How Many Others Apply for the Jobs I Am Applying for?

The Effect of Perceived Labor Market Competition on Job Search

Haoran He*, Marcus Roel†, and Qian Weng‡

August 12, 2023

Abstract

Job seekers' expectations about labor market prospects are crucial in determining their search behavior and outcomes in search models, yet clear empirical evidence is lacking. We conduct a large-scale information-provision experiment on a job board to analyze the causal impact of beliefs about labor market competition on job search. We vary whether information about last month's applications per vacancy in the job seeker's preferred occupation is provided and whether a personal daily application goal is elicited. We document that job seekers have large misperceptions about competition. Being provided with information, job seekers update their beliefs about the upcoming month's competition in a way that is consistent with Bayesian updating. While we find that the intended search effort (goal) increases in beliefs, neither job seekers' real effort nor their tendency to switch to other, non-preferred occupations is affected by those beliefs. In contrast to the prediction from a sequential search model, we find that both the lowest wage offered (reservation wage) and the lowest required work experience among the jobs job seekers apply for in the month after the intervention increase in their beliefs. This surprising behavioral response is driven by currently employed job seekers, and can be rationalized by gambling for higher-quality jobs when landing a job becomes more difficult. For the unemployed, the reservation wage and lowest experience are rigid. We further show that neither this seemingly risky adjustment nor the rigidity affects their job-matching outcomes negatively.

Keywords: job search, biased beliefs, belief updating, information-provision experiment

JEL classifications: C93, D83, J64

---

* (in alphabetical order, equal contribution) Business School, Beijing Normal University. Email: haoran.he@bnu.edu.cn

† Department of Economics, University of Nottingham Ningbo China. Email: mcs.roel@gmail.com

‡ School of Labor and Human Resources, Renmin University of China. Email: qian.weng@ruc.edu.cn

Acknowledgments: The experiment described in this paper was registered on the American Economic Association randomized controlled trial (AEA RCT) registry website (AEARCTR-0008179) in September 2021 prior to data collection. We thank Kenneth Chay, Lorenzo Lagos, Kelin Lu, Teddy Mekonnen, David Ong, Bobby Pakzad-Hurson, Matthew Pecenco, Louis Putterman, Yunyu Shu, Uwe Sunde, Neil Thakral, and conference and seminar participants at Brown University, the 2022 Xiamen University International Workshop on Experimental Economics, the 14th International Symposium on Human Capital and Labor Markets at the Central University of Finance and Economics, the 2nd CeDEx China Workshop at the University of Nottingham Ningbo, Tsinghua BEAT 2023 for helpful comments and discussions. Financial support from the Ministry of Education in China (No. 21YJA790059), the National Natural Science Foundation of China (No. 71973016, 72131003, and 72273148). All remaining errors are those of the authors.

1. Introduction

Job seekers' expectations about their labor market prospects play a crucial role in determining their job search behavior and outcomes. When deciding on search intensity, job seekers weigh the certain present cost of search effort with the uncertain benefit of receiving a job offer, given their beliefs about how much effort will increase the chances of getting an offer. To decide whether to accept a job offer, they balance the certain value of accepting it against the uncertain value of getting better offers in the future if they continue searching, given their beliefs about the share of acceptable future offers. In this paper, we explore whether job seekers have accurate beliefs regarding labor market competition, and how the beliefs influence search behavior and outcomes from a large field experiment. Labor market competition is occupation-specific and captured by the average number of applications per vacancy – the inverse of labor market tightness.

Canonical job search models typically formulate job search and acceptance decisions by assuming that job seekers have rational expectations and that they have complete information about labor market prospects – the rate at which job opportunities will arrive and the distribution of wage offers (Pissarides, 1985; Mortensen and Pissarides, 1994; Burdett and Mortensen, 1998). These assumptions imply that all job seekers have the same beliefs (condition on their personal characteristics), and that those beliefs are correct.[1] However, recent studies, which observe and compare job seekers' beliefs and job search outcomes, provide evidence of heterogenous, overall over-optimistic beliefs, and insufficient belief updating based on search experience, which affect job search and outcomes negatively.[2] This evidence challenges the fundamental assumption of rational expectations and complete information in the canonical job search models.

In order to better capture the actual job search process and the importance of expectations in this process, some of these recent studies further construct models that allows for heterogeneous, possibly

[1] Only a few notable exceptions in the early models incorporate imperfect knowledge of and learning about the prospects through the process of job search, for example, Rothschild (1974) and Burdett and Vishwanath (1988) impose Bayesian learning.

[2] Regarding misperceptions about job arrival/finding probabilities, for example, Spinnewijn (2015) documents that 80% of the job seekers have underestimated the length of their unemployment spell, leading to too little search effort; Potter (2021) shows that job seekers overestimate their job-finding prospects by roughly 60% at the time of job loss, and search decisions are driven by endogenously evolving beliefs; Mueller et al. (2021) find under-response of job seekers' beliefs to variation in job finding, contributing to decline in job finding and the incidence of long-term unemployment. Similar optimistic biases about employment prospects are also found in developing countries (Abebe et al., 2020; Bandiera et al., 2021; Banerjee and Sequeira, 2020). When it comes to expectations on wages, the optimistic belief biases in wage offer or re-employment wage tend to be at no more than 10% on average (Conlon et al., 2018; Drahs et al., 2018), suggesting more accurate beliefs than those about job arrival/finding probabilities. A large proportion of job seekers anchor wages to their previous wages, which discourages search at early stages of the unemployment spell (Drahs et al., 2018). Jäger et al. (2022) find that low-paid (high-paid) workers are overly pessimistic (optimistic) about their outside options, leading to 13% of jobs that would become non-viable at current wages with correct beliefs.

incorrect beliefs and general learning based on new information contained in the job offer received, and then structurally estimate the model primitives based on longitudinal (survey) data on beliefs and actual realizations of job finding (Conlon et al., 2018; Drahs et al., 2018; Mueller et al., 2021). However, a key concern remains in this literature as highlighted in a recent review paper by Mueller and Spinnewijn (2023): imposing a structure between beliefs and search behavior does not help resolve the endogeneity problem from reverse causality or omitted variables, which makes it challenging to isolate the causal impact of beliefs on behavior. Regarding reverse causality, not only do job seekers' job search behavior depends on their beliefs, their beliefs also depend on their search behavior. For example, a job seeker will probably search more, the more she believes this increases her chances of getting an offer. Conversely, the more effort she puts in search, the more her belief about chances of getting an offer is raised. Regarding omitted variables, preferences and expectations, which are possibly correlated with one another, both play an important role in explaining search behavior. For example, a job seeker may search a lot because she has a high intrinsic motivation for work, and may think other job seekers like working too, so that she tends to overestimate others' search effort and thus perceives the job market to be more competitive than it actually is.

The information-provision experiment presents an approach that can potentially address these endogeneity concerns. These experiments first elicit survey participants' beliefs about certain prospects, then provide factual information about the prospects to a random subsample of the participants to exogenously change their beliefs, next elicit their beliefs again to examine how much they learn from the information, and finally observe behavior or outcomes to evaluate the effects of the updated beliefs. The information treatment that changes beliefs ensures that changes in behavior arise exclusively from changes in beliefs, addressing the reverse causality problem. Random assignment of the information treatment among job seekers guarantees balanced preferences at the treatment level, addressing the omitted variable problem.

We contribute to the literature by identifying the causal impact of beliefs about labor market competition on job search by employing an information-provision experiment. There exist two studies using this approach to investigate other labor market behavior. Ganguli et al. (2020) show that providing information about the academic and non-academic labor markets leads US doctoral students in Chemistry to downwardly adjust their beliefs about returns to working in the academic market but does not affect actual career choice. Cullen and Perez-Truglia (2022) document significant underestimation among employees from Southeast Asia about the salaries of their managers as well as peers, and that these perceptions have a significant causal effect on the employees' effort and work performance. In addition, there is a large strand of literature using field experiments to randomly provide information or other interventions to reduce information frictions and then estimate the reduced-form effects of the

intervention on job search behavior or outcomes,[3] where beliefs are not explicitly considered as a mechanism through which information influences job search.[4]

This paper addresses the following questions: first, how accurate job seekers' beliefs regarding labor market competition are, and how beliefs respond to information about past competition. Second, how beliefs affect search behavior as well as labor market outcomes. Specifically, we conducted an online survey on a nationwide Chinese job board. We first elicited participants' preferred occupation and their perceptions about the past and future competition therein, i.e., average number of applications per vacancy in their preferred occupation in the past month (referred to as "past prior beliefs" hereafter) as well as in the future month starting after the survey-completion date (referred to as "future prior beliefs" hereafter). Next, we embedded an information-provision experiment in the survey. We randomly provided tailored factual information about last month's level of competition in their preferred occupation to half of the survey participants. After the information provision, we re-elicited their beliefs about future month's competition in their preferred occupation (referred to as "future posterior beliefs" hereafter). Finally, we collected administrative data from the job board regarding participants' subsequent month's job search behavior (search effort, target occupation switching, lowest acceptable quality of jobs sought) and preliminary outcomes (positive feedback to applications and highest quality of potential job offer).

