specter of hysteresis and permanently higher joblessness. This paper provides evidence on the job search process, the effectiveness of job search activities, the emotional well-being of the unemployed, and the likelihood of finding a job and leaving unemployment insurance using new survey data for a large sample of unemployed workers collected in the fall of 2009 and winter of 2010. We devote particular attention to measuring how job search activity and emotional well-being evolve over the course of unemployment for a given set of individuals to assess whether the unemployed become discouraged.

Research has long found that the exit rate from unemployment falls over the spell of unemployment (e.g., Kaitz, 1970). However, it is difficult to infer from the declining hazard rate whether the behavior of the unemployed changes over time (e.g., discouragement leading to less job search and a lower exit rate) or whether the composition of the sample of unemployed individuals changes (e.g., heterogeneity bias as those who search most intensively are more likely to find a job sooner).[1] In addition, research for the U.S. has found that part of the reason for the observed declining hazard is because some workers are recalled to previous jobs.[2]

[1] See Devine and Kiefer (1991) and Van den Berg and van Ours (1994) for a summary of the literature that attempts to distinguish between heterogeneity and changes in behavior with data on unemployment spells.
[2] See Katz and Meyer (1990).

Our study is distinguished from past work by the use of high-frequency longitudinal data on search activity. Specifically, we designed and implemented a large-scale *weekly* survey of Unemployment Insurance (UI) recipients in New Jersey. More than 6,000 unemployed workers participated in the survey for up to 12 weeks, and the long-term unemployed were surveyed for an additional 12 weeks. A total of 39,201 weekly interviews were completed. We also have restricted access to administrative data from the UI system, which is important given the high rate of nonresponse. New Jersey's unemployment rate closely mirrored the national average in 2009 and 2010 (see figure 1.1), so the results shed light on job search behavior in the worst labor market environment in decades. Nationwide, the number of workers claiming state and federal UI benefits at the start of our survey in October 2009 was nearly two thirds as large as the total number of unemployed workers estimated by the Bureau of Labor Statistics.

We focus on individuals' job search activity over the spell of unemployment. We also examine the relationship between job search and the likelihood of receiving a job offer and exiting UI, and subjective well-being over the spell of unemployment.[3] Our main conclusions are: (1) job search declines steeply over the spell of unemployment for a given set of individuals; (2) after a period of rapidly rising unemployment, workers who lost their jobs at different times are strikingly different, and comparisons across cohorts that lost their jobs at different times are prone to bias (another source of heterogeneity bias); (3) unemployed workers express much dissatisfaction with their lives, and their self-reported mood worsens the longer they are unemployed while life satisfaction stays relatively constant; (4) the unemployed appear to be particular sad during the time they spend searching for a job, and, if anything, they find job search more emotionally onerous as the duration of unemployment increases; (5) in the Great

[3] Given the importance that Elsby, Hobijn and Sahin (2010) place on the outflow rate from unemployment for future reductions in the unemployment rate, an investigation of the relationship between job search and job finding is particularly timely.

Recession the exit rate from unemployment was low at all durations of unemployment, and declined gradually over the spell of unemployment; (6) the choice of job search activities and amount of search time do not bear a straightforward relationship with the likelihood of receiving a job offer but job search time and the reported reservation wage do predict early exits from UI, although unmeasured characteristics of workers could distort the estimated relationships; and (7) we find little evidence that exhaustion of extended UI benefits is associated with an increase in job search activity or in job offers.

In the next section we describe the data used in our study and assess the effect of survey nonresponse. We also summarize relevant features of UI, as it was in effect in the fall of 2009 and spring of 2010. Section 3 examines the pattern of job search behavior over the spell of unemployment. Section 4 considers the subjective well-being of the unemployed, devoting particular attention to psychological well-being during periods of job search. Section 5 considers the relationship between job search activity and the incidence of job offers and early exits from UI. Section 6 concludes the paper.

2. Description of the Survey and Unemployment Insurance

In early October 2009, the Princeton University Survey Research Center (PSRC) obtained a complete list of the roughly 360,000 individuals receiving UI benefits in New Jersey as of September 28, 2009. The data were subjected to a stratified random sampling procedure to obtain a sample of 63,813 UI recipients. The strata consisted of duration of unemployment intervals by the availability of an email address.[4] The sampled individuals were invited to participate in an online survey for a period of 12 weeks, with weekly interviews on their job search activities, time use, reservation wages, job offers, food consumption and other variables.

[4]Long-term unemployed workers and those with email addresses on file were oversampled.

Participants were paid $20 to $40 for participating in the survey. In addition, for those who were unemployed for 60 weeks or longer at the start of the survey, interviewing took place for an additional 12 weeks, for a total of 24 weeks.

The questionnaire consisted of two parts: an entry survey in the first week of the survey with demographic, income and wealth questions, and a shorter follow-up survey each week that focused on job search activities, the reservation wage, and receipt of job offers.[5] The appendix provides a detailed description of the survey and questionnaire.

One issue of concern is that the response rate was low. Only 10 percent of sampled individuals who were contacted participated in the entry wave of the survey, and respondents in the entry survey only participated in about 40 percent of the weekly follow-up surveys. Fortunately, the administrative data file contains a rich set of demographic variables that can be used to create sample weights to adjust for nonresponse, and the characteristics of respondents can be compared to the universe along a number of relevant dimensions, including pre-unemployment earnings.[6] In addition, we were able to match information on the duration of benefit receipt as of April 2010 for the entire sample frame, so we can compare the UI exit rate for the sample frame and for the respondents.

Table 2.1 summarizes the characteristics of the universe of UI recipients, sample frame, and respondents. In addition, the last two columns report estimates that adjust for strata weights and nonresponse weights. Compared with the universe of UI recipients, the respondents were more likely to be college graduates (41% vs. 19%) and female (52% vs. 45%), and to have had

[5] The survey questionnaires can be downloaded at http://www.princeton.edu/~psrc/NJWS/ENTRY.pdf and http://www.princeton.edu/~psrc/NJWS/WEEKLY.pdf.

[6] Sample weights were derived by estimating a logit for participation in the survey each week, and predictors were the demographic variables listed in the bottom part of Table 2.1. It was necessary to weight the sample frame to reflect the universe as well because of oversampling of certain strata. See the appendix for more details on the construction of both sets of weights.

higher earnings in the base period ($48,994 vs. $35,335). The *weighted* sample and universe are very similar in terms of demographic characteristics, however, which is not entirely surprising given that demographic variables were used to create nonresponse weights. It is more reassuring that the weighted average earnings in the base year ($37,960) is reasonably close to average earnings in the base year in the universe, because earnings were not used to create weights. In addition, the industry composition of the weighted respondents is similar to the universe, although construction workers are somewhat underrepresented among the respondents. Finally, weeks of UI paid are slightly lower for the weighted respondents than for the universe, but similar to those in the weighted stratified sample. As a whole, the weighted survey participants and the universe appear to be similar along many dimensions despite the low response rate.

Additional evidence suggesting that the low response rate has not significantly skewed the sample is in Figure 2.1, which shows the Kaplan-Meier nonparametric UI exit rate by duration of unemployment measured by weeks of UI paid. The hazard rates are reported separately for the (weighted) stratified sample frame and respondents. The hazard rate at duration t is defined as the fraction of UI spells ongoing at the start of week t that ended during the week t. A spell could end because a worker found a job or was no longer eligible for benefits. Spells were considered censored if the date of the last UI payment was in the week of April 30, 2010 or later, the date we received the updated administrative data on weeks of UI paid.[7] Figure 2.1

[7] One minor complication that arises in our data is that the universe consists of individuals who were unemployed at the end of September 2009, and thus includes some unemployed workers who filed UI claims as early as May 2006. However, those who filed claims in May 2006 or later but subsequently exited UI are not included in our universe file. Typically, studies that analyze UI exit rates (e.g., Moffitt, 1985 or Meyer, 1990) sample from the newly unemployed (the inflow), not the stock of unemployed, and thus do not encounter this issue. The sample truncation problem can be easily addressed by only using information on UI spell duration from the start of the study and thereafter. In other words, UI spells were included in the number of ongoing spells only for durations equal to or greater than the duration at the beginning of the study. For example, if an unemployed worker had 60 weeks of UI paid at the start of the study, he or she was not included in the number of ongoing spells in weeks 1-59, but only from week 60 and onwards. Including this person in the number of ongoing spells before week 60 – without data on

shows that the weekly exit rate for the respondents closely tracks that of the sample frame, and is within the 95% confidence interval at almost all durations. A notable exception, however, occurs in the first couple of weeks, when the hazard rate for the sample frame is around twice that of the respondents. This disparity probably arises because some workers had found employment shortly after they filed their UI claim and thus were unlikely to respond to our survey.[8] Over most durations, however, the hazard rates are similar.

Figure 2.1 displays the typical pattern of a declining hazard at the beginning of a spell of unemployment, and then a flatter hazard rate thereafter. The hazard rate profile is flatter than has been found in other studies, however (e.g., Katz and Meyer, 1990). In addition, the weekly exit rate is lower than has been found in previous work. These differences probably reflect the weak job market in late 2009 and the low incidence of recall to one's previous job.

Figure 2.1 also shows notable spikes in the hazard rate at week 26 and week 51. The reason for the spike at week 26 is that the eligibility requirements for extended benefits are slightly more stringent than the requirements for regular benefits, which for most workers last 26 weeks.[9] Therefore, a small number of UI recipients exhausted benefits at week 26. The spike at week 51 arises because workers are tested for continued eligibility for extended UI benefits at the end of each benefit year (52 weeks after the UI claim was filed).[10] We do not see a spike in

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unemployed workers who filed claims at the same time but exited unemployment before week 60 – would severely downwardly bias the hazard at lower durations.

[8]Note that there was a 2-3 week gap between the date the data were extracted and the date invitations to participate in the survey were sent out.

[9]The earnings requirement for regular UI benefits in 2009 was 20 base weeks of work (earning a minimum of $143 each week) or total earnings of at least 1,000 times the state minimum wage ($7.25 per hour as of July 2009) in the base year. The earnings requirement for extended benefits (both the federal and the state program) is 20 base weeks of work (earning a minimum of $143 each week) or earning 40 times the weekly benefit amount on their UI claim. This implies that unemployed workers who qualified for regular benefits because of total earnings in excess of $7,300, but had less than 20 weeks of base weeks worked, may not qualify for extended benefits if the weekly benefit amount on the regular UI claim was high (e.g., with earnings of $7,300, the weekly benefit amount on the regular claim had to be lower than $182.5 to meet the extended benefit earnings requirement).

[10] One of the requirements for eligibility for extended UI benefits is that workers are not eligible for a new claim of *regular* UI benefits. A small number of individuals qualify for a new regular UI claim because earnings from the

the job finding rate at either 26 or 51 weeks in our survey data, so the spikes most likely result from these program requirements. Regardless of the reason for the spikes, the weighted sample appears to have similar prospects of leaving UI as the broader sample frame that we sought to interview, suggesting that nonresponse was fairly random with respect to job market prospects.

2.1. Unemployment Insurance in New Jersey in 2009-10

New Jersey has one of the more generous UI systems in the U.S. The benefit is 60 percent of previous earnings, up to a maximum weekly benefit amount of $584 in 2009.[11] The maximum duration of regular UI benefits varies between one and 26 weeks, depending on how many weeks the claimant worked in the base year. Most unemployed workers in New Jersey qualify for the maximum duration of regular benefits: in our data, 87 percent qualified for 26 weeks of regular benefits and only 3 percent qualified for fewer than 20 weeks.

In New Jersey, UI recipients are allowed to work on part time jobs while receiving benefits. Earnings from part time jobs are deducted from the benefit amount, with an earnings disregard of $5 or 20% of the weekly benefit, whichever is greater. This implies that UI recipients who work part time can keep weekly earnings of up to 20% of the weekly benefit amount; any earnings in excess of that is deducted from the weekly benefit. Thus, those who earn more than 120% of their weekly benefit no longer qualify for UI benefits. A worker who works part time during a period of unemployment may draw benefits for a longer period than the maximum duration for an otherwise comparable beneficiary who does not work at all. The

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initial base year usually exclude the quarter just before the start of the UI spell but that quarter and part-time earnings during the initial unemployment spell contribute towards eligibility for a new regular claim. The spike at 51 weeks is probably because the benefit rate drops substantially when unemployed workers qualify for a new regular claim (because of lower earnings in the new base year) and thus individuals may not find it worthwhile to file a new regular UI claim.

[11]Unemployed workers can also qualify for a dependents' allowance for up to three dependents (children under the age of 19 and a spouse). The allowance is 7% of the weekly benefit for the first dependent and 4% for the second and the third dependent. Note that the maximum weekly benefit is not adjusted for dependents.

reason is that the state specifies a maximum dollar amount that can be received for a given UI claim (the maximum benefit amount), and those who work part time can receive benefits for a longer period of time because their weekly benefit amount is reduced.

The duration of UI benefits is affected by federal extensions as well as state policy. In June 2008 the federal government established the Emergency Unemployment Compensation (EUC) program, which entitled UI recipients to an additional 13 weeks of extended UI benefits in all U.S. states, and in November 2008 EUC was extended to 33 weeks in high unemployment states. The American Recovery and Reinvestment Act (ARRA) in February 2009 extended the expiration date of EUC to December 31, 2009 and raised weekly benefits by $25. In addition to the federal extension, New Jersey activated the state Extended Benefits (EB) program on March 15, 2009, which initially provided for an additional 13 weeks of UI benefits, and then for 20 weeks on May 3, 2009.

When interviewing for our survey commenced on October 13, 2009, UI recipients in New Jersey were eligible for up to 79 weeks of benefits, counting regular benefits, EUC and EB.[12] On November 6, 2009, the federal government increased EUC benefits by an additional 20 weeks, increasing the maximum duration in New Jersey from 79 to 99 weeks. The increase to 99 weeks probably came as a surprise to many workers. This extension was retroactive in the sense that workers who had exhausted the 79 weeks of benefits that they were eligible for before the extension to 99 weeks became eligible for another 20 weeks of benefits. The extension was effective in New Jersey as of November 8, 2009.

[12] Note that the weekly benefit amount on EUC as well as the EB program was the same as for regular benefits, and the maximum potential duration was less than 79 weeks if a worker qualified for less than 26 weeks of regular benefits. The potential duration of extended benefits is nearly proportional to the potential duration of regular UI benefits. The exact formulas can be found on http://lwd.state.nj.us/labor/ui/content/ui_benefit_extensions .html.

We refer to the 640 individuals in our sample who had exhausted benefits prior to November 8th and then qualified for the 20-week extension as having "lapsed benefit receipt" in the interim period when they were not receiving benefits.[13] (Some 1,264 weekly surveys were completed during periods when benefits were lapsed.) We refer to the 224 individuals in our sample who reached 99 weeks of paid benefits and then were no longer eligible for benefits as having "exhausted benefits" after week 99. (Some 346 weekly interviews were completed by individuals after they exhausted benefits.) And we can estimate the effect of the availability of an additional 20 weeks of EUC in our sample by including a dummy variable indicating weeks after the extension took effect on November 8, 2009.

3. Job Search over the Spell of Unemployment

In a standard job search model with stationarity (e.g., Mortensen, 1977), the amount of time and effort that job seekers devote to searching for a job should be constant or rising over the spell of unemployment, as benefits are exhausted and assets are run down. We provide the first test of this prediction with longitudinal data. We have two measures of job search: information from the time diary for the day preceding the interview and responses to questions about time spent on various search activities in the preceding week.

