Job Search Behavior among the Employed and Non-Employed

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Abstract

Using a unique new survey, we study the relationship between search effort and search outcomes for employed and non-employed job seekers. Our data have extensive information on individuals' current and previous employment situations, search behavior, job offers, accepted offers, and reservation wages. We find that the employed fare much better than the unemployed in their job search prospects along several dimensions, despite lower job search effort. The employed receive more offers per job application, and conditional on an offer, they are offered higher pay, more benefits, and more hours. Despite this, they are less likely to accept these higher-quality offers but are also much less likely to again engage in job search on their new job. We apply our results to a model of on-the-job search with endogenous search effort, allowing for differences in search efficiency and wage offer distributions between the employed and unemployed. The calibrated model does better in fitting the relevant facts than the standard job-ladder model and implies a reasonable flow value of unemployment.

Keywords: job search, unemployment, on-the-job search, search effort, reservation wage
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1. Introduction

Economists have studied how workers find jobs for some time. Most studies, however, have focused on the job search of the unemployed. Early theories of frictional job search focus on search among the unemployed. (e.g., McCall, 1970; Mortensen, 1977; Pissarides, 1985; Mortensen and Pissarides, 1994). Search theories have also focused on on-the-job search[1] and the relationship between labor force participation and search (e.g., Alvarez and Shimer, 2010). Empirical research on the search behavior outside of the unemployed, however, has been sparse, primarily because of a lack of data on it.

We design and implement a survey that focuses on the job search behavior and outcomes for all individuals, regardless of their labor force status. The survey is a supplement of the Survey of Consumer Expectations, which is administered monthly by the Federal Reserve Bank of New York to a sample of roughly 1,300 individuals repeated three times so far in October 2013, 2014, and 2015. Our survey asks an expansive list of questions on the employment status and current job search, if any, of all respondents. We ask about an individual's search effort and search methods, including whether any unsolicited contacts, referrals, or other informal methods were involved. We also elicit information on their reservation wage and other job characteristics that are important for the acceptance decision. In terms of outcomes, we ask about any job offers received, how those offers came about, the characteristics of those offers, and whether these offers were accepted. We also we ask those currently employed similar questions about the search process that led to their current job.

The overarching theme from our findings is that the employed face relatively better job search prospects along multiple dimensions. This occurs along two margins of particular importance for theories of labor market search. First, the search effort of the employed appears to be more efficient

[1] See for example, Burdett, 1978; Pissarides, 1994; Cahuc, Postel-Vinay, Robin, 2006; Mortensen and Nagypal, 2007; Menzio and Shi, 2009; and Moscarini and Postel-Vinay, 2013).

than that of the unemployed. A high fraction of unsolicited job offers going to the employed is a nontrivial factor for the observed differences in search efficiency. Second, the employed seem to draw from a higher-quality job offer distribution than the unemployed. This holds even after controlling for observable characteristics of the worker and job, the prior earnings of the worker (a proxy for unobservable worker characteristics), and the state-level unemployment rate at the time of the interview.

Specifically, we find that the employed exert the most effort, in both time spent searching and applications sent, yet yield more employer contacts and job offers per application sent. Many of these contacts and offers go to employed workers who report no active search efforts. We find that these individuals receive nearly one-quarter of all offers in our sample. This underscores the importance of informal recruiting mechanisms such as unsolicited employer contacts and hiring through referrals. Our estimates suggest that over 26 percent of job offers to the employed come from an unsolicited contact, while less than 13 percent of job offers to the unemployed come from an unsolicited contact.

When the non-employed receive a job offer, we find that it tends to pay a lower wage, offer fewer hours, and is considerably less likely to offer any benefits. Unconditionally, the wages offered to the non-employed are 42 percent lower than the wages offered to those employed full-time. After accounting for our controls, the average wage offered to the non-employed remains 22 percent lower. Despite the poor quality of these job offers, the non-employed are nearly twice as likely to accept them. The evidence suggests that many non-employed workers accept a poor-quality offer because they believe it to be their only option. The non-employed are also far less likely to have bargained over the offer during the hiring process. In contrast, employed job seekers tend to do relatively well in their searches. They are much more likely to find full-time work with benefits, and the offers are in line with,

if not better than, their reservation job values, on average. We also find that roughly one in seven of the employed received some form of counter-offer from their employer at the time.

Survey responses on the search process that led the hiring of those employed at the time of the survey reinforce this theme. Specifically, we that find those that were hired directly following a quit are in jobs that pay better, have longer hours, and are more likely to offer benefits, consistent with a "job ladder" model of wage growth. Those hired from non-employment, in contrast, are not only employed in lower-quality jobs, but are also more likely to be searching for new work at the time of the survey. We also find that those who quit directly to their current job had similar wages and hours in their prior jobs to those who were hired following a non-employment spell, suggesting that differences in employment status due to unobserved heterogeneity likely do not account for the finding. Consequently, when we condition out our controls, which include the wages and hours of the previous job, it only reduces the difference in starting wages between the two groups from 30 percent to between 15 and 19 percent of the quitting workers' average starting wage. The remaining difference is economically large and statistically significant.

We apply our results to a model of on-the-job search and endogenous search effort. Specifically, we extend the model of Christensen et al. (2005) to allow for differences in the search effort, search efficiency, and the wage offer distributions of the employed and unemployed. Search efficiency in the model captures differences in the job-offer arrival rate (per unit of search effort) between the employed and unemployed that in practice occur along multiple margins, including differences in employer preferences as well as differences in the incidence of unsolicited employer contacts and referrals. We compare a model of endogenous search effort to a more standard model of on-the-job search where search effort is exogenous. Our extended model with endogenous search effort does much better in matching the key facts from our empirical analysis, primarily because it allows for the larger discrepancy

in search efficiency between the unemployed and the employed at the bottom of the job-ladder. The model also implies a reasonable flow value of unemployment and generates a mean-min wage ratio, first examined by Hornstein, Krusell, and Violante (2011), that is comparable to the empirically-observed ratio despite the relatively high implied values of unemployment.

Our findings provide several contributions to the literature on job search. First, we provide the most comprehensive evidence to date on the nature of on-the-job search, building on recent work by Fujita (2013). On the job search is pervasive, with over 23 percent of the employed looking for work during our survey month. Second, and perhaps even more striking, is the propensity of employed individuals not seeking work to generate job offers. This finding has strong implications for labor market models that incorporate on-the-job search. The finding is analogous to recent work on vacancies by Davis, Faberman, and Haltiwanger (2013), who find that a sizable fraction of hiring by firms occurs without the use of a formal vacancy. Part of our result stems the fact that informal job search methods, such as the use of referrals and unsolicited contacts by employers, play an important role in the job search process.[2] Through the lens of a standard labor search model, we show that this implies the employed are much more efficient in their job searches. Finally, we find that the job offer distributions potentially differ by labor force status. This is at odds with standard models of random search and suggests unobserved factors that are unique to employment status (such as a stigma in the hiring of the unemployed) are an important part of the hiring process.

The next section describes our survey. Section 3 presents our basic evidence on job search behavior and job search outcomes by labor force status. Section 4 presents evidence on job offers and reservation wages. Section 5 presents a model of on-the-job search with endogenous search effort, and its calibration to our findings. Section 6 concludes.

[2] Models of hiring through referrals such as Galenianos (2013) are consistent with our findings.

2. Data

Our data are an annual supplement to the Survey of Consumer Expectations (SCE), administered monthly by the Federal Reserve Bank of New York. The SCE is a nationally-representative survey of roughly 1,300 individuals that asks respondents about their expectations about various aspects of the economy. We designed the supplement ourselves and first administered it in October 2013. We have administered it annually in 2014 and 2015 since then, and present results for a sample that pools all three years of data together. Our supplement asks a broad range of questions on employment status, job search behavior, and job search outcomes. Demographic data is also available for respondents through the monthly portion of the SCE survey.