The reasons for focusing on nationwide occupation-specific labor market competition as the main interest of study are twofold. From the theoretical point of view, this index proxies the queue length, which is the key primitive determining the arrival rates for both sides of the labor market in directed search models (Wright et al., 2021). Moreover, as expectations about job arrival rates is found to be more inaccurate than wage expectations in the literature (Conlon et al., 2018; Drahs et al., 2018), correcting these beliefs directly is more sensible. From the practical point of view, since the occupation-specific labor market competition

[3] The intervention ranges from information on job-arrival probabilities such as number of applicants to a vacancy (Gee, 2019; Bhole et al., 2021), alternative search opportunities (Belot et al., 2019), number of available vacancies in occupations suitable to the job seeker or/and referrals to alternative occupations (Altmann et al., 2022b), wages of similar overseas jobs (Beam, 2016), peer and superior salaries (Card et al., 2012), other information such as relative ranking of comparative advantage in skills (Kiss et al., 2023), job search strategies and the consequences of unemployment (Altmann et al., 2018; Mühlböck et al., 2022), legal rights of migrant workers (Shrestha and Yang, 2019), personal risk of a benefit reduction (Cairo and Mahlstedt, 2021), benefit rules of unemployment insurance (Benghalem et al., 2022; Altmann et al., 2022a), to other intervention such as worker skill acquiring opportunities (Alfonsi et al., 2020), worker skill signaling opportunities (Abebe et al., 2021; Carranza, 2021), matching opportunities between workers and employers (Abebe, 2020), a combination of skill acquiring and matching opportunity (Bandiera et al., 2021), transport subsidy (Abebe et al., 2021; Banerjee and Sequeira, 2021), employer preference signaling opportunities (Horton and Johari, 2018; Ibañez and Riener, 2018; Leibbrandt and List, 2018), and access to online job portals (Kelley et al., 2022). These studies in general find positive effects on wage forecast, job applications, employment and earnings, but the effects vary across intervention types, labor markets, and job seeker characteristics.

[4] In some of these studies beliefs are elicited and belief biases are discussed (e.g., Abebe et al., 2020; Bandiera et al., 2021; Banerjee and Sequeira, 2020; Jones & Santos (2022); Kelley et al., 2022; Kiss et al., 2023; Miano, 2022).

is a common statistic for job seekers, policy makers, practitioners and researchers, it is compiled on a regular basis by the job board at which our survey operated. This information is thus accurate, reliable, and can be easily understood and be acted upon by job seekers.

Besides information provision, we introduced a second dimension of exogenous variation, where half of the participants were given the opportunity to set a daily goal for the number of jobs they planned to apply for in the upcoming month, before the elicitation of posterior beliefs. Explicitly setting a search effort target may affect job seekers' beliefs about labor market competition by making them think more carefully about how much effort they and their competitors exert in job search.[5] For example, if a job seeker recognizes that the search costs are relatively high, emphasizing that other job seekers will feel similarly, she will adjust beliefs on market competition downward. The aim of this intervention is thus to investigate how setting a goal contributes to changes in beliefs.[6] Moreover, doing so provides us with a measure of the job seekers' intended search effort from the survey, which can be compared to their actual effort collected from administrative data.

In our theoretical framework, we extend the standard sequential job search model with effort, incorporating the job seeker's belief about the degree of competition they face. In this setting, more competition reduces both the chances of receiving offers overall and the marginal impact of effort on receiving such offers. We show that job seekers will accept jobs with lower wages when they come to believe the job market to be more competitive than they had initially thought, i.e., their reservation wage is decreasing in their beliefs about labor market competition. In contrast, the impact of beliefs on effort is ambiguous and depends on whether or not the negative direct effect (the decrease in marginal returns of effort) dominates the positive indirect effect (from a decrease in the reservation wage).

We find that most job seekers' beliefs about competition of their most preferred occupation deviate from the actual level, often by a large percentage, and that their beliefs are very responsive to the information they are provided with. Moreover, consistent with Bayesian-updating, those who are less confident in their prior beliefs update more strongly. Our results show that while intended search effort (goal) increases in beliefs, their real effort does not respond to beliefs. In contrast to our theoretical predictions, the lowest acceptable quality of job sought – both the minimum of the wages posted (a proxy for the reservation wage) and the minimum of the required work experience among the jobs job seekers

[5] Abel et al. (2019) invite job seekers to complete a detailed job-search plan (related to how many hours to search and how many applications to submit) in order to help them reduce the gap between their intentions and behavior. They find that completing a detailed job search plan increases the number of job applications submitted (15%) but not the time spent searching, and this greater search efficiency translate into more job offers (30%) and higher employment (26%).

[6] Moreover, goal setting may also have the potential to help job seekers overcome self-control problems (e.g., Laibson, 1997; O'Donoghue and Rabin, 1999; Koch and Nafzier, 2011; Hsiaw, 2013), and committing to challenging and attainable goals promotes efforts and performance, hence directly raising search effort (e.g., Wu et al., 2008; Clark et al., 2020; He et al., 2023).

apply for – increases in beliefs. Job seekers appear to become pickier the more competitive they view their preferred labor market to be, and display no tendency to switch to other, non-preferred occupations. This surprising adjustment to the reservation wage and experience required is solely driven by job seekers that are currently employed, and can be rationalized by gambling for high-quality jobs when landing a job becomes more difficult. For unemployed job seekers, the reservation wage and minimum experience required are not responsive to changes in beliefs. In terms of search outcomes, we show that this adjustment (or lack thereof) in search behavior does not lead to worse outcomes. Neither the likelihood or the number of positive feedbacks from employers to application made nor the highest quality of potential job offer – the maximum wage offer or maximum experience required among applications receiving positive feedbacks – decreases in beliefs.

Our results suggest that the potential effects of correcting beliefs are less obvious than classic search models would suggest. A deeper understanding why reservation wages increase in beliefs for employed and fail to adjust downward for unemployed job seekers appears to be necessary, possibly informing future models of job search.

Our analysis also highlights the separate roles of beliefs on people's intended and actual job search effort. On the one hand, this may highlight the difficulty measuring real effort via survey data, pointing to the importance of relying on administrative data to understand search behavior. On the other hand, it may suggest that interventions in labor-markets that aim to improve job-search outcomes need to be designed in a way that better bridges this intention-choice gap. This, in turn, may help to explain why the impact of beliefs on behavioral outcomes in information-provision experiments often tends to be small (e.g., Bhat et al., 2022; Dhia et al., 2022; Fehr et al., 2022) and consequently help improve the effectiveness of such interventions, especially when implementing them as tools for market design.

The rest of this paper is structured as follows. In section 2, we detail the experimental design, while section 3 outlines our theoretical framework. In Section 4, we analyze job seekers' perceptions and how beliefs are updated in response to our information intervention. Our analysis regarding the impact of beliefs on search behavior and outcomes can be found in section 5. Section 6 provides robustness checks for the main results reported in sections 4 and 5. The paper concludes with a discussion in section 7.

2. Experimental design

Our field experiment is designed to investigate how accurate job seekers' beliefs regarding labor market competition are, how beliefs respond to information about past competition and goal-setting opportunity, and how beliefs affect job seekers' search behavior and preliminary labor market outcomes. The experiment was embedded in an online survey. After eliciting job seekers' priors about past and future months' competition in their most preferred occupation, we implemented two dimensions of interventions: whether job seekers were provided with factual information about last month's competition in their preferred occupation or/and whether they were given the opportunity to set a daily goal regarding their intended number of job applications in the upcoming month. Afterwards, we re-elicited their beliefs about future

month's competition in their preferred occupation. We further collected administrative data regarding job seekers' resumes, job search behavior and preliminary search outcomes up to 30 days after our survey. The experiment was reviewed and approved by Beijing Normal University's IRB (BNU-BS-IRB 2021-036).

2.1 Experimental setting

Our experiment was conducted on a very large nationwide online job board in China. The job board posts tens of millions of job openings per year and has more than 200 million registered job seekers, with around 2 million daily active users at the time of the experiment in 2021. The job board specializes in white-collar and high-education jobs. Employers post job ads that are produced with a standard template that contains the job's (and the company's) key information as well as the requirements for prospective employees. Key information in the job description includes the range of monthly pre-tax wage offered. Requirements for prospective employees include items such as educational degree and year of work experience.

In order to search and apply for jobs on the job board, job seekers need to first register and provide personal information to construct a standardized résumé. The required information includes, among other things, gender, birth date, location, education and work/internship experience, work status, and type of job sought. After registering and logging in, job seekers can apply to job ads. When they click on an ad, they are shown a full-page description of the advertised job. They can then click the "Apply" button to apply for that job and to send their generated résumé to the employer. The employer receives the résumés immediately.