According to the time diary data, the average worker spent 70 minutes searching for a job on weekdays, and 65 minutes over all days.[14] This is close to the amount of time that unemployed workers who appear eligible for UI reported searching for a job in the 2009 American Time Use Survey (ATUS).

[13] For claimants who continued to certify their status, benefits during the lapsed period were paid in a lump sum after benefits resumed.
[14] See the Appendix for a detailed description of data coding issues.

The weekly recall questions on job search activities – which asked for the amount of time spent on eleven categories of search activities in the last week – imply that workers spend significantly more time searching for a job. The average amount of time searching was 11.5 hours per week, or 100 minutes per day.[15] It is unclear whether the week-long recall questions lead respondents to exaggerate their search time or whether listing the specific activities results in more accurate recall. As a consequence, we analyze both measures.

Figures 3.1a and 3.1b display average search time from the diary survey and weekly recall questions, respectively, broken down by cohort, where cohorts are defined by the duration of unemployment at the start of our survey.[16] Both graphs show the same pattern: declining search time over the duration of the spell of unemployment for each cohort. It is curious, however, that the search-time profiles are virtually parallel lines, and, with the exception of the very long-term unemployed, that average search time at the end of one cohort's data does not overlap with the beginning of the next cohort's. We return to this feature of the data at the end of this section.

Table 3.1a.and 3.1b present regression estimates where the dependent variable is time spent searching for a job per day, measured by the time diary and weekly recall questions, respectively. The key explanatory variable is duration of benefit receipt, and other explanatory variables include age, education, sex, race, ethnicity, the log benefit and the log of the previous wage. The first column is estimated using only the entry-week survey, so there is just one observation per respondent. These estimates correspond to the cross sectional literature that has compared search time across workers with different durations of unemployment (e.g., Barron and Mellow (1979), Krueger and Mueller (2010)). The rest of the columns are estimated with the pooled sample of

[15] For comparison, Katz and Meyer (1990) find that the average UI recipient who did not expect to be recalled to his or her previous job in Pennsylvania and Missouri in 1979-80 searched for an average of 12 hours per week, and the average worke who expected to be recalled searched for an average of 5.7 hours per week.
[16] Individuals are dropped from the sample once they accept a job offer.

respondents, using all of their weekly responses. The third column adds cohort dummies (i.e., the strata indicating initial duration of unemployment). The fourth and fifth columns control for unrestricted person fixed effects, so the only source of variability in the duration variable is due to within-person changes in unemployment duration.

The table highlights the importance of analyzing longitudinal data. Duration of unemployment has a positive association with search time in the cross sectional models using either measure (and the relationship is significant in Table 3.1a), while it has a negative, statistically significant and sizable association in the fixed effects models, which exploit the longitudinal data. It is clear from Figures 3.1a and 3.1b that a line fit across the cohorts would have a different slope than the typical line fit within each cohort; the regressions bear this out. A comparison of column 3 and 4 indicates that within cohort there is hardly any evidence of heterogeneity bias, in that the decline in search activity over the spell of unemployment is about the same for all individuals who lost their job around the same time, whether or not we remove individual fixed effects. Thus, the decline in search activity appears to be a result of a change in behavior over the spell of unemployment, rather than a change in the composition of the sample.

The sharp decline in search time over the spell of unemployment is noteworthy. In the model in column 4 of Table 3.1a, for example, daily search time falls by 30 minutes over a 12 week period, about a third of the average search time of those with new spells of unemployment. This pace of decline could not be sustained for very long without hitting the zero bound. From Figures 3.1a and 3.1b, however, it is apparent that the gradient becomes flatter at long durations of unemployment.

Using the time diary data, we have looked at which activities increase while search time decreases over a spell of unemployment. Interestingly, the only activity that significantly

increases with duration of unemployment is sleep. And, even more precisely, sleep in the morning hours tends to rise. An analysis of the time diaries indicates that half of job search activity takes place between 7 AM and 1 PM.

We have also looked separately at participation in any job search at all on the reference day and the amount of time spent searching conditional on some time spent searching. Both participation in search, and the amount of search time conditional on searching, decline with the duration of unemployment (see Figure 3.2a and 3.2b, which remove person fixed effects from participation in search and search time conditional on participation using the diary data.) Moreover, this finding holds in both the time diary data and weekly recall data.

The model in column 5 of Tables 3.1a and 3.1b include additional variables relating to UI benefit receipt. Specifically, we include dummy variables indicating weeks when an individual's UI benefits lapsed or were exhausted, and a dummy variable indicating observations after November 8th, 2009, the date when the maximum duration of benefit receipt was extended from 79 to 99 weeks. Adding these variables reduces the magnitude of the coefficient on unemployment duration by about a third, but it is still negative an highly statistically significant. Moreover, if we estimate the model in Column 4 separately using data before or after the November 8th extension, we find that search time declines with unemployment duration in both samples. Thus, the decline in search activity over the spell of unemployment seems to be robust to efforts to take account of the extension of benefits in early November.

We do not find statistically significant evidence of a change in search time during periods in which benefits were lapsed or were exhausted for either measure of search time. The post-November 8th EUC extension indicator variable is highly statistically significant, although the effect of the extension is difficult to interpret, as it could reflect nonlinear effects of duration.

The effect of the post-November 8th dummy variable is larger and more robust to changes in the functional form of unemployment duration in the diary data on job search. If we add the square of the duration of unemployment to the model in column 5, for example, the coefficient on the post-November 8th dummy variable in Table 3.1a is still -14.5 minutes with a t-ratio of 4.2, while it falls in magnitude from -11.8 minutes (t=3.2) to -5.7 minutes (t=1.5) with the weekly recall search data in Table 3.1b. Thus, estimates of the effect of the extension on job search time are dependent on the functional form of unemployment duration and the measure of job search time.

To examine the pattern of search time around the exhaustion of benefits more closely, Figures 3.3a and 3.3b array the search data according to weeks before or after the exhaustion of UI benefits. In addition, the figure presents data after removing individual fixed effects, to account for individual heterogeneity. Contrary to the prediction of Mortensen's (1977) search model, there is no visible increase in search activity in the weeks leading up to the exhaustion of benefits in either the daily or weekly search data. Instead, in both figures the downward drift in search time continues around the time that benefits are exhausted.

Turning to the other variables in Tables 3.1a and 3.b, we find that the log of the benefit and of the wage have their expected signs. The benefit-search elasticity at the mean search time over all observations is around -0.3 with either measure of search time. This is substantially smaller than the corresponding elasticity in Krueger and Mueller (2010), perhaps because of the higher unemployment rate in the period under study in this paper or the different source of benefit variability. The wage elasticity ranges from 0.2 to 0.4 in the model in column 2. The identification of the wage and benefit elasticities, however, depends on nonlinearities in the benefit formula, so these estimates should not be taken too literally.

3.1. Job Search Methods

The pie charts in Figure 3.4 display the proportion of job search time in the past week spent on various methods in the first interview and across all interviews. Almost two thirds of job search time is spent looking at ads, placing or answering ads and sending out applications. Contacting friends and relatives, which has been found to be a highly effective job search method in past studies (e.g., Holzer, 1988; Granoveter, 1974), accounts for 9 percent of search time. Only 3 percent of time is spent on job interviews.

Table 3.2 reports regression results where the dependent variable is the amount of time devoted to each search activity per day and the explanatory variables include the duration of unemployment and fixed person effects. (The model corresponds to column 4 of Table 3.1b.) With the exception of contacting a public employment agency, the other search activities decline with the duration of unemployment. Interestingly, if one scales the coefficients by the average time devoted to the method, the activities decline roughly in proportion to their average time. Thus, the pie charts in Figure 3.4 look fairly similar if one uses the first week or 12th week of the observed spell of unemployment.

3.2. Duration, Calendar Time and Cohort Effects

We have implicitly discussed changes in job search behavior associated with changes in unemployment duration for individuals or cohorts as if they were a result of duration itself. However, an alternative interpretation is that what appears to be a duration effect is actually the effect of calendar time since, for a given cohort indexed by time of job loss, increases in duration necessarily correspond to movements in calendar time. For example, because our survey began in October, it is possible that evolving seasonal or business cycle conditions led to a decline in job search as we moved from October to November and November to December. If job search is

weaker in November because of Thanksgiving, and weaker still in December because of Christmas, for instance, we might observe a pattern like those in Figure 3.1a and 3.1b.

Although one can never separately identify duration and calendar time effects for given cohorts, we think a range of evidence suggests that seasonal, holiday and business cycle effects are not responsible for the observed decline in search time over the spell of unemployment in our data. First, if we drop last two weeks of November and December to avoid the effects of Thanksgiving and Christmas, the coefficient on duration in column (4) of Table 3.1a and 3.1b hardly changes. Second, in an effort to examine the effect of seasonal employment, we dropped construction workers, who tend to have highly seasonal employment in New Jersey, and found a similar slope. Perhaps more importantly, we looked separately at education and health care industry workers, who have a steady demand for their services, and again found that job search declined with unemployment duration. Third, we compared the gradient for men and married women, on the theory that married women have a greater opportunity cost of time around Thanksgiving and Christmas, and found that search time declined with duration for both groups at almost an equal rate.

Additional evidence that seasonal factors are not at work comes from the ATUS. In particular, we find that from 2003 to 2009, job search time by the unemployed tended to rise from October to November, fall in December, and rise in January. So there is no evidence of a monotonically declining pattern over the months. Likewise, the BLS seasonal adjustment factor for the unemployment rate in New Jersey is similar in October, November and December, which indicates relatively little seasonal shifts in unemployment. Finally, the unemployment rate was fairly stable in New Jersey in the last quarter of 2009 and first quarter of 2010, suggesting that swings in the business cycle were not important.

While we find little evidence of temporal effects that would cause the downward search profiles in Figures 3.1a and 3.1b, we do find some evidence that the cohorts that became displaced at different times are very different. Figure 3.5, for example, shows average earnings in the base year by cohort.[17] Among UI recipients, those who were laid off more recently and hence have shorter durations, average earnings prior to displacement were significant lower. For example, average earnings in the base year for those who were unemployed 0-2 weeks at the start of our study were approximately $36,000, compared with $38,000 for those unemployed 10-12 weeks and $42,000 for those unemployed 20-22 weeks. Moreover, the cohorts do not overlap in terms of earnings -- or other characteristics such as industry and education -- when we compare groups with the same duration of unemployment at different calendar times. The cohorts based on duration of unemployment at a fixed calendar date are different because workers in different industries and skill groups were laid off at different times. Thus, at least in this period when unemployment had been rising rapidly for the preceding year and a half, comparing workers who have been unemployed for different lengths of time at a point in time can be misleading because of differences in background characteristics across cohorts. The cohorts with lower earnings, for example, would be expected to search less, and this could at least partially explain why search time is not lower for the cohorts that were unemployed longer at the beginning of our survey.

3.3 Reporting Phenomenon

Another possible explanation for the decline in reported search time over the spell of unemployment is that it is a result of reporting bias, and does not represent a real change in

[17] This figure is based on administrative earnings data for all of the initial respondents, so attrition is not an issue. Individuals are dropped from the sample once they exit the UI program.

behavior. For example, it is possible that respondents exaggerated their search time in early interviews but grew more comfortable with truthfully reporting their job search time the longer they were interviewed, as they learned that there were no negative consequences of reporting truthfully.[18] Indeed, some have conjectured that "rotation group bias" in the CPS, in which the unemployment rate has been found to be higher for those in their first and fifth month in the survey, may be a reflection of respondents becoming conditioned by repeated interviews or seeking to avoid answering contingent questions (e.g., Bailar, 1975; Solon, 1986).[19]

The following five considerations weigh against interpreting the patterns in Figure 3.1a and 3.1b as a mere reporting phenomenon, however. First, as mentioned, we find that both the probability of engaging in any search activity at all and the amount of time spent searching conditional on engaging in search, decline with the duration of unemployment. If respondents were seeking to avoid answering subsequent questions or discovering that their UI benefits were not jeopardized if they reported no search activity, it is not clear why reported time spent searching would fall for those who reported devoting some time to job search. Second, responses to a time diary are more difficult to finagle than are responses to a recall question because the day has to be accounted for, yet we find virtually the same pace of decline in search time in the time diary weekly recall data. Third, a question on our survey asked individuals how many jobs they applied for and to list the job titles of those positions (which also adds another layer of difficulty for manipulation). The number of job applications respondents submitted each week shows a downward pattern over the spell of unemployment. Fourth, past studies of

[18] One factor that could temper such a tendency is that the letter inviting UI recipients to participate in the study explicitly stated, "The researchers conducting the study will not share any information on specific individuals with the New Jersey Department of Labor and Workforce Development."

[19] In work in progress, Krueger and Niu find results suggesting that rotation group bias can be explained by differential sample attrition by the employed and unemployed.

rotation group bias found it was concentrated in the first and fourth surveys, yet we find a monotonically declining pattern.

Finally, and perhaps most importantly, if we estimate the model in column 4 of Table 3.1a and 3.1b and include the number of interviews conducted so far as well as the duration of unemployment, the former is statistically insignificant while the latter continues to be statistically significant, negative and sizable. Thus, duration of unemployment, rather than the number of interviews, appears to be the dominant determinant of the downward sloping relationship between duration and job search.

4. Subjective Well-Being over the Spell of Unemployment

Several studies have found that the unemployed express low levels of satisfaction with their lives and other measures of psychological well-being (Björklund, 1985; Clark and Oswald, 1994; Winkelmann and Winkelmann, 1998; Mallar 2010). Table 4.1 tabulates reported life satisfaction for the New Jersey UI sample (first interview) and for employed workers from a national telephone survey conducted in the Spring of 2006. The differences are striking. Only 6 percent of UI recipients say they are very satisfied with their lives, compared with 45 percent of employed workers. The UI recipients may be particularly dissatisfied because they are searching for a job at a time of very high unemployment. (It is also possible that differences in the survey modes and geographic representation of the samples contribute to the differences.)

A strength of our survey is that we can examine trends in subjective well-being over time and during various activities. Table 4.2 indicates that we find only modest movements in the fraction of UI recipients who say they are dissatisfied with their life over the course of unemployment, and there is some evidence of polarization: some of the unemployed are a bit

more likely to say they are very satisfied and some are more likely to say they are very dissatisfied the longer they are unemployed. There is no change in the fraction who say they are satisfied or very satisfied with their lives as opposed to not satisfied or not at all satisfied. By contrast, time spent in a self-reported bad mood appears to rise over the course of unemployment, while time spent in a very good mood tends to fall. This is clear from Figure 4.1, which depicts the percentage of time the unemployed report spending in a bad mood while at home each week controlling for person effects by cohort, and the regression models in Table 4.3. We do not find any effect of having benefits lapse or expire on reported life satisfaction or mood, but we do find significant (and contrasting) effects of the more difficult to interpret post-extension dummy variable.

4.1 Subjective Well-Being during Various Activities

For three randomly selected episodes in the time diary component of our survey, respondents were asked to rate the extent to which they felt happy, sad, and stressed on a seven-point scale, with a 0 indicating "not at all" and a 6 indicating "very much". In addition, they were asked to rate these emotions during episodes of job search that occurred during the diary day. We use these data to compare self-reported emotional experience during different activities and over time.[20] Of particular interest is whether respondents rate episodes involving job search more or less pleasant the longer they are unemployed.