The data ask a variety of questions that are tailored to individuals' employment status and job search behavior. For the employed, including the self-employed, the survey asks questions about their wages, hours, benefits, and the type of work that they do, including questions on the characteristics of their workplace. For the non-employed, the survey asks a range of questions about their work history, including detailed questions on their most recent employment spell. The survey also asks questions related to the type of non-employment, including those related to retirement, school enrollment status, and any temporary layoff.

Regardless of employment status, the survey asks all individuals if they have searched for work within the last four weeks, and if they had not searched, whether or not they would accept a job if one was offered to them. Among the employed, the survey distinguishes between those searching for new work and those searching for a job in addition to their current one. In our evidence below, this distinction turns out to be important. For individuals who have searched or would at least be willing to accept a new job if offered, the survey asks a series of questions relating to their job search (if any), including the reasons for their decision to (not) search. It then asks an exhaustive set of questions on the

types of effort exerted when seeking new work (e.g., updating resumes, searching online, contacting employers directly). It also asks about the number of job applications completed within the last four weeks and the number of employer contacts and job offers received. It also probes further to see how those contacts and offers came about, i.e., whether they were the result of traditional search methods or whether they came about through a referral or an unsolicited employer contact. For those who received an offer, including any offers within the last six months, the survey asks about a range of characteristics of the job offer, including the wage offered, the expected hours, its benefits, as well as the type of work to be done and the characteristics of the employer. It also asks what led, or may lead, the respondent to accept or reject the offer, and ask a range of questions about whether there was any bargaining over the wage with either the current or future employer. Finally, they survey asks job seekers about their reservation job values, including their reservation wage and their preferred hours, and how much the wage would have to change for them to endure a variety of work disamenities (e.g., no benefits, longer hours, longer commute, relocation).

Given that by far not everyone in our sample reported a job offer in the months leading up to the survey, we designed the survey to ask a range of additional retrospective questions about the search process that led to their current job, as well as questions about their previous job, including its wage paid, hours, and benefits. Most importantly, the survey asks respondents about their employment status at the time they were hired, which allows us to compare their responses to those who are currently searching for work by labor force status.

We use an hourly estimate of wages. Respondents report this either directly as an hourly wage, or as a measure of weekly or annual earnings. In the latter cases, we measure the wage as earnings per hour, based on the reported usual hours worked. In all cases, we convert all wages used into real terms

using the Consumer Price Index (CPI). Many of the survey questions follow a format similar to the Current Population Survey (CPS). We define labor force status in a manner similar to the CPS.[3]

Our main sample focuses on all individuals aged 18 to 64 and includes just under 2,900 respondents pooled across 2013, 2014, and 2015. By design, the SCE only includes heads of household. The survey does not ask the self-employed about job search, so in the self-employed are generally excluded by construction throughout our job search analysis. In addition to our main sample, we also focus on two subsamples of the data. The first is the subsample of the currently employed (excluding the currently self-employed). After removing respondents with missing data, it includes 1,030 respondents. We use this subsample to examine the job search behavior that led to their hiring to their current jobs. The second is a subsample of all individuals who received a job offer within the last six months. By construction, some of these offers will reflect the respondent's current job. After removing offers with only partial data, we have just over 650 observations in this subsample. We use it to examine the characteristics of all job offers in addition to the subset of accepted job offers.

Table 1 presents basic (sample-weighted) summary statistics from our survey and the October 2013, 2014, and 2015 CPS. The statistics across the two surveys tend to be similar though the share of married and older workers is higher in the SCE survey because it is restricted to household heads only. The unemployment rate and the labor force participation rate are also somewhat higher in the SCE labor survey.

[3] Non-employed who actively looked for work in the last four weeks and are available within the next seven days to start work are classified as unemployed by the Bureau of Labor Statistics (BLS) definition. In the SCE survey, we classify those who actively looked for work as those that either sent at least one job application within the last four weeks or said they looked for work while reporting at least one 'active search' method—generally anything more than perusing job postings or updating one's resume—in the survey.

3. Evidence

3.A. Characteristics of Job Search Effort and Outcomes

We begin with evidence on the basic characteristics of an individual's job search and its results. Table 2 reports the incidence of job search by labor force status. By construction, all unemployed search. Among the employed, just over 23 percent looked for new work in the last four weeks, with 20 percent applying to at least one job and a similar amount searching at least once in the last seven days. Of those searching on the job, 20.5 percent were searching for an additional job and not looking to leave their current job and 27.4 percent were only looking for work similar to their current job. In contrast, only 5.3 percent of the unemployed were only looking for work similar to their last job. Among the employed, just over 6 percent did not search but would take a new job if offered.

Table 3 reports the effort and outcomes related to the job search process. We distinguish the employed into those actively looking and those not actively looking for work. The estimates are for all individuals excluding the self-employed. The unemployed send substantially more job applications and dedicate more hours to search than the other groups. They put in roughly twice as much effort as the employed that actively look for work. Nevertheless, those employed and seeking new work receive the greatest number of employer contacts despite their lower search effort. They also receive the most unsolicited employer contacts and are the most likely receive a contact through a referral (through either a work associate or a personal contact). Employed individuals not looking for work receive about one-quarter as many contacts as the unemployed despite their lack of effort. The employed actively seeking work generate about five times as many offers as those who are not actively searching. The majority of offers for those not looking are from unsolicited contacts, whereas unsolicited contacts only make up between 11 and 13 percent of offers for those who actively search (regardless of employment status).

The bottom four rows of Table 3 report job search outcomes conditional on whether an individual sent at least one job application. The employed have more than four times the contact yield (the ratio of mean employer contacts to mean applications sent) of the unemployed. They also have nearly three times as many unsolicited contacts, more than double the amount of job interviews, and triple the number of job offers per application sent. The relative success of employed individuals not looking for work drives a large portion of this disparity.

Table 4 highlights this last point. It reports the distribution of respondents, job applications, and job search outcomes, including job offers, by labor force status. The unemployed make up just over 7 percent of our sample, but account for nearly 40 percent of all job applications sent. At the same time, they only receive 16 percent of all offers made. In stark contrast, the employed who report not looking for work send no applications by construction but account for over 27 percent of all employer contacts and receive over 26 percent of all job offers. This is due, in part, to the fact that they also account for 44 percent of all unsolicited employer contacts and 26 percent of all referrals. Those actively searching on the job account for another 49 percent of all job offers. Thus, the job search behavior of the unemployed can be characterized by high effort, but relatively low returns in terms of employer contacts and job offers. The employed, on the other hand, fare fairly well regardless of whether they are actually looking for work.