The job board provides an online communication system to facilitate dialog and feedback between employers and job seekers. After an application is made, a dialog is immediately initiated, through which the job seeker can signal extra interest in the job or provide further information, and the employer can ask questions or provide feedback. Employers can choose to contact applicants via this system, in which case the job board records such preliminary search outcomes, i.e., whether the employer gives any feedback to the applicant and whether such feedback is positive.[7] This system is frequently used by both employers and job seekers. Subsequent search outcomes such as job offers and pay are often discussed outside this system, e.g., by telephone or email provided on the résumé, in which case the job board does not capture the outcomes.[8]

The job board also conducts online surveys among its users and has a designated channel on the app to list such surveys. To facilitate information dissemination, an app message pushing system is in use – for example, to send job application invitations to potentially suitable candidates to facilitate matches between jobs and workers, or to send survey invitations to potentially interested participants, based on certain

[7] Giving feedback is defined (by the job board) as any message sent by the employer in the online communication system to the applicant. Positive feedback is defined by the job board based on content analysis of the messages.

[8] Information on feedback method, as well as other information about how the job board works in practice, was provided to us in conversations with staff of the job board.

matching criteria.[9] Our survey took advantage of this feature to invite our target job seekers (as explained in "Experimental procedures").

2.2 Survey and treatments

The survey consisted of three stages – baseline, treatment and final stages. Baseline and final stages consisted of five sets of questions that were identical for all survey participants, whereas the number (zero to two) and content of questions in the treatment stage varied by treatment. Each question was arranged on a separate page so that it was not possible to return to previous pages for review or modification. Appendix A provides the survey questionnaire (with screenshots in original language shown in Figure A.1) for the *InfoGoal* treatment (detailed below).

In the baseline stage, we first asked survey participants to pick the occupation they wanted to work in the most by choosing from a list of 54 occupations categorized by the job board.[10] Next, we elicited their perceptions about the competition of their chosen occupation in the past calendar month by asking "how many applications do you think were made on average per vacancy in your chosen occupation on [job board name] in [month] 2021?". We used "open-ended" questions for quantitative point belief elicitation, i.e., job seekers could type in any non-negative integer number, as not to prime participants by available response options (Haaland, et al., 2023).[11] We also elicited participants' confidence in their priors by a 5-item Likert scale from "very unsure" to "very sure". We then elicited participants' expectations regarding the competition of their chosen occupation in the upcoming month starting from the day of the survey-completion date, which coincides with the 30 days of behavior following the survey that we track. We also elicited their respective confidence in their future expectations.

---

[9] Job and survey invitations can be sent based the job seeker's résumé data (e.g., monthly salary expectation), previous job search behavior (e.g., the occupations or industries in which the job seeker searched in the past), or previous application behavior on the job board (e.g., the occupations or industries of jobs to which the job seeker applied in the past). Job seekers typically receive a couple of app messages per day while they are actively searching for jobs.

[10] To simplify the selection process, the user first chose one of 12 broad classifications and then chose one from 3-9 occupations in each classification (see Appendix Table A.1). Jobs are classified into 59 occupations. However, 5 categories were omitted in our survey since jobs in these occupations (and job seekers looking for jobs in these occupations) seldomly appeared on the job board, and thus no reliable data for computing sub-market competition existed. Less than 1% of applications were made to these 5 occupations by our survey participants.

[11] We opted against interval partitions for belief elicitation because (1) providing intervals might restrict beliefs to the intervals provided and consequently bias beliefs; (2) there was a practical issue of what intervals should be provided, for example, whether these intervals should vary across occupations, and how these intervals should be modified when we elicited future beliefs again. In addition, we opted against eliciting probabilistic beliefs, in which participants stated probabilities for the options of mutually exclusive intervals (as pioneered by Manski (2004) and widely used in recent literature related to belief elicitation), because (1) they were too complicated for our simple short survey and (2) would result in similar issues regarding the choice of intervals in our context of application-per-vacancy rates.

In the treatment stage, we embedded a 2x2 between-subjects design experiment into the survey. We varied whether information about last month's number of applications per vacancy in a participant's chosen occupation was provided and whether a daily goal regarding intended number of applications on this job board in the upcoming month was elicited. This resulted in four treatment variants:

- *Control*: neither information was provided nor goal was elicited.
- *Info*: only information was provided.
- *Goal*: only goal was elicited.
- *InfoGoal*: both information was provided and goal was elicited.

The nationwide occupation-specific number of applications per vacancy was computed based on the number of applications made to each vacancy on the job board for a specific occupation and calendar month, and was provided to us by the job board. This information was updated at the beginning of each month, as shown in Appendix Table A.2, and is rather stable over our experimental period. When providing this information, we reminded participants of their (elicited) past prior belief, and simultaneously highlighted the percentage difference between the belief and the information. To increase the participants' attention to and engagement with this information, we also required them to select whether the actual labor market was more/less competitive than or as competitive as their estimates. Participants could not proceed to the next question unless they selected the correct answer or being informed of the correct answer after three times of wrong choices.[12] For participants in the *InfoGoal* treatment, we elicited the goal right after the information provision question. The particular wording of the goal question was: "On typical days that you will be searching for jobs on the job board in the next month starting from today, on average, how many jobs do you plan to apply for daily?" For participants in the *Info (Goal)* treatment, the treatment stage included only the information provision (goal elicitation) question.

In the final stage, we re-elicited participants' future beliefs and their confidence thereof using identical questions as in the baseline stage. Note that these questions were also repeated in the *Control* treatment, which will allow us to control for repeated elicitation effect.[13] Lastly, we asked whether participants would like to learn about the labor market through information pushed by the job board in a month's time.

[12] If the first selection was incorrect, we asked participants (at most) two more times while reshuffling the presenting order of the correct answer. This question allowed us to consider the possible role of inattention to information in belief updating. 72.1% of our survey participants answered correctly on the first try, 13.8% on the second, and 6.6% on the third, while 8.5% get all attempts wrong.

[13] We elicited goals before future posterior beliefs in the final stage in order to (1) separate out the belief elicitation and the repeated belief elicitation by one question, and (2) to see whether goal setting has an additional effect on how job seekers updated their future beliefs with respect to information, potentially making information provision more impactful. While eliciting their intended effort via the goal-question also results in a useful auxiliary outcome measure at the time of the information-provision, it is point (2) that motivated us to randomize this question instead of asking everyone in the sample.

2.3 Experimental and additional data collection procedure

The job board posted our survey under its name on its app's designated survey channel, and then pushed an invitation to the survey via app messages to "active" job seekers at a fixed time on working days during the period of September 13th to December 21st, 2021. We define "active" job seekers as those who applied for at least one job on the job board on the previous working day.[14] We focus on "active" job seekers as they represent the group who (1) could sensibly benefit from information regarding labor market competition, (2) would be more willing to take our survey, and (3) would be more likely to make job applications in our post-experiment observation period. Broadening the target to a larger group of job seekers by relaxing the definition of activeness would result in few additional relevant observations but place a large burden on the total number of push-notifications sent by the job board.[15] Appendix Figure A.2 shows the screenshots of the app messages pushed to "active" job seekers (if they agree to receive the messages) and describes various ways to access the survey from the push-notifications. Any user of the app, regardless of receiving an app message, could also search the corresponding survey section in the app, and find and participate in the survey.

The sampling framework was as follows. On the first day of the survey, the job board drew a subsample of the eligible population of "active" job seekers of that day. On subsequent days, the job board followed the same rules, but excluded those who had completed the survey and those who were pushed on the previous working day to avoid too frequent push messages.

Treatment randomization was operated as follows. We stratified the survey participants at the occupation level and randomly assigned those of each intended occupation into four treatments after they answered the baseline-stage questions. Specifically, participants within an occupation who entered the survey sequentially would be assigned to the treatment with the lowest number of completers (draws in terms of the lowest number for multiple treatments were broken at random).

To reach the target sample size of 20,000 as specified in the AEA RCT registry, the survey took four months. Survey completers were paid 1.5 Chinese yuan[16], which is a common small monetary award for answering surveys with similar length on the job board. One user of the app could only participate in the survey once.

In addition to the survey data, we extracted the following data from the administrative database of the job board: the survey participants' (privacy-protected) résumés, the jobs they applied for during the 30 days prior to the survey-starting day and for the 30 days after the survey-completion day, as well as whether

[14] In case the previous day(s) were weekend or public holiday(s), one application on either the previous working day before or any non-working day during the weekend or public holiday(s) was considered as "active". While "active" job seekers might not apply on every particular non-working day, our push rule ensured that over a short period of time, all such "active" job seekers would be invited to our survey.

[15] According to pre-experiment communication with the job board, the likelihood of job seekers who applied on a given day would apply on the next day, in seven days, and in a month was around 60%, 40%, and 30%, respectively.

