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KEYWORDS

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Discussion Paper Series

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Search Costs, Outside Options, and On-the-Job Search*

Armando Miano†

July 3, 2025

Abstract

I study how beliefs about search costs, returns to search effort, and outside options relate to the job mobility decisions of employed workers. I design an online survey and administer it to a representative sample of wage and salaried workers in the US. In the survey, I directly measure employed workers' perceptions of search costs—time, money, stress—the perceived returns to their job search effort—the expected success rate of their job applications—and their beliefs about their opportunities outside of their current job. I document significant heterogeneity in expectations across demographic groups. Women expect higher costs and lower returns to effort. I find that beliefs about outside options, returns to search effort and search costs are significant predictors of job search intentions. Respondents who expect to spend more time looking for job openings have a lower propensity to search, consistent with the relevance of information frictions. Using two information experiments, I show that accurate information about the median wage does not affect search intentions, whereas shifting perceived search costs improves women's willingness to search.

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1 Introduction

When people ponder a career move they weigh the benefits they expect to obtain from changing jobs against the effort they believe the job search would require and the material and psychological cost of this effort. There is growing evidence that people are imperfectly informed about their outside options. For instance, low-income workers underestimate how much they could earn at other employers (Jäger et al., 2021) and overestimate their position in the income distribution (Hvidberg et al., 2020). We know much less about workers' perceptions of the cost side of the job search equation. What are people's expectations of the cost of looking for a new job? To what extent do these perceptions, together with beliefs about returns to search effort and outside options, predict the job search behavior of employed workers?

To investigate these questions I design an online survey and administer it to a representative sample of 2,500 wage and salaried workers in the US. These survey responses present novel facts about how employed individuals perceive the job search process. First, respondents are more worried about time constraints, rather than monetary costs. Second, there is significant heterogeneity in expected costs and returns across demographic groups. Women in particular expect higher costs and lower returns to search effort than men. By comparing expected and realized costs I find patterns consistent with errors in these expectations. Third, beliefs about outside options, returns to search effort, and search costs are significant predictors of job search intentions. Among the costs, the expected time needed to look for job openings appears to be particularly relevant, supporting the existence of information frictions.

I further explore the importance of beliefs about outside options and search costs in two information experiments embedded in the survey. Consistently with the descriptive evidence, I find that experimentally reducing perceived search costs makes women more willing to search for a new job. Conversely, accurate information about outside options (median wage) does not shift search intentions.

To discipline these findings, I introduce a model of on-the-job search with beliefs about outside options and search costs. Standard models of the labor market with off and on-the-job search (Burdett and Mortensen, 1998; Mortensen and Pissarides, 1999; Cahuc et al., 2006; Hornstein et al., 2011) assume that workers have perfect knowledge of the wage distribution and accurately predict future job offers. Most of these models keep search effort exogenous and abstract from search costs. I show that the standard on-the-job search framework can be modified to account for expectations about search costs and returns to effort and imperfect information about outside options. I build on the "job ladder" model of on-the-

job search with endogenous and costly search effort of Christensen et al. (2005) and on the belief framework in Conlon et al. (2018). I show that beliefs about outside options and expectations about costs and returns matter for the decision to search on the job and have independent effects on search behavior in this setting. In the model, workers who expect to face higher search costs and believe their returns to effort are lower are less likely to search. Workers who underestimate their outside options are also less likely to search. I test the predictions of the model using the data collected in the survey.

The first part of the survey includes a comprehensive set of qualitative and numerical questions aimed at quantifying expected search costs along many dimensions—the time and money respondents expect to spend on various phases of their job search, how stressful they expect their search to be, and other factors that respondents believe limit their ability to look for a new job. Most people consider lack of time an obstacle, while monetary constraints do not emerge as a limiting factor. Looking for job openings is perceived as the most time consuming phase of the job search process. The survey also measures respondents' expectations of the effort they would put in the job search and the perceived return to this effort—the expected success rate of their job applications. There is significant heterogeneity in expected search costs and returns to effort across demographic groups. Women, college graduates and higher-wage respondents believe it would take them more time to find a new job—more hours spent on search activities and more weeks searching. African American, Hispanic, and younger respondents expect to spend less time searching. In addition, women perceive looking for a new job to be more stressful and expect a significantly lower success rate for their job applications.

With my survey I reach respondents at different stages of their job search. Most respondents are not currently looking for a new job, some have recently started a new job, and some others are currently searching. I ask respondents who started a new job in the 12 months before taking the survey about the costs experienced during their recent job search and I use their answers to benchmark the expectations of respondents who are not currently searching. There is less heterogeneity across demographic groups in realized costs than there is in expected costs. In particular, although women expect to spend more weeks searching than men, the realized number of weeks is the same for the two groups. These results are suggestive of errors in expectations, even though they may also reflect selection into search of recent job searchers.

In the second part of the survey, I elicit workers' perceptions of the wage distribution and their beliefs about their outside options, building and expanding on the work of Jäger et al. (2021) and Conlon et al. (2018). First, I measure respondents' perceptions of the

median wage for their occupation, and of their position in the wage distribution. On average, respondents slightly overestimate the median wage in their occupation, although there is significant dispersion in perceptions. Respondents tend to think that the median wage is closer to their wage than it is the case, a result consistent with the "anchoring" documented by Jäger et al. (2021) for workers in Germany. In addition, most workers overestimate their position in the wage distribution, except for respondents in the top quartile, who underestimate their rank. This "center bias" is consistent with the patterns documented by Hvidberg et al. (2020) in Denmark. Women, African American, and low-wage respondents are more likely to underestimate the median wage and overestimate their position.

I measure beliefs about outside options by asking respondents how much more or less they expect to earn if they decided to change job, giving themselves a reasonable time frame (3 months) to find a new position. Overall workers are optimistic about how much they could gain from changing jobs—the average expected wage gain is 12%. However, 40% of respondents think they would earn the same wage at the new job and 16% believe they would incur a wage loss. Respondents who underestimate the median wage or overestimate their position in the wage distribution expect a lower gain from changing job. This suggests a relationship between beliefs about outside options and perceptions of the wage distribution. I further explore this finding in the experimental part of the paper.

To what extent are beliefs about search costs and outside options related to on-the-job search behavior? I investigate this question first by looking at correlations between beliefs and job search intentions, then experimentally, exploiting two information treatments that I embed in the survey. Beliefs about outside options are highly predictive of respondents' propensity to search in the future. This relationship continues to exist even after controlling for respondent's current wage, which is usually a key predictor of search behavior (Faberman et al., 2022). The propensity to search on-the-job is also strongly correlated with expected returns to effort—respondents who expect their applications to have lower success rates are less likely to search.

In the experimental analysis, I identify the causal effect of information about search costs and outside options on job search behavior, by randomly providing respondents with different pieces of information. In the first information treatment, a randomly selected group of respondents receive accurate information about the median wage in their occupation at the national level and in the location where they live. I call this treatment the "Median Wage Treatment." In the second treatment, which I label the "Search Costs Treatment," I provide another group of respondents with information on the search costs experienced by respondents in the same broad occupation group who recently changed their job—specifically, time

and money spent on the search. The remaining respondents do not receive any information. Both treatments have a statistically significant first stage effect on the variables they are designed to target—perception of the median wage and perceived cost of the job search process. In addition, the Median Wage Treatment has a small positive effect on the expected wage gain of respondents who underestimate the median wage pre-treatment. This confirms experimentally the link between perceptions of the wage distribution and beliefs about outside options. Despite the significant first stages, neither treatment significantly changes job search intentions nor planned search effort in the overall sample. However, the Search Cost Treatment increases the propensity to search of women, suggesting that information on search costs is more effective for groups that are more worried about how costly the job search is going to be.

Overall, these findings show that expectations influence the search behavior of employed workers. Beliefs about outside options and returns to effort are the most relevant predictor of job search at the extensive margin, as they jointly explain 50% of the variation in job search intentions. Perceptions of search costs are also related to the propensity to search of employed workers. This is particularly true for women, as shown by the experimental results. Among the measures of costs the most relevant are those related to information frictions—expected time to look for job openings—and those that are more directly related to how much effort it takes to find a job—number of weeks, number of applications.

These results have several important implications. First, errors in expectations about costs and returns to effort could be a barrier to job-to-job transitions. Job-to-job transitions are a crucial driver of labor market dynamism and shape workers' income trajectories and earnings growth.[1] In addition, workers' mobility and the ensuing competition between firms to retain or attract them are important sources of workers' bargaining power in the determination of their wages (Postel-Vinay and Robin, 2002). Thus, errors in expectations about costs and returns can dampen workers' welfare and increase inequality and monopsony power if they reduce mobility. The heterogeneity in expectations across gender suggests that different beliefs about costs of and returns to search may further amplify earning differences across gender. Second, the experimental results show that interventions aimed at stimulating workers' mobility should target not only beliefs about outside options, but also and crucially expectations about search costs. Third, the result that beliefs about search costs and returns to search effort are important predictors of on-the-job search behavior suggest an additional channel explaining the cyclicality of employment-to-employment transitions (Eeckhout and

[1]For instance, job switchers tend to experience greater wage growth relative to job-stayers. In June 2022, the wage growth for job switchers was 6.4% *vs.* 4.7% for job stayers (Wage Growth Tracker of the Federal Reserve Bank of Atlanta). See also Topel and Ward (1992) for an older reference.

Lindenlaub, 2019; Gertler et al., 2020). These expectations are indeed closely related to the perceived "difficulty" to find a new job and are thus more likely to change over the cycle.

Related literature This paper contributes to a growing literature studying how expectations can inform theories of the labor market and job search. Mueller and Spinnewijn (2021) provide a comprehensive overview of this literature.[2] Most of the work in this area focuses on the job search behavior of unemployed workers. Spinnewijn (2015) documents that job seekers overestimate how quickly they will find a new job, and, as a consequence, they do not put enough effort in their job search. Mueller et al. (2021) use job seekers' beliefs about job finding to explain heterogeneity in re-employment rates by duration of unemployment. They show that beliefs have strong predictive power for job finding but are not revised downward as job seekers remain unemployed for longer. Using panel data on employed and unemployed workers from the Survey of Consumer Expectations (SCE) of the Federal Reserve Bank of New York,[3] Conlon et al. (2018) show that workers' expectations about future job offers are often far from ex-post realizations. However, they find that learning mitigates the incidence of information frictions, as individuals update their expectations in response to realized offers, albeit imperfectly. The paper closest to mine is the work by Jäger et al. (2021). These authors document that employed workers in Germany wrongly anchor their beliefs about their outside options to their current wage. As a consequence, low-paid workers end up underestimating wages paid at other jobs. They also show that workers who underestimate their outside options are less likely to look for a new job in the future. I follow their framework to elicit beliefs about outside options, but expand the scope and measure expectations about search costs and returns to search effort, two other key components of the job search problem.

This paper also contributes to the (scant) literature on the job search behavior of employed workers. Most of the existing knowledge of how the employed search on the job comes from the work by Faberman et al. (2022). Using an *ad-hoc* module of the SCE, these authors document that employed workers search less—*i.e.*, apply to fewer jobs—than the unemployed but their search is more effective—their applications are more likely to translate into a job offer and they receive better offers than the unemployed. They argue that the lower search intensity and higher search efficiency of the employed is consistent with employed workers facing higher search costs than unemployed job seekers. However they do not measure search costs directly, and do not elicit expectations and study their role on search intentions.

[2]The reviews by Cooper and Kuhn (2020) and Santos-Pinto and de la Rosa (2020) are also excellent references.

[3]`https://www.newyorkfed.org/microeconomics/sce/`.

My work complements and expands the available evidence on search costs and search frictions which draws from field interventions targeting unemployed workers. Studies by Belot et al. (2019) and Ben Dhia et al. (2022) document the relevance of information frictions for unemployed workers, but reach different conclusions on the effectiveness of targeted information interventions in the UK and France. Beam (2021) and Abebe et al. (2021) show that monetary incentives increase search effort in the context of developing countries. I contribute to this literature by measuring directly expected and realized search costs and frictions for employed workers on multiple dimensions.

Finally, this paper is related to the recent work by various teams of researchers (Bick and Blandin, 2022; Foote et al., 2021; Adams-Prassl et al., 2020) who have designed independent online surveys to collect real-time national labor market data during the Covid pandemic.

Summing up, my contributions are the following. First, I collect new and detailed data on beliefs about search costs, returns to effort, and outside options for employed workers in the US, and show how these vary across different demographic groups. Second, I study how these beliefs relate to on-the-job search behavior, improving our understanding of employed workers' job mobility dynamics. Third, I experimentally study the effect of providing different types of information on on-the-job search intentions.

The rest of the paper is organized as follows. In Section 2 I introduce the model and show how expectation enter on-the-job search decisions. I explain the data collection and survey construction in detail in Section 3. Section 4 provides an overview of the elicited beliefs about search costs, returns to effort, and outside options, and documents heterogeneity in these beliefs across demographic groups. I show how expectations about search costs, returns to effort, and outside options correlate with on-the-job search behavior in Section 5. I present the results from the survey experiments in Section 6. The last section concludes.

2 A Model of On-the-Job Search with Beliefs about Search Costs and Outside Options

In this section I develop a partial equilibrium "job ladder" model with endogenous search effort, augmented with beliefs about search costs, returns to effort, and outside options. I build on Christensen et al. (2005), who add endogenous search effort to the Burdett and Mortensen (1998)'s job ladder model, and on subsequent versions in Hornstein et al. (2011) and Faberman et al. (2022). The framework for beliefs about outside options follows Conlon et al. (2018), who extend the Burdett and Vishwanath (1988)'s search model with learning to

incorporate on-the-job search. However, unlike Conlon et al. (2018), I abstract from beliefs updating. In this section I show how beliefs enter the on-the-job search problem and derive an extensive margin and an intensive margin condition for search behavior that I will use to guide the empirical analysis in the rest of the paper.

Environment The setting is a standard job search framework. I focus exclusively on employed workers, given that the sample of my survey only includes workers who are currently employed. Time t is discrete and all workers have discount rate $\beta \in (0, 1)$.

While employed, workers can search for a new job exerting effort $s \in [0, 1]$. Search effort captures how intensively workers search for a new job. In the data, search effort may be proxied by the number of jobs the worker applies to. Each period, workers receive job offers at rate λ per unit of effort s. The offered wages are distributed according to F, which I assume to be log-normal, with mean μ and variance σ^2. Jobs are destroyed with an exogenous probability δ. Workers whose jobs are destroyed become unemployed.

If a worker receives a job offer, she decides whether to accept the offer and leave her current employer, or remain where she is. For simplicity I assume that current employers do not compete with the outside offers received by their employees.

Search effort and search costs Searching for a job is costly. I assume that the cost, or disutility, of search effort is measured by the function

$$c(s) = k\frac{(s+\zeta)^{(1+1/\gamma)} - \zeta^{(1+1/\gamma)}}{1+1/\gamma} \tag{1}$$

which is twice differentiable, increasing in search effort and convex, with $c(0) = 0$. This cost function features two components that capture two different types of costs. The first component is the positive additive constant, ζ. This is a "fixed" or minimum marginal cost, which captures a baseline level of disutility associated with the job search—for instance, the psychological cost of considering yourself on the search and having to deal with the related stress. The second component is k, a shifter of the marginal cost of effort. The higher is k, the higher is the cost of an additional unit of effort. For instance, k captures the number of hours or money spent per job application submitted. The function in (1) is similar to the cost function in Christensen et al. (2005) and Hornstein et al. (2011), with the addition of the fixed marginal cost. I allow both the cost shifter k and the fixed marginal cost ζ to vary across workers. As in Christensen et al. (2005), putting more effort in searching for a new job increases the probability of receiving a job offer, but does not affect the characteristics of

the potential offers. Job offers are drawn from a distribution which is independent of search effort. Workers need to put at least some effort to receive a job offer—*i.e.*, $\lambda \cdot 0 = 0$.[4]

Beliefs Workers have imperfect information about the arrival rate of offers and the offers distribution. They are also uncertain about how costly searching for a new job would be. Their beliefs about the arrival rate of offers and about the offers distribution are denoted, respectively, by $\tilde{\lambda}$ and $\tilde{F}(w)$, $\tilde{w}^{min}$, $\tilde{w}^{max}$, $\tilde{w}^{median}$. Their beliefs about search costs are captured by $\tilde{c}(.)$, which depends on expectations about the cost parameters $\tilde{k}$ and $\tilde{\zeta}$. I abstract from belief updating, *i.e.*, I assume that workers do not revise their beliefs as they search.

Perceived value of employment For a worker with beliefs about the offer distribution $\tilde{F}(.)$ and expected search costs $\tilde{c}(.)$ and returns to effort $\tilde{\lambda}$, the perceived value of employment at wage w satisfies:

$$\begin{aligned} W(w, \tilde{F}(.), \tilde{c}(.), \tilde{\lambda}) = \max_{s \geq 0} [& w - \tilde{c}(s) + \beta\delta U \\ & + \beta(1-\delta)\tilde{\lambda}s \int_w \max\{W(z-m), W(w)\} \, d\tilde{F}(z) \\ & + \beta(1-\delta)(1-\tilde{\lambda}s)W(w)] \end{aligned} \tag{2}$$

The first term on the right-hand-side is equal to the worker's current labor income w net of the expected cost of search effort. Next period, with probability δ the worker's job is destroyed, she becomes unemployed and is left with the value of unemployment U. With perceived probability $\tilde{\lambda}s$ the worker receives a job offer z from another employer. If she accepts the offer, she enjoys $W(z-m)$, the value of the offered new job net of a "relocation" cost. This relocation cost m captures the monetary and non-monetary cost of moving to a new employer—for instance, the administrative hurdle of transferring pension or health benefits, or the psychological cost of having to adapt to a new workplace and new co-workers. Similar to the other cost parameters, m can vary across workers. With probability $1 - \tilde{\lambda}s$ the worker does not receive any offer, and keeps her current job.

Reservation wage and job offers acceptance rule Based on Equation 2, we can define a "reservation wage" such that the worker is indifferent between accepting the offer for the new job, paying the relocation cost m, and remaining with her current employer. The

[4]The model could be extended to allow for unsolicited offers (as in Faberman et al., 2022) and poaching, assuming a baseline arrival rate of offers $\lambda(0) = \alpha$.

reservation wage $\bar{z}$ is defined by the following equation:

$$W(\bar{z} - m) = W(w) \tag{3}$$

Since $W(w)$ is increasing in w, Equation 3 implies that $\bar{z} = w + m$, *i.e.*, the worker's reservation wage is equal to her current wage w plus the relocation cost m. $W(w)$ being increasing in w also implies that it is optimal for the worker to accept any offer greater or equal to her reservation wage $\bar{z}$. This rule is similar to the acceptance rule in Burdett and Mortensen (1998), where workers accept any offer above their current wage, which serves as their reservation wage. In this setting, $\bar{z}$ is greater than w to account for the relocation cost. I can then rewrite:

$$\int_{w} \max\left\{W(z-m), W(w)\right\} d\tilde{F}(z) = W(w) + \int_{w+m}^{\tilde{w}^{max}} \left[W(z-m) - W(w)\right] d\tilde{F}(z) \tag{4}$$

Note that, as argued in Conlon et al. (2018) and Burdett and Vishwanath (1988), the acceptance rule would be different in the presence of a learning mechanism, where realized offers trigger a revision of beliefs over future offers and, hence, the option value of searching. In this case a reservation wage may not even exist, if workers revise very strongly their beliefs in response to realized offers. However, I abstract from learning, given that my focus is on the extensive margin of search and on search effort, rather than on how beliefs affect the propensity to accept offers. In my framework beliefs are relevant insofar they enter in the extensive margin decision to search or not and in the decision on the optimal level of search effort.