3.B. The Job Search Process of the Currently Employed

We can also examine job search retrospectively for those employed at the time of the survey interview by asking them how they came about their current jobs. The advantage of this approach is that we are able to compare the starting wages across labor force statuses controlling for differences in prior employment history (i.e., the wage and hours of the previous job), which provides a rough proxy for any unobserved differences in individual characteristics that cause individuals to sort into different

labor force statuses. Our retrospective questioning allows us to differentiate individuals into those who were previously employed but quit directly to their new job, those who were previously employed but started their job immediately following a layoff, and those who were hired from non-employment.[4]

Table 5 presents the characteristics of the current and previous job by labor force status at the time of hire. We focus on the comparison of the non-employed to those who quit directly to their current job. Those hired from non-employment are paid lower wages, have fewer work hours, and are much less likely to have any benefits than those who were hired directly following a quit. Furthermore, those who were hired directly following a layoff fare somewhat better than those hired from non-employment as well. The real starting wage of those hired from non-employment is about 30 percent lower than the real starting wage of those hired following a quit, on average. When we condition on observable characteristics of the worker and the job, the differences in wages fall somewhat, though the average real starting wage of those hired from non-employment remains about 15 percent lower.[5] When we additionally control for the (log) real wage and (log) hours of the worker's previous job, the difference actually rises somewhat, to nearly 19 percent. Those differences also persist throughout the job until the time of the survey: after applying all of our controls, the current real wages of those hired from non-employment remain nearly 17 percent lower than those hired following a quit.[6] The last two rows of Table 5 show why controlling for the prior job's wage and hours makes little difference. Despite the large differences in the wage and hours of the current job across the two labor force categories, the

[4] In unreported results, we experiment with further differentiating the non-employed by those who were and were not searching for work when they were hired, but it turns out that nearly all of the non-employed were looking for work when hired.

[5] The individual characteristics that the residual wage measures control are for sex, age, age squared, marital status, marital status × sex, education, race, homeowner status, and number of household children. The job characteristics that the measures control for are the two-digit occupation, two-digit industry, job tenure, tenure squared, firm size, and an indicator for self-employment.

[6] We also experimented with additionally controlling for the state unemployment rate (a proxy for labor market tightness) at the time of hire, and it did little to change results. We also added the state unemployment rate to subsequent analyses of wages and hours, and it still had little effect on the results.

differences in the wages and hours of the previous jobs, once we control for observable characteristics, are small and statistically insignificant.[7] Finally, we find that those hired from non-employment are significantly more likely to be looking for new work at the time of the SCE survey, with 39 percent reporting actively looking for work, compared to only 27 percent of those who were hired following a quit.

Figure 1 illustrates the wage differences between those who quit to their current job and those hired from non-employment for their full wage distributions. It plots the (log) differences in the real starting wage, relative to the real previous wage, for each group. The wage distribution of those hired from a quit stochastically dominates the distribution of those hired from non-employment. The figure also shows, however, that there is a sizable fraction of hires that quit to a lower wage and a sizable fraction of hires that receive a higher wage after non-employment. Nevertheless, after conditioning out our controls, those who quit receive a 4 log point increase in their wage, on average, while those who were non-employed receive a 16 log point *decrease* in their wage, on average.

The evidence does not seem to support the hypothesis that the poor employment prospects of those seeking work from non-employment are the result of negative selection. In contrast, the employment histories by labor force status at the time of hire are quite similar. Instead, the evidence appears consistent with an implicit penalty for job seeking while unemployed, similar to Kroft, Lange, and Notowidigdo (2013). Even those who found work immediately following a layoff fare better than those who had a non-employment spell prior to their hiring. If job-finding has a stochastic and idiosyncratic component to it, these individuals could be thought of as those who were stochastically "lucky" in their job findings prospects, while the remainder are those who were forced into a spell of

[7] In unreported results, we find that the differences in the wages and hours of the previous job are also small and statistically insignificant unconditionally.

non-employment before finding a job, further dampening their prospects. There may still be some unobserved differences across individuals that previous job history does not capture, but the job histories alone suggest that individuals at the time of hire are fairly similar, on average, across the labor force categories. Furthermore, the fact that those hired from non-employment are more likely to be looking for work at the time of the survey interview is consistent with a story where these individuals have received a negative employment shock and are looking to move back up the job ladder. We examine the notion that the non-employed draw from an inferior job offer distribution further in the next section.

4. Characteristics of Job Offers, Accepted Jobs, and the Reservation Wage

Thus far, it is clear that the unemployed fare worse than those searching while on the job in their job-finding prospects. They exert more effort yet receive fewer offers. Furthermore, those who do find work appear to be in lower-quality jobs that those who quit directly to their current job despite the fact that there are little differences in the earnings of their previous jobs. This holds even after controlling for observable characteristics of the job and worker.

We now examine how the job offers themselves, including all offers and the subset of those that are accepted, differ by an individual's labor force status at the time of the offer. Our survey asks individuals about any offers they received in the last four weeks. For those who received no offer in the last four weeks, it probes further to elicit information on any offers received within the last six months. It asks a about a variety of job characteristics and about characteristics of the search and bargaining process. It also asks if the offer was accepted (and if it represents their current job), and it asks whether the individual was employed, either full-time or part-time at the time of the offer. We also compare how reported reservation wages differ by labor force status and ask about their desired hours and their preferences on other aspects of the job (relocation, commuting, health benefits, and hours).

Table 6 presents the characteristics of all job offers received within the last six months by labor force status at the time of the job offer. We focus on the comparison of the non-employed to those looking for full-time work. We do note, however, that those who were employed part-time receive offers that are worse than those received by the full-time employed, on average, but better than those received by the non-employed, on average, suggesting that the full-time versus part-time distinction is important. First, note that over 70 percent of job offers in our sample went to those that were already employed at the time of the offer. The remainder of the results can be summarized as consistently showing that the non-employed do worse in terms of their job offers than the full-time employed. Unconditionally, their average wage offer is 42 percent lower. Their hours are 20 percent lower and they are twice as likely to be offered no benefits. The full-time employed are twice as likely to have received their offer through an unsolicited contact, though only slightly more likely to have received the offer through a referral. Potentially contributing to the differences in job offers between the two groups, the full-time employed are almost twice as likely to bargain over their offers, with 44 percent of their offers involving some bargaining, compared to 24 percent for the non-employed. Both the employed and non-employed had comparable knowledge of what their job offers would pay, with 54 percent of the full-time employed and 59 percent of the non-employed reporting that they had at least a "good idea" of what the job would pay. Counter-offers by the current employer, defined as anything from matching the outside offer to offering a promotion, pay raise, or some added job benefit, occurred for just over 14 percent of the employed.

The bottom half of Table 6 shows that controlling for observable characteristics of the job and worker, and the wage and hours of the previous job can only account for a fraction of the observed differences in wages and hours offered to the employed versus the non-employed.[8] Controlling for

[8] The prior wage and hours used in this sample are from the previous job for the currently employed and the most recent job of the non-employed.

observable worker and job characteristics reduces the differences between the full-time employed and non-employed from 42 percent of the full-time employed's wage to just under 24 percent of their wage. Adding controls for the prior job reduces it slightly further to just over 22 percent of their wage. The remaining difference is economically sizable and is statistically significant.

Despite these relatively poor job offers, the non-employed are nearly twice as likely to accept them as the full-time employed, with 55 percent of offers accepted by the non-employed versus 29 percent by the full-time employed. Table 7 reports the characteristics of accepted job offers. Note that these are comparable to the starting wages of the currently employed reported in Table 5. Table 7 shows that, unconditionally, a higher degree of selectivity by the full-time employed generates even more stark differences between their accepted wages and those of the non-employed. The unconditional differences in accepted wage offers is nearly 54 percent of the full-time employed's wage. Much of the differences in both wages and selectivity are accounted for by our controls, however (i.e., by differences in worker and job offer composition). The difference in accepted wages after accounting for these controls falls to 17 percent of the full-time employed's wage. The evidence in Table 7 also suggests that a primary reason that the non-employed are more likely to accept their relatively poorer job offers is a perceived lack of alternative options. About 27 percent of the non-employed cite a lack of other alternatives as the main reason for accepting an offer, while only 2.5 percent of the full-time employed cite that as their primary reason. Figure 2 shows the differences in the full distributions of wage offers and accepted wage offers for the full-time employed and the non-employed after controlling for observable characteristics, the wage and hours of the prior job, and the state unemployment rate. The figure shows that, despite the fact that their average (log) accepted wage is notably higher than the average (log) offered wage, the non-employed both receive and accept lower wages across a wide distribution of job offers, relative to the full-time employed.