[16] The exchange rate was around 1 US dollar equal to 6.4 Chinese yuan at the time of the experiment.

each application received feedback from employer via the job board's communication system within 24 hours of application and whether such feedback was positive.[17]

3. Theoretical framework

In this section, we adapt a fairly standard sequential job search problem to our experimental setting to show how search effort and the reservation wage depends on the job seeker's belief about the competition of the labor market.[18]

A job seeker (she) solves a sequential search problem in discrete time. Her (subjective) probability $f(e,k)$ of receiving a job offer depends on her search effort $e \in R^+$ and the competition of her (occupation-specific) labor market $k \in R^+$. We assume that $f(e,k)$ is increasing in effort, $\frac{\partial f(e,k)}{\partial e} > 0$, at a decreasing rate, $\frac{\partial^2 f(e,k)}{\partial e^2} < 0$, and that a positive effort is required to land a job, $f(0,k) = 0$. Suppose further, that the more competitive the labor market is, the lower the chances of receiving an offer become, $\frac{\partial f(e,k)}{\partial k} < 0$ (for $e > 0$) and the (weakly) smaller the marginal impact of effort on receiving an offer is, $\frac{\partial^2 f(e,k)}{\partial e \partial k} \leq 0$. We treat $f(e,k)$ as a subjective probability, meaning that it may not be correct, and so the job seeker may update her view about it. In particular, we will explore how a change in this belief – via a change in the job seeker's subjective point belief about k – changes the job seeker's behavior/decision rules.[19] Search costs $c(e)$ accrue immediately and are strictly convex with $c(0) = 0$ and $c'(0) = 0$.

Conditional on receiving a job offer, the offered wage w is an i.i.d. draw from a subjective wage distribution $F(w)$. If employed, the job seeker's income is her wage and, if unemployed, is some unemployment benefit b. The job seeker cannot accept offers from previous periods and the discount rate is $\beta \in (0,1)$. For ease of exposition, we make the common assumptions that (1) the environment is stationary,

[17] In our AEA RCT registry, we indicated that we would run a follow-up survey primarily aiming for collecting recall data on search outcomes in the month after the intervention. We ended up not doing so for two reasons: first, during the implementation of this experiment, we learnt that the job board had upgraded its administrative system so that feedback data measuring preliminary search outcomes could be made available to us. We view these data as superior measures of search outcomes, because they are subject to fewer measurement errors and issues related to attrition compared to self-reported recall data from a follow-up survey. Second, we learnt that the job platform was unable to only allow job seekers who had participated in the main survey to see and participate in the follow-up survey if both surveys were simultaneously listed on the survey channel of the app. Since the experiment lasted for four months, the appearance of a follow-up survey after first month of the main survey for the earliest batch of participants would have contaminated later participants' answers to the main survey and their search behavior thereafter.

[18] For a literature survey of search theoretic models, see Rogerson et al. (2005).

[19] For this particular framework, whether the perceived arrival rate is correct or not is technically not important as we only focus on the job seeker's (subjective) decision problem and employ this notion mainly to frame the problem. We won't connect it to objective job-market data such as employment probabilities to estimate certain parameters.

(2) there is no job separation and that any accepted job is kept forever at the initial wage, (3) there is no on-the-job-search. Any of those assumptions could be relaxed without affecting our main results.[20]

The Bellman equation for being employed at w is $W(w) = w + \beta W(w)$ and for being unemployed is

$$U = b - c(e) + \big(1 - f(e,k)\big) \cdot \beta U + f(e,k) \cdot \beta \int_0^\infty \max\{U, W(w)\}\, dF(w) \tag{3.1}$$

The job acceptance rule is captured by the usual reservation wage w_R (offers below are rejected), which can be expressed in the familiar equation:

$$w_R = b - c(e) + f(e,k) \cdot \tfrac{\beta}{1-\beta} \int_0^\infty [w - w_R]\, dF(w) \tag{3.2}$$

An unemployed worker chooses effort trying to maximize her value of unemployment, s.t. $U = W(w_R)$, i.e., $U = w_R/(1-\beta)$. Hence, the interior solution can be found by simply differentiating equation (2) and solving for $\frac{\partial w_R}{\partial e} = 0$. The optimality condition is

$$c'(e) \; = f_e(e,k) \cdot \tfrac{\beta}{1-\beta} \int_{w_R}^\infty [w - w_R]\, dF(w) \tag{3.3}$$

It follows that the workers behavior is characterized by the pair (w_R, e) that solves (3.2) and (3.3). Computing the comparative statics (the proofs can be found in Appendix B), yields the following predictions.

Proposition 1: *The more competitive the job seeker views the labor market to be, the lower her reservation wage is:* $\frac{\partial w_R(k)}{\partial k} < 0$.

When the job seeker thinks the labor market is more competitive, she believes that she will receive fewer offers for a given level of search effort. This makes it less beneficial to reject a given offer and wait for potential future potential offers. Overall, the benefit of unemployment is lower and thereby the job seeker is willing to accept lower offers. If we interpret the wage more broadly as representing the utility of a given

[20] Except for the parameter k, our model is an off-the-shelf search model with effort. It is closely related to Caliendo et al. (2015), who model the impact of a job seeker's perception about how their effort translates into job offers (in continuous time). In psychology, this perception tends to be called 'locus of control'. In their main specification, Caliendo et al. model the locus of control using a simple multiplicative interaction between the locus of control and search effort. This implies both a certain direct effect of the locus of control and an interaction effect. In an alternative specification, they assume that search effort and the locus of control are independent, using the basic additive specification. While our model describes a different problem, it essentially generalizes their ideas to a general function $f(e,k)$.

job, reflecting its various characteristics, we conclude that the job seeker is willing to accept lower quality jobs when she views the market to be more competitive. In a typical setting, she would therefore also be willing to accept jobs that require lower levels of experience, one of many variables that should be positively correlated with quality and which is the main secondary datapoint we have in our dataset:

Corollary 1: *The more competitive the job seeker views the labor market to be, the lower her 'reservation experience':* $\frac{\partial experience_R(k)}{\partial k} < 0$

The change in the reservation wage, in turn, impacts the job seeker's incentives to exert effort. To understand the impact of the reservation wage on effort, notice that when reservation wage is lower, the job seeker is more likely to accept an offer (conditional on receiving one) and so the relative benefit of any given wage offer to the reservation wage is larger. This represents the *indirect effect* (through w_R) of viewing the labor market to be more competitive. The *direct effect* works in the opposite direction: when the environment is seen to be more competitive, the marginal return of effort falls: the job seeker expects her effort to be less useful at the margin when she competes with many more people for the same job. As the direct effect operates in the opposite direction of the indirect effect, the effect of k on effort is ambiguous. Effort only decreases if the direct effect is large enough. If this is the case, a belief that the job market is more competitive discourages the job seeker in her search effort. Proposition 2 summarizing this discussion:

Proposition 2: *If the impact of the labor market competition on the marginal effect of search effort* $\frac{\partial^2 f(e,k)}{\partial e \partial k}$ *is sufficiently negative, then* $\frac{\partial e^*(k)}{\partial k} < 0$. *Otherwise,* $\frac{\partial e^*(k)}{\partial k} > 0$.

For our experiment, the takeaway from this theoretical framework is that upon learning that the labor market is more competitive results in a decrease in reservation wage. However, the effect of effort is ambiguous; it is not constrained by a classical sequential search framework.[21]

While we view $f(e,k)$ to be the most plausible mechanism through which beliefs about k affect the search process, it would also be possible that job seekers update their view of the wage distribution in addition. Naturally, the result that a decrease in the mean of the wage offer distribution decreases the

[21] An interesting side-observation here relates to what would happen in a sequential search model when the job seeker does not adjust their reservation wage (immediately) in response to a change in belief but keeps it fixed. The predictions of such a model are essentially equivalent to those of a static one-shot search model. In this case, job effort goes down for any $\frac{\partial^2 f(e,k)}{\partial e \partial k} < 0$. The problem becomes a simple cost-benefit argument – with search being strictly less useful at the margin when the benefit of search decreases. See the appendix for further comments on this. There, we also discuss the special case where the search probability is given by the multiplicative term $f(e,k) = h(e) \cdot g(k)$ with $h' > 0, h'' < 0, g' < 0$. In this case effort decreases in k.

reservation wage (Burdett (1981), Mortensen (1986)), is also true in our model.[22] Hence, if job seekers become more pessimistic regarding the wage offer distribution as they learn the labor market is more competitive, it will (further) reduce their reservation wage (on top of any effects through the offer rate. In terms of effort, it can be shown that this lowers effort unambiguously (yet the overall effect that considers changes in f(e,k) remains ambiguous).

Before we continue, we want quickly and informally discuss an extension to a more general search framework, namely with search in multiple occupations. In such a model, the job seeker allocates effort e_j across $j \in \{1, \dots, n\}$ occupations. In our experiment, job seekers are provided with information regarding k_j in their most preferred occupation only. Hence upon learning that their occupation is more competitive than initially thought (holding k_j for the remaining occupations fixed), the job seeker should find it beneficial to substitute some of her search effort away from her most-preferred occupation towards alternative occupations. For a formal model of search with multiple dimensions, see van den Berg and van der Klaauw (2006).[23] Regardless of the number of occupations present in the model, note that there exists only a single reservation wage, which is determined by the value of unemployment. In other words, Proposition 1 is also true in such a setting.[24]

4. Results: beliefs about labor market competition

In this section, we document how accurate job seekers' perceptions regarding labor market competition in their preferred occupation are and how beliefs are updated in response to the provided information on actual competition and to the opportunity of goal setting. Due to the fact that job seekers who were not pushed the survey invitation could also participate in our survey and that we do not necessarily need to exclude these self-invited participants, we impose *ex post* restrictions to make our sample of participants "active". We restrict the analytical sample within all survey participants to those who (1) applied for at least 1 job in the past week (seven days) prior to starting our survey; (2) completed the survey by the end of the next day from the time point of starting it; (3) had consistent dates of events reported in the résumés;[25] (4) were neither in the bottom nor top 2.5% tails in each of the past prior, future prior and future posterior

[22] See proofs for further details.