Extensive and intensive margin of search Substituting (4) in (2) and taking the derivative with respect to s I obtain the following first order condition for the optimal search effort:

$$\tilde{c}'(s) = \beta(1-\delta)\tilde{\lambda} \int_{w+m}^{\tilde{w}^{max}} \left[W(z-m) - W(w)\right] d\tilde{F}(z) \tag{5}$$

From this expression we see immediately that search effort is decreasing in the current wage w, since $c(s)$ is increasing and convex. Integrating the right-hand-side by parts, and

using the envelope theorem to compute $W'(z)$ we obtain:

$$\begin{aligned}\tilde{c}'(s) =& \beta(1-\delta)\tilde{\lambda}\int_{w+m}^{\tilde{w}^{max}} W'(z)(1-\tilde{F}(z))dz \\ =& \beta(1-\delta)\tilde{\lambda}\int_{w+m}^{\tilde{w}^{max}} \frac{(1-\tilde{F}(z))dz}{1-\beta(1-\delta)[\tilde{\lambda}s(1-\tilde{F}(z))+1]}\end{aligned} \tag{6}$$

Finally, using the functional form for $c(s)$ in (1) and substituting into (6) we have a functional equation for s:

$$s^*(w) = \left\{\frac{1}{\tilde{k}_i}\int_{w+m}^{\tilde{w}^{max}} \frac{\beta(1-\delta)\tilde{\lambda}(1-\tilde{F}(z))dz}{1-\beta(1-\delta)[\tilde{\lambda}s(1-\tilde{F}(z))+1]}\right\}^{\gamma} - \tilde{\zeta}_i \tag{7}$$

This equation has an extensive and an intensive margin component. The first term on the right-hand side captures the expected marginal benefit of an additional unit of search effort, scaled by the expected cost parameter $\tilde{k}$. γ determines how elastic search effort is to the marginal benefit of searching. The second term, $\tilde{\zeta}$, is the expected fixed marginal cost. Since search effort cannot be negative, if the fixed marginal cost of search effort is greater than the marginal benefit, then $s = 0$ and the worker does not search at all. If the marginal benefit is greater than the fixed marginal cost, the worker sets her optimal level of effort according to (7).

I can then define the probability of searching, or a "propensity" to search, as the probability that $s^* > 0$, or

$$Pr(s^* > 0|\tilde{F}(.), c_i, w, m) = Pr\left(\left\{\frac{1}{\tilde{k}}\int_{w+m}^{\tilde{w}^{max}} \frac{\beta(1-\delta)\tilde{\lambda}(1-\tilde{F}(z))dz}{1-\beta(1-\delta)[\tilde{\lambda}s(1-\tilde{F}(z))+1]}\right\}^{\gamma} > \tilde{\zeta}\right) \tag{8}$$

This probability captures the extensive margin of search. The intensive margin of search is captured by Equation 7, provided that the marginal benefit of search effort is greater than the fixed marginal cost.

Factors driving the extensive and intensive margin of search From Equations 7 and 8 we see that there are five factors entering the worker's search decision at the extensive—*i.e.*, whether to search at all for a new job or not—and intensive margin—*i.e.*, how much effort to put in the search:

1. The expected cost per unit of search effort, captured by the shifter $\tilde{k}$.

2. The expected fixed (minimum) marginal cost $\tilde{\zeta}$, capturing an initial fixed cost associated with starting the job search.

3. The expected arrival rate of offers per unit effort, $\tilde{\lambda}$.

4. The expected gain from changing job, equal to $E[\Delta W(w)] \equiv \int_{w+m}^{\tilde{w}^{max}} [W(z-m) - W(w)] d\tilde{F}(z)$.

5. The reservation wage $\bar{z} = w + m$.

From conditions (7) and (8) we see that both the chosen level of search effort and the probability to search are decreasing in $\tilde{k}$, $\tilde{\zeta}$ and $\bar{z}$, and increasing in $\tilde{\lambda}$ and $E[\Delta W(w)]$. Intuitively, if the expected fixed marginal cost is high, it is less likely that the expected return to search is large enough for the worker to start searching. If the perceived cost shifter is high, each unit of effort costs more (for instance, in terms of time or money). If the reservation wage is high, there is a smaller chance that the offer received will be above it and will be accepted. As a result, the expected gain from searching is also lower. Note that this result generalizes the prediction that higher-wage workers are less likely to search. Indeed, the reservation wage can be high either because the current wage is high or because the relocation cost is high. Finally, If the expected gain from changing job or the expected arrival rate of offers are high, the benefit of an additional unit of search effort is larger—each application is more likely to lead to an offer, and each offer is more likely to be accepted and to generate a larger wage gain.

In the rest of the paper I construct measurable equivalents of these five factors using my survey data, and in Section 5 I test which ones matter the most in predicting on-the-job search behavior.

3 Survey Design and Data

3.1 Data collection and sample

I administered the survey in the United States between September and October 2022. The final sample includes 2,462 respondents. The survey was open to full-time and part-time wage and salaried workers between 20 and 64 years of age. Self-employed individuals were not allowed to take the survey because the concept of job search is rather different for them. I designed the survey using the online platform *Qualtrics*. The survey link was disseminated by the commercial survey company *Respondi/Bilendi*[5] and its partner panels. I set quotas

[5] https://www.respondi.com/EN/.

on gender, age, household income, education, race and census region of residence, to ensure that the sample is representative of the US population of employees between 20 and 64 years of age along these dimensions. Respondents who accepted the invitation to take the survey were first channeled through a set of screening questions, and were screened out if the quotas for their demographic characteristics were already full. Respondents were paid if they completed the survey fully. The average incentive per survey completed was $4. The average time to complete the survey was 29 min and the median time was 21 min.[6] Two weeks after completing the main survey, each respondent was invited to take a shorter follow-up survey designed to study the persistence of the effects of the treatments.

The final sample is close to representative of the target population of full-time and part-time wage and salaried workers between 20 and 64 years of age in the US. Table 1 shows the summary statistics for the characteristics of the sample against the corresponding characteristics of the US target population. The population statistics are from the 2022 March Supplement of the Current Population Survey (2022 CPS ASEC, Flood et al., 2022). The sample is almost perfectly representative along all dimensions targeted by the quotas, with the exception of household income: employees living in households with income above $90,000 are slightly underrepresented in the sample. Among non-targeted characteristics, respondents in the sample are more likely to be married or to be living with a partner, and less likely to be Hispanic or of Latino origin. Appendix Figure A-6 shows the geographic distribution of observations in the sample by state.

Table 2 reports some labor market statistics for respondents in the sample. Most respondents (88%) are employed full-time. 15% work at more than one job. 69% work in person, 19% work from home at least some hours per weeks, and the remaining 12% work fully remotely. Turning to job search status, I classify respondents as "active job searchers" if in the 4 weeks preceding the survey they have used one of the active job search methods defined by the US Bureau of Labor Statistics (BLS).[7] The BLS follows this procedure in the CPS to separate between unemployed individuals who are actively looking for a job, and non-employed individuals who are not actively searching and should be considered out of the labor force. Since the BLS does not provide an *ad-hoc* definition of active search status for individuals who are currently employed, I use the same classification of search activities

[6] The full distribution of the time spent on the survey is shown in Appendix Figure A-5.

[7] Active job search methods include: contacting an employer directly about a job; having a job interview; submitting a resume or application to an employer or to a job website; using a public or private employment agency, job service, placement firm, or university employment center; contacting a job recruiter or head hunter; seeking assistance from friends, relatives, or via social networks; placing or answering a job advertisement; checking union or professional registers. Source: https://www.bls.gov/cps/definitions.htm#jobsearch.

Table 1: Sample Characteristics

	Survey	CPS – March Supplement
Male	0.51	0.51
Age		
20-29 years old	0.20	0.22
30-39 years old	0.25	0.26
40-49 years old	0.23	0.23
50-64 years old	0.31	0.30
Household income		
<$30,000	0.10	0.10
$30,000-$59,999	0.22	0.21
$60,000-$89,999	0.20	0.19
≥$90,000	0.48	0.50
4-year college degree or more	0.46	0.43
High-school degree or less	0.27	0.30
Hispanic/Latino origin	0.10	0.18
African American	0.12	0.13
Asian/Asian American	0.06	0.07
Married/living w. Partner	0.68	0.55
Sample size	2462	

Notes: This table reports summary statistics for the survey, in the first column, and corresponding statistics for the target population in the US, in the second column. Population statistics come from the 2022 March Supplement of the Current Population Survey (2022 CPS ASEC, Flood et al., 2022). Target population: full-time or part-time wage and salaried workers, between 20 and 64 years old.

to define active on-the-job search. Following this definition, 22% of respondents are active job searchers, while an additional 4% searched for jobs "passively," *i.e.*, they only looked at job postings and did not use an active job search method. 59% of the job searchers in the sample are looking for a new job to leave their current employer, while the remaining 41% are looking for a job in addition to their current one.

Finally, appendix Figure A-7 plots the share of respondents in the sample by industry and SOC 2-digit occupation group. Appendix Figure A-8 compares the occupation and industry composition of the survey sample with the composition of the September 2022 CPS. Overall, the survey tracks the CPS remarkably well both in terms of occupations and industries. The

Table 2: Employment and Search: Summary Statistics

	Mean	Median	P25	P75	Obs.
Work hours per week	39.08	40.00	36.00	42.00	2462
Gross annual earnings	75025.28	58411.50	36000.00	95000.00	2462
Gross hourly earnings	38.91	27.67	17.79	45.19	2462
Tenure at current job (in yrs.)	8.96	6.00	2.17	13.25	2462
Full-time employed	0.88	1.00	1.00	1.00	2462
Working at multiple jobs	0.15	0.00	0.00	0.00	2462
Working fully in-person	0.69	1.00	0.00	1.00	2462
Working remotely some time	0.19	0.00	0.00	0.00	2462
Active job searcher	0.22	0.00	0.00	0.00	2462
Passive job searcher	0.04	0.00	0.00	0.00	2462

Notes: This table reports some labor-market-related summary statistics for the main survey sample. The variables full-time employed, working at multiple jobs, working fully in person, working remotely some time, active job searcher, and passive job searcher are dummies equal to 1 if the respondent is, respectively, employed full time, has more than one job, is working fully in person or remotely sometime at his main job, is actively or passively looking for a new job according to the BLS definition of active search methods.

correlation between the share of respondents by industry in the survey and in the CPS is 0.77, for occupations it is 0.89.

3.2 The survey: an overview

The link to the full text of the survey and the main survey questions are in Appendix A-2. Figure 1 outlines the survey flow.

Background socioeconomic questions, current employment, and current search status At the beginning of the survey, I collect information on respondents' gender, age, race and ethnicity, household income, education, zipcode of residence and current employment status. I use this information to screen out respondents and for the quotas. I ask additional demographic questions (such as the number and age of the children living in the household) at the end of the survey, to minimize the effect of potential survey fatigue on the key questions. After the screening questions, I ask respondents a comprehensive set of questions about their current job: when they started working at it, how many hours they work per week, how much they earn in a year, their occupation, the industry of their employer, whether the job is in person, remote, or hybrid, and the benefits they receive, if any. I explain in detail how I ask about respondents' occupation in Appendix A-2.3. Respondents who hold more than one job are asked about their "main" job, defined as the job where

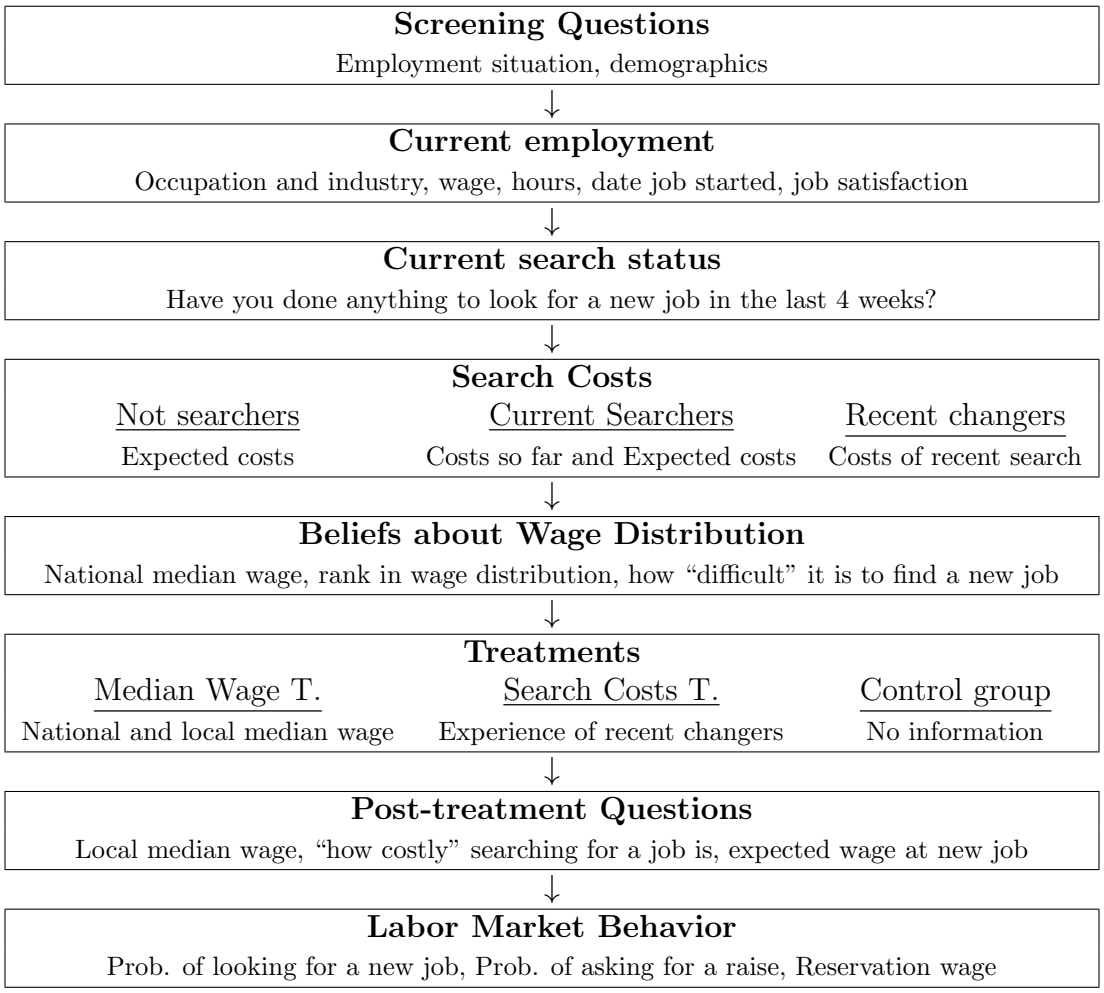
they work the most hours per week. I also measure how satisfied respondents are about their current job (in terms of pay, benefits, co-workers and work environment, flexibility in work hours, options to work from home, and opportunities for career progression), and how well they think their job fits their experience and skills. I also ask respondents if they were employed somewhere else or not-employed when they found their current job, to identify respondents who made a job-to-job transition. I then ask whether they have done anything to look for a new job in the last four weeks, and provide a list of activities to select from, to classify respondents into active and passive searchers.

Sample composition: not searchers, current searchers, recent changers I classify respondents into 3 groups according to their current and past job search status. Respondents who started their current job in the 12 months before they took the survey are classified as "recent changers." Recent changers account for 15% of the sample. I define "current searchers" respondents who have been looking for a new job—either to leave their current job or in addition to it—in the four weeks before taking the survey. This group makes up for 22% of the sample. Finally, respondent who have not been looking for a new job and have been working for their current employer for more than one year are classified as "not searchers." These respondents account for the remaining 63% of the sample. Appendix Table A-1 summarizes some of the characteristics of the respondents in the different groups.

Search costs and returns to effort The core of the survey consists of three blocks. The first block is about search costs, that I elicit using a range of qualitative and quantitative questions. I measure 3 types of costs: time, money, and stress. I adapt the questions on search costs for the three groups of respondents. I ask recent changers about the costs of their recent job search and about the effort they put into it. Not searchers are asked about how costly they expect looking for a new job would be, about the effort they expect to put into the search, and about how effective they believe their effort to be. I ask current searchers about their search so far and about their expectations for the future, until they find a job that they would accept.

Before asking about the 3 types of costs, at the beginning of the section, I ask respondents two broader questions to elicit their thoughts on the main issues they faced, are facing, or expect to face when searching for a new job. Following Ferrario and Stantcheva (2022), the first question is open-ended and has the scope of capturing respondents' first reactions, without priming them on a specific direction or issue. Not searchers were asked:

Figure 1: Survey Outline



"Imagine you wanted to look for a new job at a new employer now, while still working at your current employer. Are there any issues that would make looking for a new job difficult for you now? What are the first ones that come to your mind?"

The text is adapted for recent changers and current searchers. The second question is similar but provides some options for respondents to select, such as "not having enough time" or "having to take care of family responsibilities."

I then turn to time costs. I ask respondents how many weeks in total they expect it would take them (or it took them) to find a new job— *"from the moment when you would start actively looking for job openings, until the moment you accept the new job offer."* I tell them to consider the job search process split into three phases: looking for job openings,

applying to jobs, preparing for and doing interviews.[8] I ask respondents how many hours they expect to spend (or have spent) on each of these three phases of the job search. To measure search effort, I ask about the number of applications they expect to submit. Finally, I elicit their expectation of the number of job offers they would receive (but not necessarily accept). I use the ratio between the expected number of offers and the expected number of applications to construct the expected applications success rate, a proxy for respondents' expected return to search effort.

At the end of the block, I ask respondents about whether they expect to spend (or have spent) any money on their job search. If they answer affirmatively, I show them a "search budget," displayed in Appendix Figure A-1. On this budget I list some likely cost items, such as "new clothes for interviews," "transportation costs," or "subscriptions fees for job board websites." Respondents can write 0 or a positive amount next to each item. They also have the option to add additional items that are not already listed.[9]

Finally, another qualitative question elicits the level of "stress" respondents associate with the job search process, measured on a Likert scale going from 1 to 7, where 1 is "not stressful at all" and 7 is "extremely stressful."

Beliefs about the wage distribution The second main block of the survey is about perceptions of the wage distribution. In this block, I elicit respondents' perception of the median wage for their occupation, and their belief about their position in the wage distribution. These questions are adapted from Jäger et al. (2021). I also ask a qualitative question measuring how "difficult" respondents believe it is to find a new job that they would consider suitable in terms of pay, benefits, hours and workplace flexibility, work environment, and location.

Information treatments After the outside options block, respondents are randomly split in three groups. The first group of respondents receives correct information about the median wage for their occupation in the US and in the area where they live (metropolitan or micropolitan area). I call this treatment the "Median Wage Treatment." The second group of respondents receives information about the search experience of recent job changers who

[8] Although this way of breaking down a job search does not perfectly fit the experience of workers in all occupations and sectors, I considered it to be the best option to provide a concrete framework that could apply to the broadest set of respondents, and obtain measures as comparable as possible across workers.

[9] In a smaller pilot, I asked about monetary costs without the initial screening question and following more closely the structure of the questions about time costs. The answers to these questions were similar to the answers to the monetary costs questions in the final survey. I chose this final version of the costs questions because it is more compact and less burdensome for respondents.

work in the same occupation and have recently changed job—how much money and time it took these respondents to find a new job. I call this treatment the "Search Costs Treatment." The third (control) group sees no treatment. I provide more information on the treatments in Section 6. Appendix Table A-2 shows that the control and treatment groups are balanced along respondents' characteristics.[10]

Post-treatment questions and beliefs about outside options All respondents, regardless of which treatment group they belong to, are asked two post-treatment questions: *i)* a question about the median wage for their occupation "in the area where they live," to check for a direct first stage effect of the Median Wage Treatment; *ii)* a qualitative question about how "time consuming" they expect their job search to be, on a Likert scale from 1 to 7, where 1 is "not time consuming at all" and 7 is "extremely time consuming," to check for a direct first stage effect of the Search Costs Treatment.

Then, all respondents are asked about the wage gain (or loss) they expect to obtain if they decided change job now, giving themselves a reasonable time frame—three months—to search.[11] This is my main measure of respondents' beliefs about their outside options.

Search behavior In the last main block of the survey I elicit respondents' job search intentions. Following Jäger et al. (2021), I ask respondents about the percent chance they will look for a new job in the next 12 months (if they are not currently looking for one already) and about the percent chance they will ask their current employer for a raise. I ask current searchers how many hours they plan to search in the next 7 days. Finally, I measures respondents' reservation wage using the following question from the SCE (Conlon et al., 2018) and Krueger and Mueller (2016):

"Suppose someone offered you a job today in a line of work that you would consider. What is the lowest annual pay you would accept for this job, before taxes and other deductions and including tips, commissions and bonuses?"