Finally, Table 8 shows that the non-employed tend to report lower reservation wages and thus consistent with the evidence that they are more likely to accept poor job offers. The table reports reservation job value estimates by labor force status at the time of the survey interview. Unconditionally, the real reservation wage of the unemployed is 33 percent lower, on average, than the real reservation wage of the employed. Despite this, both groups are generally looking for full-time work, with both groups preferring to work about 34 hours per week, on average. The evidence in Tables 6 and 7, however, shows that the employed are much more likely to find it. The reservation wage of the unemployed is only 18 percent lower after controlling for observable characteristics and 13 percent lower after additionally controlling for the wages and hours of the previous job. With regard to other aspects of a job, the unemployed appear less willing to relocate for new work, with 52 percent saying they would not do it for any wage, compared to 40 percent of the employed who say the same. The employed are also somewhat more likely require health insurance.

Putting the evidence on job offers, accepted offers, and reservation wages together suggests that the unemployed draw their wage offers from a lower-quality distribution even after controlling for a variety of factors and accept relatively poor job offers in part because of the perceived lack of alternative options. We now turn to incorporating our evidence into a model of labor market search.

5. A Model of On-the-Job Search with Endogenous Search Effort

5.A. Model Setup

Our model is an extension of the model of Christensen et al. (2005). Here, we allow for differing levels of search efficiency between the employed and unemployed, which is reflected in differing job-offer arrival rates. The model economy is comprised of homogenous, risk neutral workers who can search either on-the-job or while unemployed. Wage offers, w, are drawn from an i.i.d. distribution with

c.d.f. $F(w)$, i.e., $F(w)$ equals the probability a wage $w' \leq w$ is drawn. Similarly, $F(w)$ is the fraction of vacancies that offer w or less. Given our evidence in the previous section, we assume that the wage offer distribution varies for the employed and unemployed, so that the employed draw from a distribution $F_e(w)$ and the unemployed draw from a distribution $F_u(w)$, where the c.d.f.'s of these two distributions satisfy $F_e(w) < F_u(w)$ so that the employed receive better offers, on average, all else equal.

Outside offers arrive at Poisson rate $\lambda(s) = \alpha + \beta s$, where s is the endogenously chosen level of search effort and λ is the job-offer arrival rate. The constant α reflects the possibility that individuals may receive unsolicited offers even in the absence of any search effort. The job-offer arrival rate differs by employment status, so that $\lambda_i(s) = \alpha_i + \beta_i s$ for $i \in \{e, u\}$.[9] Search effort has an increasing, convex cost, $c(s)$, with $c', c'' > 0$ and $c(0) = c'(0) = 0$. Existing jobs end exogenously at a rate δ, and the discount rate is r.

Given this setup, the Bellman equation for the employed is

$$rW(w) = \max_{s \geq 0} \left\{ w - c(s) + \lambda_e(s) \int [\max\{W(x), W(w)\} - W(w)] dF_e(x) - \delta[W(w) - U] \right\}. \quad (1)$$

As Christensen et al. (2005) note, one can show that the value of employment is increasing in the wage. Consequently, optimal search effort will vary with the wage. The first order condition of (1) is

$$c'(s_e(w)) = \beta_e \int_w^{\bar{w}} [W(x) - W(w)] dF_e(x), \quad (2)$$

[9] Our model is closely related to the extension of Christensen et al. (2005) derived by Hornstein, Krusell, and Violante (2011), but it maintains the distinction between search effort, s_i, and search efficiency, β_i, since our data can separately identify the two, and allows for differences in the wage offer distribution between the employed and unemployed.

where $\overline{w}$ is the upper support of $F_e(w)$. Since the cost of search effort is increasing and convex, search effort will decline with the wage. Note that, since $s'(w) < 0$, it will be the case that $s(\overline{w}) = 0$.

The unemployed face a similar value of search. While unemployed, individuals receive a flow utility of unemployment, b. They have the same search cost function as the employed, but face a different job-offer arrival rate. Consequently, an unemployed job seeker solves

$$rU = \max_{s \geq 0} \left\{ b - c(s) + s\lambda_u \int [\max\{W(x), U\} - U] dF_u(x) \right\}. \quad (3)$$

The unemployed will have a reservation wage, R, that solves $W(R) = U$. In other words, the reservation wage is the wage where the unemployed are just indifferent between a job that pays R and unemployment. One can show that, since the unemployed all have the same flow value of unemployment and face the same expected wage, they will all choose the same search effort. As it turns out, the optimal search effort of the unemployed will depend only on the reservation wage, so that the search effort of the unemployed, s_u, is such that $s_u = s_u(R)$. Despite the fairly straightforward solution to the optimal search effort of the unemployed, it is useful in this case to derive the first order condition for (3) because it will be useful in deriving R in this model,

$$c'(s_u) = \beta_u \int_R^{\overline{w}} [W(x) - U] dF_u(x). \quad (4)$$

The solution is identical to (2) except for the different job-offer arrival rate and the fact that the expected value of search differs due to a lower reservation wage and potentially a different offer distribution.

5.B. Calibration

We calibrate a discrete-time version of the model and set the time period to be monthly. We calibrate three versions of the model. The first, "baseline" model is the standard job-ladder model without endogenous search effort, where we set the exogenous search effort to unity, ignore the role of unsolicited job offers, and assume that both the employed and unemployed draw from the same wage offer distribution. The second, "intermediate" model extends to the standard model to include endogenous search effort and unsolicited job offers but maintains the assumption of a homogenous wage offer distribution. The third, "full" model allows for differing wage offer distributions between the employed and unemployed. The parameter choices for all calibrations are summarized in Table 9. We calibrate a discrete time version of the model above at monthly frequency and set the monthly discount factor to be 0.9966 to match an annual interest rate of 4 percent. We set the monthly job separation rate to be 0.015, which matches the average E-to-U flow rate in the Current Population Survey in recent years. Following Christensen et al. (2005), we let the search effort cost function be $c_i(s) = k_i s^{1+\frac{1}{\gamma}}$, and set the elasticity to their estimated value of $\gamma = 1.19$. Not that in both the intermediate and full models, we assume that the cost function differs for the employed and unemployed by the scaling parameter k_i. We assume a log normal distribution of wage offers. In the baseline and intermediate cases, we normalize the mean of the wage offers to zero and calibrate the standard deviation of the wage offer distribution to be 0.24 as in Hall and Mueller (2015). This is also consistent with other estimates of frictional wage dispersion, see Low, Meghir and Pistaferri (2010) and Tjaden and Wellschmied (2014). In the full model, we normalize the mean wage offers of the unemployed to zero and the mean wage offers of the employed to 0.157, consistent with the difference in mean wage offers observed in the SCE data, and maintain the standard deviation of both offer distributions to be 0.24.

In the model without endogenous search effort, we set the β_i's to match the job offer arrival rates for the employed and unemployed in the data.[10] In the models with endogenous effort, we normalize the search effort of the unemployed to unity and calculate the search effort of the employed (regardless of whether they searched for work) accordingly from the data. This implies that the search effort of the employed is about 15 percent that of the search effort of the unemployed. We calibrate the search cost parameters k_e and k_u to match the relative average search effort of the employed and unemployed, we set the α_i's equal to the unsolicited job offer arrival rates for the employed and unemployed observed in the SCE data, and finally, we set the β_i's to match the solicited job offer arrival rates observed in the data. We report the results of our calibration in the top panel of Table 10.