Table 4.4 summarizes the self-reported emotions during various activities, with and without removing person effects. (Job search was the omitted activity in the fixed effects regressions, so its ratings do not change.) Job search appears to be a particularly unpleasant

[20] The emotion questions had a high item nonresponse rate because the instructions were vague. In the first interview, 28.5 percent of respondents failed to rate all three emotions. We subsequently redesigned the relevant web page to make it clearer that we sought a rating for all three emotions, and over the whole survey period the percentage who failed to answer all three questions fell to 14.1 percent of respondents.

activity: it has the highest average rating in terms of sadness and stress, and the lowest in terms of happiness. In standard deviation units, time spent on job search is rated 0.3 and 0.4 standard deviations higher on feeling sad and stressed, respectively, than the next highest rated activity, which is using the internet.

The bottom of the table divides job search into different categories. In the fixed effects specifications – which essentially compare the change in emotion as the same individual spends time in different search activities – looking at ads is associated with the most unpleasant feelings. Going on a job interview seems to significantly raise people's happiness but not significantly reduce their sadness or stress.

Table 4.5 pools together all of the episodes except for those involving job search and estimates fixed effects regressions to examine whether individuals become less happy and more sad and stressed over the spell of unemployment. As the length of unemployment increases, respondents rated their episodes as more sad and less happy, but not more stressful. If unemployed workers searched for a job on a particular day, they rated their non-search activities rated as more stressful on that day, but not less happy or more sad. Thus, there appears to be evidence of some spillover of the stress from job search to other activities during the same day.

Finally, we looked separately at episodes involving job search. Figure 4.2 shows the average rating of sadness over the spell of unemployment during job search (after removing person effects). For most cohorts, the graph displays an upward slope. Table 4.6 summarizes regressions for the three emotions restricting the sample to episodes involving job search. Sadness rises with the duration of unemployment, but there is not a significant relationship with happiness or stress. A comparison of the coefficient on unemployment duration in Tables 4.5 and 4.6 indicates that the feeling sad rises faster during periods of job search than during other

activities. Thus, the emotional burden of job search seems to rise the longer someone is unemployed. When we break down the Table 4.6 regression by duration of unemployment, the rise in sadness associated with additional weeks of unemployment is concentrated among the very long-term unemployed, those unemployed for longer than 50 weeks.

4.2. Life Satisfaction and Job Search

In view of the strong negative emotions apparently evoked by job search, we also examined the relationship between reported life satisfaction and the amount of time individuals devoted to job search. As Table 4.7 indicates, we found a strong correlation. Workers who spent more time searching for a job on the previous day are less likely to report that they are satisfied with their life.

To probe this correlation further, we regressed a binary variable indicating whether the respondent reported being "very satisfied or satisfied" with his or her life as opposed to “not satisfied or not at all satisfied” on the amount of time spent searching for a job on the previous day according to the time diary *and* person fixed effects. In this specification the effect of job search is identified by comparing days in which the same individual spent more or less time searching for a job. Search time was negative and statistically significant at the 1% level. (Results are available upon request.) The coefficient on time spent searching implies that searching for an additional 5 hours reduces the likelihood for reporting oneself as "very satisfied or satisfied" by 9 percentage points, a large magnitude.

If we add time spent searching in the previous week to the same fixed effects regression model, the coefficient on time spent searching yesterday is only attenuated by about 10 percent and is statistically significant at 5% level, and the coefficient on time spent searching last week is

negative and about half as large in magnitude as the coefficient on time spent searching yesterday.

Although it is not possible to draw causal inferences from such observational data, these results suggest that the experience of job search has a substantial and lingering effect on reported life satisfaction. Moreover, the fact that the life satisfaction question was the very first question on the weekly survey, and separated from the job search questions by a block of questions on consumption, suggests that job search has an unprompted negative effect on subjective well-being.

4.3 Subjective Well-Being and Reemployment

While unemployment is associated with lower life satisfaction and moment-to-moment feelings of despair, starting a new job has the opposite effect. In results available on request, we find that life satisfaction, mood at home, and feeling happy, sad and stressed during the day all improve once a full-time job is accepted or if someone leaves UI before having exhausted benefits. Moreover, the beneficial effects of starting a new job or leaving UI early continue to be statistically significant after we control for person fixed effects and the mix of activities that people engage in during the diary day.

4.4 Summary

Life evaluation and moment-to-moment emotional experience are distinct aspects of subjective well-being. The unemployed appear unsatisfied with their lives as a whole and they spend much of their time in an unpleasant emotional state. Interestingly, only the moment-to-moment measures of feelings, or mood, seem to worsen over the spell of unemployment. Life satisfaction does not display a clear trend. Unemployed workers become increasingly sad while

searching for a job the longer they are unemployed, which may raise the cost of job search and account for some of the observed drop in job search time over the spell of unemployment. The finding that workers report lower life satisfaction following days that involved searching for a job is also consistent with there being a substantial psychological cost associated with job search. Because, as shown in the next section, most effort devoted to job search does not result in a job offer, the experience of searching for a job may conjure feelings of rejection that take a psychological toll on the unemployed.

It is not surprising but nonetheless reassuring that all of our measures of subjective well-being improve markedly in the weeks after a worker accepts a full-time job or leaves UI without before exhausting benefits.

5. Analysis of UI Exits and Job Offer Generation Process

We can use the NJ UI sample to explore the correlates of receiving a job offer and exiting UI. In the 39,201 weekly observations in our survey, there are 2,626 reports of wage offers having been received.[21] The same worker could receive a wage offer in different weeks, or multiple offers in the same week. In total, 1,224 of the 6,025 respondents reported receiving at least one job offer in the period of study.[22] Nearly a third of the wage offers were for part-time jobs (32 hours or less per week).

Table 5.1 provides a tabulation of the likelihood of receiving a full- or part-time job offer by whether a full- or part-time job was sought. Because individuals may have received an offer

[21] We do not impose an age restriction on the sample used in this section in order to increase the sample size.
[22] In the survey, respondents could indicate job offers received in the last 7 days as well as job offers they received since the last interview if they skipped one or more interviews. However, details about the job offer (wage, hours, etc.) were only asked if it was received in the last 7 days, or if the job offer was accepted. Moreover, if respondents indicated that they received more than one job offer in a given week, details about the job offer were only asked about the "best" offer. Overall, we know the details of 2,036 job offers out of a total of 2,626. In much of the analysis below, we only use information on job offers received in the last 7 days to avoid selection bias.

after they stopped responding to the survey, we also report the percent of individuals who left UI before exhausting benefits even though we have no report of them having received a job offer. Among those who indicated in the entry survey that they were looking for a part-time job, 15.9 percent received at least one part-time offer, more than double the rate for those who indicated they were looking for a full-time job (6.5%). And among those who were looking for a full-time jobs, full-time job offers were about 50 percent more likely to have been received (15.6% vs. 10.1%). The average hourly wage offered was $19.50 for full-time jobs, $16.50 for part-time jobs and $18.65 overall.[23]

In 23 percent of job offers, workers said they knew exactly what the job would pay when they first interviewed for it.[24] Three quarters of job offers were of the take-it-or-leave-it variety, while the remainder entailed some bargaining over pay. For a sample hired during a more normal job market, Hall and Krueger (2010) found that 82% of workers who did not have the option of keeping their previous job accepted a job with a take-it-or-leave-it offer, so the recession does not appear to have reduced the (already low) prevalence of bargaining for the unemployed who are offered jobs.

A significant share of the sample – 6.6% overall, which is about one third as large as the share that reported job offers – left UI before exhausting benefits but did not report a job offer. We suspect that many of those who left UI early received job offers but did not report them in our survey because they stopped participating in the survey. For this reason, we model the

[23] For these statistics, we use only job offers in the last 7 days because for other job offers that were made since the last interview we only know hours and wages if these offers were accepted.

[24] Another 36 percent said they had some idea about the pay and 30 percent said they had very little idea; 12 percent of workers received a job offer without interviewing for it. The offered wage was above the reservation wage in 59 percent of full-time offers when workers knew the pay exactly at the time of the interview, and only 32 percent of cases when they had very little idea. These results suggest that a subset of workers engage in directed search.

likelihood of leaving UI early as a function of past search activity as well as model the likelihood of receiving a job offer.

For members of each cohort, Figure 5.1 displays the probability of having received at least one job offer by the specified date, treating those who stopped responding to the survey as censored. The tendency for the ogives to be concave from the origin is an indication that the likelihood of receiving a job offer declines the longer that a cohort spends unemployed. Moreover, the shorter vertical height of the ogives that are further from the origin is an indication that the cohorts that were unemployed longer at the start of our study had a lower job offer rate in the ensuing three months. This finding is confirmed if we estimate hazard rate models for the likelihood of receiving a job offer each week.

Figure 5.2 shows the job offer hazard rate for those who have not accepted a job in the weeks leading up to or following the date that UI benefits are exhausted. We do not find any evidence of a spike in the job finding rate around the exhaustion date. If we look at the job acceptance hazard, we likewise do not find a spike around UI benefit exhaustion. The absence of a spike in job finding around the exhaustion date may be due to the weak job market and very long extension of UI benefits, rather than a general result.

As mentioned, a limitation of our data is that we lack information on job offers received by workers who stopped responding to our survey. Nonetheless, workers who receive a job offer are more likely to exit UI early (i.e., before their benefits are exhausted). Specifically, 34.7 percent of those who reported receiving a job offer at some point during our survey window exited UI early, compared with 8.2 percent of those who did not report receiving a job offer.[25] For full-time job offers the differential was even greater: 41.4 percent of those who received a

[25] These figures exclude those who exited UI at 51 or 52 weeks because, as explained previously, many of these exits did not involve finding a job.

full-time offer exited early vs. 8.7 percent of those who did not. Some of those who received a full-time job offer did not exit UI early because they rejected the offer, or because they accepted the offer but subsequently became unemployed again and remained on the same benefit spell or because their job started after they exhausted benefits.

In view of the missing data problems and the ambiguous and variable time lag between search activity and job offers, we take a simple approach to modeling job offers and UI exits. Specifically, we view the available data on job search and the reservation wage as having been sampled from the unemployment spell. Some workers search more than others, and we use the available data on search time during unemployment to represent the worker's average search intensity. Because search intensity falls with the duration of unemployment, we first regress search time on individual dummy variables and dummies indicating the duration of unemployment for each cohort using up to 12 weekly observations for each individual.[26] The coefficients on the individual dummy variables (or fixed effects) from these regressions provide a measure of the workers' search intensity. We performed an analogous exercise for the reservation wage relative to the previous wage.

We then estimated a probit model where the dependent variable is 1 if the individual left UI in the 24 weeks since we began interviewing without exhausting benefits and 0 otherwise, and the explanatory variables are the estimated search time and reservation wage individual fixed effects and other variables, such as whether recall was expected. We estimate a parallel model where the dependent variable is 1 if a job offer was received at some point in our sample period, and 0 otherwise. (The reservation wage was not used as an explanatory variable in the job offer equation because it should affect the likelihood of accepting a job offer, not of receiving one.)

[26] We restrict the sample to those with two or more weekly observations.

Table 5.2 summarizes various estimates for models predicting an early exit from UI and receipt of at least one job offer. First consider the results for exiting UI early in columns 1-3. The results accord with standard search theory: workers who devoted more time to searching for a job were more likely to exit UI early, as were those with a lower reservation wage relative to their past wage. Those who searched 20 hours more per week are about 3.5 percentage points, or 20 percent, more likely to exit UI early. Having a 20 percent lower reservation wage is associated with a 1 percentage point, or 6 percent, increase in the likelihood of exiting UI early. The magnitudes of the estimates are relatively small, but they are probably downwardly biased because of sampling error owing to the small number of weeks observed.[27]

If we divide the sample by education, we find that the reservation wage is a stronger predictor for those with less than a college degree, while search time is a stronger predictor for college graduates. Turning to the other variables in column 3, workers with a definite recall date at the start of the survey are more likely to exit UI, as are workers with a college degree or higher and married workers.

The model does a less good job predicting the receipt of a job offer than it does predicting exit from UI. Surprisingly, receipt of a job offer is unrelated to job search time in our sample, and demographic characteristics are mostly insignificant predictors as well. When we disaggregate job search time into different activities, the only one that predicts the receipt of a job offer is time spent on job interviews.

[27] Attenuation bias due to sampling variability is likely small for the reservation wage, however, because it is very stable over time. See Jones (1988) for cross-sectional evidence on how the reservation wage relates to unemployment duration for a sample of 854 unemployed British workers.

6. Conclusion

Several findings in this paper shed light on job search behavior in a depressed job market. In contrast to the prediction of sequential, stationary job search model (e.g., Mortensen, 1977), we find that the amount of time devoted to job search declines sharply over the spell of unemployment. Because temporal factors (e.g., seasonality or benefit extensions) could have distorted job search in our sample, it would seem to us to be a priority to determine if this pattern can be replicated in future research using longitudinal data for other time periods. Assuming that the declining search profile is robust, there are three likely explanations for this phenomenon. First, workers could exhaust suitable jobs to apply to the longer they are unemployed, and wait for more jobs to become available, rather than spend time searching. Second, search efficiency could rise with time spent searching. Third, workers could become discouraged the longer they are unemployed, and this could prevent them from applying for available jobs. These factors are not mutually exclusive; they each may occur to various degrees.

Some of our findings suggest that many workers become discouraged the longer they are unemployed. In particular, the unemployed express feeling more sad the longer they are unemployed, and sadness rises more quickly with unemployment duration during episodes of job search. In addition, reported life satisfaction is lower for the same individual following days in which comparatively more time was devoted to job search, although we do not see a clear trend in life satisfaction over the spell of unemployment (perhaps because the declining time spent searching for a job counteracts an otherwise declining trend in life satisfaction). These findings suggest that the psychological cost of job search rises the longer someone is unemployed, a feature that is not reflected in models that specify the cost of job search as the opportunity cost of time. The growing psychological cost of job search could lead many of the unemployed to

become discouraged from searching vigorously for a job after an extended period of unemployment. If this is the case, the economy may be at risk of hysteresis and prolonged joblessness after the job market improves.

One reason why job search assistance may have been found to consistently speed individuals' return to work in past studies is that it may help the unemployed to overcome feelings of anxiety and sadness that are associated with job search.[28] Interventions that keep the long-term unemployed engaged in job search despite the high psychological cost may be particularly valuable in the current environment, with the average duration of unemployment at a record high level.

We find mixed results concerning extended unemployment benefits. On the one hand, workers do not appear to search more intensively in periods when their UI benefits have lapsed or once they are exhausted, suggesting that EUC did not provide a serious disincentive to finding a job. In addition, we do not find an increase in job finding once benefits are exhausted. On the other hand, we find that average search time was lower for workers as a whole after the maximum duration of benefits was extended from 79 to 99 weeks, although this finding is sensitive to the functional form of the unemployment duration variable, the particular measure of job search, and possibly confounded by other temporal factors, such as seasonality. In future work, we plan to examine the effect of EUC on consumption and reported reservation wages.

Lastly, the findings that the reservation wage and job search time predict early exits from UI highlight the importance of understanding these variables for public policy. Interventions that encourage more search effort and more moderate reservation wages could help to speed the return to work, although the magnitude of the effect of the reservation wage on exiting UI is relatively small because receipt of job offers is relatively rare in our sample.