[10] Two exceptions are that respondents age 20 to 39 are slightly under-represented in the Search Costs treatment and over-represented in the Median Wage Treatment, while married respondents are slightly over-represented in the Search Costs treatment group.

[11] The question is asked in two steps, displayed in Appendix Figure A-3. I start from a similar question in Jäger et al. (2021), but I change the wording slightly to adapt it to my context and framework.

4 Search Costs and Perceptions of Outside Options

In this section, I describe respondents' beliefs about the costs of looking for a new job, and their expectations about the return to their job search effort, discussing some key patterns.[12] I then compare these beliefs to the costs and returns to effort reported by respondents who recently searched for, found and started a new job (recent changers). I highlight heterogeneity in beliefs by demographic group. To compute all the statistics in this section, I restrict the subset of recent changers to respondents who made a job-to-job transition—*i.e.*, those who were employed when they found their new job. That is, I exclude recent changers who were not employed when they found their new job. Since respondents' elicited beliefs refer to a potential job search "while still employed at their current employer," this sample restriction is necessary to construct comparable benchmarks. Indeed, the employed have different schedules than the unemployed and, most likely, face different constraints in their job search. Moreover, as Faberman et al. (2022) document, the employed are more effective than the unemployed at searching—they apply to fewer jobs but their applications are more likely to be successful.

In the second part of this section, I summarize respondents' perceptions of the wage distribution for their occupation—median wage and their rank in the wage distribution—and document clear patterns of misperceptions. I then report the distribution of respondents' expected wage gain from changing job—a direct measure of their beliefs about their outside options. Finally, I show that expected wage gains are related to respondents' perceptions of the wage distribution.

4.1 Search Costs and Return to Search Effort

4.1.1 Main issues when looking for a new job

Before turning to the quantitative beliefs about search costs, I provide an overview of the answers to the questions about the general "issues" that would make—or that made, for recent changers—looking for a new job difficult. As explained in Section 3, the survey includes an open-ended and a multiple choice question capturing respondents' perceived or experienced issues. In Figure 2, I plot the answers to the multiple choice question for respondents who are not currently looking for a job (blue squares) and respondents who recently made a job-to-job transition (red diamonds). Appedix Figure A-10 summarizes the answers of respondents who are currently searching for a new job.

[12] Appendix Table A-3 reports the average, median and interquartile range for all the elicited beliefs about costs and returns.

Looking at the answers of not searchers, lack of time emerges as the main obstacle to a potential job search. Indeed, about 32% of these respondents complain about "not having enough free time to look for a new job," and an additional 12% is worried about not being able to miss time at work if needed. Time constraints come up as a pressing issue even in the answers to the open-ended question, as shown in the world clouds in Appendix Figure A-9 reporting the words most frequently mentioned by different groups of respondents. Having to take care of family responsibilities is a constraint for 21% of not searchers. 17% of these respondents are worried that their current employer would find out about their job search. This issue is also frequently mentioned in the answers to the open-ended question.

Recent changers are more likely to say that they did not have any particular issue when they looked for their current job. Lack of time was an issue only for 18.5% of recent changers. A similar share of these respondents was worried that their former employer would know about the job search. 13% of recent changers think that lack of qualifications was an issue in their recent job search. This share is even higher (17%) among respondents who are currently searching for a new job. In contrast, only 8% of not searchers do not feel qualified enough to look for a new position. Having to take care of family responsibilities was an issue only for 12.5% of recent changers.

Finally, only about 6% of not searchers and recent changers said that not having enough money would be an issue or was an issue for their search. The lack of monetary constraints for most people is coherent with the patterns in beliefs about time and monetary search costs that I present in the next sub-section, and with the correlations between beliefs about costs and search behavior that I discuss in Section 5. The little relevance of monetary constraints for on-the-job search contrasts with the evidence in Schwartz (2015) and Ferraro et al. (2022) about unemployed job-seekers. These authors show that pecuniary search costs are an important limiting factor for the unemployed, who are more likely to be liquidity constrained than the employed. This additional dimension of heterogeneity between the employed and the unemployed further proves that these two groups face different search costs that need to be measured separately.

4.1.2 Time, money, returns to effort

Time and money Appendix Table A-3 summarizes the various measures of time and monetary costs that I collect in the survey—average, median, and interquartile range for the three groups of respondents (not searchers, recent changers, and current searchers). All variables are defined in Appendix Section A-1.

Starting from beliefs about time costs, respondents who are not currently searching be-

Figure 2: What Makes Looking for a New Job Difficult?



Notes: This figure reports the share of respondents who selected the answer listed on the left in the multiple choice question about "issues" that would make or made looking for a new job difficult, by respondent group. Recent changers include only respondents who made a job-to-job transition in the 12 months before taking the survey.

lieve it would take them 6 weeks on average to find a new job. The median number of weeks is 4. Not searchers expect to spend 35 hours on average on their job search, and expect to dedicate about 55% of these hours (19) to looking for job openings. The median for the expected total search hours is 20, and the median number of hours spent looking for job openings is 9. Looking at the average cost of effort—which I compute by dividing the total expected number of hours spent on the search by the expected number of job applications—on average one application "costs" 6.26 hours (median 3.5 hrs).

In terms of monetary costs, only 43% of respondents expect to incur some expenses related to their job search. Among respondents who do expect to spend some money on their search, the average total monetary cost is $244 (median $150). The average dollar cost per application is $42 (median $22).

Returns to effort Turning to beliefs about search effort and its returns in terms of job offers, the average number of applications respondents expect to submit is 9 (median 5). The average expected success rate of these applications—my measure of expected return to effort—is 0.65 (median 0.5). This means that on average respondents believe that one out

of two applications will translate into a job offer.

Stress I conclude this overview of respondents' beliefs by looking at their perception of how "stressful" a possible job search would be. This question is meant to capture the psychological costs that respondents associate with the job search process, that are in part related but also independent of expected time and monetary costs. For instance, some respondents may suffer an intrinsic psychological cost from being on the search—having to worry about applications and interviews in addition to their daily responsibilities, or having to wait to hear back from potential employers. On average, respondents expect the job search to be quite stressful. The average expected level of stress is 4.83—on a scale from 1 to 7, where 1 is "not stressful at all" and 7 is "extremely stressful." The median is 5.

Heterogeneity As reported in Appedix Table A-3, all the measured beliefs about costs, effort, and returns to effort have large standard deviations, implying a significant degree of heterogeneity across respondents. To explore this heterogeneity, I regress beliefs about costs, effort, and returns to effort on a set of dummies for some key demographic characteristics: gender, race, education, being married or living with a partner, having children less then 6 years old, earning a high wage.[13] I standardize the dependent variables so they have mean 0 and standard deviation 1. I report the results of these regressions in Table 3.[14]

There are some striking patterns in beliefs across demographic groups. Women expect to spend more weeks searching—their expected search duration is 0.26 sd higher. They also believe that looking for a new job would be significantly more stressful—by 0.3 sd. They expect to send more applications, and, in particular, they expect a significantly lower success rate. All in all, they believe that looking for a new job would require more effort, would take more weeks and cause more stress, and they expect a lower return to their job search effort. Younger respondents believe that their search would last fewer weeks and that they will spend fewer hours searching, but they do not expect a significantly different success rate. College graduates expect higher costs and slightly lower returns—consistent with these workers aiming at jobs that are more difficult to reach. High-wage workers also expect higher costs, but a slightly higher success rate. Finally, African American expect to spend fewer weeks and less hours searching, and associate a significantly lower level of stress to their potential job search.

[13] Defined as a wage in the top quartile of the distribution of annual wages in my sample.

[14] The regressions for additional variables are reported in Appendix Table A-4.

Table 3: Beliefs about Search Costs, Search Effort, and Return to Effort by Demographics

	Exp. tot. time (1)	Exp. weeks (2)	Exp. stress (3)	Exp. avg. time per app. (4)	Exp. applications (5)	Exp. success rate (6)
Female	0.0405	0.260***	0.321***	-0.112**	0.112**	-0.295***
	(0.0521)	(0.0510)	(0.0514)	(0.0517)	(0.0540)	(0.0513)
Age 20-39	-0.166***	-0.197***	0.0294	-0.0405	-0.0766	0.143**
	(0.0520)	(0.0508)	(0.0556)	(0.0541)	(0.0560)	(0.0582)
College graduate	0.214***	0.438***	0.119**	0.136**	0.146**	-0.136**
	(0.0565)	(0.0550)	(0.0556)	(0.0565)	(0.0581)	(0.0555)
Married/Living with partner	0.0337	-0.0154	-0.0611	0.126**	-0.109*	0.142**
	(0.0563)	(0.0542)	(0.0587)	(0.0545)	(0.0600)	(0.0570)
Has children <6yo	-0.0974	-0.146**	-0.0180	-0.135*	-0.00328	0.0704
	(0.0689)	(0.0649)	(0.0716)	(0.0732)	(0.0733)	(0.0780)
African American	-0.201**	-0.182**	-0.356***	-0.149*	-0.0348	0.268***
	(0.0806)	(0.0746)	(0.0951)	(0.0809)	(0.0887)	(0.0944)
Hispanic/Latino Origin	-0.108	-0.0276	-0.00313	-0.0300	-0.0840	0.105
	(0.0873)	(0.0802)	(0.0967)	(0.0905)	(0.0962)	(0.101)
High wage	0.200***	0.144**	-0.0454	0.242***	-0.104	0.124*
	(0.0703)	(0.0647)	(0.0642)	(0.0692)	(0.0646)	(0.0668)
Observations	1547	1548	1549	1512	1548	1511

Notes: This table shows how expectations about search costs and returns to effort vary by demographic group, by regressing each variable listed in the column on the set of demographic dummies listed on the left. All dependent variables are standardized so they have mean equal to zero and sd equal to 1. Continuous dependent variables are winsorized at the 5th and 95th percentile. See Appendix Section A-1 for variables definitions. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Sample: not searchers.

4.1.3 Expected *vs.* realized costs

Is the heterogeneity in beliefs across demographic groups driven by systematic "errors" that respondents in certain groups make—*i.e.*, some groups systematically overestimate or underestimate search costs? Or is it due to actual differences in search costs and search efficiency across groups? To answer this question I explore the heterogeneity in the "realized" costs and returns reported by respondents who recently made a job-to-job transition and compare it to the heterogeneity in expected costs and returns of not searchers. To this end, Table 4 replicates the analysis of Table 3 on the sample of recent changers. Most of the differences across demographic groups are small and not statistically different from zero. One exception are college-educated respondents. Compared to those who do not have a college degree, these respondents spent significantly more time searching, report lower applications success rates, and had a much more stressful search experience. This heterogeneity is consistent with the heterogeneity in expected costs and returns between college and non-college educated, and likely driven by respondents with a college degree

Table 4: Realized Search Costs, Search Effort, and Return to Effort by Demographics

	Tot. Hours (1)	Weeks (2)	Stress (3)	Avg. time per app. (4)	Applications (5)	Success rate (6)
Female	-0.0859	0.110	0.0390	-0.213	0.116	-0.192
	(0.158)	(0.158)	(0.159)	(0.163)	(0.166)	(0.162)
Age 20-39	-0.275	-0.361*	0.300*	-0.246	-0.111	0.154
	(0.171)	(0.187)	(0.173)	(0.175)	(0.195)	(0.177)
College graduate	0.285*	0.508***	0.334**	0.0332	0.280	-0.394**
	(0.154)	(0.151)	(0.161)	(0.158)	(0.174)	(0.170)
Married/Living with partner	0.0801	-0.0749	0.0381	0.0220	0.208	0.229
	(0.169)	(0.185)	(0.184)	(0.178)	(0.159)	(0.166)
Has children <6yo	0.00738	-0.273*	-0.238	0.0821	-0.192	-0.0620
	(0.173)	(0.143)	(0.213)	(0.222)	(0.140)	(0.211)
African American	-0.267**	-0.273*	0.169	-0.342*	-0.0128	-0.0356
	(0.133)	(0.147)	(0.261)	(0.179)	(0.130)	(0.213)
Hispanic/Latino Origin	-0.151	-0.275	-0.255	-0.00775	-0.279**	0.322
	(0.212)	(0.224)	(0.296)	(0.244)	(0.135)	(0.235)
High wage	-0.0269	0.217	-0.106	0.138	-0.0904	-0.0251
	(0.234)	(0.242)	(0.199)	(0.259)	(0.242)	(0.215)
Observations	168	168	168	165	168	165

Notes: This table shows how realized search costs and returns to effort vary by demographic group, by regressing each variable listed in the column on the set of demographic dummies listed on the left. See notes to Table 3. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Sample: recent changers who made a job-to-job transition.

searching for jobs that are more difficult to reach. More interestingly, while women expect higher search costs and lower success rates than men, realized costs and success rates are not significantly different between women and men.

Then, I compare the expected and realized search costs and success rates by group, to further unpack the heterogeneity. Appendix Figure A-11 plots the average expected (for not searchers, blue squares) and realized (for recent changers, red diamonds) costs and success rate. The patterns in realized costs across groups resemble the patterns in expected costs, suggesting some degree of group heterogeneity in actual costs. However, the gaps in realized costs and returns between groups are often smaller and not statistically different from zero, consistent with the evidence in Table 4. For instance, although women expect to spend more weeks searching than men, the realized number of weeks is the same for the two groups. The same holds for the number of hours. Women are more accurate about their applications success rate, while men tend to overestimate it. Women's job search was slightly more stressful than men's, but the gap between the two groups is much smaller than the gap in

expected stress.

All in all, these patterns are suggestive of errors in expectations about costs and returns. However, some caution is warranted given the small size of the sample of recent searchers and the possible selection of these respondents into search.

4.2 Perceptions of outside options

In this section, I summarize workers' beliefs about outside options and their perceptions of the wage distribution for their occupation. I start from the perceived national median wage for respondents' occupation. In Figure 3 I plot the distribution of misperceptions of the national median wage, defined as perceived wage minus actual wage, divided by the actual wage. To benchmark respondents' answers I use information on 2021 median wages at the SOC 6-digit occupation group level from the Bureau of Labor Statistics (BLS) Occupational Employment and Wages Statistics (OEWS).[15] I classify respondents into different occupation groups using their answers to the occupation question and the O*NET mapping from common occupation titles to SOC occupation codes.[16] Appendix Figure A-12 plots the distribution of misperceptions of the local median wage.

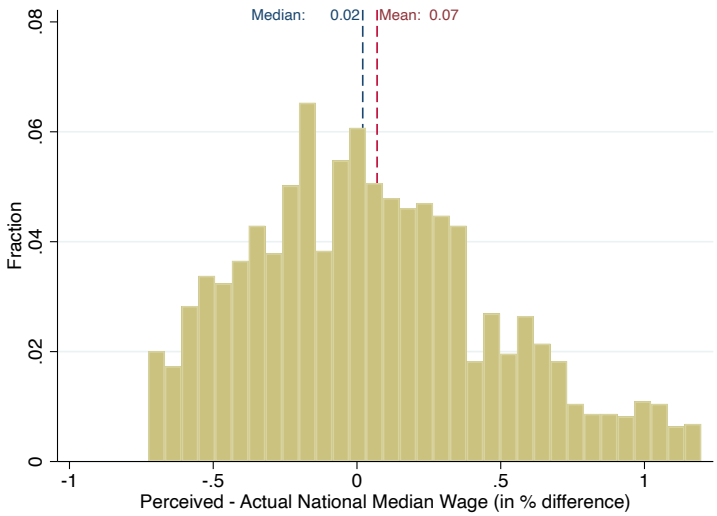
On average, respondents slightly overestimate the median wage in their occupation. The median misperception is 2%, the average is 7%. Perhaps not surprisingly, respondents are slightly more accurate about the local median wage: the median misperception is 1%, the average is 6%. However, these averages mask significant heterogeneity in perceptions, as shown by the dispersion of the distribution in Figure 3. A significant share of respondents underestimate the median wage in their occupation. Respondents whose wage is actually below the median are more likely to underestimate the median wage. In Appendix Figure A-14 I show a binned scatter-plot of respondents' perceived median wage over their current wage. The slope of the fit line is 0.69 and strongly significant, while the slope of the true median wage on respondents' current median wage is 0.28. The evidence that respondents wrongly anchor their perceptions of the wage distribution to their wage is consistent with the patterns documented by Jäger et al. (2021) in Germany.

Adding to this evidence, Figure 4 plots the distribution of respondents' perceived rank in the wage distribution in their occupation, against the distribution of their actual rank. Percentiles are binned into 6 groups (from percentiles 1-10 to percentiles above the 90th) Most respondents starkly overestimate their position in the wage distribution. This is especially true for respondents at the lower rungs of the distribution, where the gap between perceived

[15] https://www.bls.gov/oes/.

[16] See Appendix Section A-2.3 for more details about this question and the classification.

Figure 3: Misperception: National Median Wage



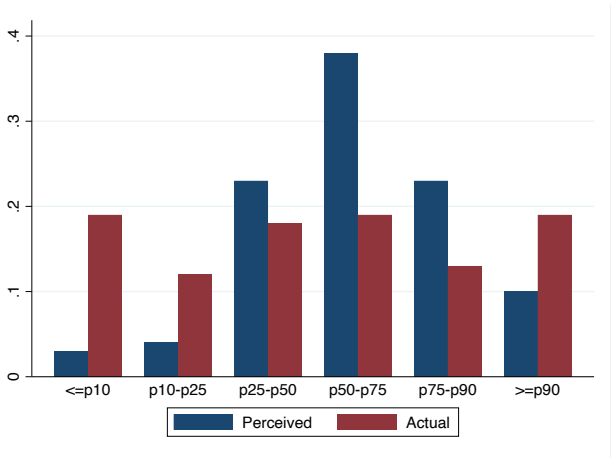
Notes: This figure plots the distribution of respondents' misperception of the national median wage in their occupation, trimmed at the 5th and 95th percentile. Misperceptions are defined as perceived minus actual SOC 6-digit occupation code median wage, divided by actual wage.

and actual rank is wider. Respondents in the top quartile, instead, underestimate their position in the wage distribution. These patterns are consistent with the "center bias" documented by Hvidberg et al. (2020) in a sample of Danish respondents.

Finally, in Figure 5 I plot the distribution of the expected wage gain (or loss) from changing job, elicited as described in Section 3. Most of respondents (42%) believe they would earn the same wage they are currently earning. Those who believe they could obtain a wage gain are fairly optimistic. At the same time, some respondents think they would earn a lower wage at the new job. The median expected wage change is 0 and the average is 11.7%. Appendix Figure A-15 plots the distribution of the expected wage change by group. Respondents who are currently searching for a new job are the most optimistic about their potential wage gain. Their average expected wage gain is 17.25%.

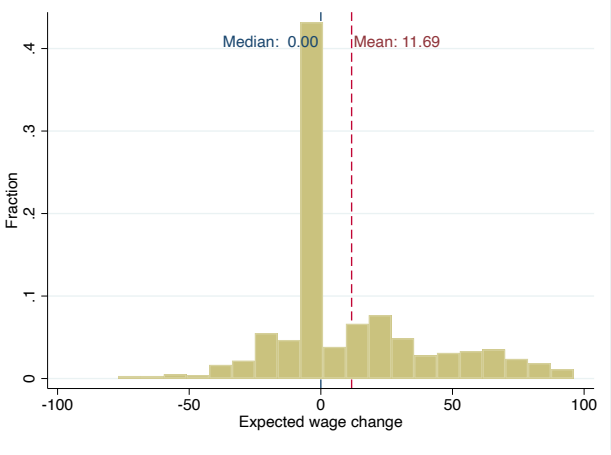
To what extent is respondents' expected wage gain related to their perceptions of the wage distribution in their occupation? In Table 5 I regress respondents' expectations about the wage gain from changing job on their misperception of the national median wage and of their quartile in the wage distribution. Both variables capturing misperceptions of the wage distribution are negatively correlated with the expected wage gain. A one sd higher misperception of the median wage—*i.e.*, a larger *overestimation*—is associated with a re-

Figure 4: Perceived vs. Actual Rank in Own Occupation Wage Distribution



Notes: This figure plots the share of respondents who believe their rank in the wage distribution is in the percentiles group listed on the x axis (in blue) and the share of respondents whose rank is actually in those percentiles group (in red).

Figure 5: Expected Wage Change at New Job



Notes: This figure plots the distribution of respondents' expected wage change from changing job, in percentage points of their current wage. Sample: respondents who have not seen any of the treatments.