The remaining parameter left to calibrate is the flow value of unemployment, b. One option would be to assume that b is equal to a specific value as in Shimer (2005) or Hall and Milgrom (2008). The issue is that there is little consensus of what the appropriate level of b is, except that it should not be too low. We instead calibrate b to match the average acceptance rate of the unemployed. This allows our model calibrations, by assumption, to match their job finding rate, as both the acceptance rate and the offer rate of the unemployed are a target in the calibration. The key test then is whether the different models can match the average acceptance rate of the *employed*.

5.C. Results

Table 10 shows the simulation results for the calibration of all three versions of the model. The baseline model, which ignores endogenous search effort, implies that the unemployed are 2.1 times more efficient at search than the employed. This is because the unemployed receive more than twice as many offers than the employed, so ignoring all other aspects of job search will imply that they are twice

[10] We set the offer arrival rates equal to the probability of receiving at least one offer over the course of the last four weeks. We measure search effort as the average number of applications sent over the last four weeks.

as efficient at search. The models with endogenous search effort suggest the opposite. The in both cases, the models predict that the employed have a search efficiency parameter of 0.854, while the unemployed have a search efficiency parameter of 0.330, implying that the *employed* are 2.6 times more efficient in their search efforts.

All three versions of the model underpredict the acceptance rate of the employed, but the full model, with endogenous search effort and differing wage offer distributions, does substantially better than the other two. The reason is that individuals at the bottom of the jobs ladder are substantially more likely to search and to receive and accept offers compared to those at the top of the ladder. Higher expected wages when employed further increases the likelihood that those lower on the job ladder will search for and accept new job offers. Our calibration may also be improved upon by picking a different value for the elasticity of the search cost function. In particular, if the cost function is highly convex, then individuals at the top of the ladder are substantially less likely to search and receive offers, which would further increase the average acceptance rate among the employed.

Table 10 also shows the flow value of unemployment relative to the prior wage. Hornstein, Krusell and Violante (2011) advocate that any search model that aims at fitting transition rates and wage dispersion needs to back out the implied flow value of unemployment, as search models often imply very low or even negative flow values of unemployment. Our benchmark job-ladder model without search effort implies a flow value of unemployment of 0.36, which is at the lower end of parameters used in the literature. Note that the dispersion of wages used for this exercise is relatively modest, as in Hall and Mueller (2015). If we used a higher dispersion in wage offers instead, the benchmark model would fare worse, with a lower flow value of unemployment. The models with endogenous search effort do substantially better at producing a reasonable flow value of unemployment of between 0.57 and 0.83, depending on whether one nets out search costs.

Finally, our full model performs demonstrably better than the other two models in matching the amount of wage dispersion observed in the data. Hornstein, Krusell, and Violante (2011) argue that a standard model of frictional search and matching in the labor market can only account for a tiny fraction of the wage dispersion observed in the data. They find that extending the model to include on-the-job search can increase mean-min wage ratio, the ratio of the mean wage to the minimum wage observed in the data, as high as 1.4, but nearly as high as the 1.7 ratio observed in the data. In fact, our baseline model that includes on-the-job search yields a mean-min wage ratio of 1.49. Endogenizing search effort increases the implied ratio to 1.55. The full model, which also allows for heterogeneity in wage offer distributions, increases the ratio to 1.77. The ability of our model to generate wage dispersion that is consistent with the data is particularly notable because it does so while yielding reasonable values for the flow utility of unemployment.

Overall, we conclude from this exercise that the models with endogenous search effort do better at fitting the relevant facts (the acceptance rate) and produce reasonable flow values of unemployment. Moreover, the full model, which allows for the employed to draw job offers from a better wage distribution—something that is supported by the data—is able to match the empirical mean-min wage ratio while still generating a reasonable flow value of unemployment.

6. Conclusions

In this paper, we document new facts on the search effort and search outcomes of the employed and non-employed. We find that search among the employed is pervasive. Over 23 percent of the employed report actively looking for work within the past month. We also find that search is more efficient for the employed. They exert only a fraction of the effort of the unemployed yet receive more employer contacts and the same amount of offers per job application sent. Furthermore, a sizable

fraction of job offers go to employed workers not even looking for work, underscoring the importance of unsolicited employer contacts in the job search process.

We also find that the employed are not only more efficient in their search, but they also tend to receive and accept better job offers. The differences in search outcomes persist even after controlling for observable characteristics of the worker and job, and the prior wage and hours of the worker (our control for unobservable worker characteristics). Those receiving offers while employed tend to be offered higher wages, more hours, and better benefits. This is true of individuals who were hired to their current job following a quit, and of individuals who were employed at the time of receiving a job offer reported in the survey. Individuals receiving a job offer while employed are also more likely to engage in bargaining over the offer, and 14 percent of the employed receive some counter-offer from their current employer. Nevertheless, those receiving an offer while non-employed are almost twice as likely to accept their relatively lower-quality offers. Our evidence suggests that this is because these offers are much more likely to be their only option. It is also partly because they have lower reservation wages, on average.

We calibrate our findings to a model with endogenous search effort and on-the-job search, as in Christensen et al. (2005). We extend the model to allow for differences in search efficiency between the employed and unemployed, as in Hornstein, Krusell, and Violante (2011), but extend the model to allow for unsolicited offers (i.e., offer arrivals independent of search effort) and for differences in the wage offer distribution. A basic calibration of our full model suggests that the employed are about 2.6 times more efficient at search than the unemployed, after accounting for the arrival rates of unsolicited offers. A model with exogenous search effort suggests that the unemployed are actually more efficient at search because it fails to capture the differences in effort and relative importance of unsolicited offers. Furthermore, the full model is able to match additional, untargeted moments of the data. In particular,

it is able to generate the empirically observed level of the mean-min wage ratio while still generating a plausible value for the flow utility of unemployment. Thus, we conclude that accounting for the differences in search effort, search efficiency, and differing offer distributions between the employed and unemployed that we observe in the SCE data are important for models of labor market search and matching that aim to reconcile the theory with the facts on job search, hiring outcomes, and wage dynamics.

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Table 1. Summary Statistics, SCE Labor Supplement vs. Current Population Survey

	***SCE Labor* (2013-15)**	***Current Population Survey* (2013-15)**
Labor Force Status		
Employment-Population Ratio	0.761	0.707
Unemployment Rate (BLS Definition)	8.0	5.7
Labor Force Participation Rate	82.7	75.0
Demographics		
Percent Male	48.9	49.1
Percent White	72.5	77.4
Percent Married	65.5	52.3
Percent with College Degree	32.9	30.6
Percent aged 18-39	35.0	47.1
Percent aged 40-59	49.7	43.3
Percent aged 60+	15.2	9.6

Note: Estimates come from authors' tabulations from the SCE Labor Supplement or the Current Population Survey (CPS) for October 2013, 2014, and 2015. Both samples are for ages 18 to 64. The SCE is restricted to heads of households only.

Table 2. Basic Job Search Statistics by Labor Force Status

	Employed	**Unemployed**	**Out of Labor Force**
Percent that actively searched for work	23.3 (0.9)	99.5 (0.6)	2.1 (0.7)
Percent that actively searched and available for work	14.2 (0.7)	99.5 (0.6)	0.0 (0.0)
Percent reporting no active search or availability, but would take job if offered	6.1 (0.5)	0.3 (0.4)	6.0 (1.1)
Percent applying to at least one vacancy in last four weeks	19.8 (0.8)	92.3 (2.1)	1.8 (0.6)
Percent with positive time spent searching in last seven days	20.5 (0.8)	85.3 (2.8)	2.6 (0.8)
Percent only seeking part-time work, conditional on active search	20.5 (1.8)	22.9 (3.3)	
Percent only seeking similar work (to most recent job), conditional on active search	27.4 (2.1)	5.3 (1.8)	
No. of Observations	2,302	165	430

Note: Estimates come from authors' tabulations from the SCE survey, for all individuals aged 18-64 by labor force status. Standard errors are in parentheses.