[23] With a general assumption that ensures that the direct effect dominates the indirect effect, they show that an increase in the instantaneous (Poisson) offer rate in one dimension results in a higher search effort in this particular dimension and a lower search effort in the alternative dimension.

[24] In multi-occupation settings, it is possible that the lowest-acceptable monetary wage may differ for a job seeker across occupations due to non-monetary benefits. However, all of these wages-cutoffs would adjust in the same direction in response to a change in k.

[25] In the self-reported résumé data on individual characteristics, there are sometimes inconsistencies related to the dates of events reported, such as a birth date later than other events like the start/end of highest education, the first or most recent job. There are also some other, albeit less clear inconsistencies, such as completing education at too young an age (e.g., completing college before age 18 or university before age 20).

belief distributions[26] (nor with any belief value equal to these bottom and top 2.5% belief values). A total of 19,587 job seekers completed our survey. In sequential order, 4,341 job seekers did not satisfy criteria (1), 35 criteria (2), 97 criteria (3), and finally 1,525 criterial (4). Imposing these restrictions leaves us with 13,589 participants. Definitions for and description of all the variables used in the analysis can be found in Appendix Table C.1. Summary statistics are provided in Appendix Table C.2. All individual characteristics are converted back to the point of time before our experimental intervention so that drawing the résumé data after the survey completion is not a concern. In addition, Appendix Table C.3 shows our treatment randomization was successful.[27]

4.1 Accuracy of prior beliefs

We measure misperceptions of labor market competition by comparing job seekers' perceived number of applications per vacancy in their preferred occupation in the past month, against the actual number from the job board's administrative records. Figure 1 shows the distribution of misperceptions in percentage difference. Only a small share (1%/4%) of participants guess the average number of applications per vacancy within ±1%/±10% accuracy. The rest of the participants miss the mark, often by a large margin: the median absolute-value of percentage difference is 83.87%. Breaking the participants into those who are optimistic, defined as those who perceived the labor market to be less competitive than it actually was, i.e., past prior belief smaller than applications over vacancies, and pessimistic, i.e., past prior belief greater than applications over vacancies, we see that the majority is optimistic (71% and 28% are optimistic and pessimistic, respectively).[28] This result is in line with the findings from both developed (Spinnewijn, 2015; Mueller et al., 2021; Potter, 2021) and developing countries (Abebe et al., 2020; Alfonsi et al., 2020; Bandiera et al., 2021; Banerjee and Sequeira, 2020).

---

[26] In contrast to censoring prior beliefs, it is not immediately obvious how to deal with outliers for the future posterior beliefs given that they would have already been influenced by the treatments (in a potentially heterogeneous fashion). As the goal of censoring beliefs is to eliminate non-sensible outliers, we opted to impose the less-restrictive cutoffs from the prior belief restrictions for the future posterior beliefs. The cutoffs happened to come from the past prior belief as of 1 and 5,964. This eliminated 23 and 13 participants, respectively, below 1 and above 5,964. Using the respective 2.5% cutoffs at both tails from the future prior beliefs would have resulted in a stronger reduction of 220 and 38 participants respectively, which would have unnecessarily reduced the sample further.

[27] In particular, we ran pairwise (across four treatments) Kolmogorov-Smirnov tests of equality of distributions for variables from survey, résumé and application behavior prior to our experimental intervention. We find that the mean differences for all variables are small across treatments and no significant differences at conventional levels only except 3 out of 258 tests. We control for these characteristics in our regressions anyway to improve precision, and in general find that our estimation results do not vary whether or not we control for these characteristics.

[28] An uncensored distribution of misperceptions of labor market competition is shown in Appendix Figure C.1. Given that beliefs are restricted to positive numbers, we tend to observe larger deviation of past prior beliefs above the information than below, hence the distribution is more spread out at the right tail. This is also manifested in the median absolute percentage difference, which is 80% for the optimistic and 170.27% for the pessimistic job seekers.

In addition, we find that job seekers are generally aware of their misperceptions. Confidence of job seekers' past prior beliefs show that 28%, 43% and 29% of job seekers report being certain (top two categories), not sure (middle category) and uncertain (bottom two) with respect to their beliefs, respectively. The fact that 28% perceive that they are accurate regarding labor market competition combined with the fact that only 1%/4% have beliefs within ±1%/±10% accuracy suggests that job seekers are in general overconfident about their accuracy. The most plausible reason for the combination of a large proportion of misperceptions and overconfidence of accuracy is that job seekers have little information about labor market competition (of their preferred occupations, and probably also of the overall labor market) or pay little attention towards the information that could be used to calibrate such beliefs. This finding is in line with Cullen and Perez-Truglia (2022) on beliefs regarding the salaries of their managers and peers. Appendix Tables C.4 and C.5 further present regression results that investigate how job seekers' individual characteristics and past search associate with past prior beliefs and misperceptions.

<Figure 1 is about here>

Figure 2 highlights the correlation between participants' past and future prior beliefs in natural logarithms. The concentration around the 45-degree line shows that the two beliefs are highly related, indicating that job seekers view the labor market competition to be stable across months, with a correlation coefficient of 0.823 (p-value <0.001). Limited variation in beliefs across months – both upward and downward – also exists.

<Figure 2 is about here>

4.2 Belief updating (learning)

Next, we look at the belief updating process of job seekers. Let $past\ prior_i$ and $future\ prior_i$ represent job seeker i's beliefs about last and next month's labor market competition in her preferred occupation prior to experimental intervention, respectively. Let $past\ info_i$ denote the information regarding the past month's occupation-specific competition provided in the experiment. Let $future\ posterior_i$ denote job seeker i's posterior belief about next month's competition after experimental intervention (job seeker i may or may not receive intervention). A natural way to model such updating is to express the future posterior belief as a linear combination of the future prior belief and the signal relative to the past prior belief:

$$ln(future\ posterior_i) = ln(future\ prior_i) + \beta \cdot [ln(past\ info_i) - ln(past\ prior_i)]$$

Moving the future prior belief to the left, we get an equivalent updating equation:

$$ln(future\ posterior_i/future\ prior_i) = \beta \cdot ln(past\ info_i/past\ prior_i) \qquad (4.1)$$

In other words, the job seeker updates her future belief upward (downward) if the information exceeds (falls short of) her past prior belief. We will refer to the logged ratio between the information and the past prior belief as the perception gap. β captures the degree of updating (i.e., learning rate), which is expected to range between zero (no updating) and one (complete updating).[29]

Given optimistic or pessimistic job seekers could have different learning rates regarding the perception gap in various treatments, we further allow for this flexibility as follows:

$$ln(future\ posterior_i/future\ prior_i) = \beta_1 \cdot ln(past\ info_i/past\ prior_i) + \beta_2 \cdot optimistic_i \cdot ln(past\ info_i/past\ prior_i) \quad (4.2)$$

Figure 3 depicts the updating process, plotting the logged ratio of future posterior belief over future prior belief against the logged ratio of information over past prior belief separately for each treatment. For the *Control* and *Goal* treatments, many data points are located around the horizontal line at 1, suggesting that, regardless of the extent of their perception gaps, job seekers' future beliefs hardly change from the first to the second elicitation. This can be rationalized by the fact that these job seekers never received information. For the remaining job seekers, upward and downward belief changes both appear common. For the *Info* and *InfoGoal* treatments, a large proportion of data points are located around the 45-degree line, implying that these job seekers update their posterior future belief from prior by the same factor as the information relates to the past prior. For those job seekers whose future prior equals past prior, they adopt a future posterior that is very similar to the provided information. However, we also observe a group of job seekers, who remain stubbornly on the horizontal line at 1, does not seem to respond to the information at all. For the rest who belong to neither aforementioned two types, we see a clear tendency of updating but only partially in line with the information.

In each figure, we provide two fitted lines – one is based on a homogenous learning rate across optimistic and pessimistic participants, based on equation (4.1); and the other allows for heterogeneous learning rates across optimistic and pessimistic types, based on equation (4.2).[30] The slight upward-sloping homogenous learning rate for the *Control* and *Goal* treatments highlight that - even when the competition

[29] When past priors and signals are normally distributed, and the variance of the prior and the variance of the signal are independent of the mean of the prior (Hoff, 2009), equation (4.1) represents (a variant of) a Bayesian updating equation, with the signal being about past prior instead of about future prior. In the robustness checks in section 6, we also explore alternative forms of belief updating.