[28] See Bruce Meyer (1995) for a review of evidence regarding the effectiveness of job search assistance.

Appendix: Description of Survey and Data Coding

On October 1, 2009, the Princeton University Survey Research Center (PSRC) obtained a complete list of the roughly 360,000 individuals receiving UI benefits in New Jersey as of September 28, 2009. The data were subjected to a stratified random sampling procedure to obtain a sample of 63,813 UI recipients. This appendix provides a detailed description of the sampling and survey procedures.

Stratified random sampling procedure

Almost half of UI recipients in New Jersey provided their email address to the New Jersey Department of Labor and Workforce Development (LWD) when filing their claim.[29] We selected workers both with and without email addresses to participate in the study. To follow relatively homogenous groups over the course of the study, we sampled eight cohorts based on how many weeks of UI benefits they had been paid on their current UI claim as of September 2009. Specifically, the cohorts were defined as those with 0-2, 10-12, 20-22, 30-32, 40-42, 50-53, 60-63 and 72-77 weeks of UI benefits paid at the start of the study. Our initial design was to draw a random sample of 7,000 unemployed workers for each of the first seven cohorts (5,000 with email addresses on file and 2,000 without email addresses on file), and 14,000 unemployed workers for the last cohort. This sampling procedure deliberately oversampled the long term unemployed. Unfortunately, the number of unemployed workers in the seventh and eighth cohorts with email addresses was smaller than our target, so we also sampled those with 64-71 and more than 77 weeks, but in both cases we restricted the oversample to those with email address on file.

[29]Providing an email address is a requirement for filing an online claim.

The sampling strata thus consist of 18 groups, based on the initial duration of unemployment and the availability of an email address. In total, the sample included 45,813 unemployed workers with email addresses and 18,000 without email addresses.

Invitation and reminder emails

The New Jersey Department of Labor and Workforce Development (LWD) sent out an initial email or letter a few days prior to the start of the survey to inform selected sample members about the study and to encourage them to participate. The letter also made clear that participation in the study is voluntary and that the PSRC would not share any information on specific individuals with LWD.

The initial email invitations with a link to the web questionnaire were sent out on October 13, 2009. An important component of the questionnaire was a time-use diary, which asked hour-by-hour how the respondents spent the previous day. To ensure that the number of time-use diaries was more or less evenly distributed across weekdays, the sample was divided into five groups, where the first group was sent an invitation email on Tuesday morning, the second group on Wednesday morning, and so on through Saturday morning. Participants were asked to complete the survey within two days of receiving the invitation email.

Physical letters were mailed to those without email addresses during the week of October 13th. The letter provided the URL of the webpage with the questionnaire and a 9-digit survey identification number, which the individual needed to log into the survey. The letters were staggered in the same manner as the email invitations (spread out over five days). Survey participants from the letter strata were required to enter a valid email address in order for them to receive email invitations for the follow-up weekly interviews. If a respondent did not have an

email address, he or she could nevertheless participate in the following weekly interviews by logging into the same access webpage with the same 9-digit survey identification number as in the invitation letter.

In the week from October 19-23, PSRC made nearly 10,000 phone calls to encourage those who did not respond to the initial invitation to participate in the survey. Moreover, emails were sent to nonrespondents who had an email address on file encouraging them to participate in the survey three and seven days after the initial invitation was sent out. We closed the survey for entry on November 3, when the average number of new participants had dropped to below 20 a day.[30] Overall 6,025 unemployed workers participated in the survey.

Invitations to complete the follow-up weekly interviews were sent out by email seven days after the most recent online interview was completed, but not on Sundays or Mondays, because we wanted the time use diary to pertain to weekdays.[31] If a participant did not complete a weekly interview within three days of receipt of an invitation, we sent a reminder email. Further reminder emails were sent 7, 14, 21, 28 and 35 days after the last interview was completed. We encouraged people to respond to the survey even if they had already found a job.

Initially, individuals who were selected for the study were invited to participate for 12 consecutive weeks. In the beginning of January 2010, however, individuals with more than 60 weeks of UI paid at the start of the study were invited to participate in an extended study for an additional 12 weeks. Some 1,148 individuals completed at least one interview of the extended study (out of the 2,022 who were eligible). The email invitation and reminder system for the longer term survey was exactly the same as for the initial 12 weeks of the study.

[30] Around 5,680 unemployed workers entered the survey within the first two weeks of the survey.
[31] So if a respondent completed an interview on a Sunday, he or she would receive the invitation to the next interview on the Tuesday of the following week, nine days later.

Online survey instrument

The online survey instrument was developed in collaboration with the Survey Research Institute (SRI) at Cornell University and consisted of two parts, the entry and the weekly questionnaire. The entry survey contained questions that were only asked once, the first time the individual completed the online survey. The questions related to the previous employment, job search, mortgage, asset holdings and the spouse's employment status. The weekly questionnaire was asked every time the participants completed the survey, and the questions related to the participant's life satisfaction, weekly food consumption, job search efforts over the previous week, reservation wage, and job offers. It also contained a time use diary about activities in the previous day. In the first online interview the weekly questions were shortened because the respondents also had to complete the entry part of the survey. Moreover, some questions in the weekly questionnaire asked at a monthly frequency to reduce respondent burden.

The time use diary covered the previous day from 7 AM to 11 PM. For each hour in the time diary, respondents could select up to two activities from a list of 21 activities. The activities were chosen to represent the most frequent time use codes in time-use surveys, such as the ATUS, and specifically included job search as an activity.

The average time to complete the weekly online survey was around 15 minutes. The entry questionnaire was much shorter and took on average only about 8 minutes to complete.[32]

Incentives

At the end of the first online interview, participants were given two choices: a $20 visa gift card that would be sent to the participant within a few days or a $40 visa gift card that would

[32] We only have start and end time of each online interview. Some participants started the survey and then decided to return to it later in the day. We consequently excluded from the calculation of average completion time all interviews where start and end time were more than 2.5 hours apart.

be sent to the participant at the end of the 12 week study period.[33] The motivation for offering a choice was to elicit information on the time preference of the survey participants. The online survey instrument stressed that if the participant chose the second option, we would send the $40 gift card regardless of whether or not they completed the follow-up weekly interviews. Almost 54 percent of respondents opted to take the immediate $20 payment over the delayed $40 payment. The implicit discount rate consistent with choosing the $20 payment over the delayed $40 payment exceeds 1,500 percent. In a probit analysis, we found that older workers, more highly educated workers, whites, and those with credit cards (perhaps indicating access to credit), were significantly more likely to select the delayed $40 payment over the immediate $20 payment.

In early January 2010, we invited the long-term unemployed (i.e. those with 60 weeks of UI receipt or more at the beginning of the study) to participate in the survey for an additional 12 weeks. We promised all of these subjects a $40 visa gift card at the end of the 12 week period of the extended study.

A total of $220,000 of incentive payments was made.

Non-response and weighting

For the first interview, the response rate of the survey was 9.7%.[34] The response rate was higher among those who were contacted by email (10.7%) than for those who were contacted by mail (6.9%). The number of follow-up interviews completed by each cohort was relatively similar. After the initial interview, the average respondent completed 4.1 follow-up interviews

[33] The decision to offer a one-time payment for participation rather than an ongoing payment for each interview completed was made to minimize record keeping and costs.

[34] The calculation of the response rate excluded 1,972 cases from the denominator where the address could not be certified by the Coding Accuracy Support System (CASS) of the U.S. postal service and therefore no letter was generated, or where the letter was sent but returned as non-deliverable.

of a maximum of 11 (excluding the longer term follow-up), so participants in the initial survey responded to almost 40 percent of the potential follow-up interviews.

Thus, the response rate for the survey was low, as is typical of Internet surveys, but we are fortunate to have restricted access to administrative data from LWD. The administrative data encompass a large set of variables, including demographic information, the weekly UI benefit, earnings in the base year, weeks worked in the base year, number of employers in the base year, industry and occupation on the last job, the date of claim, the number of weeks of UI paid as well as the remaining balance on the UI claim. We also obtained updated UI data at the end of the study period on the weeks of UI paid, the date of the most recent UI payment on the claim and whether the person filed a new UI claim since the start of the study.

Table 2.1 in the text shows the descriptive statistics for the universe, the sample frame and the respondents. The statistics for the sample frame are relatively similar to the universe, except for the weeks of UI paid. The reason is that the stratified sample intentionally oversampled those with longer durations. There are some noticeable differences between the sample frame and the respondents, however. The respondents had higher base year earnings, higher benefit amounts, were more likely to be female, white, non-Hispanic and to have attained a college degree.

To adjust our estimates for different sampling probabilities and response rates, we created survey weights based on the administrative data. Specifically, for the initial interview we estimated a logit regression where the dependent variable was a dummy variable indicating whether the unemployed worker responded to the survey or not, and the independent variables were demographic measures, including education, age, gender, race and ethnicity (the bottom part of Table 2.1 contains the full list of demographic variables included in the models). Our

logit model also included dummies indicating each stratum used in our sampling procedure, i.e. dummies indicating 0-9, 10-19, …, 60-69 and 70 and more weeks of UI paid interacted with a dummy for whether the person had an email address on the file or not.

Entry-wave survey weights were computed as the inverse of the predicted value of the logit regression; these weights adjust for different response rates as well as different sampling probabilities due to our stratified random sampling procedure. As one would expect Table 2.1, the weights are greater, on average, for men, Hispanics, blacks, those with a high school degree or less and those whose strata were under-sampled (i.e. those with lower durations and those without email on the file). The weights were rescaled to sum to the total number of individuals in the universe. We label these weights "person weights" as they adjust for different response rates for the first interview of the survey and do not vary with the weeks of the survey.

To derive weights for differential response rates over the 12 weeks of the survey (or 24 weeks for those who participated in the extended study), we created an analogous set of weights, labeled as "current week weights," for each week of the survey. That is, we estimated the same logit model described above each week of the survey and rescaled the weights to sum to the number of cases in the universe.

Finally, we created "strata weights" for the sample frame which simply reflect the different sampling probabilities due to our stratified random sampling procedure, but do not adjust for differential response across demographic groups. These weights are used to compare the stratified sample frame with the universe or with the weighted sample of respondents (weighted with the person weights or the current week weights).

Columns 4 and 5 of Table 2.1 report weighted descriptive statistics for the sample frame and the respondents. Comparing the universe and the weighted sample frame to the weighted

statistics of the respondents in Column 5, one finds that the demographics are very similar for these three samples. In particular, the share of college graduates changed from 40.7% for the non-weighted respondents in Column 3 to 18.7% for the weighted respondents in Column 5, which is very close to the universe and the weighted sample frame (19.0%). This is not surprising as education dummies and other demographic data were used to create the survey weights. As an out of sample test, one can compare the weighted statistics of variables that were not used in the creation of the survey weights. Most importantly, the weighted earnings during the base year ($37,960) are reasonably close to earnings in the base year in the universe ($35,335). The industry composition of the weighted respondents is also relatively similar to the universe, although construction workers are underrepresented among the respondents. Finally, weeks of UI paid are slightly lower for the weighted respondents than for the universe. This is because the universe includes workers of all durations whereas the stratified sample frame includes only workers from 0-2 weeks, 10-12 weeks, etc. When comparing the stratified sample frame to the respondents, weighted and unweighted, the weeks of UI paid are very similar, suggesting that response rates were similar across unemployed workers with different durations.

Data coding and trimming

Base year earnings above the top code

Earnings were topcoded at $99,999 in the administrative data. Some 3.8 percent of observations had earnings above the top code. We follow the procedure outlined by Feenberg and Poterba (1993) to impute earnings above the top code. Specifically, Feenberg and Poterba assume that earnings above a certain percentile follow the Pareto distribution and estimate the two parameters of the Pareto distribution with earnings for the part of the distribution that is not

top-coded. More precisely, the CDF of the Pareto distribution is $F(e)=1-(k/e)^{\alpha}$ and we estimate the parameters k and α with base earnings at the 90th percentile (where $F(e_{p90})=0.9$ and $e_{p90}=68{,}866$) and base earnings at the top code (where $F(e_{tc})=0.9663$ and $e_{tc}=99{,}999.99$). The estimated parameter values are k=31,266 and α=2.916, and the implied mean above the top code is:

$$E(e|e > e_{tc}) = \frac{1}{1-F(e_{tc})}\int_{e_{tc}} ef(e;k,\alpha)de = 152{,}190.5$$

where $f(e;k,\alpha) = \alpha k^{\alpha} e^{-(\alpha+1)}$ is the density of the Pareto distribution.

To eliminate some apparent mistakes, in our analysis sample we trimmed a small number of observations (1.3 percent) whose ratio of weekly benefits to weekly earnings exceeded 2.0.

Hours on previous job for those who indicated "hours varied" or have missing hours

Around 18% of the respondents reported "hours varied" on their previous main job (question e1) or on their previous other jobs (question e3). We imputed hours for this group and for those few cases with missing hours data using the following procedure: First, we estimated separate regressions for men and women where the dependent variable was hours and explanatory variables were age, race, ethnicity, education, marital status, presence of children and on a dummy for whether the person had more than one job. Then we computed the fitted value of this regression to impute hours for those who indicate "hours varied" or have missing hours. If hours varied only for the other jobs (e3), then we added the coefficient estimate for the dummy "had more than one job" to the hours reported for the main job (e1).

Weekly and hourly previous wage

We computed the weekly previous wage by dividing the base earnings by the number of weeks worked in the base year (the "base weeks"), and the hourly previous wage by dividing the weekly previous wage by the hours reported in the survey. We trimmed observations with previous weekly earnings greater than $8,000 or less than $100 and with previous hourly wages greater than $100 or less than $5.

Reservation wages

Our reservation wage question was almost identical to the 1976 CPS question analyzed by Feldstein and Poterba. We trimmed 2,234 out of 36,514 observations with reservation wage *ratios* greater than 3 or less than 1/3, following the same procedure as Feldstein and Poterba (1984). We defined the reservation wage ratio as the weekly reservation wage divided by the weekly previous wage (based on administrative data), because with weekly wage data we avoid using imputed hours for those who indicated that hours varied on their last job. We also trimmed observations with weekly reservation wages greater than $8000 or less than $100, and with hourly reservation wages greater than $100 or less than $5. This caused us to exclude an additional 458 observations.

Time spent on job search

In our analysis of the time spent on job search (yesterday), we only use observations where at least 14 out of 16 episodes in the time diary are filled in, and where the respondents indicated at least 4 different activities over the course of the day. Around 7.8% of the diaries did not meet these quality criteria and were excluded from our analysis. Respondents could check

two activities in each one hour interval. If two activities were reported, we assigned 30 minutes to each activity.

We computed the total amount of time spent on job search in the past week as the sum of time spent on the different job search methods. If a respondent indicated that she or he did not search over the last 7 days (question q9a), then the total amount of time is set to zero. We trimmed observations if the total amount of time spent on job search exceeded 80 hours a week. We also trimmed observations if time spent on a job search method was missing. Overall, 1.3% of the interviews were excluded from our analysis of time spent on job search in the last 7 days because of trimming.