Table 3. Search Effort and Outcomes by Detailed Labor Force Status

	Employed				
	Looking for Work	**Not Looking**	**All**	***Unemployed***	***Out of LF***
Measures of Search Effort					
Hours spent searching, last 7 days	4.30 (0.29)	0.05 (0.01)	1.18 (0.09)	8.40 (0.74)	0.07 (0.04)
Mean applications sent, last 4 weeks	4.58 (0.48)	0.00 (---)	1.22 (0.13)	8.08 (1.23)	0.08 (0.06)
Job Search Outcomes, Last 4 Weeks					
Mean contacts received	1.86 (0.28)	0.34 (0.04)	0.74 (0.08)	1.27 (0.23)	0.11 (0.03)
Mean unsolicited contacts	0.78 (0.12)	0.30 (0.03)	0.43 (0.04)	0.47 (0.15)	0.09 (0.03)
Pct. with contact from a referral	26.6 (1.9)	3.9 (0.5)	9.9 (0.7)	19.0 (3.1)	1.5 (0.6)
Mean offers	0.43 (0.04)	0.08 (0.01)	0.18 (0.01)	0.38 (0.08)	0.08 (0.03)
Mean unsolicited offers	0.048 (0.010)	0.05 (0.01)	0.05 (0.01)	0.05 (0.02)	0.05 (0.02)
Mean contacts / Mean applications	0.407		0.608	0.158	1.365
Mean unsolicited contacts / Mean applications	0.171		0.349	0.059	1.132
Mean job interviews / Mean applications (2014-15)	0.090		0.090	0.041	0.151
Mean job offers / Mean Applications	0.093		0.143	0.047	0.948
N	515	1,513	2,028	165	430

Note: Estimates come from authors' tabulations from the SCE survey, for all individuals aged 18-64, excluding the self-employed, by detailed labor force status. Standard errors are in parentheses.

1. Job interview data are only available for 2014 and 2015.

Table 4. Distribution of Search Effort and Outcomes by Labor Force Status

	Employed				
	Looking for Work	**Not Looking**	**All**	***Unemployed***	***Out of LF***
Pct. of population	19.6	54.0	73.6	7.4	19.0
Job Search over Last Four Weeks					
Pct. of total applications	59.5	0.0	59.5	39.5	1.0
Pct. of contacts received	55.2	27.4	82.6	14.2	3.2
Pct. of unsolicited contacts	41.9	43.8	85.7	9.6	4.8
Pct. of referrals	56.5	26.1	82.6	15.4	2.1
Pct. of interviews (2014-15 only)	75.1	0.0	75.1	21.8	3.2
Pct. of offers received	48.7	26.5	75.2	16.3	8.5

Note: Estimates come from authors' tabulations from the SCE survey, for all individuals aged 18-64, excluding the self-employed, by detailed labor force status.

Table 5. Characteristics of Current and Previous Job, by Labor Force Status at Time of Hire

	Hired from Employment		***Hired from***
	Quit	**Laid Off**	***Non-Employment***
Share of Employment	58.5	13.8	27.7
Characteristics of Current Job			
Raw Estimates			
Real Current Wage	$ 30.16	$ 23.92	$ 20.23
	(0.95)	(1.57)	(0.90)
Real Starting wage	$ 24.90	$ 19.21	$ 17.42
	(0.92)	(1.13)	(0.84)
Usual hours	42.86	37.02	37.18
	(0.37)	(0.94)	(0.68)
Mean tenure (mos.)	88.59	80.24	54.07
	(3.85)	(6.34)	(3.97)
Pct. with no benefits	13.0	27.1	32.2
	(1.4)	(3.7)	(2.8)
Percent Actively Searched for Work, Last Four Weeks	27.0	28.6	39.0
	(1.8)	(3.8)	(3.0)
Conditional on Observable Characteristics			
Real Current Wage	$ 28.07	$ 25.06	$ 23.78
	(0.78)	(1.08)	(0.75)
Real Starting wage	$ 24.16	$ 20.40	$ 20.48
	(0.82)	(0.92)	(0.72)
Usual hours	41.56	38.14	38.22
	(0.33)	(0.74)	(0.56)
Conditional on Observables and Previous Job's Wages and Hours			
Real Current Wage	$ 28.52	$ 26.06	$ 23.78
	(0.73)	(1.07)	(0.72)
Starting wage	$ 24.51	$ 21.87	$ 19.95
	(0.73)	(0.79)	(0.66)
Usual hours	40.99	39.78	38.50
	(0.30)	(0.70)	(0.54)
Characteristics of Previous Job, Conditional on Observables			
Real Ending wage	$ 22.15	$ 20.83	$ 22.67
	(0.89)	(1.49)	(1.41)
Usual hours	39.62	34.57	38.78
	(0.40)	(0.84)	(0.58)
N	616	143	271

Note: Estimates are for either the current or prior job for the subset of SCE survey respondents that are currently employed (excluding the self-employed). Standard errors are in parentheses. See text for details on the observable worker and job characteristics conditioned out of the residual wage and hours estimates.

Table 6. Characteristics of Best Job Offer by Labor Force Status

	Employed			
	Full-Time	**Part-Time**	**All**	***Non-Employed***
Raw Estimates				
Percent of job offers	52.6	17.9	70.5	29.5
Mean wage of job offer	$ 27.11	$ 18.83	$ 25.01	$ 15.68
	(1.72)	(1.80)	(1.38)	(1.01)
Mean hours of job offer	38.65	28.04	35.95	31.06
	(0.72)	(1.78)	(0.72)	(0.95)
Pct. of offers with no Benefits	30.6	69.7	40.5	60.6
	(2.4)	(4.4)	(2.2)	(3.8)
Pct. of offers through an unsolicited contact	26.6	25.1	26.2	14.4
	(2.3)	(4.1)	(2.0)	(2.7)
Pct. of offers through a referral	43.7	44.6	43.9	37.5
	(2.6)	(4.7)	(2.2)	(3.8)
Pct. of offers that involved bargaining	43.8	24.2	38.8	24.4
	(2.6)	(4.1)	(2.2)	(3.4)
Pct. of respondents with at least 'good idea' of pay	53.9	56.4	54.6	58.8
	(2.6)	(4.7)	(2.2)	(3.8)
Pct. of offers with some counter-offer given	14.2	14.2	14.2	---
	(1.8)	(3.3)	(1.6)	
Pct. of job offers accepted	29.4	50.0	34.6	54.7
	(2.3)	(4.8)	(2.2)	(3.9)
Conditional on Observable Characteristics				
Mean wage of job offer	$ 23.90	$ 23.40	$ 23.77	$ 18.24
	(1.44)	(1.73)	(1.18)	(1.05)
Mean hours of job offer	36.35	31.48	35.14	33.00
	(0.60)	(1.31)	(0.56)	(0.79)
Conditional on Observables and Prior Job's Wage and Hours				
Mean wage of job offer	$ 23.32	$ 22.57	$ 23.14	$ 17.59
	(1.37)	(2.15)	(1.17)	(0.96)
Mean hours of job offer	36.54	33.43	35.81	33.73
	(0.69)	(1.65)	(0.65)	(0.70)
N	378	111	489	165

Note: Estimates are for the best job offer for all respondents that received at least one job offer within the six months prior to the SCE survey by labor force status at the time of job offer. Standard errors are in parentheses. See text for details on the observable worker and job characteristics conditioned out of the residual wage and hours estimates.