[30] Since data on all treatments are combined and estimated together, homogenous learning rate for each treatment is estimated by adding in interaction terms of each treatment dummy and perception gap, and including a common intercept across treatments; heterogeneous learning rate for each treatment is estimated by adding in each treatment dummy, interaction terms of each treatment dummy and perception gap, and three-way interaction terms of optimistic, each treatment dummy and perception gap – in this way intercepts are allowed to vary by treatment. The estimations correspond to the functional forms of equation (4.3) and (4.5) detailed below, except for omitting the control variables.

information is absent - job seekers tend to slightly update along the "correct" direction. The fitted lines for homogenous learning rate for the *Info* and *InfoGoal* treatments shows a strong relationship between belief updating and perception gap. When we allow for heterogeneous learning rates across optimistic and pessimistic types, the degree of updating of the two types is fairly similar in the two treatments without information. For the treatments where information is provided, pessimistic job seekers display a higher learning rate than their optimistic counterparts.

<Figure 3 is about here>

In order to estimate the specific learning rates for the various treatments, we generalize our previous updating equations as follows. We add interaction terms between treatment dummy variables and perception gap ($treatment_{ik} \cdot ln(past\ info_i/past\ prior_i)$ into equation (4.1) to obtain equation (4.3) below. Here k refers to one of the *Info*, *Goal* and *InfoGoal* treatment, and $treatment_{ik}$ equals to one if job seeker i was assigned to treatment k and zero otherwise.

The constant term β_0 captures the average future belief adjustment for all participants who have accurate past prior beliefs (i.e., zero perception gap). β_1 captures the average percentage adjustment in future belief for a 1 percent increase in the perception gap for participants in the *Control* treatment. As this group received no information, this is typically interpreted as a repeated elicitation effect. The main parameter of interest, α_k, measures the average percentage adjustment in future belief for a 1 percent increase in the perception gap for participants in treatment k in addition to that in the *Control* treatment. For the *Goal* treatment, this parameter can be interpreted as the effect of a chance for a second thought (after having pondered their goal) since this group did not receive information either. To add further precision of our estimates, we also include job seekers' individual characteristics ($\boldsymbol{X}$) which cover résumé data as outlined in Appendix Table C.2, indicators for the selected preferred occupation as well as indicators for which month's competition index the survey participant was provided with.

$$ln(future\ posterior_i/future\ prior_i) = \beta_0 + \beta_1 \cdot ln(past\ info_i/past\ prior_i) + \sum_k \alpha_k \cdot treatment_{ik} \cdot ln(past\ info_i/past\ prior_i) + \boldsymbol{\Lambda X_i} + \varepsilon_i \quad (4.3)$$

The belief updating process in equation (4.2) is adjusted similarly in equation (4.4). In addition to the interaction terms between treatment dummies and the perception gap, the three-way interaction terms between optimistic type dummy, treatment dummy variables and perception gap ($optimistic_i \cdot treatment_{ik} \cdot ln(past\ info_i/past\ prior_i)$ are added. We describe below only the changes to the interpretation of parameter estimates. β_1' and $\beta_1' + \beta_2'$ capture the average future belief adjustment for a one-percent increase in the perception gap for pessimistic and optimistic participants in the *Control* treatment, respectively. The main parameters of interest, α_k' and $\alpha_k' + \rho_k'$, measure the average future belief adjustment for a 1 unit increase

in the perception gap for pessimistic and optimistic participants in treatment k in addition to that in the *Control* treatment, respectively.

$$ln(future\ posterior_i/future\ prior_i) = \beta_0' + \beta_1' \cdot ln(past\ info_i/past\ prior_i) + \beta_2' optimistic_i \cdot ln(past\ info_i/past\ prior_i) + \sum_k \alpha_k' \cdot treatment_{ik} \cdot ln(past\ info_i/past\ prior_i) + \sum_k \rho_k' optimistic_i \cdot treatment_{ik} \cdot ln(past\ info_i/past\ prior_i) + \boldsymbol{\Lambda}' \boldsymbol{X_i} + \varepsilon_i' \quad (4.4)$$

Finally, we generalize equation (4.4) one step further in (4.5), including treatment dummy variables *per se*. The interpretation of the constant term β_0'' now changes to the average future belief adjustment for participants who have accurate past prior beliefs in the *Control* treatment, whereas $\beta_0'' + \gamma_k$ reflects the average future belief adjustment for participants with accurate past prior beliefs in treatment k. Equation (4.5) has a more flexible functional form compared to equation (4.4), allowing for different future belief adjustments for participants with accurate past prior beliefs across treatments.

$$ln(future\ posterior_i/future\ prior_i) = \beta_0'' + \beta_1'' \cdot ln(past\ info_i/past\ prior_i) + \beta_2'' \cdot optimistic_i \cdot ln(past\ info_i/past\ prior_i) + \sum_k \gamma_k \cdot treatment_{ik} + \sum_k \alpha_k'' \cdot treatment_{ik} \cdot ln(past\ info_i/past\ prior_i) + \sum_k \rho_k'' optimistic_i \cdot treatment_{ik} \cdot ln(past\ info_i/past\ prior_i) + \boldsymbol{\Lambda}'' \boldsymbol{X_i} + \varepsilon_i'' \quad (4.5)$$

Table 1 reports the estimation results of equations (4.3), (4.4) and (4.5) in columns (1), (3) and (4), as well as equation (4.3) augmented with the three-way interactions between treatment dummies, perception gap and confidence in future prior beliefs in column (2). The results broadly reiterate our insights from Figure 3.

In column (1), the statistically insignificant estimate of β_0 indicates that all participants who have accurate past prior beliefs, on average, do not adjust their future beliefs. The positive estimate of β_1 implies that repeated elicitation already induces participants in the *Control* to adjust beliefs along the direction of the perception gap even without learning any new information: for 1% underestimation (overestimation) of past occupation-specific competition, participants adjust up (down) their beliefs for future competition by 0.062%. The positive coefficients on *Info* × $ln(past\ info_i/past\ prior_i)$ and *InfoGoal* × $ln(past\ info_i/past\ prior_i)$ indicate a 0.455% and 0.395% greater learning rate along the direction of perception gap in response to the information without and with goal setting, respectively, compared to that in the *Control*. In contrast, the lack of significance of the *Goal* × $ln(past\ info_i/past\ prior_i)$ coefficient suggests that just setting a daily goal regarding the intended number of applications but without receiving information does not result in additional updating relative to the *Control*.

A direct comparison between the coefficients on *Info* × $ln(past\ info_i/past\ prior_i)$ and *InfoGoal* × $ln(past\ info_i/past\ prior_i)$ shows that, conditional on providing information, setting goal weakens belief

updating by 0.06% (=0.395%-0.455%, *p*-value<0.01). Indeed, the learning rate in the *InfoGoal* treatment that is computed by subtracting the second-thought effect induced by goal setting, still suggests that this rate is significantly lower than that in the *Info* treatment by 0.052% (=0.395%-(-0.00774%)-0.455%, *p*-value=0.018).

In column (2), estimates of β_1 and α_k are similar as those in column (1). The negative coefficients on the three-way interactions with *Info* and *InfoGoal* treatment dummies suggest that those who are more confident in their future priors update less in response to the information. This is consistent with Bayesian updating. The insignificant coefficient on the three-way interaction with *Goal* treatment dummy suggests that unconfident participants in the *Goal* treatment do not respond more to the perception gap compared to those in the *Control*, which itself is unaffected by confidence.

In column (3), estimates of β_1' and α_k' suggests that while pessimistic participants in the *Control* do not "update" in the correct direction, participants in all other three treatments update their beliefs in line with the information. This is true even for those who only set goals but do not get information – although at a much smaller rate. Compared to the pessimistic type, estimates of β_2' and ρ_k' show that optimistic participants have higher learning rate in the correct direction in the *Control*, yet have lower learning rates in all other treatments.

In column (4), the estimates of α_k'' for treatments with information provision remain fairly similar to those in column (3). The key aspect to note is that negative coefficients on treatment dummies *Goal* and *InfoGoal* suggest a downward adjustment of beliefs for participants with accurate past priors. This could be due to the possibility that setting goals makes job seekers realize that making applications is actually tiring and extending their own experience to others to downward adjust their beliefs in general. The coefficients on $ln(past\ info_i/past\ prior_i)$ and $Goal \times ln(past\ info_i/past\ prior_i)$ for both optimistic and pessimistic types change qualitatively, suggesting that repeated elicitation and second-thought effects without information provided are somewhat sensitive to the specification used.

<Table 1 is about here >

In addition to the analysis of learning rate for the full sample, in Appendix Table C.6, we compute the learning rates based on equation (4.3) and compare them across various groups of job seekers. We focus on the learning rates beyond any repeated elicitation (*Info* vs. *Control*) or second thought effects (*InfoGoal* vs. *Goal*). We find qualitatively similar results for both cases that attentive participants (who made no mistakes in the attention check question) display a greater rate of learning in both the *Info* and *InfoGoal* treatments than inattentive participants (who made at least one mistake in the attention check question). Interestingly, the estimated difference in learning rates between the two groups are the largest among all group-comparisons. Participants with university degrees, who are unemployed, or are female update more strongly than the respective participants without university degrees, who are employed, and or are male.