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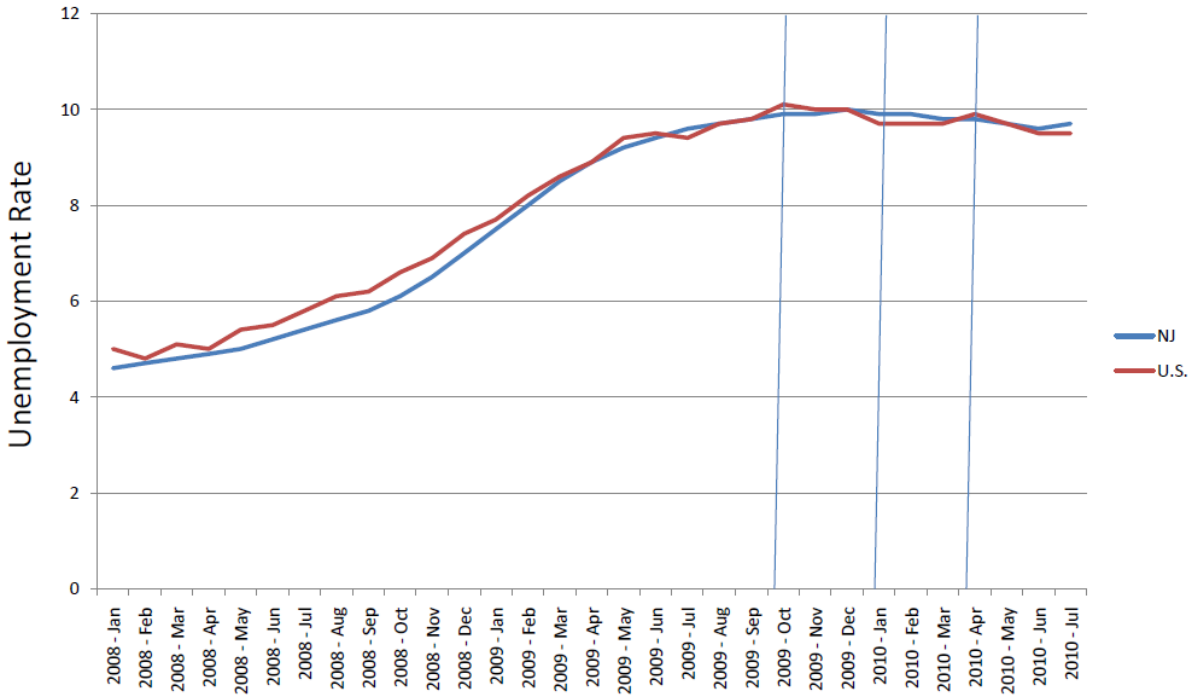
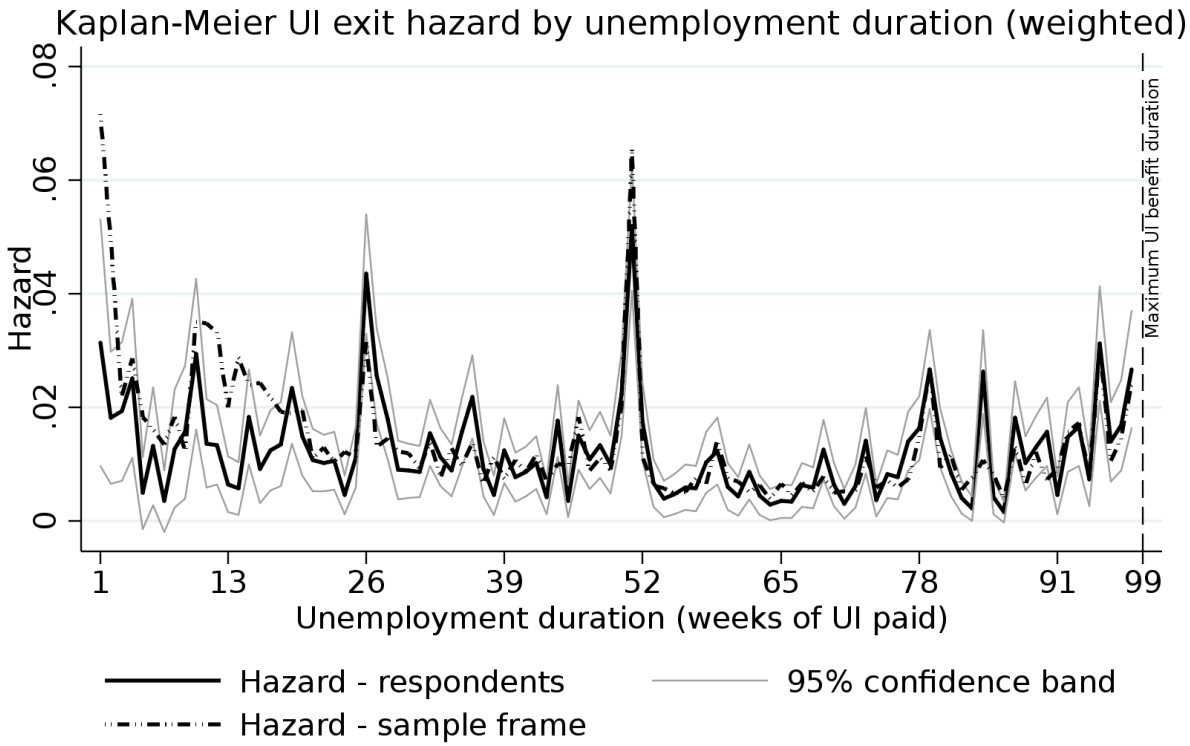
Figure 1.1. Unemployment Rate in NJ and U.S., Seasonally Adjusted



Source: Authors' tabulations of Bureau of Labor Statistics data.

Figure 2.1: UI weekly exit rate by UI duration



Notes: For respondents the hazards are weighted with survey weights and for the sample frame with strata weights. The confidence bands for the sample frame are not shown because the standard errors are usually small (around 0.001, but higher for less than 20 weeks of unemployment duration).

Figure 3.1a: Time spent on job search (yesterday), in minutes per day

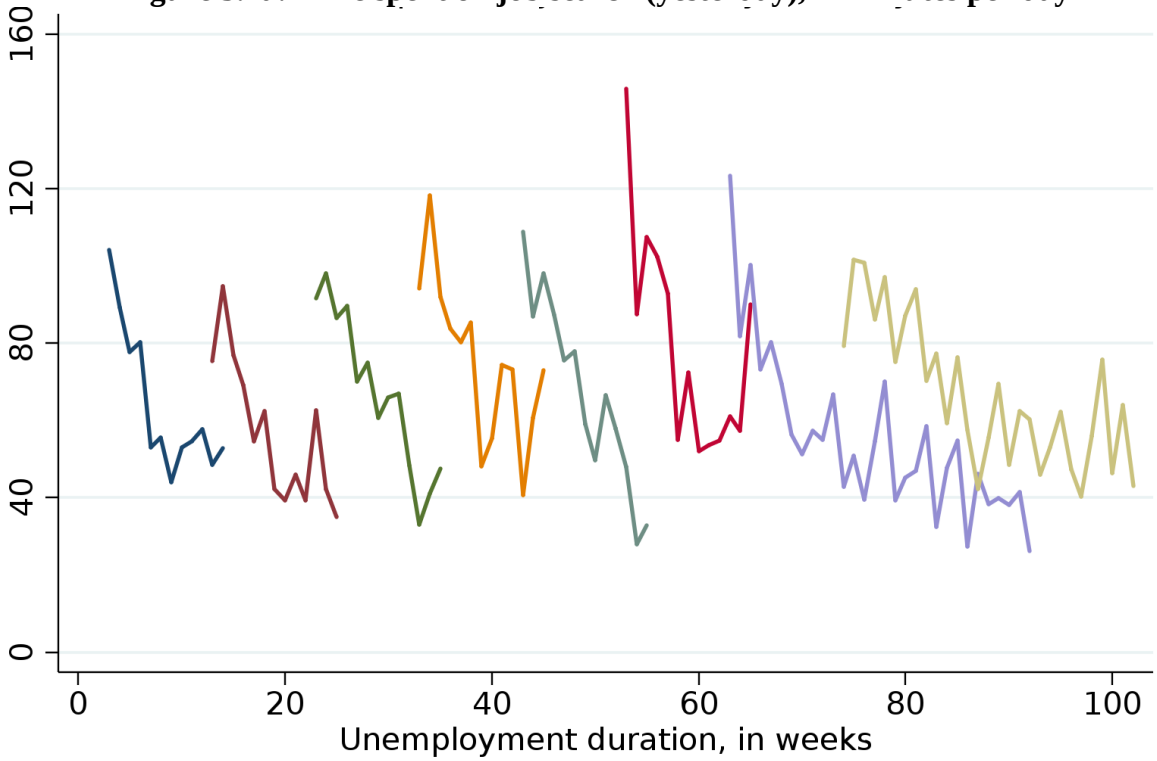


Figure 3.1b: Time spent on job search (last 7 days), in minutes per day

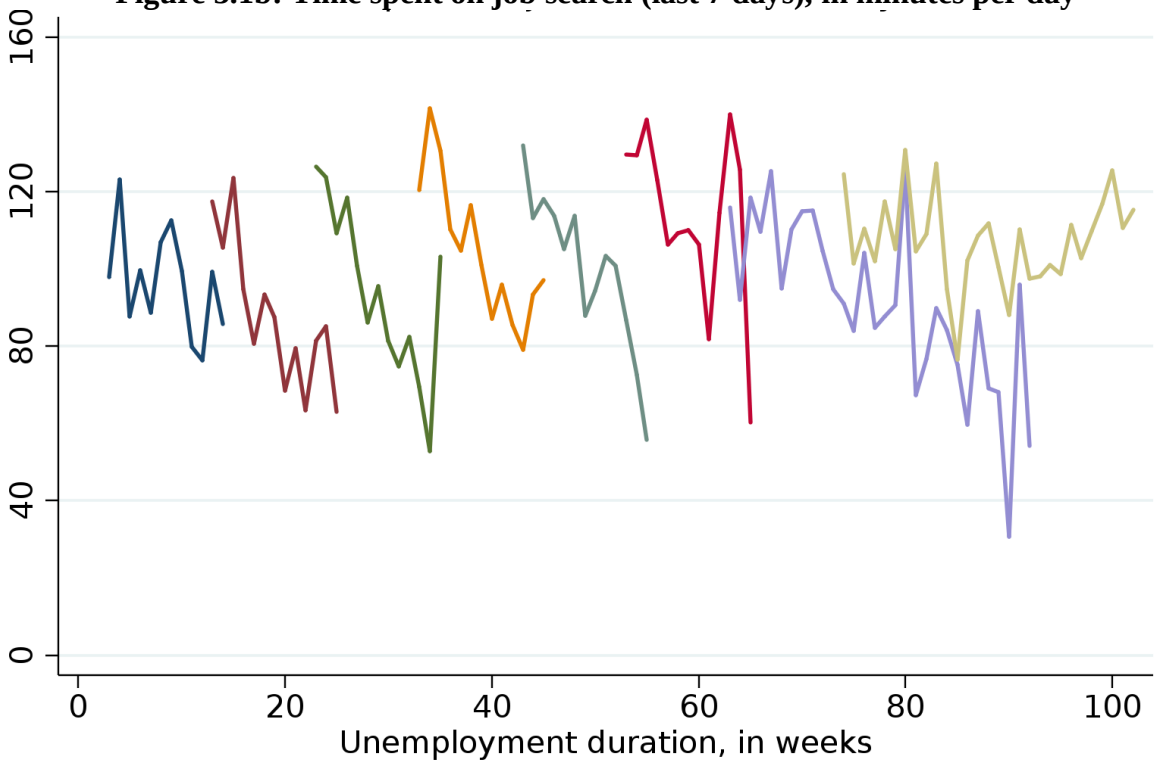
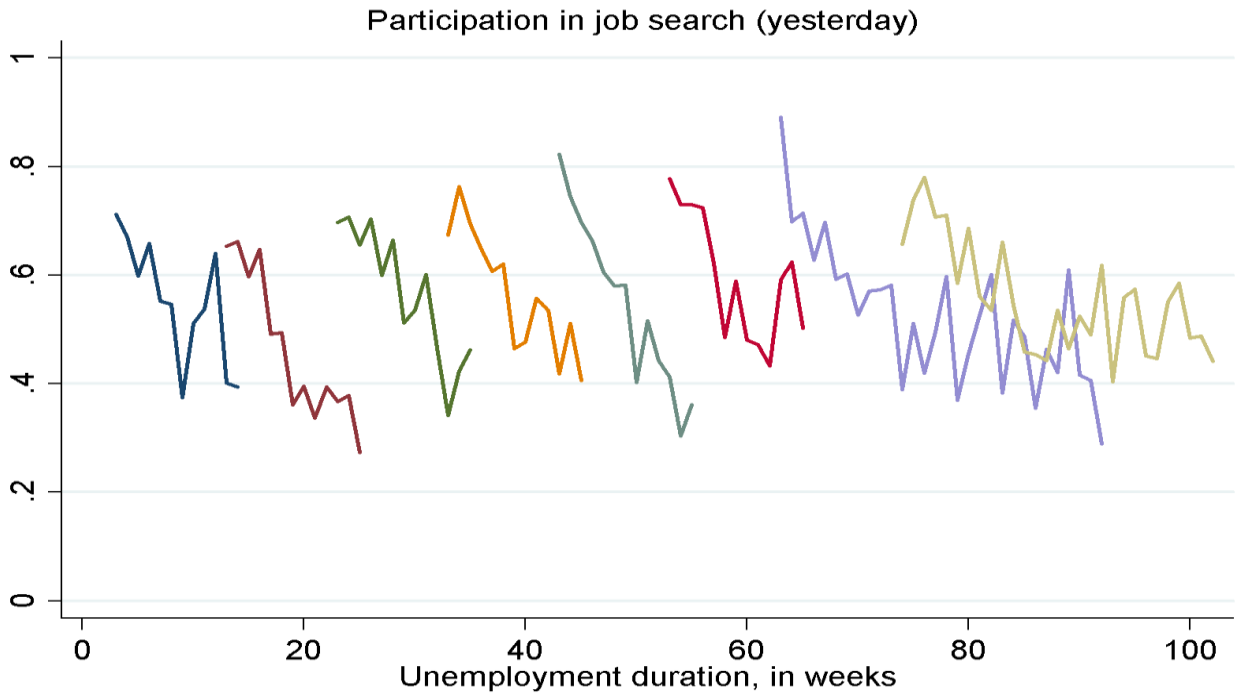
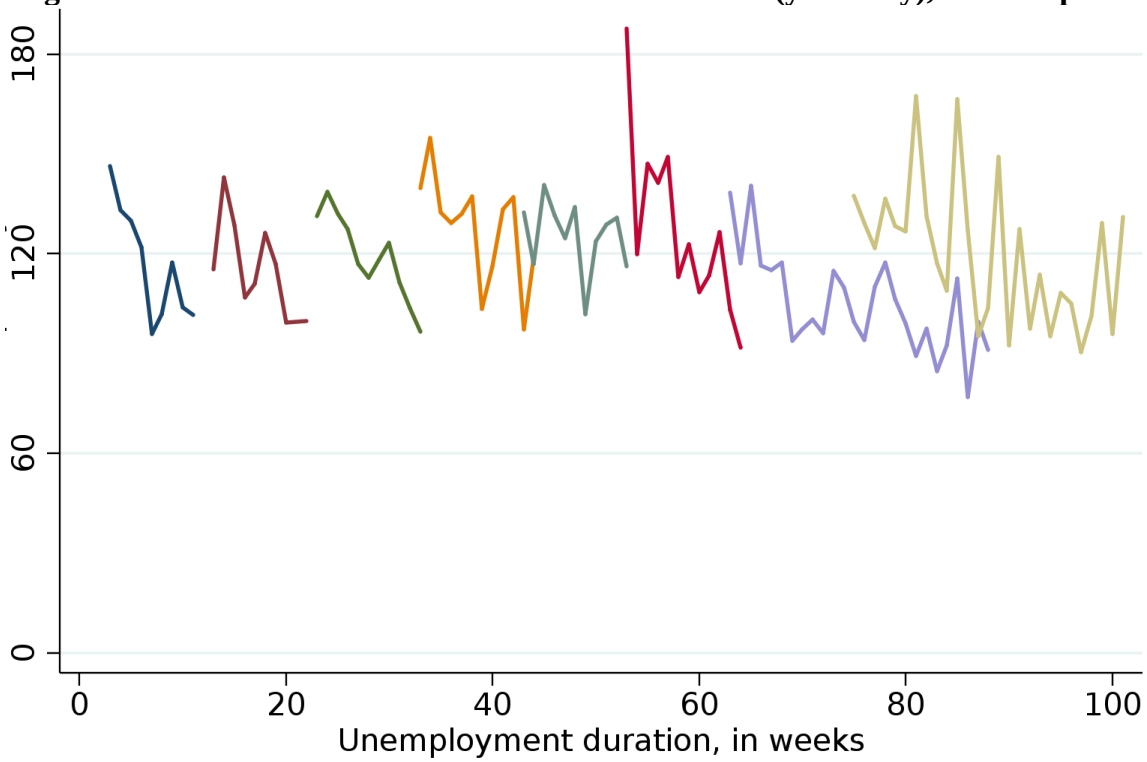


Figure 3.2a: Participation in job search (yesterday)



Notes: Survey weights are used. Cells with less than 50 observations are dropped from the graph.
Universe: Unemployed; no job offer yet accepted; age 20-65.