Table 7. Characteristics of Accepted Job Offers by Labor Force Status

	Employed			
	Full-Time	**Part-Time**	**All**	***Non-Employed***
Raw Estimates				
Pct. of accepted offers	38.1	22.1	60.2	39.8
Mean wage of accepted Offer	$ 31.64 (4.35)	$ 21.33 (2.46)	$ 27.61 (3.05)	$ 14.69 (1.55)
Mean hours of accepted Offer	38.38 (1.60)	20.01 (1.93)	33.08 (1.37)	31.11 (1.40)
Pct. of accepted offers with no benefits	23.3 (4.0)	75.2 (5.6)	39.2 (3.8)	51.3 (5.4)
Pct. of accepted offers from unsolicited contact	15.7 (3.4)	20.2 (5.2)	15.7 (2.8)	5.9 (2.5)
Pct. of accepted offers from a referral	40.9 (4.6)	42.7 (6.4)	43.8 (3.8)	37.2 (5.2)
Pct. of offers that involved Bargaining	39.3 (4.6)	25.5 (5.7)	35.9 (3.6)	15.7 (3.9)
Pct. of respondents with at least 'good idea' of pay	72.9 (4.2)	74.4 (5.7)	74.5 (3.3)	71.9 (4.9)
Pct. of offers with some counter-offer given	18.0 (3.6)	7.9 (3.5)	15.1 (2.7)	---
Pct. of offers accepted as only option	2.5 (1.5)	14.5 (5.6)	7.2 (2.4)	26.9 (5.3)
Conditional on Observable Characteristics				
Mean wage of accepted Offer	$ 27.84 (3.74)	$ 23.49 (2.56)	$ 25.95 (2.58)	$ 20.93 (1.41)
Mean hours of accepted Offer	35.60 (1.28)	27.27 (1.42)	32.76 (1.05)	33.01 (1.23)
Conditional on Observables and Prior Job's Wage and Hours				
Mean wage of accepted Offer	$ 24.32 (3.07)	$ 24.48 (3.80)	$ 23.84 (2.35)	$ 20.27 (1.35)
Mean hours of accepted Offer	36.24 (1.46)	28.91 (2.22)	34.02 (1.30)	34.17 (1.15)
N	114	60	174	86

Note: Estimates are for respondents that received at least one job offer and accepted it within the six months prior to the SCE survey, by labor force status at the time of job offer. Standard errors are in parentheses. See text for details on the observable worker and job characteristics conditioned out of the residual wage and hours estimates.

Table 8. Reservation Job Values by Labor Force Status, Conditional on Active Job Search

	Employed, Looking for Work	***Unemployed***
Raw Estimates		
Real Reservation Wage ($)	$ 23.05	$ 15.41
	(0.75)	(0.76)
Desired Hours	33.81	34.20
	(0.49)	(0.77)
Pct. that would not relocate at any wage	39.8	51.7
	(2.2)	(4.0)
Pct. that would not double commute at any wage	18.2	19.9
	(1.7)	(3.2)
Pct. that would not incr. hours at any wage	11.4	8.5
	(1.4)	(2.2)
Pct. that require health insurance at any wage	19.8	11.6
	(1.8)	(2.6)
Conditional on Observable Characteristics		
Reservation Wage ($)	$ 22.53	$ 18.54
	(0.68)	(0.82)
Desired Hours	33.15	35.23
	(0.50)	(0.80)
Conditional on Observables and Prior Job's Wage and Hour		
Reservation Wage ($)	$ 23.79	$ 18.31
	(0.83)	(0.87)
Desired Hours	33.38	35.43
	(0.58)	(0.76)
N	491	156

Note: Estimates are for all SCE survey respondents who reported actively searching for work in the last four weeks, by labor force status at the time of the survey. Standard errors are in parentheses. See text for details on the observable worker and job characteristics conditioned out of the residual wage and hours estimates.

Table 9. Chosen Parameter Values

Parameter	Value	Calibration – Chosen Target
r	0.9966	Implied annual discount rate of 4 percent
δ	0.015	CPS employment-to-unemployment transition rate
γ	1.19	Christensen et al. (2005)
Mean offer wage of unemployed, $\mu_{w,u}$	0	Hall-Mueller (2015) (normalization)
Mean offer wage of employed,	0.157	Hall-Mueller (2015), SCE Data
Std. deviation of offer wages, , σ_w	0.240	Hall-Mueller (2015)

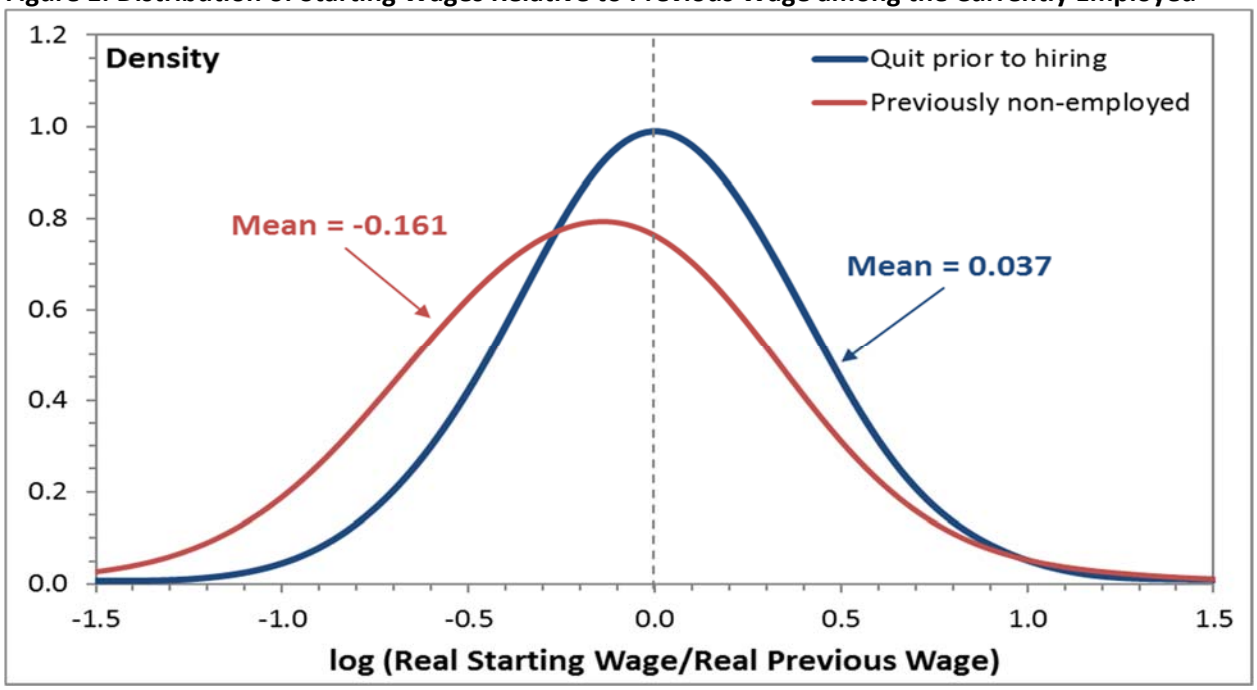
Note: Table reports parameter values chosen for all versions of our model. See text for details.