5. Results: Effects of beliefs on search behavior and outcomes

Next, we investigate the search behavior of job seekers and preliminary search outcomes in the 30 days after the survey-completion day. Job search behavior includes search effort – whether applying for at least one job, and the number of applications made daily; target occupation switching (the proportion of applications made to different occupations from the preferred occupation that was selected at the beginning of the survey); lowest acceptable quality of jobs sought – reservation wage (the minimum of the wages posted among all applications made), and minimum job requirement regarding years of work experience among all applications made. Preliminary search outcomes are based on positive feedback to applications from employers – whether receiving positive feedback for at least one application, and the number of positive feedbacks to applications per day; highest possible quality of potential job offers – the maximum wage posted as well as the maximum experience required among all applications with positive feedbacks. These preliminary search outcome measures conditional on positive feedback can be seen as proxies for actual job offers under the assumption that these positive feedbacks would be converted into job offers at a constant and homogeneous rate across job seekers.

The construction of search behavior and outcome variables is subjected to the following rules. First, since job ads always specify a range for wage posted, we use the midpoint of the wage range to construct the reservation wage.[31] Second, years of work experience required is specified in terms of "categories", so we construct minimum work experience required as continuous categorical variable, see Appendix Table C.1.[32] Third, for variables that may include values of zero with zero being a meaningful data point, i.e., search effort and feedback measures, we keep observations for survey participants with zero values in the analytical sample and compute the inverse hyperbolic sine, which approximates the natural logarithm and is denoted by $asinh(\cdot)$, of their daily averages. For measures that describe job characteristics of application behavior, i.e., wages, experience, applications to non-preferred occupations, only the participants who made at least one job application qualify for remaining in the analytical sample. In this case, continuous variables are measured in natural logarithms, and likelihoods and categorical variables are measured in levels. In the robustness checks in section 6, we also restrict search effort and feedback measures to positive values.

As the impact of beliefs on search behavior and outcomes may vary over time, we split our analysis into short-term, medium-term, and further-away timeframes. In particular, we report estimation results for 1-5 days, 6-10 days, 11-20 days and 21-30 days after the day of completing our survey. A practical matter is how to partition the timeframe in terms of number of days, as when the timeframe is too short, it is possible that we do not observe any applications by a particular job seeker, and hence would exclude this person from (some of the) the analyses. Using a 5-day timeframe for the first two timeframes is a good choice in this regard. We then bunch further-away periods into buckets of twice the length to limit the total timeframes of investigation, and to maintain a fairly large sample of analysis as people tend to apply less in

[31] The results are robust to using the lower- or upper-bound values instead. The results are available upon request.

[32] Note that we can also construct variables based on the midpoint value of each category, which yields qualitatively identical results for all related regressions. The results are available upon request.

these periods. As will be shown that the effects of beliefs vary (generally fade away) along the timeframes, the overall effects are not informative to be reported.

5.1 Identification strategy

We are interested in how job seeker i's belief regarding the competition of the labor market shapes her search behavior and outcomes, denoted by y_i:

$$y_i = \delta_0 + \delta_1 ln(future\ posterior_i) + \boldsymbol{\Theta X_i} + \Phi \boldsymbol{controls\ past_i} + \epsilon_i \qquad (5.1)$$

In addition to controlling for the same job seekers' individual characteristics ($\boldsymbol{X_i}$) as in the learning models (see section 4), we also include participant's past search behavior or outcomes, indicated by "controls past". For regressions regarding search effort (whether the job seeker made any applications; the number of applications) and feedback measures (whether the job seeker got any positive feedback; number of positive feedbacks), we include daily number of applications or feedbacks in the past week before the survey-starting day separately as controls.[33] For regressions regarding variables other than search effort or feedback measures, we compute the value of the respective dependent variable for the week prior to the survey-starting day and include it as a control. For regressions regarding highest possible quality of potential job offers, past controls further include the number of positive feedbacks in addition to the respective dependent variable in the week prior.

Obtaining causal estimate of δ_1, is challenging, due to the usual concerns such as reverse causality and omitted variables as discussed in the introduction. Therefore, we introduce two IV estimators that exploit the exogenous variation in beliefs induced by the information provided via our experimental intervention, and rely on the belief updating equations introduced in the previous section for identification. It is crucial to note that, the provided information does not have any impact on participants' job search behavior and outcomes *other than* through the channel of changing their beliefs (Haaland et al., 2023).

IV.1

First Stage

$$ln(future\ posterior_i) = \beta_0 + \zeta ln\,(future\ prior_i) + \beta_1 \cdot ln(past\ info_i/past\ prior_i) + \sum_k \alpha_k \cdot treatment_{ik} \cdot ln(past\ info_i/past\ prior_i) + \boldsymbol{\Lambda X_i} + \varepsilon_i \qquad (5.2)$$

[33] The reason for doing so is that the timing of past applications (or feedbacks) is highly predictive of future applications (feedbacks) and thus simply combining the number of past applications in the prior week as in other search behavior and outcome variables conceals a lot of information represented by the zero applications (feedbacks). Our regression results are robust to alternative ways of constructing past control variables such as using the average daily number of applications (positive feedbacks) in the week prior to the survey-starting day.

Second Stage

$$y_i = \delta_0' + \delta_1' \ln(\widehat{future\ posterior_i}) + \delta_2' \ln(future\ prior_i) + \delta_3' \cdot \ln(past\ info_i/past\ prior_i) + \boldsymbol{\Theta' X_i} + \Phi' \boldsymbol{controls\ past_i} + \epsilon_i \quad (5.3)$$

The first-stage regression equation (5.2) measures the effect of our intervention on the posterior beliefs and is adapted from the learning model given by equation (4.3) that assumes homogenous belief updating across optimistic and pessimistic job seekers. Since the purpose of the first-stage regression is to predict future posterior belief, not the degree of updating, future prior belief is moved back to the right-hand side. Specifically, it considers that the exogenous variation is *entirely* implemented by the interaction terms (instruments) $\sum_k treatment_{ik} \cdot \ln(past\ info_i/past\ prior_i)$, i.e., the differences in how search behavior and outcomes respond to the perception gap of labor market competition between each treated and the *Control* groups can be attributed *entirely* to the random assignment of the information or/and the goal-setting opportunity.

Equation (5.3) represents the second-stage regression, where the predicted future posterior belief replaces the endogenous variable, and which, as usual, includes variables such as the future prior belief and the perception gap that are fundamental to the first-stage regression, as well as individual characteristics.

The key identifying assumption behind this IV specification is the instrument exogeneity assumption $E[\sum_k treatment_{ik} \cdot \ln(past\ info_i/past\ prior_i) \cdot \epsilon_i] = 0$. In another word, we require that the variation in y_i across treatments truly results from the variation in the perception gap across treatments but not from variation in some unobserved factor that is correlated to the perception gap.

In addition to the instruments constructed based on the learning model given by equation (4.3), we also construct the instruments based on the updating model that allows for differential updating between optimistic and pessimistic job seekers given by equation (4.5). The second stage effectively remains the same as before (with the respective additional exogenous variables being added), yet the first-stage regression becomes:

IV.2

First Stage

$$\ln(future\ posterior_i) = \beta_0' + \zeta' \ln(future\ prior_i) + \beta_1' \cdot \ln(past\ info_i/past\ prior_i) + \beta_2' \cdot optimistic_i \cdot \ln(past\ info_i/past\ prior_i) + \sum_k \gamma_k\ treatment_{ik} + \sum_k \alpha_k' \cdot treatment_{ik} \cdot \ln(past\ info_i/past\ prior_i) + \sum_k \rho_k'\ optimistic_i \cdot treatment_{ik} \cdot \ln(past\ info_i/past\ prior_i) + \boldsymbol{\Lambda' X_i} + \varepsilon_i \quad (5.4)$$

The instruments become $\sum_k treatment_{ik}$, $\sum_k treatment_{ik} \cdot \ln(past\ info_i/past\ prior_i)$, as well as $\sum_k optimistic_i \cdot treatment_{ik} \cdot \ln(past\ info_i/past\ prior_i)$,where we need two more instrument exogeneity assumption in additional to that in IV.1, i.e., $E[\sum_k treatment_{ik} \cdot \epsilon_i] = 0$ and $E[\sum_k optimistic_i \cdot treatment_{ik} \cdot \ln(past\ info_i/$

$past\ prior_i) \cdot \epsilon_i] = 0$. To address any remaining concerns about the econometric specification, we provide a falsification test in the robustness checks in section 6.

Finally, Figure 3 shows that job seekers react differently to the actual labor market competition from our information-provision experiment, resulting in heterogeneous treatment effect. Therefore, our estimate, δ_1' in equation (5.3), should be interpreted as the local average treatment effect (Imbens and Angrist 1994) of beliefs.