Figure 3.2b: Job search conditional on non-zero search (yesterday), in mins. per day



Note: Both figures remove individual fixed effects.

Figure 3.3a: Time spent on job search (yesterday), in minutes per day

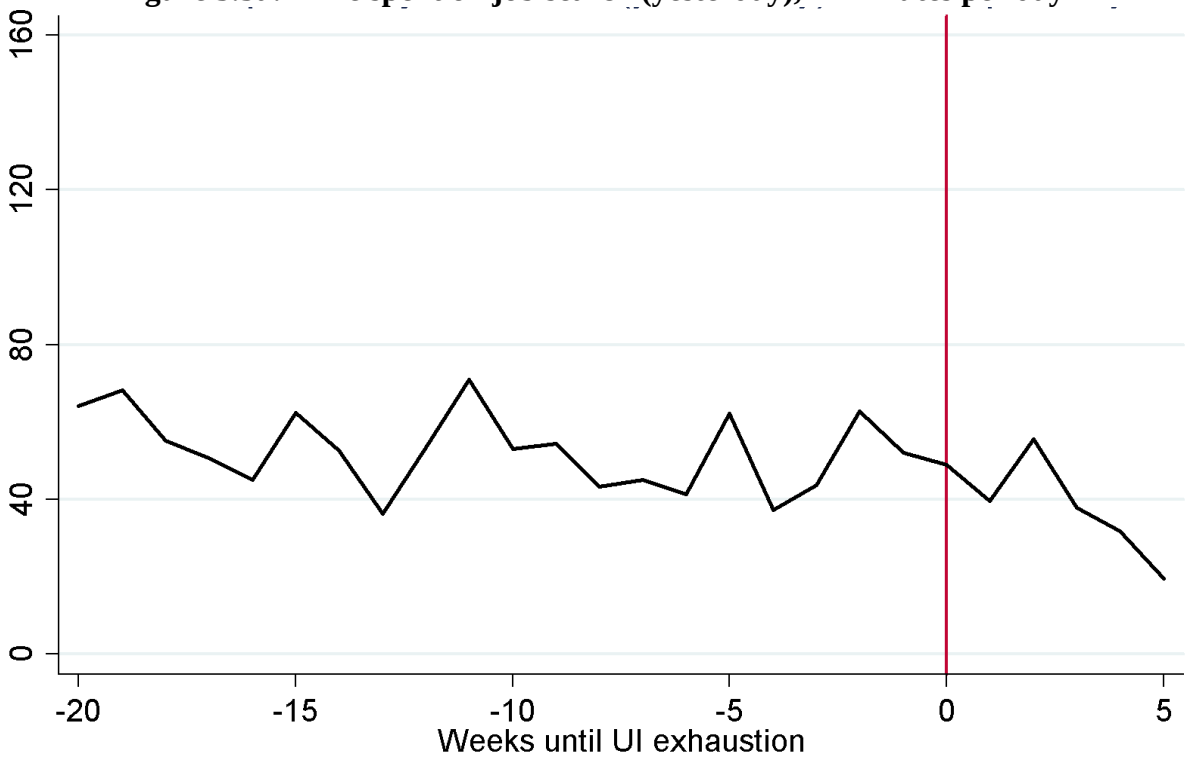
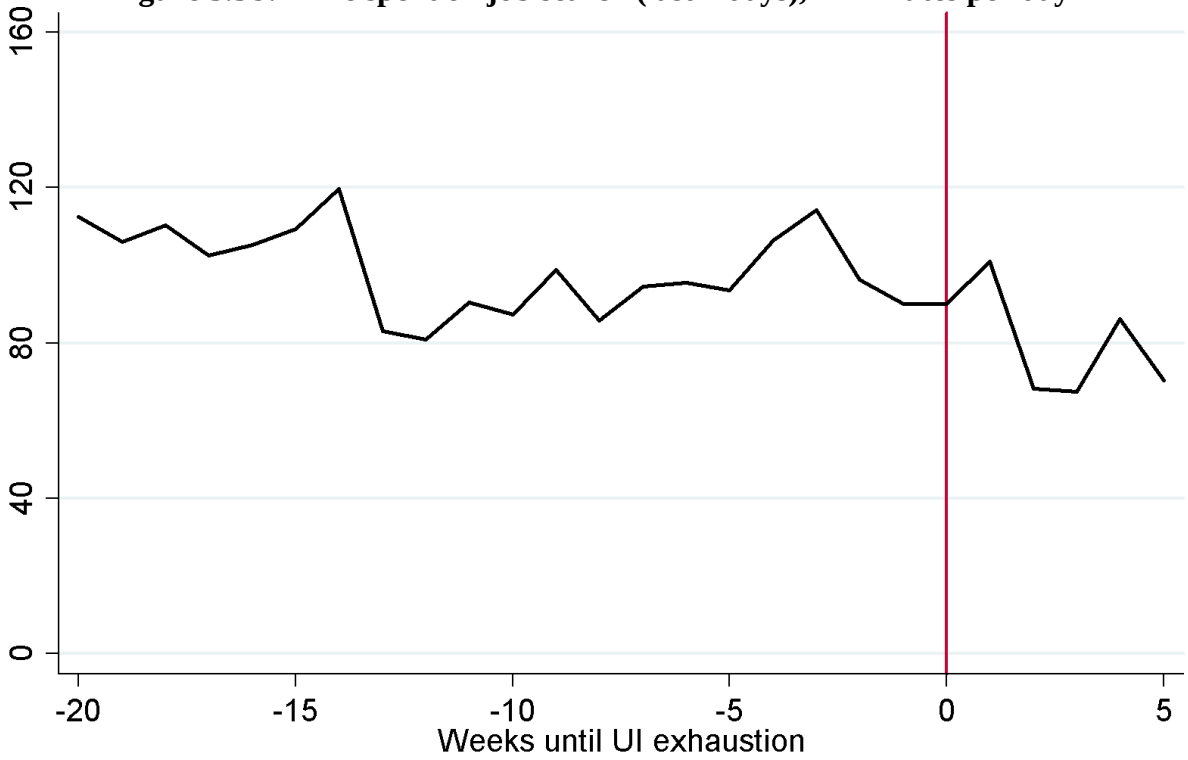


Figure 3.3b: Time spent on job search (last 7 days), in minutes per day



Note: Both figures remove individual fixed effects.

Figure 3.4: Time spent on job search methods (percent of total)

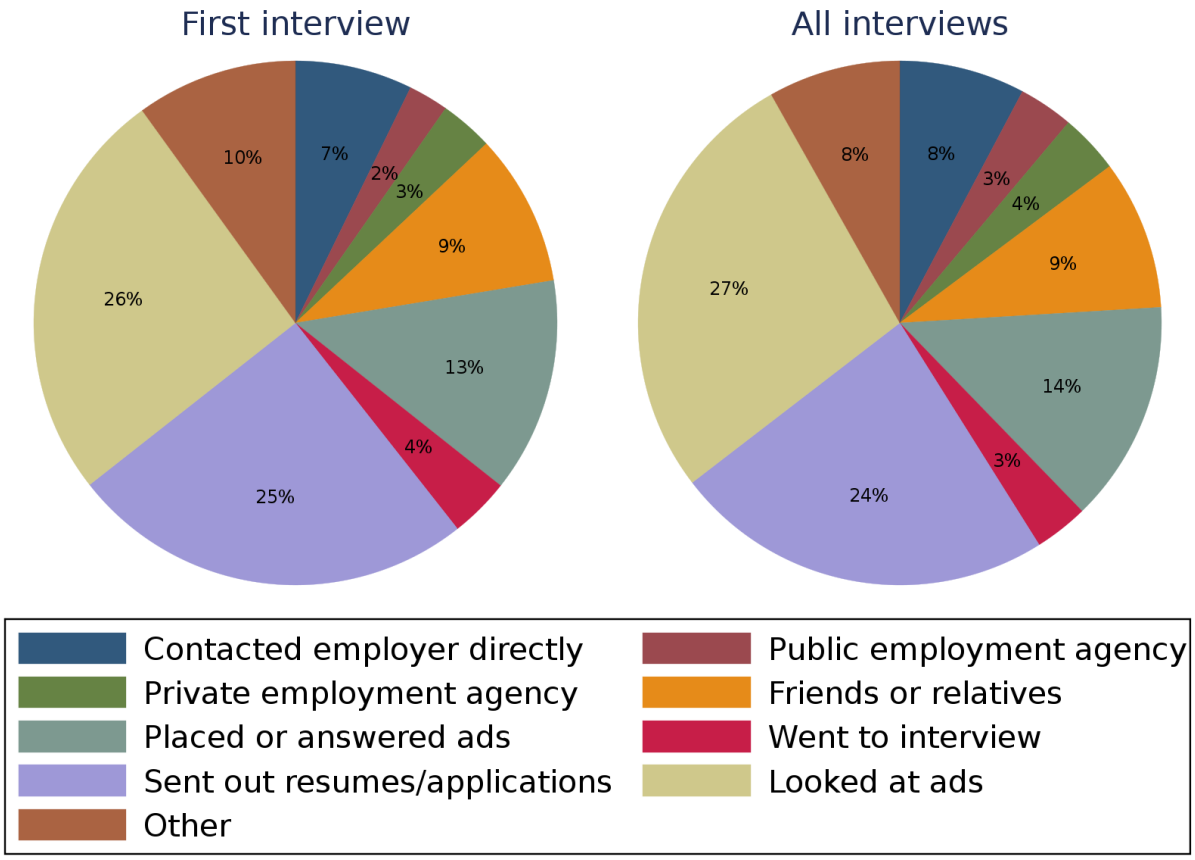
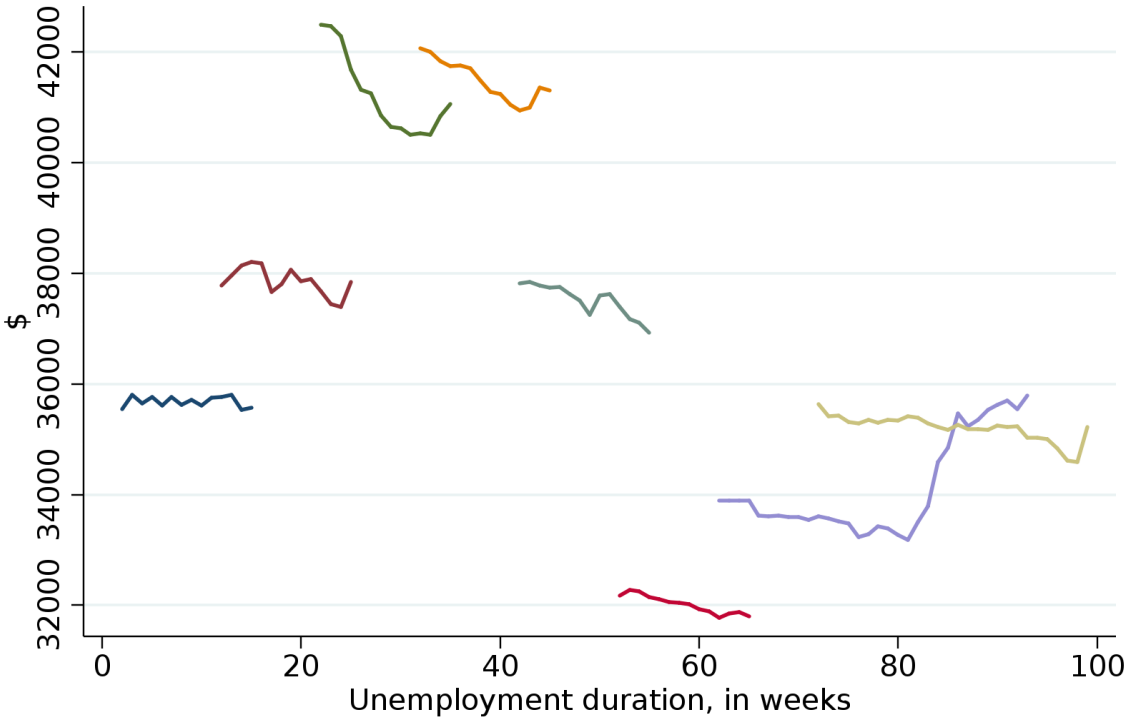


Figure 3.5: Average Earnings in Base Year, by Cohort and Duration of Unemployment



Notes: Survey weights are used. Universe: UI recipients; age 20-65.