Table 10. Calibrated Parameter Values and Model Simulation Results

	Data Moments	Baseline Model	Intermediate Model	Full Model
Calibrated Parameter values				
α_u		0	0.047	0.047
α_e		0	0.046	0.046
β_u		0.377	0.330	0.330
β_e		0.176	0.854	0.854
k_u		---	0.269	0.146
k_e		---	1.055	1.453
Targeted Moments				
Average search effort of unemployed, s_u	1.000	---	1.000	1.000
Average search effort of employed, $E(s_e(w))$	0.151	---	0.151	0.151
Average monthly offer rate of unemployed	0.377	0.377	0.377	0.377
Average monthly offer rate of employed	0.175	0.175	0.175	0.175
Average acceptance rate of unemployed	0.547	0.547	0.547	0.547
Average job-finding rate of unemployed	0.210	0.210	0.210	0.210
Additional Moments				
Average acceptance rate of employed	0.294	0.111	0.135	0.179
Average search cost of unemployed		---	0.269	0.146
Average search cost of employed		---	0.053	0.073
Average wage		1.451	1.504	1.731
Relative value of unemployment, $b/E(w)$		0.355	0.717	0.826
Relative value, $b/E(w)$ (net of search costs)		0.355	0.574	0.768
Mean-Min wage ratio		1.493	1.548	1.774

Note: Table reports calibrated parameter values, targeted moments, and additional (untargeted) moments for three versions of our model. The baseline model assumes exogenous (costless) search effort and homogeneous wage offer distributions, while ignoring the role unsolicited job offers. The intermediate model endogenizes search effort and allows for unsolicited offers. The full model additionally allows for heterogeneous wage offer distributions. See text for details.

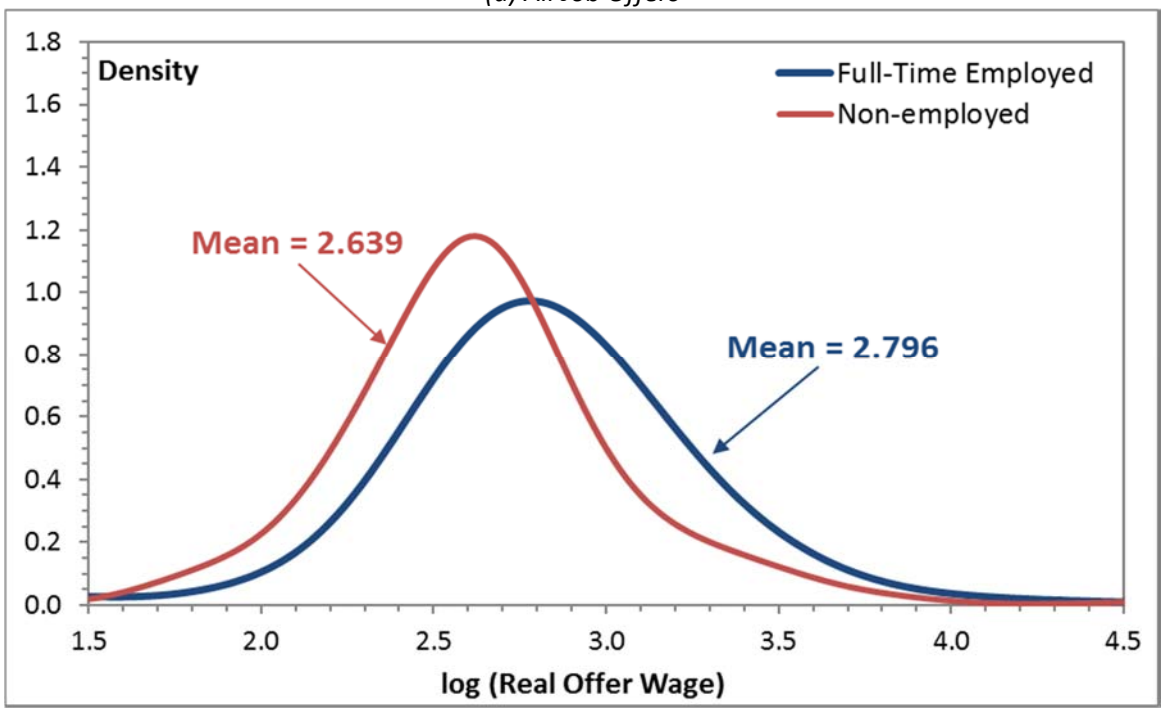
Figure 1. Distribution of Starting Wages Relative to Previous Wage among the Currently Employed



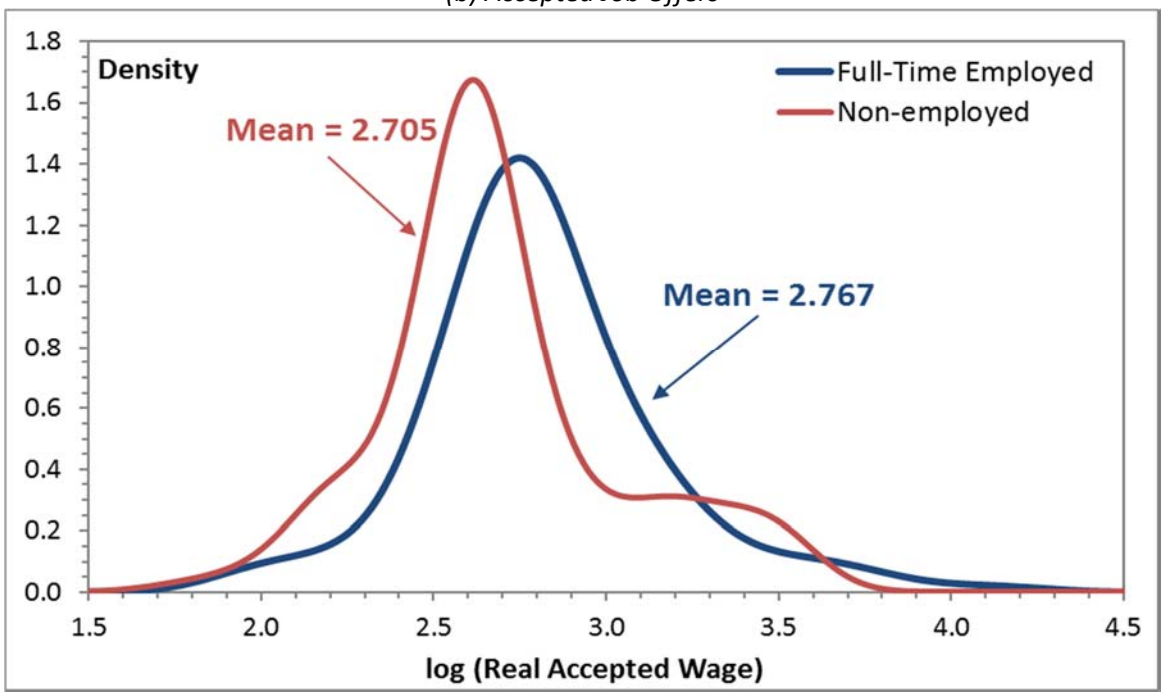
Note: Figure reports kernel density estimates of the residual of log(real starting wage/real previous wage), where the previous wage refers to final wage of the prior job and the starting wage is for the current job, and where the residual controls for observable characteristics of the worker and job, as well as the contemporaneous state unemployment rate. Estimates are for the sample of the currently employed (excluding self-employed).

Figure 2. Distribution of Job Offer Wages and Accepted Offer Wages

(a) All Job Offers



(b) Accepted Job Offers



Note: Figures report kernel density estimates of residual the log(real job offer wage) by labor force status after controlling for observable worker and job characteristics, the previous wage and hours of the worker, and the contemporaneous state unemployment rate.