Table 5: Perceptions of the Wage Distribution and Expected Wage Change

	Expected Wage Change At New Job (1)
Misperception median wage (in %)	-3.082*
	(1.773)
Perceived - actual quartile	-1.899***
	(0.594)
Observations	2416
Mean	14.23

Notes: This table reports the correlation between respondents' expected wage gain from changing job and their perceptions of the wage distribution for their occupation. The regression includes the demographic controls listed in Table 3, SOC 2-digit occupation and industry fixed effects, and dummies for treatment status, not reported. Misperceptions of the median wage are winsorized at the 5% and 95% percentile. See Appedix A-1 for variables definitions. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

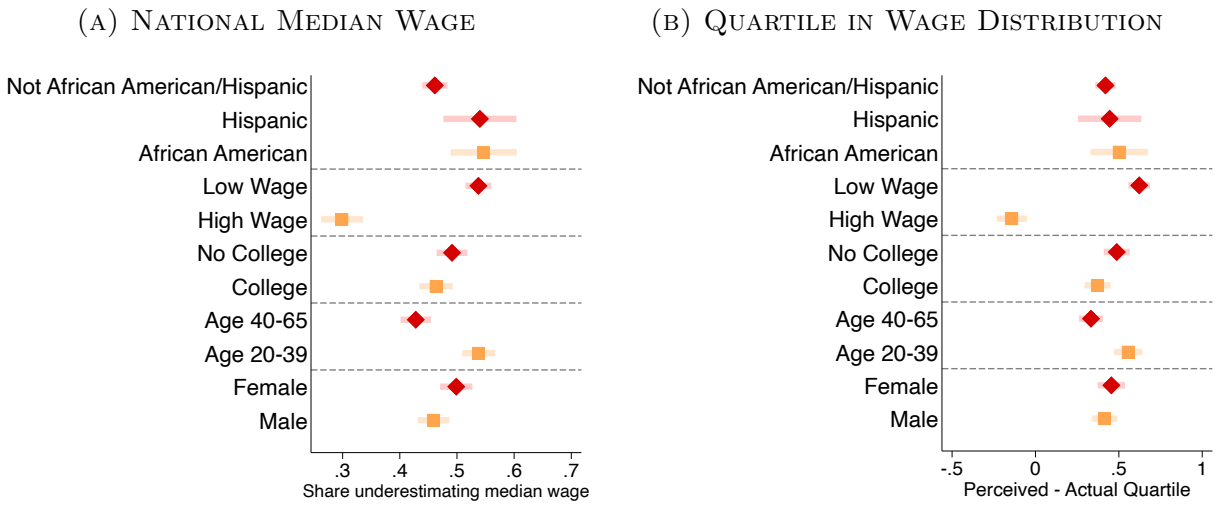
duction in the expected wage gain of 2.6 percentage points. Respondents who overestimate their position in the income distribution by one quartile expect a 1.9 percentage points lower wage gain.

4.2.1 Heterogeneity

Is there heterogeneity by demographic groups in perceptions of the wage distribution and beliefs about outside options? Although the average misperception of the national median wage is positive across all groups, there is significant heterogeneity in the share of respondents who underestimate the median wage by group, plotted in Panel A of Figure 6. Specifically, women are more likely to underestimate the median wage than men. Low-wage, younger, African American and Hispanic respondents are significantly more likely to underestimate the median wage. Low-wage, younger respondents and women also overestimate their position in the wage distribution to a greater extent, as displayed in Panel B of Figure 6.[17]

[17] Appendix Table A-6 performs a similar analysis in regression form.

FIGURE 6: HETEROGENEITY IN PERCEPTIONS OF THE WAGE DISTRIBUTION



Notes: Panel A plots the share of respondents who underestimate the national median wage for their occupation, by demographic group. Panel B plots the average misperception of respondents' quartile in the wage distribution for their occupation, defined as perceived minus actual quartile. Groups are defined by the indicator functions listed on the left. The shaded areas are 95% CI around the mean.

5 Beliefs and Search Behavior

5.1 Search Behavior at the Extensive Margin

In this Section, I show how expected search costs, expected returns to effort, and beliefs about outside options relate to search behavior at the extensive margin. I start by discussing how I connect the model to the survey data and construct measures for the five factors featured in the optimality condition for search effort at the extensive margin. I then test the predictions of the model by regressing expectations about costs and returns and beliefs about outside options on the propensity to search in the future. I further zoom in on search costs and discuss which measures of costs are more predictive of search intentions. Finally, I show how these correlations vary by demographic group.

Connecting the model and the survey data I start from the equation for optimal search effort at the extensive margin (8) and map its components into variables measured in the survey. Table 6 summarizes the key factors in this optimality condition and the corresponding variables constructed using the data from the survey. I proxy search effort, s, with the number of job applications. I measure the expected return to effort—or expected

Table 6: From the Model to the Survey Data

Symbol	Description	Survey equivalent
s	Search effort	Number of job applications
k	Cost shifter	Total number of hours and dollars spent searching/ number of applications
ζ	Fixed marginal cost	Level of stress associated with the job search
$\tilde{\lambda}$	Expected arrival rate of offers	Expected application success rate
$E[\Delta W(w)]$	Expected gain from changing job	Expected ΔW at new job
$\bar{z}$	Reservation wage	Reservation wage

arrival rate of offers per unit of effort—λ, using the expected "success rate" of applications, which I compute as the number of expected offers divided by the number of applications. I map the cost shifter k into the average time and monetary costs per effort (application), that I compute as total hours or total dollars spent on the job search divided by the number of applications. I take the expected level of stress associated with the job search as a measure of the fixed marginal cost ζ. I proxy $E[\Delta W]$ with the expected wage gain from changing job measured in the survey. If $W(w)$ was just equal to w and there was no relocation costs, m, the expected wage change measured in the survey would correspond exactly to $E[\Delta W]$. When relocation costs are non-zero, the expected wage gain measured in the survey is an upper bound for $E[\Delta W]$. Indeed, in the survey, respondents are simply asked about their wage gain, without taking into account the relocation cost. Finally, I measure directly the reservation wage $\bar{z}$ in the survey.[18]

Testing the model To test the predictions of the model I regress the survey equivalents of the five factors in equation (8) on the future propensity to search of respondents who are not currently searching—my measure of search intentions at the extensive margin. Note that $E[\Delta W]$ depends on respondents' beliefs about the wage distribution (median wage and rank in the distribution), both in theory and empirically, as shown in Table 5. Hence, I do not need to include these perceptions separately in the regressions. Table 7 reports the results of this exercise. In these regressions I control for current wage, demographic characteristics and other factors—tenure at current job, average job satisfaction, perceived fit with current job in terms of skills—that are strong predictors of search behavior and are likely to confound the estimates.[19] The regressions also include industry and SOC 2-digit occupation fixed effects. To make the correlations comparable and easier to interpret, I transform each variable in a

[18] See Section 3 for the exact wording of the question.

[19] Appendix Table A-7 reports the correlations of these variables with the propensity to search.

z-score with mean 0 and sd 1.

The expected average cost of effort does not emerge as a significant predictor of search intentions. Indeed, the expected time per application is not significantly correlated with the propensity to search in the future. The expected dollar per application is weakly positively correlated with search intentions, contrary to what the model would predict. Similarly, the level of stress associated with the job search is not significantly related to the propensity to search. Instead, the expected return to effort—applications success rate—and the expected wage gain at the new job emerge as strong predictors of future search intentions. In the specification in column (3), where all the proxies for the five factors are included, a one sd increase in the expected applications success rate is associated with 0.07 of a sd increase in the reported probability to search for a new job in the near future. A one sd increase in the expected wage gain at the new job is associated with 0.32 of a sd increase in the propensity to search. Both correlations are in line with the predictions of the model: workers who expect a higher wage gain from changing job and expect a higher arrival rate of offers are more likely to search. Finally, the reservation wage is negatively correlated with the propensity to search. A one sd increase in the reservation wage decreases the probability to search in the future by 0.13 of a sd. Since in these regressions I control for respondents' current wage, the reservation wage picks up the independent variation in relocation costs. This correlation is also in line with the prediction of the model that workers with higher relocation costs are less likely to search.

Decomposing the contribution of each variable to the explained variation in search intentions, the expected wage gain has the strongest explanatory power: it accounts for 47% of the explained variance. The reservation wage and the expected success rate follow with 4% and 3%.

Summing up, expectations about outside options appear to be the biggest predictor of search intentions at the extensive margin. Expectations on returns to effort matter more than unitary time costs. These results are interesting for two reasons. First, having to send many applications with little return is more likely to impose a psychological strain, an extra cost in addition to to the time needed to materially put together the extra applications—which, in itself, is not correlated with search intentions. Second, expectations on search efficiency are more likely to be influenced by beliefs about job availability and current economic conditions compared to average search costs. Indeed, in the survey, respondents who believe that finding a job is more "difficult"[20] also expect a lower success rate and expect to send more applications. The average time cost per application, instead, is not correlated with the

[20] *"How difficult do you think it is to find jobs at other employers that you would consider suitable for you in terms of pay, benefits, hours and workplace flexibility, work environment, location?"*

Table 7: Expected Search Costs, Beliefs about Outside Options and Search Intentions

	Prob. Looking for New Job (1)	Prob. Looking for New Job (2)	Prob. Looking for New Job (3)
Exp. avg. time per application	0.00709	-0.00363	-0.0184
	(0.0277)	(0.0260)	(0.0263)
Exp. avg. money per application	0.0817***	0.0544*	0.0605**
	(0.0297)	(0.0288)	(0.0296)
Exp. stress	0.0234	0.0601**	0.0404
	(0.0265)	(0.0264)	(0.0264)
Exp. success rate		0.0836***	0.0685***
		(0.0258)	(0.0258)
Exp. wage change in p.p.		0.293***	0.323***
		(0.0247)	(0.0249)
Reservation wage			-0.136***
			(0.0278)
Observations	1503	1494	1444
Adjusted R^2	0.158	0.248	0.260

Notes: This table reports the correlations between respondents' intentions to search for a new job, their beliefs about search costs, returns to effort, and outside options, and their reservation wage. All variables are standardized so they have mean equal to zero and sd equal to 1, and coefficients can be interpreted as partial correlations. Continuous variables are winsorized at the 5th and 95th percentile. Each column is a separate regression, which also includes controls for current job satisfaction, skill fit with current job, demographic characteristics, SOC 2-digit occupation and industry fixed effects, dummies for treatment status. See Appendix A-1 for variables definitions. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Sample: not searchers.

perceived difficulty of finding a new job.

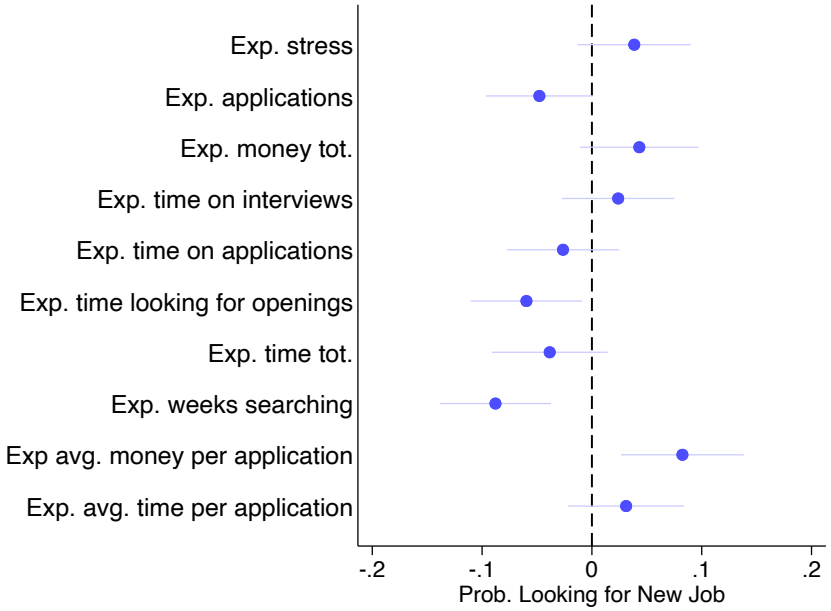
Search costs and information frictions Given that average search costs are not a significant predictor of search intentions, I look at other measures of expected costs that I elicit in the survey, to check if other cost margins are more relevant. In Figure 7 I plot the correlations of a broader set of measures of expected search costs with respondents' probability to search for a new job in the future. Each correlation is estimated in a separate regression and variables are standardized as in Table 7. The two measures of time costs that are negatively and significantly correlated with the propensity to search are the time

respondents expect to spend looking for job openings, and the total expected duration of the job search in weeks. The expected number of applications is also negatively correlated with search intentions.

The fact that the time spent looking for job openings is the only measure of time costs significantly negatively correlated with the propensity to search suggests the relevance of information frictions. Further suggestive evidence is provided by another question in the survey. Before the section of the survey on search costs, I ask all respondents, regardless of search status, whether in the last four weeks they have seen any ads for jobs at other employers they would apply to (if they were looking for a new job). The majority of respondents (58%) who are not searching for a new job answered that they had not been paying attention to job ads. These respondents also expect to spend more time looking for job openings, expect a lower gain from changing jobs, and are significantly less likely to look for a job in the future. Of course, attention is likely to be endogenous to beliefs about outside options and search intentions. Hence, these correlations should be taken as purely suggestive. However, they show that the majority of employed workers are not "always searching" and sampling offers, contrary to what a model of on-the-job search with exogenous search effort would predict.

Heterogeneity by group Are the correlations reported in Appendix Table 7 different for different demographic groups? I re-estimate the specification in column (3) of Table 7 separately on 3 sub-samples: women, college graduates, and African American respondents. As documented in Section 4, women are more pessimistic about search costs and especially returns to search effort. College graduates also expect higher costs and lower returns to effort. African American are optimistic across the board. Despite the different expectations, the correlations between the five factors and job search intentions are quite similar across the three groups. Women's propensity to search is less sensitive to the expected wage gain than men's—one sd increase in the expected wage gain is associated with a 0.26 sd increase in the propensity to search for women *vs.* 0.36 of a sd for men. For African American the correlations are weaker, but it is probably due to lack of statistical power, given the small sub-sample size.

FIGURE 7: JOB SEARCH INTENTIONS AND EXPECTED SEARCH COSTS



Notes: This figure plots the correlations between intentions to search for a new job and beliefs about various measures of search costs, listed on the left. Each correlation is estimated in a separate regression witch also includes controls for current job satisfaction, skill fit with current job, demographic characteristics, SOC 2-digit occupation and industry fixed effects, dummies for treatment status. See Appendix A-1 for variables definitions. The lines are 95% CI constructed from robust standard errors. Sample: not searchers. These correlations are also reported in Appendix Table A-9.

6 Information Experiments

In this Section I describe the two information treatments embedded in the survey, the Median Wage Treatment, and the Search Costs Treatment, and I report their effects on beliefs about outside options, expected search costs, and search intentions.

Median wage treatment Respondents randomized in the Median Wage Treatment group are provided with accurate information about the median wage in their occupation at the national level and in the area where they live. Panel A of Figure 8 shows the layout I use to present this information. This treatment is inspired by the treatment in Jäger et al. (2021), but, differently from them, I provide information on both the national and local median wage, given that in the US there is a large geographical dispersion in wages, especially for some occupations, and in an effort to give information respondents can relate to more closely.

I use information on 2021 median wages from the BLS Occupational Employment and Wages Statistics (OEWS).[21] Occupations are defined at the SOC 6-digit level.[22] The area where respondents live corresponds to the metropolitan or micropolitan that includes respondents' zipcode.

Search costs treatment Respondents randomized in the Search Costs Treatment group receive information on the number of weeks it took recent changers in the same occupation to find a new job, and on the number of hours and the amount of dollars (if any) they spent on their search. Panel B of Figure 8 shows how this information was presented. Since it is not possible to recover these statistics on search costs from external sources, I construct them based on the responses that I collect from recent job changers in my sample. I group respondents into broader occupation groups (condensed SOC 2-digit occupation groups, as suggested by the BLS). I compute the averages for the weeks, hours and money using a Bayesian Shrinkage estimator. I shrink the group averages to the sample averages across groups, to minimize the bias induced by the small sample size of certain groups.

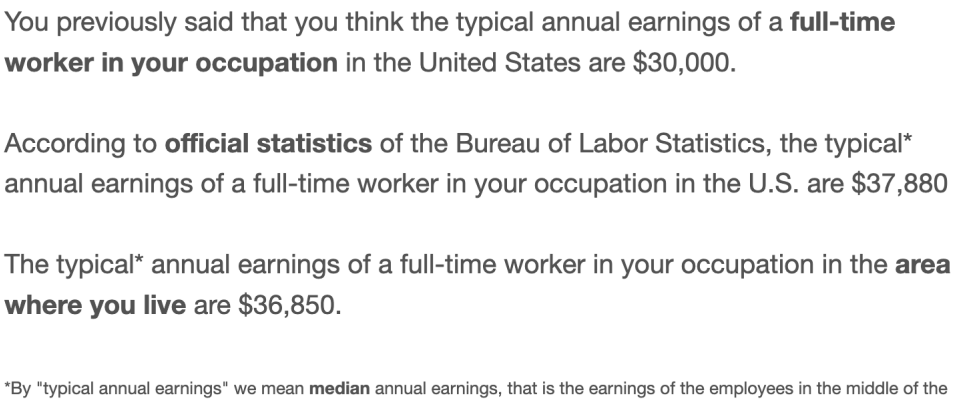
First stage treatment effects Table 8 reports the first stage effect of the treatments on three variables measuring: *i)* the misperception of the median wage for respondents' occupation in the location where they live, defined as perceived minus actual wage, in percentage of the actual wage; *ii)* how "time consuming" respondents think their job search is going to be, on a Likert scale from 1 to 7, where 1 is "not time consuming at all" and 7 is "extremely time consuming;" *iii)* the wage gain respondents expect to obtain by changing job.[23] The effect of the treatments is estimated in a simple Intention to Treat (ITT) framework, controlling for demographic characteristics, occupation and industry fixed effects. Given that respondents have different baseline (pre-treatment) perceptions of the median wage, I separate between respondents who initially underestimate the median wages, and those who overestimate it. The first group of respondents should revise their perception of the median wage upwards following the treatment, while the second should revise it downwards. Similarly, for the Search Costs Treatment I separate between respondents whose expected costs—elicited before the treatment—are above the statistics presented, and respondents whose expected costs are below.

Both the Median Wage and the Search Cost Treatments have a significant effect on the variables they are designed to target. Among respondents who underestimate the national

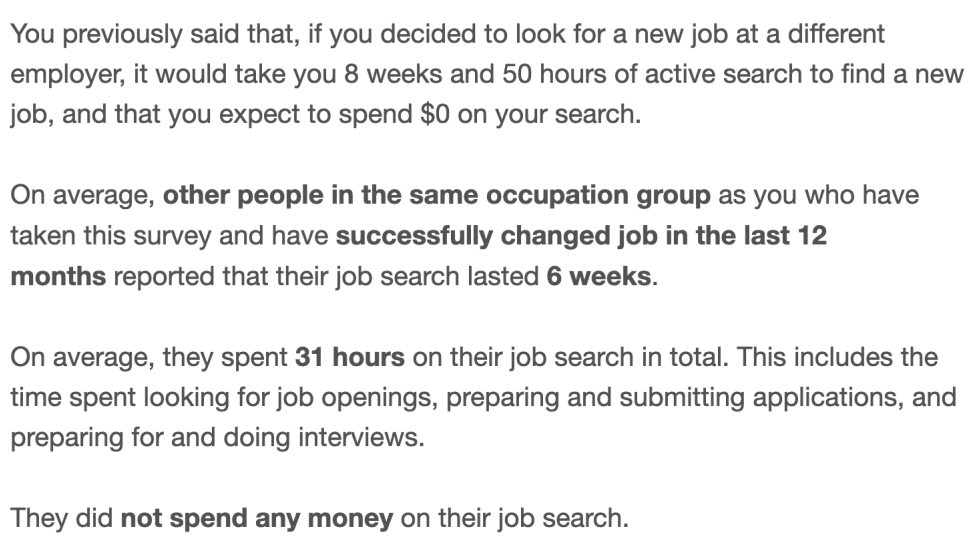
[21] https://www.bls.gov/oes/.
[22] See Appendix Section A-2.3 for details on how I classify respondents in occupation groups.
[23] Appedix Table A-10 reports the first stage effects of the treatments estimated only on not searchers.