Figure 4.1: Percentage of time in a bad mood (at home); controlling for person effects

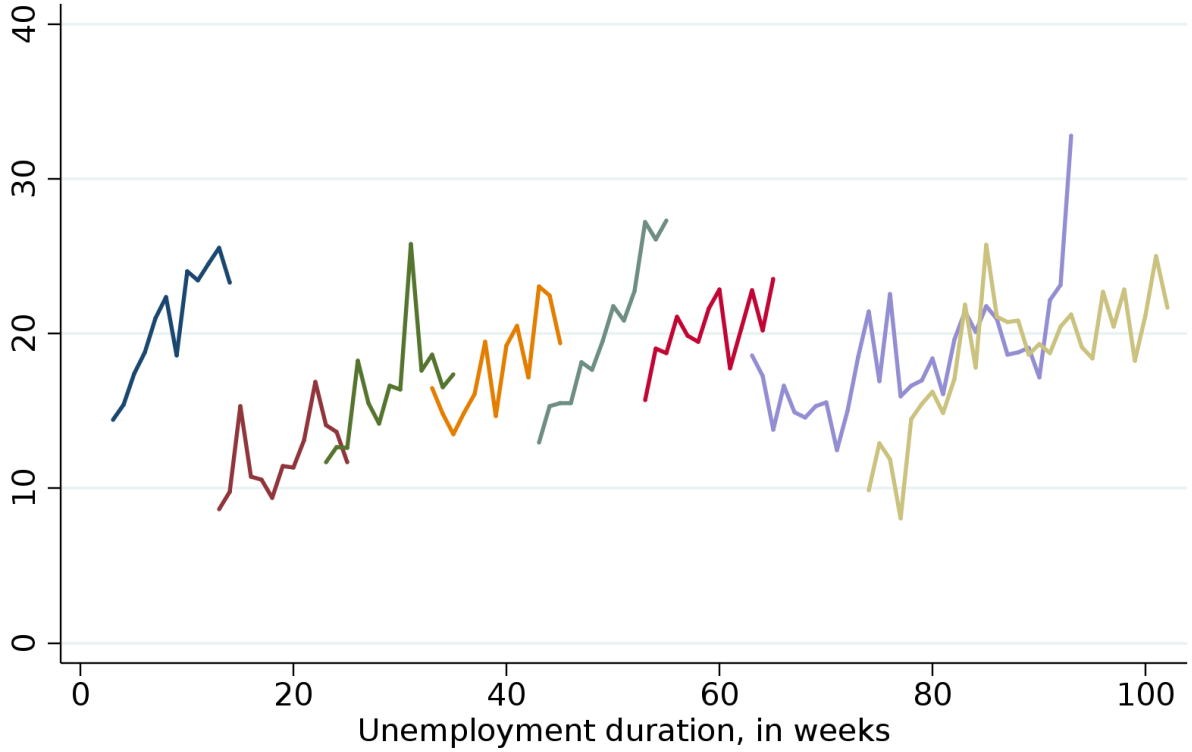


Figure 4.2: Sadness during episodes of job search; controlling for person effects

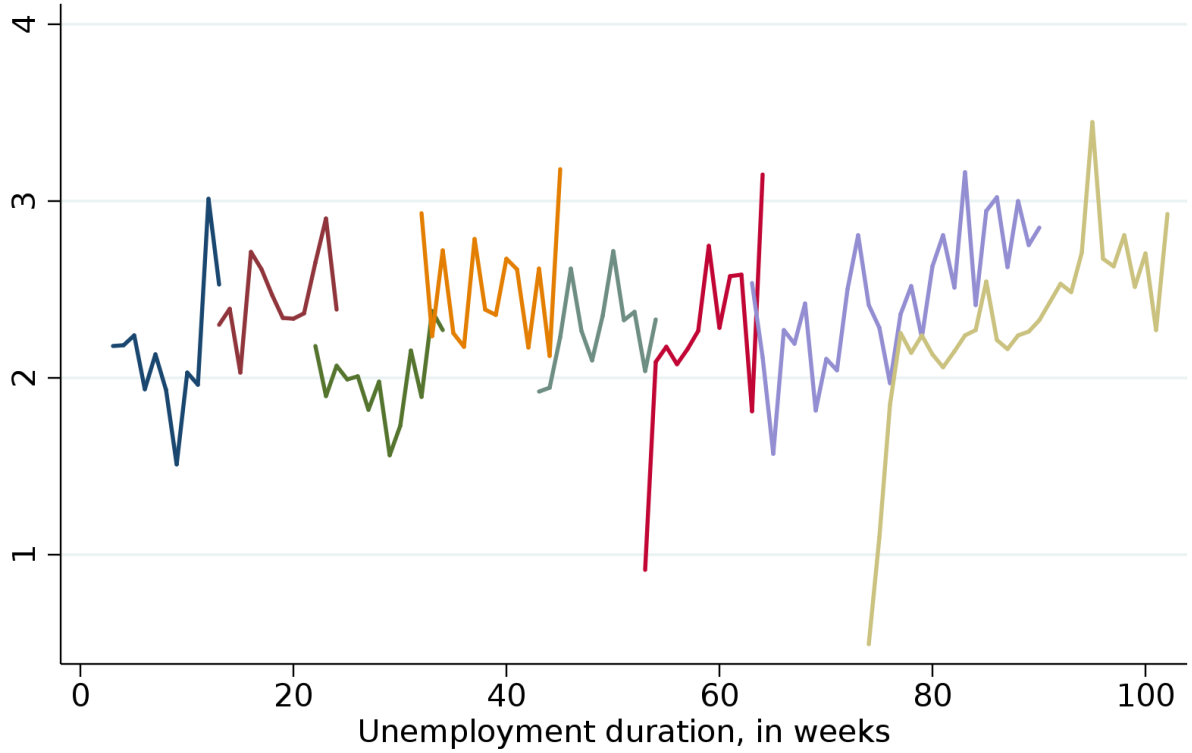
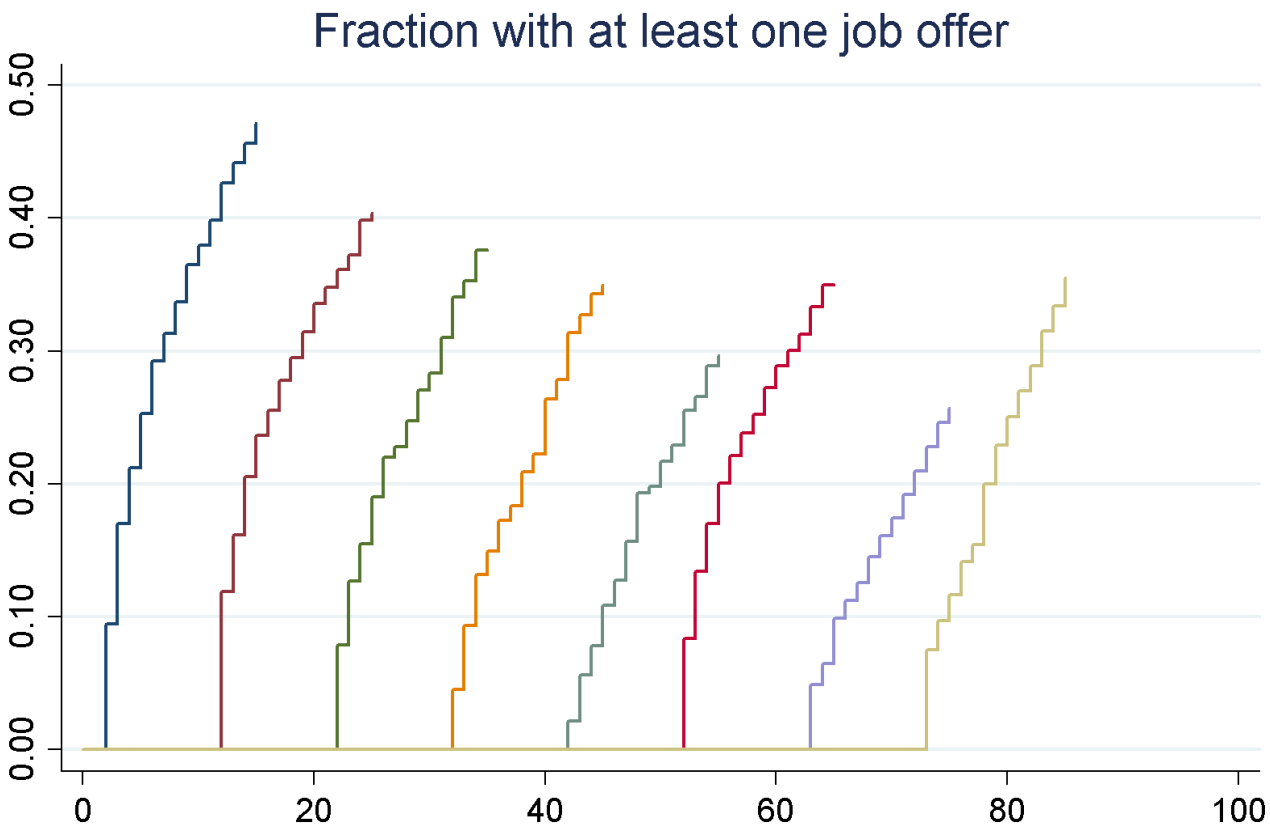


Figure 5.1: Cumulative Probability of Receiving at Least One Job Offer



Notes: Survey weights are used. The graph shows the Kaplan-Meier failure estimates of the duration until the first job offer. If a person stopped answering the survey, all weeks after the last interview are treated as censored. For each cohort, only the first 12 weeks are shown. Sample: Baseline study; respondents with at least two interviews.

Figure 5.2: Probability of Receiving an Offer Around UI Benefit Exhaustion Date

Universe: no job offer yet accepted.

Table 2.1 Descriptive statistics for universe, stratified sample frame and respondents

	Universe	Stratified sample frame	Respondents	Weighted stratified sample frame	Weighted respondents
Number of observations	362,292	63,813	6,025	63,813	6,025
UI and wage data					
Earnings during base year, in $ (3)	35,335	36,905	48,994	34,309	37,960
Base weeks worked during base year, in weeks	41.6	42.0	43.4	41.0	41.2
Weekly benefit rate, in $	387	392	442	378	397
Number of employers in base year	2.1	2.1	2.0	2.1	2.3
Industry: % construction	8.8%	7.8%	4.2%	8.7%	5.6%
Industry: % manufacturing	10.2%	9.4%	8.2%	9.6%	8.6%
Industry: % educational and health care services	9.8%	10.8%	11.5%	10.8%	10.8%
Industry: % retail trade	11.1%	11.2%	9.9%	10.8%	12.4%
Industry: % professional, scientific and technical services	6.7%	7.5%	11.6%	6.4%	7.6%
Industry: % finance and insurance	4.6%	5.9%	8.5%	4.4%	5.7%
Industry: % adm., support and remediation services	10.0%	9.5%	9.4%	9.9%	10.4%
Potential duration of *regular* UI benefis, in weeks	25.3	25.3	25.4	25.0	24.9
New claim since start of study	n.a	5.2%	4.8%	7.2%	6.9%
Weeks of UI paid by September 28, 2009	30.6	41.3	40.7	27.5	27.4
Weeks of UI paid by April 30, 2010	n.a	63.3	63.2	48.5	49.5
Implied weekly UI exit rate	n.a	2.23%	2.07%	2.57%	2.22%
Demographic data (used to create survey weights)					
Female	45.4%	48.3%	52.1%	45.5%	47.2%
Age: 24 or less	9.7%	9.3%	6.8%	10.1%	10.4%
Age: 25-34	22.5%	23.5%	21.3%	23.1%	25.5%
Age: 35-44	22.0%	22.1%	21.1%	22.2%	21.8%
Age: 45-54	23.6%	23.1%	26.8%	23.4%	23.8%
Age: 55 or more	22.1%	22.0%	24.0%	21.3%	18.5%
Race: % white	59.5%	61.7%	68.0%	58.9%	59.8%
Race: % black	20.1%	18.6%	15.3%	20.8%	20.0%
Race: % other	4.8%	4.7%	5.4%	4.7%	4.5%
Race: % missing	15.6%	15.0%	11.2%	15.6%	15.8%
Ethnicity: % hispanic	19.1%	15.9%	9.1%	18.8%	17.8%
Ethnicity: % non-hispanic	70.0%	73.9%	80.8%	70.1%	70.4%
Ethnicity: % missing	10.9%	10.2%	10.1%	11.1%	11.8%
Education: less than high school	15.6%	13.9%	7.0%	15.9%	14.1%
Education: high school	43.3%	40.5%	26.0%	43.2%	45.1%
Education: some college	22.2%	24.1%	26.4%	21.9%	22.1%
Education: college	19.0%	21.5%	40.7%	19.0%	18.7%
Cohort 1: 0-2 weeks of UI paid	5.1%	11.0%	11.2%	16.9%	17.9%
Cohort 2: 10-12 weeks of UI paid	7.3%	11.0%	11.2%	19.7%	19.1%
Cohort 3: 20-22 weeks of UI paid	4.9%	11.0%	11.9%	16.8%	16.6%
Cohort 4: 30-32 weeks of UI paid	5.1%	11.0%	10.8%	15.8%	15.7%
Cohort 5: 40-42 weeks of UI paid	3.8%	11.0%	11.3%	11.2%	10.9%
Cohort 6: 50-53 weeks of UI paid	3.7%	11.0%	10.1%	8.0%	8.1%
Cohort 7+: 60+ weeks of UI paid	11.7%	34.2%	33.6%	11.7%	11.8%
Email available	48.8%	71.8%	81.7%	48.8%	48.7%

(1) The sample frame is weighted with strata weights, which adjust for the probability of being selected for the study.
(2) The respondents are weighted with sampling weights, which adjust for the probability of being selected for the study as well as non-response.
(3) The base earnings are top-coded at $99,999.99. For top-coded earnings we imputed the mean above the top-code by assuming that base earnings follow a Pareto distribution. We estimated the two parameters of the Pareto distribution with the 90th percentile and the top-code (see Feenberg and Poterba, 1992, for details). 3.37% of the unemployed workers in the universe have top-coded earnings and we estimated a mean above the top-code of $152,191.

Table 3.1a Linear regressions of time spent on job search (yesterday), with and without fixed effects

Dependent variable: time spent on job search, in mins. per day	Week 1	Pooled cross-section	Cohort effects	Fixed effects	Fixed effects
Unemployment duration, in weeks	0.227	-0.075	-2.648	-2.73	-1.62
	(0.104)**	(0.072)	(0.269)***	(0.250)***	(0.313)***
Lapse (before November 8)					-0.937
					(6.924)
Exhausted UI					8.416
					(10.724)
After extension of November 8					-19.056
					(3.039)***
Log(weekly benefit amount)	-19.303	-18.78	-16.666		
	(12.570)	(10.311)*	(10.273)		
Log(weekly previous wage)	10.781	14.554	14.133		
	(7.284)	(6.113)**	(6.123)**		
Controlling for age, education, sex, race and ethnicity	x	x	x		
Dummies for day of week of diary	x	x	x	x	x
Cohort effects			x		
Individual fixed effects				x	x
Mean of dependent variable	103.1	65.5	65.5	65.1	65.1
Min	0	0	0	0	0
Max	720	780	780	780	780
N	3,924	24,366	24,366	25,180	25,180
R-squared	0.10	0.05	0.08	0.66	0.67

Robust standard errors in parentheses (clustered at individual level); * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 3.1b Linear regressions of time spent on job search (last 7 days), with and without fixed effects

Dependent variable: time spent on job search, in mins. per day	Week 1	Pooled cross-section	Cohort effects	Fixed effects	Fixed effects
Unemployment duration, in weeks	0.093	0.059	-2.109	-2.245	-1.538
	(0.130)	(0.134)	(0.395)***	(0.288)***	(0.331)***
Lapse (before November 8)					-1.096
					(7.994)
Exhausted UI					-1.415
					(13.978)
After extension of November 8					-11.788
					(3.651)***
Log(weekly benefit amount)	-2.921	-28.141	-26.129		
	(16.950)	(15.924)*	(15.755)*		
Log(weekly previous wage)	18.855	38.659	37.806		
	(10.931)*	(10.370)***	(10.384)***		
Controlling for age, education, sex, race and ethnicity	x	x	x		
Cohort effects			x		
Individual fixed effects				x	x
Mean of dependent variable	117.5	98.3	98.3	97.6	97.6
Min	0	0	0	0	0
Max	685.7	685.7	685.7	685.7	685.7
N	3,983	24,638	24,638	25,449	25,449
R-squared	0.04	0.05	0.06	0.77	0.77

Robust standard errors in parentheses (clustered at individual level); * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 3.2 Linear regressions of time spent on job search (last 7 days), by job search method

Dependent variable: time spent on job search, in mins. per day	Total	Contacted employer directly	Public employment agency	Private employment agency	Friends or relatives	Placed or answered ads	Went to interview	Sent out resumes/ applications	Looked at ads	Other	Attending job training program
Unempl. duration, in weeks	-2.245	-0.173	0.006	-0.093	-0.182	-0.352	-0.056	-0.714	-0.378	-0.303	-0.101
	(0.288)***	(0.057)***	(0.038)	(0.040)**	(0.061)***	(0.080)***	(0.043)	(0.107)***	(0.099)***	(0.079)***	(0.082)
Individual fixed effects	x	x	x	x	x	x	x	x	x	x	x
Mean of dependent variable	97.6	7.6	3.3	3.6	9.0	13.4	3.2	23.0	26.6	8.0	5.8
Min	0	0	0	0	0	0	0	0	0	0	0
Max	685.7	385.7	300.0	257.1	428.6	428.6	435.0	514.3	515.7	685.7	686
N	25,449	25,449	25,449	25,449	25,449	25,449	25,449	25,449	25,449	25,449	25,428
R-squared	0.765	0.56	0.62	0.64	0.56	0.60	0.46	0.70	0.65	0.55	0.59

Robust standard errors in parentheses (clustered at individual level); * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 4.1. Life Satisfaction

"Taking all things together, how satisfied are you with your life as a whole these days?"