Figure 8: Information Treatments

(a) Median Wage Treatment



(b) Search Costs Treatment

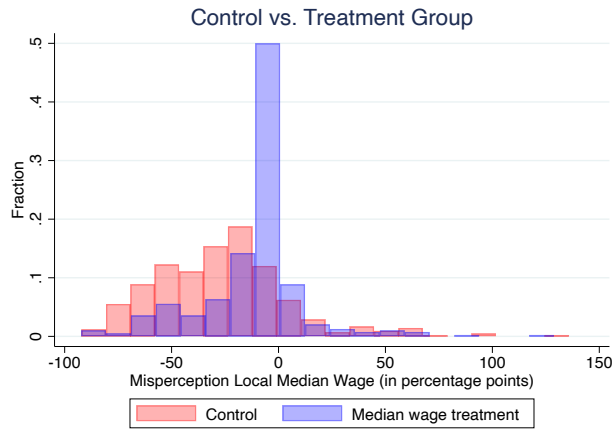


Notes: This figure shows example of screenshots of the Median Wage Treatment (panel A) and Search Costs Treatment (panel B).

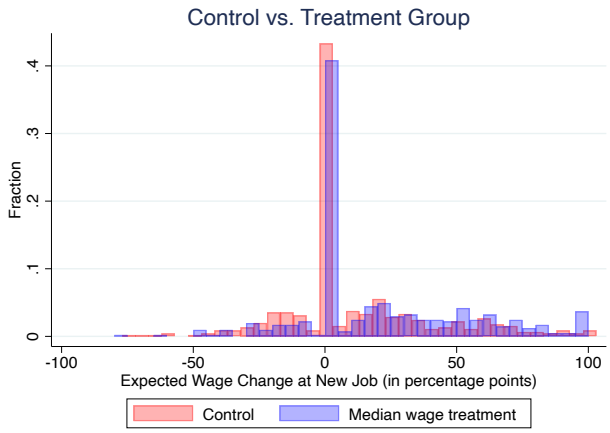
median wage (pre-treatment), the Median Wage Treatment reduces the negative misperception of the local median wage (elicited post-treatment) by about 17 percentage points. This corresponds to about half of the average misperception of "underestimators." The effect is shown graphically in Panel A of Figure 9, where I plot the distributions of the misperceptions for the treatment (in blue) and the control group (in red), restricting the sample to respondents who underestimate the national median wage. The Median Wage Treatment is

Figure 9: Median Wage Treatment: Effect on Perceptions of Outside Options

(a) Median Wage



(b) Expected Wage Gain



Notes: Panel A plots the distribution of misperceptions of the local median wage of respondents in the Median Wage Treatment group (light blue), and control group (light red). Panel B plots the distribution of the expected wage gain from changing job of respondents in the Median Wage Treatment vs control group. Sample: respondents who underestimate the national median wage.

also able to increase the expected wage gain from changing job for underestimators (Column 3, Table 8). In this group, treated respondents expect a 9 percentage point—0.3 sd—higher wage gain than respondents in the control group. A graphical equivalent of this effect is shown in Panel B of Figure 9.

The Median Wage Treatment reduces the misperceptions of respondents who overestimate the national median wage. These respondents revise their perceptions of the local median wage downwards. However, the treatment does not move expectations of the wage gain for this group.

The Search Costs Treatment significantly reduces the perception of how "time consuming" the job search is going to be for respondents whose expected costs are above the information provided. The effect of the treatment on this variable is -0.3, about 6% of the control mean for this group and about 0.22 sd. Interestingly the treatment does not have any effect on respondents who expect costs below the information provided. Overall, the treatment does not significantly shift the expected wage gain from changing job of either group of respondent, and it does not affect perceptions of the local median wage, which is not supposed to move. Similarly, the Median Wage Treatment does not change the perception of how time consuming the job search is going to be.

Table 8: Treatments: First Stage Effect on Expected Costs and Beliefs about Outside Options

	Local Median Wage Perc. Misp.	Job Search Time Consuming	Expected Wage Change New Job (in p.p.)
Median wage treatment x Underestimate wage	16.56***	0.0394	8.753***
	(2.631)	(0.0983)	(2.016)
Median wage treatment x Overestimate wage	-27.05***	0.106	0.232
	(4.268)	(0.0909)	(1.919)
Search costs T x Underestimate costs	-0.820	-0.0846	3.097*
	(4.007)	(0.0902)	(1.827)
Search costs T x Overestimate costs	6.533	-0.295**	2.342
	(5.333)	(0.121)	(2.580)
Underestimate wage	-54.60***	0.0613	-6.594***
	(3.037)	(0.0814)	(1.668)
Overestimate costs	-2.533	0.508***	-3.335**
	(2.765)	(0.0753)	(1.610)
Observations	2282	2206	2338
Control mean	11.61	4.77	12.01

Notes: This table reports the first stage effect of the two treatments. All regressions include demographic controls, SOC 2-digit occupation and industry fixed effects. See Appedix A-1 for variables definition. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Second stage treatment effects Table 9 reports the second stage effect of the treatments on my measure of the propensity to search (probability to search in the future) and on the number of hours current searchers plan to spend searching in the week following the survey. The analysis follows the same ITT framework introduced in Table 8. Neither the Median Wage Treatment nor the Search Cost Treatment have a statistically significant effect on search intentions, although the estimated coefficients have signs in line with the directions I would expect.

Does the null effect in the overall sample mask heterogeneity in treatment effects for different demographic groups? To answer this question I re-estimate the second stage treatment effect separating between different groups, and I focus specifically on women *vs.* men, given that women expect higher search costs and tend to underestimate the median wage. Table 10 reports the results of this exercise. I look at the two treatments separately and I restrict the sample to respondents who underestimate the national median wage (Panel A), and respondents who expect costs higher than the statistics provided in the treatment (Panel B). The Median Wage Treatment does not have a significant effect on the search behavior of either men or women. The Search Costs Treatment, instead, significantly increases women's propensity to search. Treated women are 9 percentage points more likely to search for a

Table 9: Treatments: Second Stage Effect on Search Behavior

	Prob. Looking for New Job (1)	Planned search hrs (Current searchers only) (2)
Median wage treatment x Underestimate wage	1.385	0.0974
	(2.114)	(1.407)
Median wage treatment x Overestimate wage	1.635	1.232
	(1.921)	(1.211)
Search costs T x Underestimate costs	2.123	-1.902
	(1.814)	(1.344)
Search costs T x Overestimate costs	4.089	0.375
	(3.035)	(1.597)
Underestimate wage	-0.969	1.538
	(1.733)	(0.989)
Overestimate costs	-4.533***	1.506
	(1.699)	(1.051)
Observations	1731	613
Control mean	33.20	6.87

Notes: This table reports the effect of the two treatments on intentions to search for a new job and on planned search hours. All regressions include demographic controls, SOC 2-digit occupation and industry fixed effects. The sample in column (2) only includes current searchers. See Appendix A-1 for variables definitions. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

new job in the future, corresponding to 30% of the average propensity to search in the control group. The treatment does not significantly change men's search attitudes. This result suggest that positive information on search costs is better suited to move search intentions of groups that are more worried about costs, as opposed to simple information on the wage distribution.

Finally, in Appendix Table A-12, I estimate the effect of the treatments on another key variable in the job search problem: the reservation wage. The Median Wage Treatment raises the reservation wage of respondents who underestimate the median wage. Recall that the reservation wage is negatively correlated with search intentions, as show in Section 5.1. Hence, the effect of the treatment on the reservation wage may partially offset the positive effect on the expected wage gain—which is positively correlated with the propensity to search. This result may contribute to explaining the lack of effect of the median wage treatment on search intentions, despite the positive effect on the expected wage gain.

Table 10: Treatment Effects by Gender

	Prob. Looking for New Job	Planned search hrs (Current searchers only)
Panel A: Median Wage Treatment – Only respondents who underestimate wage		
Median wage T x Female	0.423	0.0393
	(3.074)	(1.616)
Median wage T x Male	1.803	2.258
	(3.338)	(2.905)
Observations	615	235
Control mean	34.72	8.02
Panel B: Search Costs Treatment – Only respondents who overestimate costs		
Search costs T x Female	9.124**	-2.146
	(4.418)	(2.178)
Search costs T x Male	-0.258	0.481
	(4.934)	(2.936)
Observations	290	195
Control mean	29.51	8.55

Notes: This table reports the effect of the two treatments on intentions to search for a new job and planned search hours. The sample in Panel A only includes respondents who underestimate the national median wage. The sample in panel B only includes respondents who expect costs higher than those they see in the treatment. All regressions include demographic controls, and SOC 2-digit occupation and industry fixed effects. The sample in column (2) only includes current searchers. See Appendix A-1 for variables definitions. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Follow-up survey To test for persistence of the treatment effects, I invite participants to take a shorter follow-up survey two weeks after they completed the main survey.[24] This survey includes the same questions I use in the main survey to measure the first stage and second stage outcomes. I re-estimate the effect of the treatments in the main survey on the first-stage variables collected in the follow-up, and I report the results in Appendix Table A-13. The Median Wage Treatment has a persistent effect on the perceived local median wage only on respondents who overestimate the national median wage in the main survey. The effect on the expected wage change is not persistent. The Search Costs Treatment, instead, has a persistent effect on how time consuming the job search is perceived to be for respondents whose expected costs were above the information provided in the main survey, consistent with the effect in Table 8. Overall, the Search Costs Treatment has a more persistent first stage effect, as the treatment effects estimated in the follow-up are closer to

[24]The link to the follow-up survey is in Appendix A-2.

those estimated in the main survey, compared to the effects of the Median Wage Treatment.

7 Conclusions

In this paper, I collect novel data on employed workers' expectations of search costs and returns to search effort, and on their beliefs about the opportunities they have outside of their current job. I find significant heterogeneity in expectations across demographic groups. Women, college graduates and higher-wage respondents expect higher costs, whereas African American, younger, and Hispanic respondents expect lower costs. Women perceive looking for a new job to be more stressful and expect a significantly lower success rate of their job applications. Comparing these expectations to the search experience of respondents who recently changed job, I find patterns consistent with errors in the expectations of certain groups.

Respondents are imperfectly informed about the median wage in their occupation and overestimate their position in the wage distribution. These errors are related to workers beliefs' about their outside options—respondents who underestimate the median wage or overestimate their position in the wage distribution expect a lower gain from changing job.

Beliefs about the wage gain from changing jobs and returns to job search effort are highly predictive of the propensity to search for a new job. Among the measures of costs, those related to information frictions and those that are more directly related to how much effort it takes to find a job—*e.g.,* number of weeks, number of applications—appear to be more relevant for job search intentions than the time and monetary costs per application. Using two information experiments embedded in the survey, I show that accurate information about the median wage does not shift search intentions, while positive information on the recent search experience of similar workers is more effective on women, who are more worried about search costs. These results further support the relevance of perceived search costs for the job search decisions of certain groups of workers.

In the future, this work could be extended in multiple directions. First, the definition of outside options that I use in this paper is conservative—limited to other jobs within the respondent's current occupation. It would be interesting to investigate workers' beliefs about the opportunities they may have in other occupations and other sectors, and, especially, about the costs that such transitions would entail. For instance, workers may have distorted views of the skill requirements in other occupations and of the costs of re-training. This is particularly relevant for workers in lower-paying occupations, that could use such transition to boost their career, or for workers in occupations affected by automation and

technological change, that are a higher risk of being displaced. Second, in this survey I mainly focus on directly measurable search costs—time and money. In the context of job search, psychological costs are likely to play a relevant role.[25] The survey infrastructure of this paper can be adapted to incorporate questions and methods from psychology and behavioral economics, and study the impact of psychological costs and cognitive constraints on job mobility decisions.

[25] As shown by McKee-Ryan et al. (2005), Krueger et al. (2011) and Caliendo et al. (2015) for unemployed job seekers, and discussed by Cheremukhin and Restrepo-Echavarria (2020) in the context of on-the-job search

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Appendix

A-1 Variables Definitions

Groups:
Not searchers: respondents who are not currently looking for a new job and have been working at their current job for at least 12 months before taking the survey.
Recent changers: respondents who have started their current job in the 12 months before taking the survey
Current searchers: respondents who are currently looking for a new job and have been working at their current job for at least 12 months before taking the survey.

Core Respondents' Characteristics:
Each variable is defined as a dummy equal to one if:
Male: respondent is male.
Female: respondent is female.
Age 20-39: respondent's age is between 20 and 39.
Age 40-64: respondent's age is between 40 and 64.
College: respondent has a college degree.
No College: respondent does not have a college degree.
Married/Living with partner: respondent lives with spouse or partner.
Has children <6yo: One or more children younger than 6 years old live in respondents' household.
African American: respondent is African American.
Hispanic/Latino Origin: respondent is Hispanic or of Latino Origin.
High wage: respondent's annual wage is in the top quartile of wages in the sample.
Low wage: respondent's annual wage is not in the top quartile of wages in the sample.

Search costs:
Realized costs
Tot. time: total hours spent on the job search, constructed by summing the number of hours spent looking for job openings, submitting applications, and preparing for and doing interviews.
Tot. Money: total dollars spent on the job search, corresponding to the total in Figure A-1.
Time looking for openings: hours spent looking for job openings.
Time on applications: hours spent preparing and submitting applications
Time on interviews: hours spent preparing for and doing interviews.
Weeks: total duration of the job search in weeks.
Stress: level of stress associated with the job search, on a scale from 1 to 7, where 1 is "not

stressful at all" and 8 is "extremely stressful."
Average time per application: total hours spent on the job search divided by total number of applications submitted.
Average money per application: total dollars spent on the job search divided by total number of applications submitted.
Expected costs
Defined in the same way as realized search costs but in expectations.

Search effort and return to effort:
Realized
Applications: number of jobs respondent applied to.
Success rate: number of job offers received divided by number of jobs respondent applied to.
Expected
Defined in the same way as realized but in expectations.

Perceptions of wage distribution and outside options:
Misperception about national median wage: perceived national median wage minus actual median wage for respondent's SOC 6-digit occupation, divided by actual
Misperception about local median wage: perceived local median wage minus actual median wage for respondent's SOC 6-digit occupation in respondent's metropolitan or micropolitan area, divided by actual.
Perceived rank: perceived rank in wage distribution for respondent's occupation.
Perceived - actual quartile: respondents' perceived quartile in wage distribution for their occupation minus their actual quartile.
Expected wage change in p.p.: expected annual wage gain or loss at a new job found in 3 months (see Figure A-3), in percentage points.

Labor market behaviors
Prob. looking new job: probability to look for a new job in the next 12 months.
Reservation wage: lowest annual wage respondents would accept for a new job, in percentage points of current wage.
Planned search hours: number of hours respondents plan on spending looking for a new job in the 7 days after taking the survey.

Treatments:
Underestimate wage: dummy equal to 1 if respondent underestimate the median wage in her occupation.
Overestimate wage: dummy equal to 1 if respondent overestimate the median wage in her occupation.
Overestimate costs: dummy equal to 1 if respondents' expected search costs are above real-

ized costs for recent-changers in the same broad occupation group. More precisely, it is equal to 1 if hours expected > hours realized, and expected weeks ≥ realized weeks, or expected ≥ hours realized, and expected weeks > realized weeks. In both cases expected dollars ≥ realized dollars.

A-2 Additional Information on the Surveys

A-2.1 Links to Surveys

- Main survey: https://harvard.az1.qualtrics.com/jfe/form/SV_9NPBDiEwnmQziw6
- Follow-up survey: https://harvard.az1.qualtrics.com/jfe/form/SV_ekuzgZ1gmroGCyi

A-2.2 Selected Survey Questions

The full text of the survey is available at https://scholar.harvard.edu/files/amiano/files/main_survey.pdf. The questions in the key blocks of the survey are below. Answer options are in *italic*, separated by a semicolon.

Search Costs

Recent changers

Now we would like to ask you some questions about how you looked for and found your current job, and about the time and money you put in the search process. If you cannot recall precisely, please give us your best estimate.

1. Was there any issue that made looking for your current job difficult for you? What are the first ones that come to your mind?
2. Did any of the following made your search difficult? Select all that apply. *Did not have enough free time to look for a job; Did not have enough money to look for a job; Had to take care of family responsibilities; It was difficult to get a recommendation letter from my employer; It was difficult to get a referral; Had to miss time at work and could not afford it; I was worried that my previous employer would find out about it; I did not feel qualified enough; I did not know where to look for jobs; None of the above*
3. How many weeks did your job search last? Count from the moment you actively started looking for job openings, to the moment you accepted the new job offer.
4. Which of the following resources did you use to learn about job openings? Select all that apply. *Job search websites; Potential employers websites; Head-hunters; Career-counselors; Career services or employment agencies; Networking with potential employers; Relatives or friends; Former co-workers; Other (please specify)*
5. How many hours in total did you spend looking for job openings (including networking, if applicable)? Please do not include the time you spent on applications and interviews.

6. How many job applications did you submit? If you applied to multiple positions at the same employer count them separately.

7. How many hours did you spend preparing and sending out applications, including the time you spent drafting/updating your CV, writing cover letters, and submitting applications (online, by mail or in person, as applicable)?

8. How many first-round job interviews did you do?

9. How many hours did you spend preparing for and doing interviews? Please also include the time you spent commuting to the interview location if it was in person.

10. How many of the first-round job interviews that you did were in person?

11. How many job offers did you receive?

12. Did you spend any money on your job search? Some examples of job-search related expenditures are subscription fees to job board websites, fees for employment agencies/head-hunters, mailing fees for applications, transportation to and from the location of the interviews, material or classes to prepare for interviews, new clothes. *Yes; No; Unsure*

13. Pleas tell us how much you spent on each of the following items. Write 0 if you did not spend anything. If you spent money on other items that you consider related to your job search but do not find them listed below, please report the amount in the field for "Other expenses" and tell us in a few words what these items were by writing in the box below. [See Figure A-1]

14. On a scale from 1 to 7, how stressful was the job search process? Where 1 is not stressful at all and 7 is extremely stressful. *1; 2; 3; 4; 5; 6; 7*

Not searchers

Imagine you decided to look for a new job at a new employer now. We would like you to think about how you would approach this job search process and tell us about it.

1. Imagine you wanted to look for a new job at a new employer now, while still working at your current employer. Are there any issues that would make looking for a new job difficult for you now? What are the first ones that come to your mind?

2. Which of the following may make it difficult for you to look for a new job now, while still working at your current employer? Select all that apply. *Do not have enough free time to look for a job; Do not have enough money to look for a job; Have to take care of family responsibilities; Difficult to get a recommendation letter from my employer; Difficult to get a referral; Would have to miss time at work and cannot afford it; I am worried that my current employer would find out about it; I do not feel qualified enough; I do not know where to look for jobs; None of the above*

3. If you were to look for a new job now, would you consider changing occupation and/or industry? *No; Yes, different occupation but same industry; Yes, different industry but same occupation; Yes, different occupation and different industry*

4. How many weeks do you think it would take you to find a new job? Count from the moment when you would start actively looking for job openings, until the moment you accept the new job offer.

5. Which of the following resources would you use to learn about job openings? Select all that apply. *Job search websites (for instance, Indeed, LinkedIn, etc.); Potential employers websites; Head-hunters; Career-counselors; Career services or employment agencies; Networking with potential employers; Relatives or friends; Former co-workers; Other (please specify)*

   Now consider the job search process split into three phases: looking for job openings; preparing and sending out job applications; preparing for and doing job interviews. If you were to look for a new job now, how much time do you think you would have to spend on each of these phases? Please answer the following questions giving us your best estimates.

6. How many hours do you think you would spend looking for job openings (including networking, if applicable)? Please do not include the time you would spend on applications and interviews.

7. How many job applications would you submit?

8. How many hours would you spend preparing and sending out applications, including drafting/updating your CV, writing cover letters, and submitting applications (online, by mail or in person).

9. How many first-round job interviews do you expect to do?

10. How many hours do you think you would spend preparing for and doing interviews? Please also include the time you think you would spend commuting to and from the interview location if in person.

11. Do you think you would spend any money on your job search? Some examples of job-search related expenditures are subscription fees to job board websites, fees for employment agencies/head-hunters, mailing fees for applications, transportation to and from the location of the interviews, material or classes to prepare for interviews, new clothes. *Yes; No; Unsure*

12. See Figure A-1.

13. On a scale from 1 to 7, how stressful do you expect the job search process to be overall? Where 1 is not stressful at all and 7 is extremely stressful. *1; 2; 3; 4; 5; 6; 7*

14. If you were to start looking for a new job at a different employer now, what do you think is the percent chance that within 3 MONTHS you will receive at least one job offer? You can move the slider to select a number from 0 to 100, where 0 means that there is no chance you will receive a job offer and 100 means that it is absolutely certain you will receive at least one offer. [Slider from 0 to 100]

15. If you were to look for a new job at a different employer now, how many job offers do you expect to receive?

Current searchers

Now we would like to ask you some questions about the way you are currently looking for a new job. Think about what you have done so far to find a new job and what you expect to do in the future, until your job search is over.

1. Are there any issues that make looking for a new job difficult for you? What are the first ones that come to your mind?

2. Are any of the following an obstacle to your job search? Select all that apply. *Do not have enough free time to look for a job; Do not have enough money to look for a job; Have to take care of family responsibilities; Difficult to get a recommendation letter from my employer; Difficult to get a referral; Would have to miss time at work and cannot afford it; I am worried my current employer would find out about it; I do not feel qualified enough; I do not know where to search for jobs; None of the above*

3. How long have you been searching for a new job? Please tell us how many weeks have passed since you started actively looking for a new job.

4. How many more weeks do you expect your job search to last? Count from today until when you think you will receive a job offer that you would accept.

5. Which of the following resources have you used, or do you plan to use to look for job openings? Select all that apply. *Job search websites (for instance, Indeed, linkedIn etc.); Potential employers websites; Head-hunters; Career-counselors; Career services or employment agencies; Networking with potential employers; Relatives or friends; Former co-workers; Other (please specify)*

6. Since you started your job search, how many hours have you spent looking for job openings (including networking, if applicable)? Please do not include the time you have spent on applications and interviews.

7. How many more hours do you expect to spend looking for job openings, until your search is over?

8. How many job applications have you submitted since you started your job search? If you applied to multiple positions at the same employer count them separately.

9. Since you started your job search, how many hours have you spent preparing and sending out applications, including drafting/updating your CV, writing cover letters, and submitting applications (online, by mail or in person, as applicable).

10. How many more job applications do you expect to submit?

11. How many more hours do you expect to spend preparing and submitting applications?

12. How many first-round job interviews have you done since you started your job search?

13. Since you started your job search, how many hours have you spent preparing for and doing interviews? Please also include the time you have spent commuting to and from the interview location if in person.

14. How many of the first-round job interviews that you have done so far have been in person?

15. How many more first-round job interviews do you expect to do?

16. How many more hours do you expect to spend preparing for and doing interviews?

17. Have you spent any money on your job search so far? Some examples of job-search related expenditures are subscription fees to job board websites, fees for employment agencies/head-hunters, mailing fees for applications, transportation to and from the location of the interviews, material or classes to prepare for interviews, new clothes. Yes; No; Unsure

18. Pleas tell us how much you have spent on each of the following items since you started your job search. Write 0 if you have not spent anything. If you have spent money on other items that you consider related to your job search but do not find them listed below, please report the amount in the field for "Other expenses" and tell us in a few words what these items were by writing in the box below. [See Figure A-1].

19. Do you expect to spend any money on your job search from today until the end of your search? *Yes; No; Unsure*

20. See Figure A-1

21. On a scale from 1 to 7, how stressful do you expect the job search process to be overall? Where 1 is not stressful at all and 7 is extremely stressful. *1; 2; 3; 4; 5; 6; 7*

22. How many job offers have you received since you started looking for a new job? Write 0 if you have not received any job offer yet.

23. *[If received no offers]* What do you think is the percent chance that in the NEXT 3 MONTHS you will receive at least one job offer? *[If received at least one offer]* What do you think is the percent chance that in the NEXT 3 MONTHS you will receive at least one additional job offer? You can move the slider to select a number from 0 to 100, where 0 means that there is no chance you will receive a job offer and 100 means that it is absolutely certain you will receive at least one offer. [Slider from 0 to 100]

24. How many more job offers do you expect to receive?

Perceptions of the wage distribution and outside options

1. Think about the jobs at other employers that you would consider suitable for you in terms of location, benefits, pay, work environment, hours and workplace flexibility. How many of these jobs do you think are currently open and accepting applications?

2. Now consider these five job characteristics separately: pay, benefits, hours and workplace flexibility, work environment, location. How difficult do you think it is to find jobs at other employers that you would consider suitable for you in terms of... pay, benefits, hours and workplace flexibility, work environment, location. *Extremely difficult; moderately difficult; slightly difficult; neither easy nor difficult; slightly easy; moderately easy; extremely easy*

3. Now think about the job search behavior of other people that work at your employer or similar employers and have jobs like yours. Out of 100 of these people, how many do you think are currently searching for a new job?

4. Think about all the employees in the United States that work in the same occupation as you. Think about how their annual pay compares to your annual pay at your current job. What percentage of these employees receive a... [Note that your answers must sum to 100] Lower annual pay than you:____ Same annual pay as you:____ Higher annual pay than you:____

5. See Figure A-2

6. How confident are you about this estimate? *Very unsure; Unsure; Neither unsure nor sure; Sure; Very sure*

7. Would you want a job in addition to your current job if one was offered to you? *Yes; Maybe, depending on the job and circumstances; No*

8. Would you want a new job instead of your current job, if one was offered to you? *Yes; Maybe, depending on the job and circumstances; No*

Treatments

1. *[Median Wage Treatment]* We will now show you some statistics on the wages in the United States and in the area where you live. *[Search Costs Treatment]* Now we will tell you about the experience of other people who have recently changed jobs.

2. See Figure 8

Post treatment questions and labor market behavior

1. Think about all the employees in the area where you live that work in the same occupation as you and are employed full-time. What do you think are their typical annual earnings, before taxes and other deductions, including commissions or tips, but excluding overtime and premium pay? Remember that by typical annual earnings we mean median annual earnings, that is the earnings of the employees in the middle of the wage distribution, such that half (50%) of all employees in your occupation in the area where you live earn less or the same in a year and the other half earn more.

2. Imagine again that you decided to look for a new job at a new employer now, while still working at your current employer. How time consuming do you think your job search would be overall, including the time you would spend looking for job openings, submitting applications, and preparing for and doing interviews? Please give us your answer on a scale from 1 to 7 where 1 is "not time consuming at all" and 7 is "extremely time consuming". *1; 2; 3; 4; 5; 6; 7*

3. See Figure A-3

4. *[If not currently searching for a new job]* Over the next 12 MONTHS, what is the percent chance that you will look for a new job at a different employer? Move the slider to select a number from 0 to 100, where 0 means that there is no chance you will look for a new job

and 100 means that it is absolutely certain that you will look for a new job. [Slider from 0 to 100]

5. *[If currently searching for a new job]* How many hours do you plan to spend on job search activities in the NEXT 7 DAYS?

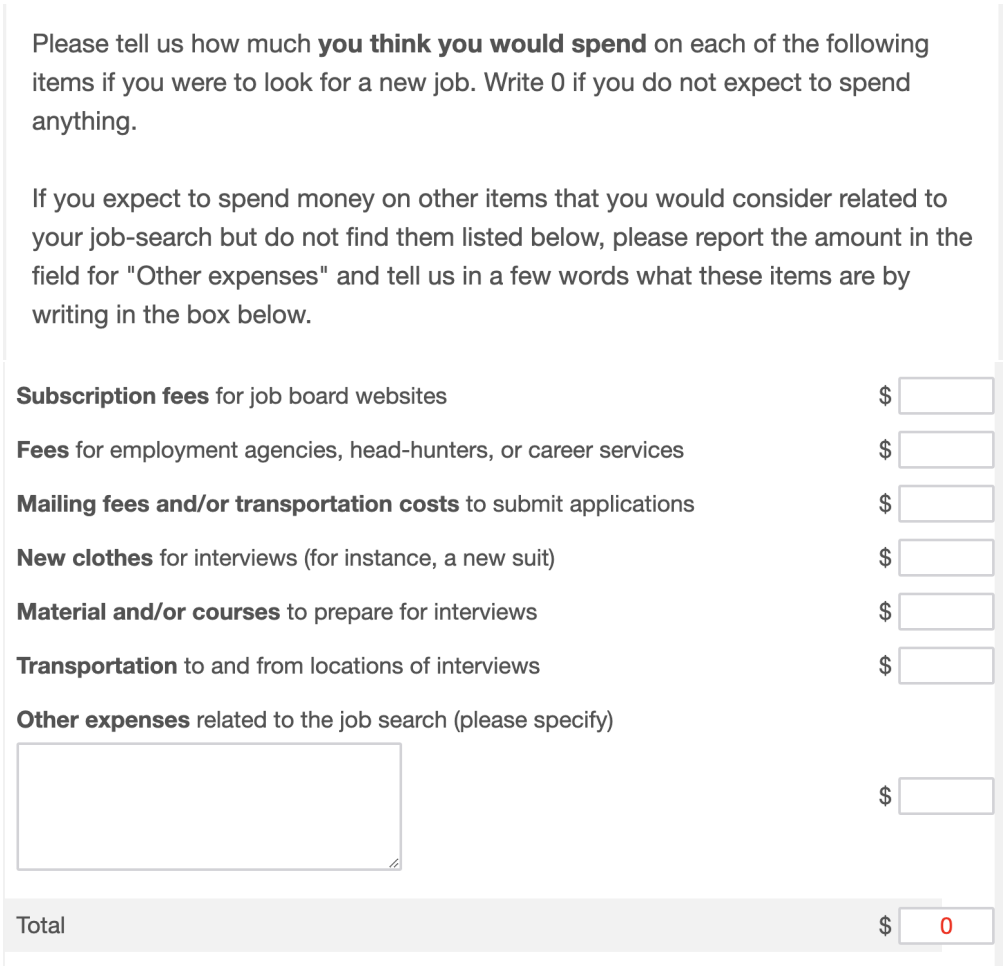
6. Over the next 12 MONTHS, what is the percent chance that you will ask your current employer for a raise? You can move the slider to select a number from 0 to 100, where 0 means that there is no chance you will ask for a raise and 100 means that it is absolutely certain that you will ask for a raise. [Slider from 0 to 100]

7. Imagine that your current employer permanently cuts your wage, while the wages at other employers remain unchanged. This wage cut results from a change in the policies of your employer and is independent of the economic conditions in your industry or location. What is the maximum wage cut that you would be willing to accept, without quitting your current job? I would quit my job if my employer cut my wage by more than $___ per year.

8. Suppose someone offered you a job today in a line of work that you would consider. What is the lowest annual pay you would accept for this job, before taxes and other deductions and including tips, commissions and bonuses?

9. *[If currently searching for a new job]* How much more per year should your current employer pay you to convince you to stop searching and keep your current job?

Figure A-1: Job Search "Budget"

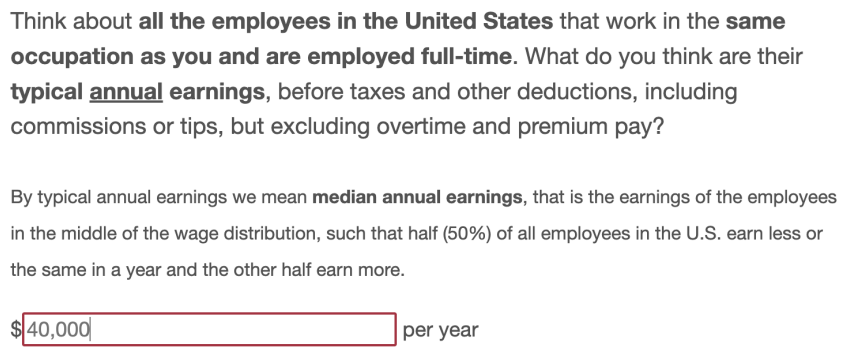


Please tell us how much **you think you would spend** on each of the following items if you were to look for a new job. Write 0 if you do not expect to spend anything.

If you expect to spend money on other items that you would consider related to your job-search but do not find them listed below, please report the amount in the field for "Other expenses" and tell us in a few words what these items are by writing in the box below.

Subscription fees for job board websites	$
Fees for employment agencies, head-hunters, or career services	$
Mailing fees and/or transportation costs to submit applications	$
New clothes for interviews (for instance, a new suit)	$
Material and/or courses to prepare for interviews	$
Transportation to and from locations of interviews	$
Other expenses related to the job search (please specify)	$
Total	$ 0

Figure A-2: Asking about Median Wage

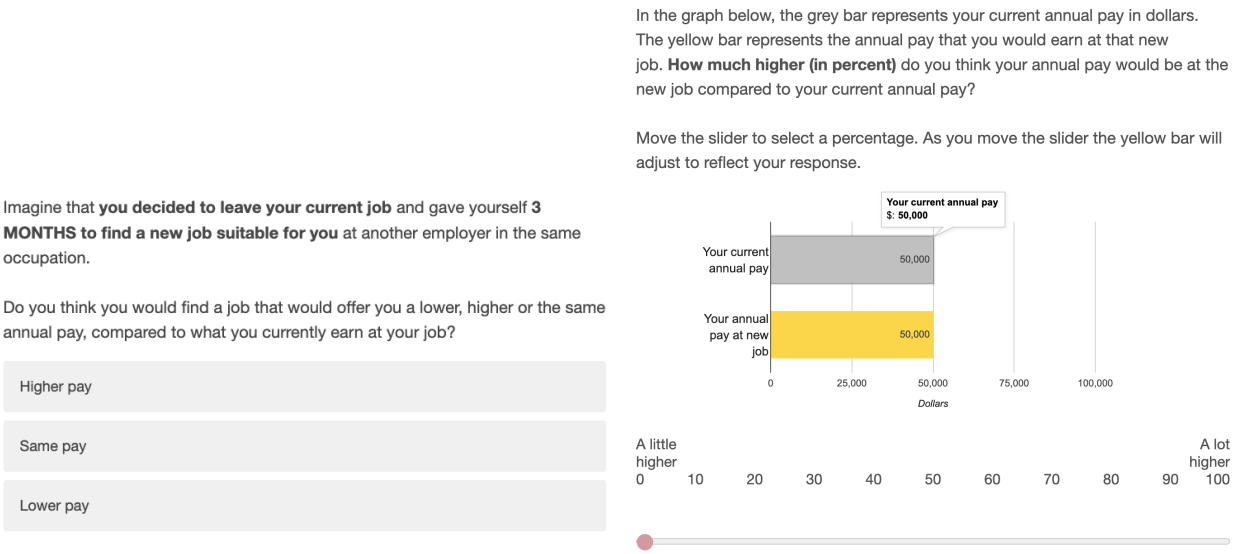


Think about **all the employees in the United States** that work in the **same occupation as you and are employed full-time**. What do you think are their **typical annual earnings**, before taxes and other deductions, including commissions or tips, but excluding overtime and premium pay?

By typical annual earnings we mean **median annual earnings**, that is the earnings of the employees in the middle of the wage distribution, such that half (50%) of all employees in the U.S. earn less or the same in a year and the other half earn more.

$ 40,000 per year

Figure A-3: Asking about Wage Change at New Job



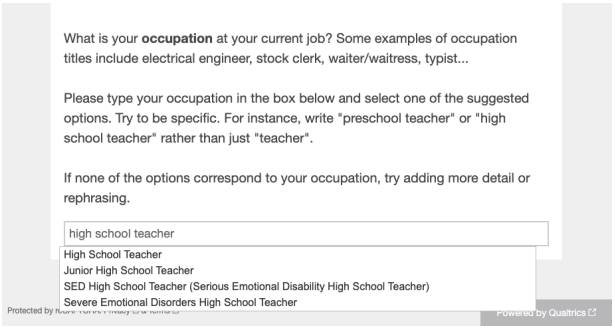
A-2.3 Asking About Occupation

To ask respondents about their occupation, I designed a two-step procedure consisting of two questions. The ultimate goal of the procedure is to classify respondents in a SOC 6-digit occupation group. In the first step, respondents see the text in Figure A-4, and are asked to type their occupation (in their own words) in a text box. As they type, a drop-down menu below the box populates with some options respondents should select from. I tell respondents to modify what they wrote if none of the proposed options corresponds to their occupation. For the list of options I start from the "alternate occupation titles" compiled by O*NET.[26] These alternate title are alternative denominations of occupations in common jargon that are easier to understand for a broad audience than the SOC occupation titles. I perform some light cleaning on the original O*NET list: I exclude titles that are too general and, hence, not informative enough (e.g. "Supervisor"), and titles that are too specific (e.g. "Visiting Teacher"). I then exploit the mapping from alternate titles to SOC 6-digit occupation groups provided by O*NET to assign each respondent an occupation code based on the title they selected. Some alternate titles are associated only with one 6-digit SOC occupation group. For instance, "Accountant" corresponds only to "Accountants and Auditors" (SOC code 13-2011). Some alternate titles are associated with more than one group. For instance, a "Secretary" could be a "Legal Secretary," a "Medical Secretary," or a "Secretary, except medical and legal," that correspond to different groups. If the alternate title they selected is associated with more than one SOC 6-digit occupation group, respondents are channeled

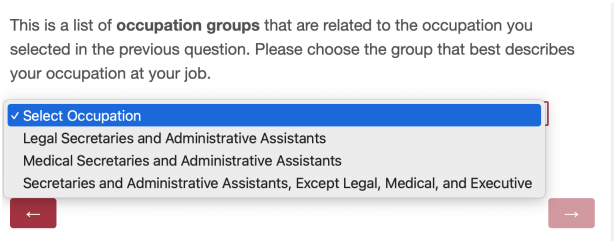
[26]The original list of alternate titles is available at https://www.onetcenter.org/dictionary/27.0/excel/alternate_titles.html.

Figure A-4: Question about Occupation at Current Job

(a) Step 1



(b) Step 2



in a follow-up question which follows the layout in Panel B of Figure A-4. In this question they are asked to choose the occupation group that best describes their occupation, among the ones matched with their alternative title. At the end of the procedure each respondent is classified in a SOC 6-digit occupation group, either directly, based on the alternative title they selected in the first step, or following their choice in the second step.

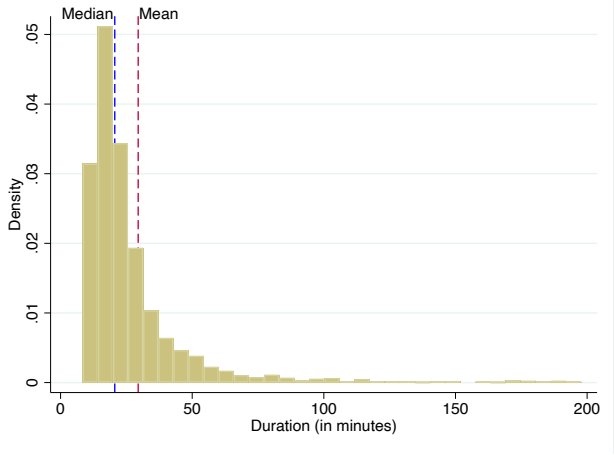
This procedure allows me to obtain detailed information on respondents' occupations, and to classify them into an occupation group as they are taking the survey.[27] Overall, the distribution of occupation elicited using this method is remarkably similar to the distribution of occupations in the CPS, as shown in Panel B of Figure A-8. The correlation between the shares of respondents by 2-digit SOC occupation groups in the two samples is 0.89. For most groups the shares in my survey and in the CPS are very similar. Exceptions are "Management Occupations" "Office and Administrative Support," and "Computer and Math" occupations, that are over-represented in my sample.

[27] Two alternative procedures would be: *i)* asking respondents to write about their occupation in an open text box; *ii)* presenting respondents with the full list of SOC occupation titles and asking them to select one among these. I experimented with option *i)* in a pilot. Multiple respondent gave generic information—*e.g.* "Manager"—which I could not use to classify them in more detailed occupation groups. Moreover, the information in the text box can only be processed after respondents complete the survey, while I need to classify them into occupation groups as they are taking the survey, to customize the treatments. Option *ii)* is impractical for two reasons. First, respondents would be shown too many options, making it difficult to parse them. Second, most of these options are likely confusing for many respondents, given that many occupation groups have technical names. In my question, I use the text-box plus suggested options and the alternate titles to avoid these issues.