	NJ UI	Nationwide Employed
Not at all satisfied	12.1%	1.4%
Not very satisfied	45.0	7.7
Satisfied	37.1	45.5
Very Satisfied	5.9	45.4

Source: First column is from the first weekly interview of the NJ UI survey and the national data are from the 2006 Princeton Affect and Time-Use Survey (PATS). Sample size for PATS is 1,961. Weighted percentages reported for samples age 20-65.

Table 4.2 Linear regressions of life satisfaction on duration of unemployment

Dependent variable:	**Very satisfied**		**Very satisfied or satisfied**		**Not at all satisfied**	
Unemployment duration, in weeks	0.004	0.002	0.001	-0.002	0.003	0.004
	(0.001)***	(0.001)	(0.001)	(0.002)	(0.001)***	(0.001)***
Lapse (before November 8)		0.004		-0.056		0.014
		(0.031)		(0.042)		(0.024)
Exhausted UI		0.001		-0.024		0.006
		(0.032)		(0.074)		(0.019)
After extension of November 8		0.029		0.037		-0.011
		(0.012)**		(0.017)**		(0.011)
Individual fixed effects	x	x	x	x	x	x
Mean of dependent variable	0.10	0.10	0.50	0.50	0.11	0.11
Min	0	0	0	0	0	0
Max	1	1	1	1	1	1
N	27,254	27,254	27,254	27,254	27,254	27,254
R-squared	0.61	0.61	0.72	0.72	0.59	0.59

Robust standard errors in parentheses (clustered at individual level); * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 4.3. Linear regressions of percentage of time spent in specified mood at home on duration of unemployment

Explanatory Variable:	**Percent of time in a bad mood**		**Percent of time a little low or irritable**		**Percent of time in a mildly pleasant mood**		**Percent of time in a very good mood**	
Unemployment duration, in weeks	0.421	0.291	-0.048	-0.015	-0.157	-0.137	-0.216	-0.139
	(0.067)***	(0.082)***	(0.064)	(0.078)	(0.086)*	(0.108)	(0.069)***	(0.094)
Lapse (before November 8)		1.718		2.248		-1.286		-2.679
		(1.561)		(1.851)		(2.536)		(2.665)
Exhausted UI		0.094		-0.534		-0.758		1.198
		(2.188)		(1.488)		(2.217)		(1.854)
After extension of November 8		2.241		-0.36		-0.356		-1.525
		(0.740)***		(0.616)		(0.862)		(0.810)*
Individual fixed effects	x	x	x	x	x	x	x	x
Mean of dependent variable	17.85	17.85	21.14	21.14	36.51	36.51	24.51	24.51
Min	0	0	0	0	0	0	0	0
Max	100	100	100	100	100	100	100	100
N	27,121	27,121	27,121	27,121	27,121	27,121	27,121	27,121
R-squared	0.74	0.74	0.64	0.64	0.69	0.69	0.77	0.77

Robust standard errors in parentheses (clustered at individual level); * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 4.4 Descriptive statistics: emotions happy, sad and stressed by activity and job search method

	Averages			*Fixed effect estimates*		
Emotions by activity	**Happy**	**Sad**	**Stressed**	**Happy**	**Sad**	**Stressed**
Searching for a job	**2.39**	**2.28**	**3.33**	**2.39**	**2.28**	**3.33**
Other activities:	**3.33**	**1.27**	**1.75**			
Grooming/personal care	3.30	1.30	1.70	3.06	1.61	2.03
Shopping	3.35	1.03	1.66	3.08	1.55	2.27
Commuting/traveling	3.15	1.05	1.77	2.89	1.62	2.33
Working	3.15	1.19	1.91	3.04	1.49	2.36
Attending job training program	3.95	0.95	2.07	3.36	1.35	2.41
Relaxing/resting	3.39	1.29	1.64	3.12	1.64	2.02
Exercising (including sports)	3.98	0.88	1.28	3.82	1.33	1.77
Watching TV	3.27	1.38	1.58	3.12	1.64	1.96
Reading/writing	3.55	1.06	1.45	3.23	1.53	1.99
Socializing	4.08	0.88	1.09	3.60	1.43	1.75
Eating and drinking	3.46	1.14	1.49	3.15	1.55	1.99
Preparing for/taking course	3.51	0.99	2.17	3.06	1.58	2.60
Preparing food	3.42	1.25	1.68	3.16	1.58	2.04
Doing housework	3.06	1.39	1.92	2.87	1.67	2.20
Taking care of family members	3.63	1.14	1.96	3.30	1.51	2.13
Taking care of non-family members	3.29	1.17	1.70	3.19	1.62	1.99
On the phone	3.18	1.40	1.93	2.89	1.76	2.41
Using the computer/internet/email	2.80	1.71	2.25	2.81	1.82	2.45
Other	3.35	1.21	1.72	3.06	1.66	2.21

	Averages			*Fixed effect estimates*		
Emotions by job search method	**Happy**	**Sad**	**Stressed**	**Happy**	**Sad**	**Stressed**
Contacted employer directly	2.38	2.32	3.51	2.38	2.32	3.51
Contacted public employment agency	2.28	2.62	3.61	2.23	2.28	3.38
Contacted private employment agency	2.17	2.50	3.56	2.33	2.26	3.54
Contacted friends or relatives	2.40	2.45	3.45	2.53	2.32	3.55
Contacted school/university employment center	2.20	2.98	3.79	2.65	2.45	3.49
Checked union/professional registers	2.05	2.68	3.74	2.50	2.39	3.61
Attended job training programs/courses	2.82	2.01	2.95	2.57	2.30	3.36
Placed or answered ads	2.09	2.55	3.59	2.24	2.47	3.61
Went to interview	2.93	2.29	3.38	2.81	2.20	3.57
Sent out resumes/filled out applications	2.38	2.28	3.36	2.43	2.39	3.66
Looked at ads	2.25	2.35	3.38	2.03	2.66	3.77
Other	2.35	2.31	3.44	2.39	2.42	3.73

Note: Survey weights are used. The weights are adjusted for the duration of the job search episode. The fixed effect estimates are taken from a regression of the feeling happy, sad or stressed on activity dummies, day of the week dummies and individual fixed effects. The reported estimates are the coefficients of the activity dummy added to the average of the first category in the list. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 4.5 Linear regressions of emotions happy, sad and stressed during three random episodes of the day on duration of unemployment (excluding episodes of job search)

	Dependent Variable:					
Explanatory Variable	**Happy**		**Sad**		**Stressed**	
Unemployment duration, in weeks	-0.013	-0.006	0.020	0.016	0.001	0.003
	(0.005)***	(0.006)	(0.004)***	(0.005)***	(0.004)	(0.004)
Lapse (before November 8)		-0.261		-0.052		-0.014
		(0.124)**		(0.103)		(0.121)
Exhausted UI		-0.179		0.016		0.046
		(0.122)		(0.115)		(0.147)
After extension of November 8		-0.122		0.072		-0.040
		(0.059)**		(0.043)*		(0.047)
Dummies for day of the week	x	x	x	x	x	x
Individual fixed effects	x	x	x	x	x	x
Mean of dependent variable	3.33	3.33	1.27	1.27	1.76	1.76
Min	0	0	0	0	0	0
Max	6	6	6	6	6	6
Number of episodes	64,419	64,419	64,419	64,419	64,419	64,419
R-squared	0.59	0.59	0.62	0.62	0.58	0.58

Robust standard errors in parentheses (clustered at individual level); * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used. Respondents were asked to rate their feelings on a scale from 0 to 6 where 0 means that they did not experience that feeling at all whereas a rating of 6 means that this feeling was a very important part of the experience. Episodes where respondents did not rate all three feelings (happy, sad and stressed) were excluded from the sample. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 4.6 Linear regressions of emotions happy, sad and stressed during episodes of job search on duration of unemployment

	Dependent Variable:					
Explanatory variable:	**Happy**		**Sad**		**Stressed**	
Unemployment duration, in weeks	-0.005	-0.008	0.031	0.042	-0.005	0.003
	(0.007)	(0.009)	(0.009)***	(0.009)***	(0.008)	(0.010)
Lapse (before November 8)		-0.242		0.126		-0.359
		(0.138)*		(0.195)		(0.177)**
Exhausted UI		-0.075		0.288		0.265
		(0.339)		(0.460)		(0.559)
After extension of November 8		0.029		-0.153		-0.153
		(0.077)		(0.097)		(0.100)
Dummies for day of the week	x	x	x	x	x	x
Individual fixed effects	x	x	x	x	x	x
Mean of dependent variable	2.395	2.395	2.282	2.282	3.327	3.327
Min	0	0	0	0	0	0
Max	6	6	6	6	6	6
N	12,889	12,889	12,889	12,889	12,889	12,889
R-squared	0.79	0.79	0.77	0.77	0.79	0.79

Robust standard errors in parentheses (clustered at individual level); * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used and adjusted for the length of the job search episode. Respondents were asked to rate their feelings on a scale from 0 to 6 where 0 means that they did not experience that feeling at all whereas a rating of 6 means that this feeling was a very important part of the experience. Episodes where respondents did not rate all three feelings (happy, sad and stressed) were excluded from the sample. Universe: Unemployed; no job offer yet accepted; age 20-65.

Table 4.7. Job Search and Life Satisfaction

	Search Time on Previous Day:		
Life Satisfaction	None	1-120 minutes	>120 minutes
Very satisfied	13.6	6.9	5.4
Satisfied	43.9	39.9	32.4
Not satisfied	33.5	44.4	47.1
Not at all satisfied	9.0	8.9	15.2

Table 5.1 Job offers by type of work looking for (at time of the entry survey)

	% of total	% received full-time offer	% received part-time offer	% received full- or part-time offer	% left UI early (but no job offer)
Looking for full-time job	*75.1%*	15.6%	6.5%	20.5%	6.0%
Looking for part-time job	*4.3%*	10.1%	15.9%	20.9%	12.9%
Doesn't matter	*16.7%*	14.0%	10.0%	20.0%	4.9%
Not looking for work	*3.9%*	10.7%	9.4%	17.5%	16.7%
Total		14.9%	7.6%	20.3%	6.6%

Notes: Survey weights are used. "Left UI early" is defined as those who left UI before they exhausted their UI benefits.
Universe: Respondents with at least two interviews in the baseline study. The sample size is 4,671.

Table 5.2 Probit models (marginal effects) for leaving UI early and receiving a job offer

	Dependent Variable:					
	Left UI early (before March 14, 2010)			Received job offer		
Explanatory Variables:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Time spent on job search, in hours per week	0.0018	0.0018	0.0017	-0.0002	-0.0002	-0.0002
	(0.0006)***	(0.0005)***	(0.0005)***	(0.0007)	(0.0006)	(0.0006)
Log(reservation wage ratio)	-0.0492	-0.0485	-0.0517			
	(0.0255)*	(0.0246)**	(0.0252)**			
Cohort 2		0.05	0.0284		0.0372	0.0388
		(0.0352)	(0.0331)		(0.0375)	(0.0386)
Cohort 3		-0.0122	-0.0155		-0.0181	-0.0112
		(0.0277)	(0.0271)		(0.0301)	(0.0303)
Cohort 4		-0.0352	-0.0393		-0.0119	-0.0135
		(0.0276)	(0.0275)		(0.0313)	(0.0312)
Cohort 5		-0.0966	-0.0912		0.0343	0.0394
		(0.0202)***	(0.0202)***		(0.0371)	(0.0371)
Cohort 6		-0.0593	-0.0544		0.0015	-0.0044
		(0.0285)**	(0.0287)*		(0.0373)	(0.0358)
Cohort 7		-0.0991	-0.0958		-0.0795	-0.0767
		(0.0204)***	(0.0204)***		(0.0227)***	(0.0240)***
Cohort 8		-0.0872	-0.0784		-0.0189	-0.0078
		(0.0196)***	(0.0207)***		(0.0283)	(0.0300)
Recall expectation			0.0003			0.0508
			(0.0322)			(0.0407)
With recall date			0.3872			0.0633
			(0.1533)**			(0.1196)
Age			0.0012			0.003
			(0.0047)			(0.0052)
Age^2			0.000			0.000
			(0.0001)			(0.0001)
High school degree			0.0025			0.0312
			(0.0538)			(0.0639)
Some college education			0.0343			0.0799
			(0.0540)			(0.0633)
College degree			0.1018			0.1185
			(0.0652)			(0.0738)
Some graduate education			0.0954			0.2085
			(0.0792)			(0.1005)**
Graduate degree			0.1356			0.0928
			(0.0773)*			(0.0776)
Black			-0.0055			0.0062
			(0.0241)			(0.0263)
Asian or other			0.016			0.0007
			(0.0356)			(0.0362)
Race not available			0.0176			0.0786
			(0.0354)			(0.0473)*
Hispanic			-0.0106			0.0195
			(0.0306)			(0.0381)
Ethnicity not available			-0.0037			-0.0831
			(0.0305)			(0.0238)***
Female			0.0109			-0.0051
			(0.0180)			(0.0187)
Married			0.0363			0.0092
			(0.0199)*			(0.0231)
Mean of dependent variable	0.1653	0.1653	0.1649	0.1611	0.1611	0.1614
Min	0	0	0	0	0	0
Max	1	1	1	1	1	1
N	4,433	4,433	4,382	3,918	3,918	3,864
Pseudo R-squared	0.0084	0.0348	0.0589	0.000	0.0077	0.0313

Robust standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01.

Notes: Survey weights are used. Sample: Unemployed; no job offer yet accepted. For the job offer regressions, only respondents with two or more interviews were included.