A-3 Sample and Response Quality

A-3.1 Distribution of Time Spent on the Survey

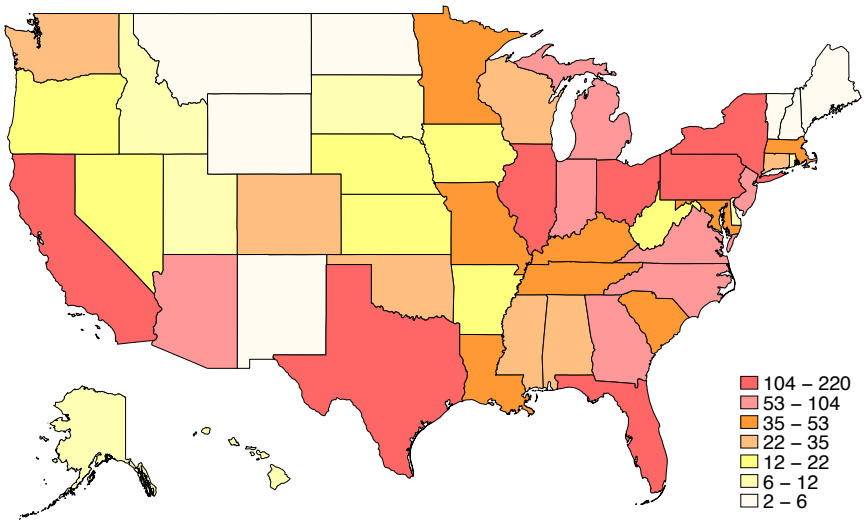
FIGURE A-5: DISTRIBUTION OF TIME SPENT ON THE SURVEY



Notes: The figure shows the distribution of the time respondents spent on the survey (truncated at 200 minutes). The mean duration is 29 minutes, the median 21, and the 25th and 75th percentiles are 16 and 30.

A-3.2 Sample Composition and Representatives

FIGURE A-6: GEOGRAPHIC DISTRIBUTION OF RESPONDENTS IN SAMPLE

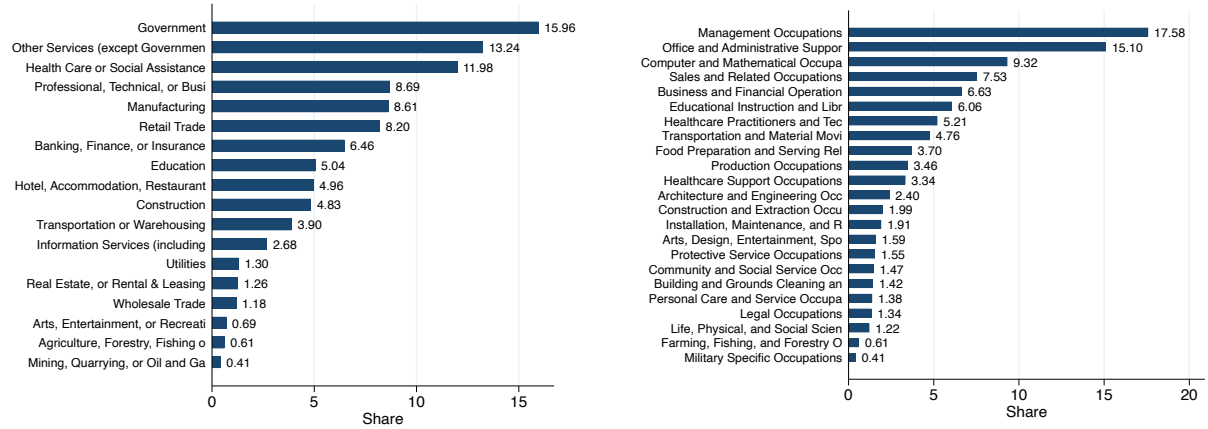


Notes: This figure plots the number of observations in the main survey sample by state.

Figure A-7: Share of Respondents by Industry and Occupation

(a) By Industry

(b) By Occupation

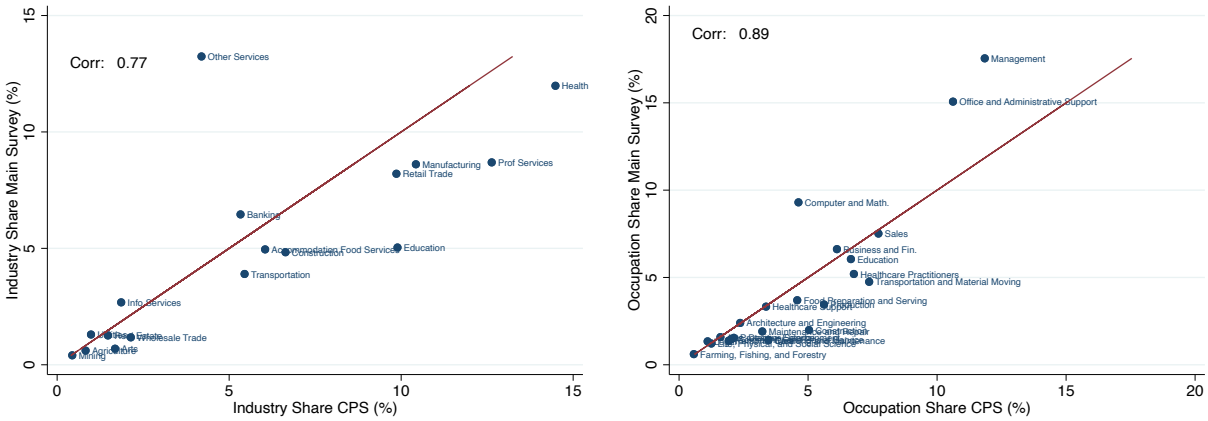


Notes: Panel A plots the share of respondents in the main survey sample by 2-digit NAICS sector. "Government" corresponds to the share of respondents working for the federal, state, or local government. Panel B plots the share of respondents in the main survey sample by 2-digit SOC occupation group.

Figure A-8: Industry and Occupation Composition in Survey vs. CPS

(a) Industry

(b) Occupation



Notes: Panel A plots the share of respondents by 2-digit NAICS sector in the September 2022 CPS (on the x axis) against the share of respondents by 2-digit NAICS sector in the main survey sample (on the y axis). The correlation between the two shares is reported in the top-left corner. Panel B plots the share of respondents by 2-digit SOC occupation group in the September 2022 CPS against the share of respondents by 2-digit SOC occupation group in the main survey sample. In both panels the CPS sample is restricted to wage and salaried workers between 20 and 64 years old.

Table A-1: Group Characteristics

	Not searchers	Current searchers			Recent changers – NE to E			Recent changers – E to E		
	Mean	Mean	Diff	P-value	Mean	Diff	P-value	Mean	Diff	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Male	0.53	0.52	-0.02	0.479	0.39	-0.15	0.000	0.41	-0.12	0.002
Age 20-39	0.36	0.60	0.24	0.000	0.71	0.35	0.000	0.61	0.25	0.000
High income	0.19	0.16	-0.03	0.134	0.05	-0.14	0.000	0.18	-0.01	0.750
4-year college degree or more	0.46	0.53	0.06	0.014	0.26	-0.21	0.000	0.46	-0.01	0.873
High-school degree or less	0.26	0.20	-0.06	0.006	0.43	0.17	0.000	0.32	0.06	0.141
Hispanic/Latino origin	0.08	0.15	0.07	0.000	0.11	0.03	0.151	0.10	0.02	0.453
African American	0.10	0.15	0.05	0.004	0.19	0.09	0.001	0.13	0.03	0.208
Married/living w. Partner	0.70	0.68	-0.02	0.400	0.51	-0.19	0.000	0.67	-0.04	0.350
Sample size	1549	536			209			168		

Notes: This table reports summary statistics for the three groups of respondents in the main survey sample, separating between recent changes who where not employed when they found their current job ("NE to E") and recent changers who were employed when they found their current job ("E to E"). Columns 1, 2, 5, and 8 report the means of the variables listed on the left. Columns 3, 6, and 8 report the differences between the means for the group listed on top and the means for not searchers. Columns 4, 7, and 10 report the p-value for a test of these differences being different from 0.

Table A-2: Ability of Covariates to Predict Treatment Status

	Control		Median Wage Treatment		Search Costs Treatment	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Male	-0.034	0.083	0.006	0.756	0.028	0.099
Age 20-39	0.031	0.122	0.043	0.027	-0.074	0.000
4-year college degree or more	0.012	0.533	-0.034	0.083	0.021	0.214
High-school degree or less	0.031	0.165	-0.008	0.725	-0.024	0.217
High income	0.003	0.909	-0.041	0.104	0.038	0.105
Black/African American	-0.005	0.883	0.009	0.772	-0.004	0.873
Hispanic/Latino	-0.011	0.733	0.011	0.749	0.001	0.979
Married/living w. partner	-0.035	0.102	-0.030	0.148	0.065	0.000

Notes: This table reports the coefficients and p-values from a series of regressions of the form $y_{ic} = \alpha + \beta Covariate_i + \epsilon_{ic}$, where $Covariate_i$ is the variable listed on the left. In the column "Control," y_{ic} is a dummy equal to one if the respondent was not shown any information treatment. In columns "Median Wage Treatment" and "Search Costs Treatment" y_{ic} is a dummy equal to one if the respondent saw the corresponding treatment.

A-4 Search Costs: Additional Tables and Figures

Table A-3: Search Costs – Summary

	Mean	SD	Median	P25	P75	Obs.
Not searchers						
Search weeks	5.57	7.26	4.00	2.00	6.00	1547
Tot. search hours	35.36	55.64	20.00	10.00	40.00	1544
Search hours – looking for openings	18.66	35.52	9.00	4.00	20.00	1546
Search hours – applications	10.47	26.42	5.00	2.00	10.00	1547
Search hours – interviews	6.47	10.40	4.00	2.00	7.00	1546
Spent money on search	0.43	0.49	0.00	0.00	1.00	1533
Tot. search money	92.19	178.19	0.00	0.00	120.00	1533
Avg. hours per application	6.26	12.12	3.50	2.00	6.50	1509
Avg. dollars per application	18.39	43.93	0.00	0.00	17.50	1495
Stress	4.83	1.65	5.00	4.00	6.00	1549
N applications	9.36	19.21	5.00	3.00	10.00	1546
Applications success rate	0.65	1.00	0.50	0.20	0.80	1509
Recent changers - E to E						
Search weeks	5.54	7.84	3.00	1.00	7.00	168
Tot. search hours	35.26	63.99	13.00	5.50	35.00	168
Search hours – looking for openings	21.75	45.60	6.00	3.00	20.00	168
Search hours – applications	9.80	20.10	3.00	1.00	9.50	168
Search hours – interviews	3.71	5.19	2.00	1.00	4.00	168
Spent money on search	0.14	0.34	0.00	0.00	0.00	168
Tot. search money	18.17	71.61	0.00	0.00	0.00	168
Avg. hours per application	5.91	6.23	3.50	2.00	7.00	165
Avg. dollars per application	7.73	43.85	0.00	0.00	0.00	165
Stress	4.02	1.97	4.00	2.00	6.00	168
N applications	8.34	13.54	4.00	1.00	10.00	168
Applications success rate	0.56	0.49	0.50	0.17	1.00	165
Recent changers - NE to E						
Search weeks	4.86	7.86	3.00	1.50	5.00	208
Tot. search hours	40.14	108.52	14.00	6.00	35.00	208
Search hours – looking for openings	24.13	73.17	7.50	3.00	20.00	208
Search hours – applications	15.33	64.16	4.00	2.00	7.00	209
Search hours – interviews	4.63	15.74	2.00	1.00	3.00	209
Spent money on search	0.19	0.39	0.00	0.00	0.00	209
Tot. search money	34.77	122.76	0.00	0.00	0.00	209
Avg. hours per application	6.07	11.12	3.00	1.20	5.25	201
Avg. dollars per application	8.44	45.72	0.00	0.00	0.00	202
Stress	4.37	1.96	5.00	3.00	6.00	209
N applications	12.83	25.29	5.00	2.00	12.00	208
Applications success rate	0.54	0.86	0.33	0.13	1.00	198
Current searchers						
Search weeks	16.58	19.48	10.00	6.00	16.00	529
Tot. search hours	76.46	159.13	37.00	18.00	88.00	530
Search hours – looking for openings	40.86	65.46	17.00	8.00	49.00	531
Search hours – applications	20.16	35.46	10.00	4.00	21.00	530
Search hours – interviews	11.45	22.11	5.00	2.00	12.00	535
Spent money on search	0.44	0.50	0.00	0.00	1.00	529
Tot. search money	147.24	322.01	0.00	0.00	150.00	529
Avg. hours per application	6.84	11.29	4.00	2.40	7.37	512
Avg. dollars per application	17.83	42.20	0.00	0.00	17.50	509
Stress	4.90	1.55	5.00	4.00	6.00	536
N applications	20.33	41.73	8.00	5.00	16.00	533
Applications success rate	0.33	0.40	0.22	0.08	0.50	514

Notes: This table summarizes perceived and realized search costs for not searchers, current searchers, and recent changers—separating between respondents who made a job-to-job transition (E to E) and those who found their current job while they were not employed (NE to E).

Figure A-9: Word Cloud: What Makes Looking for a New Job Difficult?

(a) Not searchers vs. Current Searchers

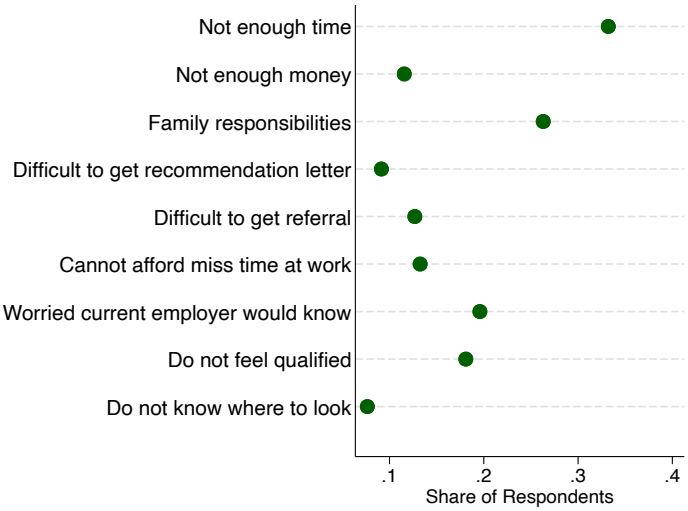
(b) Recent Changers





Notes: Panel A plots the words most frequently mentioned by not searchers (bottom) and current searchers (top) in the open ended question about "Issues that would make/make looking for a new job difficult." Panel B plots the words most frequently mentioned by recent changers in the open ended question about "Issues that made looking for your job difficult." The size of the words is proportional to the number of mentions. I clean the answers following the method of Ferrario and Stantcheva (2022).

Figure A-10: What Makes Looking for a New Job Difficult? – Current Searchers

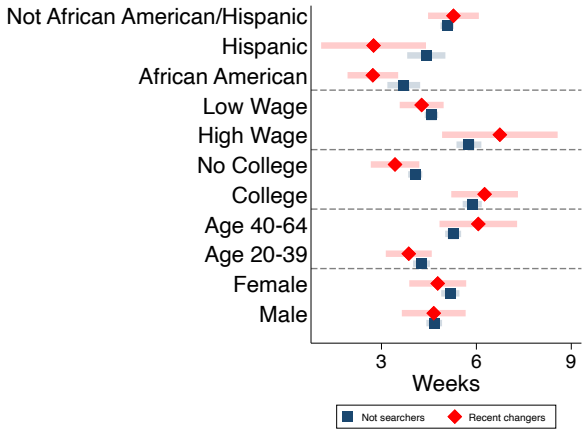


Notes: This figure reports the share of current searchers who selected the answer listed on the left in the multiple choice question about "issues" that make looking for a new job difficult.

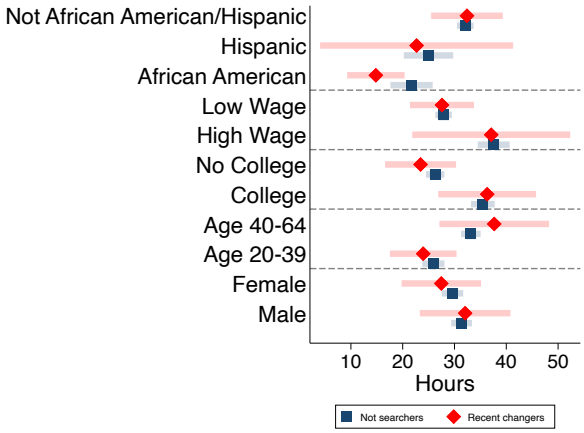
A-4.1 Heterogeneity

FIGURE A-11: EXPECTED *vs.* REALIZED SEARCH COSTS

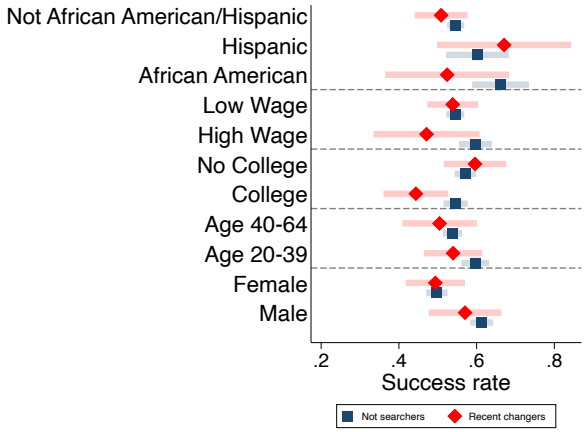
(A) WEEKS



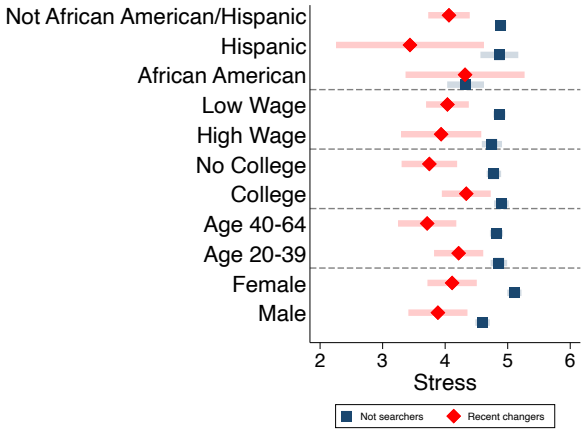
(B) HOURS



(C) SUCCESS RATE



(D) STRESS



Notes: Panel A plots the average beliefs of not searchers about the number of weeks needed to find a new job (blue squares), and the average number of weeks it took recent changers took to find their job (red diamonds) for each demographic group. Groups are defined by the indicator function listed on the left. The shaded areas are 95% CI around the mean. Panel B plots the average expected and realized total hours spent on the job search. Panel C plots the average expected and realized success rate. Panel D plots the average expected and realized level of stress associated with the job search. Recent changers include only respondents who made a job-to-job transition.

Table A-4: Beliefs about Search Costs by Demographics: Additional Variables

	Hours Looking (1)	Hours App. (2)	Hours Int. (3)	Spend any money (4)	Tot. Money (5)
Female	0.0104	0.0958*	-0.00544	-0.125**	-0.122**
	(0.0514)	(0.0538)	(0.0523)	(0.0528)	(0.0512)
Age 20-39	-0.204***	-0.113**	-0.128**	0.0144	-0.0546
	(0.0521)	(0.0538)	(0.0547)	(0.0571)	(0.0534)
College graduate	0.194***	0.195***	0.177***	0.106*	0.234***
	(0.0549)	(0.0581)	(0.0559)	(0.0566)	(0.0562)
Married/Living with partner	0.0222	0.0577	0.0683	0.0116	0.0208
	(0.0570)	(0.0543)	(0.0562)	(0.0586)	(0.0558)
Has children <6yo	-0.101	-0.0853	-0.0447	-0.0460	0.0438
	(0.0688)	(0.0699)	(0.0748)	(0.0757)	(0.0762)
African American	-0.165**	-0.245***	-0.0902	-0.161*	-0.128*
	(0.0823)	(0.0736)	(0.0856)	(0.0853)	(0.0710)
Hispanic/Latino Origin	-0.0814	-0.116	-0.111	0.127	0.112
	(0.0891)	(0.0784)	(0.0771)	(0.0951)	(0.0925)
High wage	0.221***	0.0431	0.0871	0.0960	0.214***
	(0.0689)	(0.0678)	(0.0660)	(0.0652)	(0.0729)
Observations	1549	1549	1547	1549	1549

Notes: This table shows how beliefs about additional measures of search costs vary by demographic group. See notes to Table 3. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Sample: not searchers.

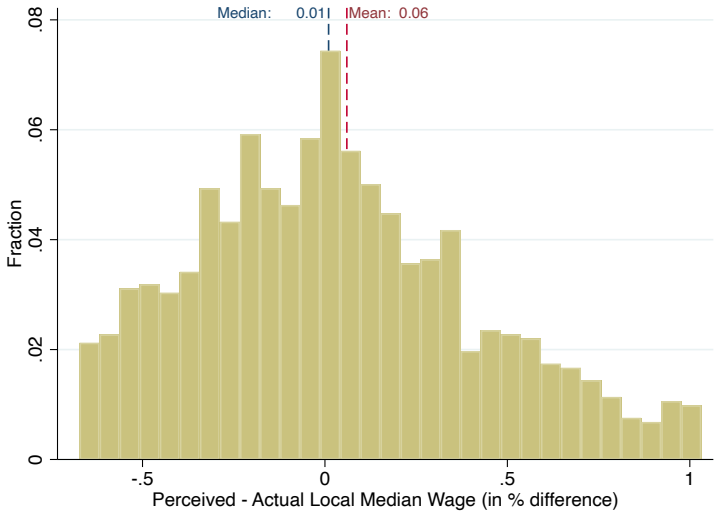
Table A-5: Realized Search Costs by Demographics: Additional Variables

	Hours Looking (1)	Hours App. (2)	Hours Int. (3)	Spend any money (4)	Tot. Money (5)
Female	-0.121	-0.0407	0.0344	-0.103	-0.00863
	(0.154)	(0.172)	(0.172)	(0.164)	(0.166)
Age 20-39	-0.229	-0.278	-0.190	-0.186	-0.0348
	(0.169)	(0.180)	(0.183)	(0.174)	(0.165)
College graduate	0.296*	0.204	0.257	0.101	0.106
	(0.158)	(0.151)	(0.162)	(0.177)	(0.187)
Married/Living with partner	0.0888	0.122	-0.0724	-0.0741	-0.0403
	(0.166)	(0.165)	(0.175)	(0.166)	(0.158)
Has children <6yo	-0.0363	-0.0901	0.195	0.405	0.285
	(0.173)	(0.137)	(0.216)	(0.247)	(0.239)
African American	-0.287**	-0.195	0.0622	0.160	0.113
	(0.139)	(0.126)	(0.227)	(0.244)	(0.247)
Hispanic/Latino Origin	-0.117	-0.231	-0.145	0.0861	-0.115
	(0.226)	(0.145)	(0.220)	(0.296)	(0.213)
High wage	-0.0411	-0.00114	0.101	-0.0961	-0.0705
	(0.233)	(0.260)	(0.252)	(0.216)	(0.238)
Observations	168	168	168	168	168

Notes: This table shows how perceptions of additional measures of search costs vary by demographic group. See notes to Table 3. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Sample: recent changers who made a job-to-job transition.

A-5 Perceptions of Outside Options: Additional Tables and Figures

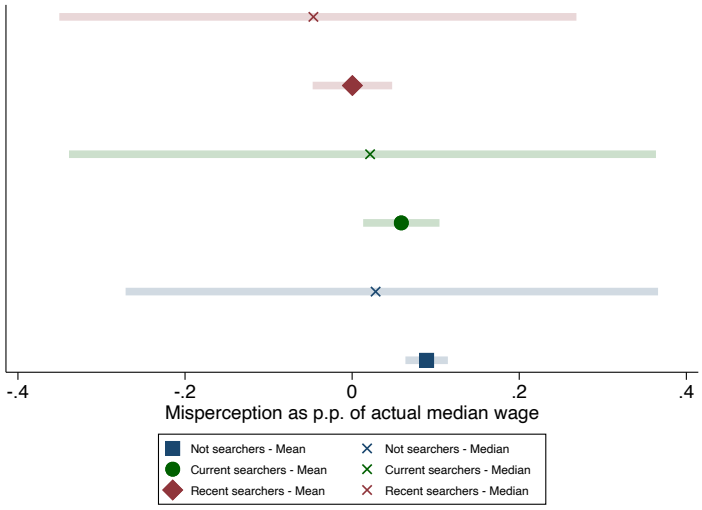
Figure A-12: Misperceptions: Local Median Wage



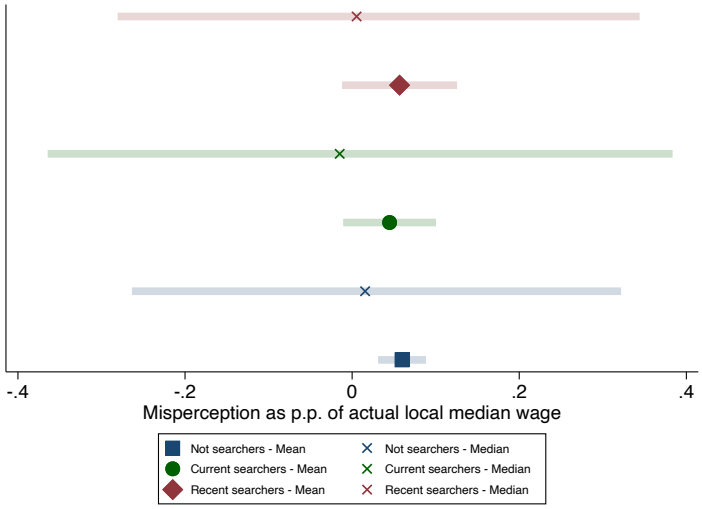
Notes: This figure plots the distribution of respondents' misperception of the median wage in their occupation in the area where they live, trimmed at the 5th and 95th percentile. Misperceptions are defined as perceived minus actual SOC 6-digit occupation code median wage in the metropolitan or micropolitan area where respondents live, divided by actual wage. Sample: respondents who have not seen the Median Wage Treatment.

Figure A-13: Misperceptions of the Median Wage by Group

(a) National

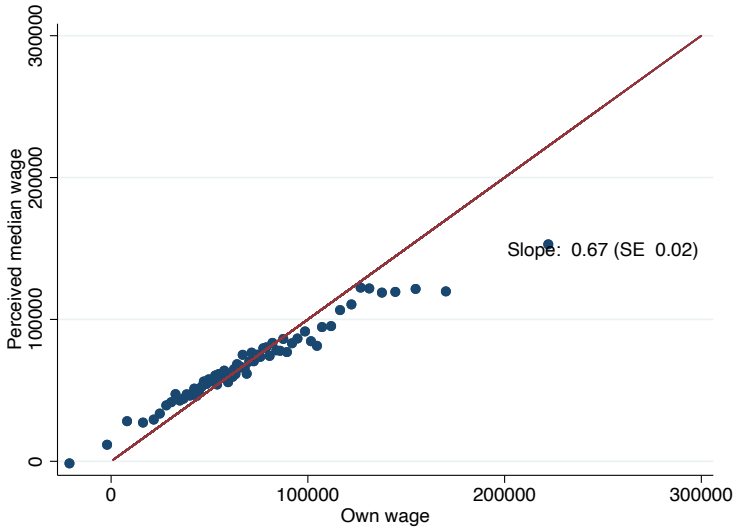


(b) Local



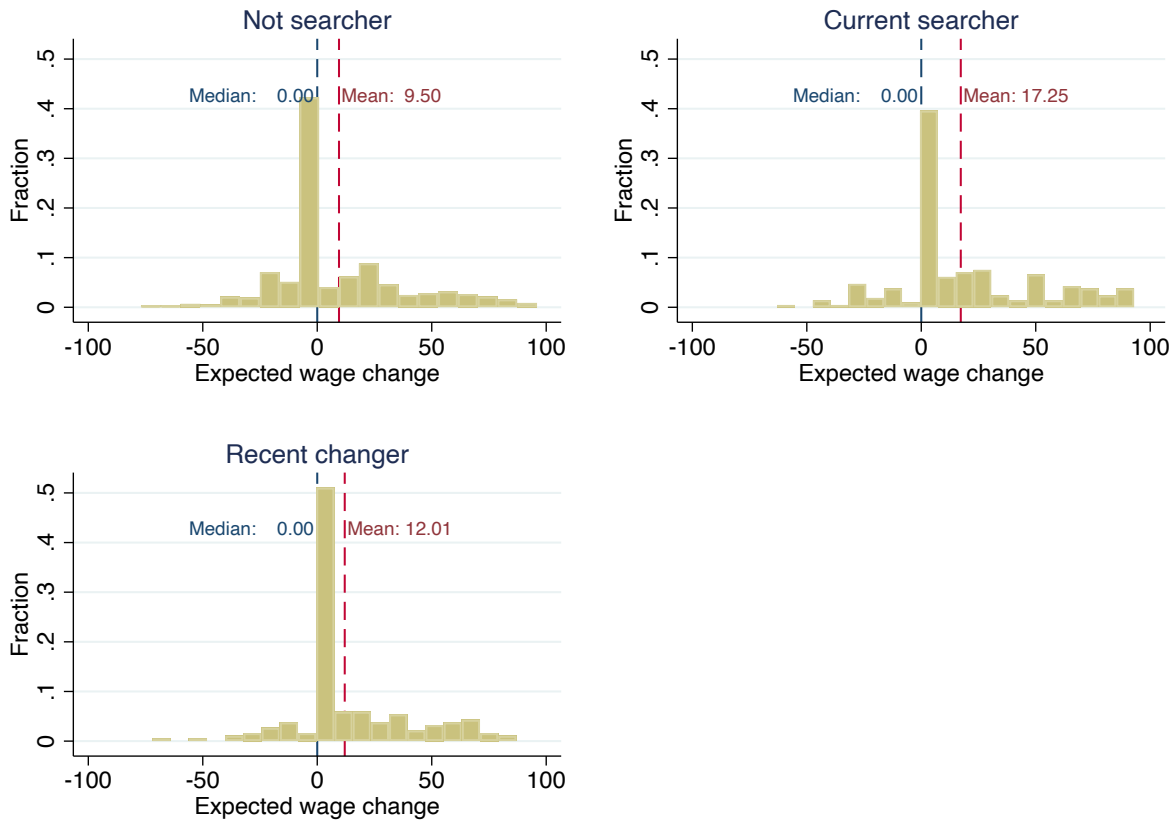
Notes: This figure plots respondents' average and median misperception of the national (Panel A) and local (Panel B) median wage in their occupation, by group. Misperceptions are defined as perceived minus actual SOC 6-digit occupation code median wage, divided by actual wage, and winsorized at the 5th and 95th percentile. Shaded areas are 95% CIs around the mean or interquartile ranges.

Figure A-14: Anchoring: Perceived National Median Wage and Own Wage



Notes: This figure plots respondents' perceived national median wage against their current annual wage residualized on the actual national median wage for their SOC 6-digit occupation, binned in 20 bins. 45 degree line in red. Sample: respondents earning no more than $300,000 per year.

Figure A-15: Expected Wage Change at New Job by Group



Notes: This figure plots the distribution of respondents' expected wage change from changing job, in percentage points of their current wage, by group. Sample: Only respondents who have not seen any of the treatments.

A-5.1 Heterogeneity

Table A-6: Perceptions of Outside Options and Demographics

	National Median Wage (p.p. misp.) (1)	Local Median Wage (p.p. mip.) (2)	Expected Wage Change At New Job (3)	Perceived - Actual Quartile (4)
Female	-0.0226	-0.0441*	-2.519	-0.0541
	(0.0206)	(0.0242)	(1.669)	(0.0574)
Age 20-39	-0.0712***	-0.0520**	10.35***	0.196***
	(0.0205)	(0.0247)	(1.716)	(0.0572)
College graduate	0.0727***	0.0207	3.809**	-0.115*
	(0.0219)	(0.0269)	(1.895)	(0.0623)
Married/Living with partner	0.0710***	0.103***	1.031	-0.134**
	(0.0207)	(0.0249)	(1.684)	(0.0602)
Has children <6yo	-0.00698	-0.0357	4.575**	0.0588
	(0.0267)	(0.0319)	(2.279)	(0.0765)
African American	-0.0635**	0.0105	4.858*	0.00846
	(0.0307)	(0.0391)	(2.518)	(0.0885)
Hispanic/Latino Origin	-0.00672	0.0705*	1.234	-0.0409
	(0.0332)	(0.0427)	(2.537)	(0.0925)
High wage	0.452***	0.402***	-0.0869	-1.147***
	(0.0262)	(0.0299)	(2.057)	(0.0613)
Observations	2430	1507	1549	2443
Mean	0.07	0.06	13.25	0.43

Notes: This table shows how perceptions of outside options vary by demographic group, by regressing each variable in the column on the set of demographic dummies listed on the left. Misperceptions of the national and local median wage are winsorized at the 5th and 95th percentile. The sample in columns 2 and 3 only includes respondents who have not seen the Median Wage Treatment. Additional controls include industry and SOC two-digit code occupation fixed effects, not reported.

A-6 Search Costs, Outside Options and Job Search: Additional Tables and Figures

Table A-7: Search Intentions and Demographics

	Prob. Looking for New Job (1)
Median wage T.	-0.00726
	(0.0271)
Search costs T.	0.00458
	(0.0267)
Current job satisfaction	-0.0141
	(0.0283)
Skills fit with current job	-0.0984***
	(0.0269)
Tenure at current job (in yrs.)	-0.0998***
	(0.0261)
Female	-0.122***
	(0.0272)
Age 20-39	0.200***
	(0.0293)
College graduate	0.0582*
	(0.0310)
Married/Living with partner	0.0119
	(0.0254)
Has children <6yo	0.0133
	(0.0255)
African American	0.0817***
	(0.0246)
Hispanic/Latino Origin	0.0495**
	(0.0241)
High Income	-0.0711**
	(0.0282)
Log current wage	-0.0126
	(0.0351)
Observations	1540
Adjusted R^2	0.151

Notes: This table shows how search intentions vary by demographic group. The probability of looking for a new job is regressed jointly on the variables listed on the left. The regression also includes occupation and industry fixed effects, not reported. Sample: not searchers. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A-8: Expected Search Costs, Beliefs about Outside Options and Search Intentions - Heterogeneity by Demographic Group

	Women	College graduate	African American
	Prob. Looking for New Job	Prob. Looking for New Job	Prob. Looking for New Job
	(1)	(2)	(3)
Exp. avg. time per application	0.0223	-0.0262	-0.0309
	(0.0383)	(0.0370)	(0.114)
Exp. avg. money per application	0.0158	0.0805*	-0.0995
	(0.0391)	(0.0421)	(0.0911)
Exp. stress	-0.00717	0.0293	0.0376
	(0.0397)	(0.0400)	(0.106)
Exp. success rate	0.0748*	0.106***	0.0904
	(0.0409)	(0.0408)	(0.0993)
Exp. wage change in p.p.	0.259***	0.364***	0.190*
	(0.0402)	(0.0354)	(0.102)
Reservation wage	-0.122***	-0.174***	0.129
	(0.0447)	(0.0413)	(0.0983)
Observations	665	690	126
Adjusted R^2	0.215	0.282	0.347

Notes: This table replicates colum 3 of Table 7, restricting the estimation sample to women (column 1), college graduates (column 2) and African American (column 3). See notes to Table 7. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Sample: not searchers.

Table A-9: Job Search Intentions and Expected Search Costs

	Prob. Looking for New Job (1)
Exp. avg. time per application	0.0312
	(0.0269)
Exp. avg. money per application	0.0824***
	(0.0285)
Exp. weeks searching	-0.0878***
	(0.0258)
Exp. time tot.	-0.0384
	(0.0269)
Exp. time looking for openings	-0.0596**
	(0.0259)
Exp. time on applications	-0.0263
	(0.0261)
Exp. time on interviews	0.0239
	(0.0261)
Exp. money tot.	0.0432
	(0.0276)
Exp. applications	-0.0478*
	(0.0248)
Exp. stress	0.0386
	(0.0263)
Observations	1540

Notes: This tables reports the correlations between intentions to search for a new job and beliefs about various measures of search costs, listed on the left. All variables are standardized so they have mean equal to zero and sd equal to 1, and coefficients can be interpreted as partial correlations. Continuous variables are winsorized at the 5th and 95th percentile. Each coefficient is estimated in a separate regression witch also includes controls for current job satisfaction, skill fit with current job, demographic characteristics, SOC 2-digit occupation and industry fixed effects, dummies for treatment status. See Appendix A-1 for variables definitions. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Sample: not searchers.

A-6.1 Treatment effects

Table A-10: Treatments: First Stage – Not Searchers

	Local Median Wage Perc. Misp.	Job Search Time Consuming	Expected Wage Change New Job (in p.p.)
Median wage treatment x Underestimate wage	16.65***	-0.00434	9.849***
	(2.863)	(0.123)	(2.614)
Median wage treatment x Overestimate wage	-23.91***	0.0706	2.957
	(4.565)	(0.108)	(2.427)
Search costs T x Underestimate costs	0.559	-0.174*	3.020
	(3.998)	(0.0993)	(2.061)
Search costs T x Overestimate costs	1.181	-0.402***	5.032*
	(5.283)	(0.148)	(3.018)
Underestimate wage	-52.03***	0.0349	-4.721**
	(3.607)	(0.0964)	(1.938)
Overestimate costs	-0.841	0.585***	-9.245***
	(3.663)	(0.0989)	(2.112)
Observations	1451	1489	1482
Control mean	9.50	4.81	9.00

Notes: This table reports the first stage effect of the two treatments, estimated only on not searchers. See notes to Table 8. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A-11: Treatments: Second Stage – Not Searchers

	Prob. Looking for New Job
Median wage treatment x Underestimate wage	-0.0992
	(2.335)
Median wage treatment x Overestimate wage	0.881
	(2.127)
Search costs T x Underestimate costs	0.241
	(1.895)
Search costs T x Overestimate costs	3.772
	(3.126)
Underestimate wage	-0.493
	(1.860)
Overestimate costs	-5.991***
	(1.875)
Observations	1483
Control mean	33.89

Notes: This table reports the second stage effect of the two treatments, estimated only on not searchers. See notes to Table 9. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A-12: Treatment Effects on Reservation Wage

	Reservation wage in p.p. of current wage (1)
Median wage treatment x Underestimate wage	6.826***
	(1.877)
Median wage treatment x Overestimate wage	-3.651**
	(1.585)
Search costs T x Underestimate costs	-1.433
	(1.599)
Search costs T x Overestimate costs	-1.767
	(2.082)
Underestimate wage	-7.690***
	(1.429)
Overestimate costs	2.664*
	(1.385)
Observations	2272
Control mean	102.45

Notes: This table reports the effect of the treatments on respondents' reservation wage. The regression includes demographic controls, SOC 2-digit occupation and industry fixed effects. See Appendix A-1 for variables definitions. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

A-6.2 Follow-up Survey: Persistence of Treatment Effects

Table A-13: Treatments: First Stage Follow-up

	Local Median Wage Perc. Misp.	Searching Time Consumimg	Expectd Wage Change New Job (in p.p.)
Median wage treatment x Underestimate wage	1.692	-0.00866	-0.969
	(5.053)	(0.130)	(2.737)
Median wage treatment x Overestimate wage	-9.063**	0.0788	3.570
	(4.343)	(0.119)	(2.511)
Search costs T x Underestimate costs	6.393	-0.185	2.187
	(6.023)	(0.124)	(2.751)
Search costs T x Overestimate costs	5.434	-0.272*	1.568
	(7.295)	(0.165)	(3.195)
Underestimate wage	-38.04***	0.0105	1.923
	(3.961)	(0.104)	(2.250)
Overestimate costs	0.103	0.531***	-3.289
	(3.726)	(0.0988)	(2.110)
Observations	1238	1239	1255
Control mean	13.63	4.63	9.94

Notes: This table reports the effect of the treatments on the first stage variables measured in the follow-up survey. All regressions include demographic controls, and SOC 2-digit occupation and industry fixed effects. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.