5.2 Main results

In this section, we present IV regression results for both instruments that document the causal impact of beliefs on job search behavior and preliminary search outcomes. We also report the corresponding results from ordinary least squares (OLS) regressions estimating equation (5.1) for readers who are interested.

Search behavior

Search effort

Table 2 reports regression results for the impact of beliefs about labor market competition in preferred occupation on whether the job seeker applied for any job (extensive margin) and on the average number of daily applications made (intensive margin) in various timeframes, in the first and last three columns respectively. While OLS regressions in columns (1) and (4) show a positive correlation in the first five days after intervention, IV regressions in columns (2)-(3) and (5)-(6) show that none of the estimated effects are close to statistically significant, except for the marginally significant effect in the first five days for the likelihood of applying for any jobs in IV.1. These results suggest that beliefs do not causally affect search effort. As illustrated in our theoretical framework, the null impact could arise from the possibility that the *direct* effect of a change in beliefs on search effort operates in the opposite direction and has a similar magnitude to the *indirect* effect on effort through the change in the reservation wage.

<Tables 2 is about here>

However, it is important to note that zero impact of beliefs on application effort does *not* stem from the job seekers' original intention. Table 3 reports results from reduced-form OLS regressions,[34] based on the sample of the two treatments where goals are elicited. The results show that receiving information causes job seekers to adjust their goals in line with the information, i.e., they increase (decrease) their goals if they are informed that the job market was more (less) competitive than they had thought. A noteworthy implication of this result is that job seekers have the wish to adjust their effort positively in response to misperceptions. This result is informative for policy makers and practitioners such as job board operators in the sense that providing such competition information indeed impacts the job seekers' willingness to

[34] Given that we elicited future posterior beliefs after goals, estimating the respective IV regressions is conceptually tricky as the elicited goals might have affected the elicited beliefs.

exert search effort, although it fails to boost the actual effort (Appendix Table C.7) reports similar null IV regression results as Table 2 for the impact of beliefs on search effort only for job seekers in the two treatments with goal-setting opportunities). An open question left is hence why this positive effect of beliefs on intention is not implemented in the actual job search process.

<Table 3 is about here>

Switching targeted occupations

We next investigate the causal impact of beliefs on the type of occupations for which job seekers applied. We first construct a dummy variable that is equal to 1 if a given application is made in an occupation that is different from the job seeker's preferred occupation, and 0 otherwise. Next, we calculate the proportion of applications made to different occupations within each timeframe for each job seeker, and use it as our dependent variable in our usual regressions to measure the degree of switching targeted occupations during search. Appendix Table C.2 shows that the average proportion of switching is 0.54, 0.53 and 0.54, respectively, in the week prior to starting our survey, the first five days and in 30 days after completing our survey, suggesting that job seekers maintain a rather sizable and stable degree of search in occupations other than their preferred one before and after our experimental intervention. Regression results are reported in Table 4, which show that beliefs do not affect the degree of switching occupations of search.[35]

This null effect of beliefs on switching occupations during search could reflect how job seekers updated their beliefs about competition in the non-preferred occupations in response to the information about competition in their most preferred occupations that we provided them with. If beliefs change one-to-one in their preferred and non-preferred occupations, then one would expect no change of search effort across occupations. In the robustness checks in section 6, we redo all analyses on search behavior and outcomes for applications to preferred and non-preferred occupations separately, with the results being consistent with job seekers updating their beliefs regarding non-preferred occupations in the same direction as in their preferred occupations.

<Table 4 is about here>

Lowest acceptable quality of jobs sought

Table 5 reports the regression results for the impact of beliefs about labor market competition in preferred occupation on the *lowest acceptable* quality of jobs sought. Regarding the reservation wage (the left-hand-side panel), the OLS results suggest a positive correlation between beliefs and reservation wage. These findings are confirmed by the IV regressions, which provide clear evidence that a 1% increase in beliefs leads to a 0.02%-0.03% increase in reservation wage depending on the instrument and analysis timeframe.

[35] Excluding applications to the five rarely appearing occupations where no competition information was provided in the experiment yields qualitatively similar results (results available upon request).

Analogous to, yet stronger than the positive impact on the reservation wage, a 1% increase in competition beliefs results in a 0.05%-0.06% increase in the minimum requirement on years of work experience among all jobs applied for, as shown in the right-hand-side panel of Table 4. The aforementioned positive impact fades away in a few days after our intervention.

<Table 5 is about here>

These results strongly reject Proposition 1 and Corollary 1 of our basic search model, which predicted that an increase in beliefs will decrease job seekers' reservation wage and minimum experience required. To further explore the driver behind this result, we split the sample by arguably the most relevant characteristic of our survey participants: whether a job seeker was employed (Appendix Table C.8) or not (Appendix Table C.9) at the point of time before our experimental intervention, i.e., whether one searched on the job or out of a job. The results show that the adjustment to the reservation wage and minimum experience required is solely driven by job seekers that are currently employed. Their behavior can be rationalized by gambling for higher-quality jobs when landing a job becomes more difficult, in order to make such search effort worthwhile. For unemployed job seekers, however, the reservation wage and minimum experience are not responsive to changes in beliefs, suggesting an unwillingness for a downward adjustment, a rigidity in what they deem acceptable. It is less surprising to us that, unlike employed job seekers, their quality of jobs sought is not increasing in beliefs as they are less able to afford gambling for higher-quality jobs.[36]

An alternative explanation may also rationalize the positive impact of beliefs on reservation wage – job seekers view a higher application-per-vacancy rate as a signal that their preferred occupation is more highly sought after and thus should be better paid (with better pay being possibly also associated with higher job requirements). In other words, job seekers not only lower their beliefs about the (marginal) probability of receiving a job offer $f(e,k)$ in response to learning that the market is more competitive than initially thought, but become more *optimistic* about the wage offer distribution $F(w)$ instead of becoming more *pessimistic* as a more natural response.

Both our experimental design and results tend to reject such an explanation. Two design features directly speak against this explanation. First, the information is contextualized in the survey with "the actual labor market is more/less competitive than your estimate", which would suggest that learning should foremost occurs in terms of the likelihood of receiving offers and less likely in terms of wages sought. Second, the wage (range) is directly specified in the job ads and so one would expect learning arising from our information-provision experiment to be again primarily at the level of receiving offers for a given application.

[36] Note that while our theoretical framework did not explicitly model on-the-job search, there are no fundamental differences between the employed and the unemployed job seekers in such a sequential search problem. One could simply reinterpret the unemployment benefit as a job seeker's current wage.

Moreover, two findings also provide evidence against this explanation. First, if it was true that job seekers become more optimistic about the wage offer distribution after learning that their market becomes more competitive, we would expect the behavioral response to such change to be common across employed and unemployed job seekers. Although we did not elicit beliefs about wage offer distribution, the difference in the impact of beliefs on reservation wage between employed and unemployed job seekers (Appendix Tables C.8 and C.9) indirectly suggests that this is not the case. Second, another way to test for such a creative belief-updating explanation is to compare the reservation wage and minimum experience requirements of experienced vs. inexperienced employed job seekers[37], who are defined as ranking in the top vs. bottom 50 percentile in terms of number of applications made in 30 days prior to starting our survey (with ranks computed separately within each of their preferred occupations). We assume that those who have recently searched for more jobs have learned a fairly larger amount of information regarding possible wages paid in their preferred (and other) occupations. As a result, they will learn less about the wage offer distribution from the information provided about labor market competition compared to those who are inexperienced. Hence, if it was true that job seekers become more optimistic about the wage offer distribution, then this effect would be stronger for the inexperienced.[38] Appendix Table C.10 rejects this hypothesis, with the impact of beliefs on the lowest acceptable quality of jobs sought being, if anything, larger for the group of experienced job seekers.

Our results showed that both the reservation wage and the minimum experience required were increasing in the job seekers' beliefs about competition, rejecting the predictions of our search model. As our search data covers applications to any occupation but our information-intervention only provided data with regards to the job seekers' preferred occupation, there may exist a technical issue that biases our results. That is, if, for example, job seekers sampled jobs from both preferred and non-preferred occupations before our experimental intervention and sampled only from the non-preferred occupations after learning their preferred occupations became more competitive than thought, and (1) if the wage is higher in non-preferred occupation, and (2) if reservation wage or minimum experience requirement is from non-preferred occupation, then our finding of belief increasing reservation wage would be spurious, i.e., it is due to the shift in occupation from which reservation wage or minimum experience requirement come from. We find that for all four timeframes, the reservation wage (minimum experience) comes from an application for a job in one's preferred occupation in about 48% (55%) of all applications; the average reservation wage (minimum experience) is on average 4% to 5% (0.2 categories) lower in the non-preferred

[37] We focus only on employed job seekers because employed job seekers have positive response of reservation wage to beliefs of competition.

[38] To be more precise, the impact on the reservation wage is the combined effects from learning about the wage distribution and the likelihood of receiving an offer. As less experienced job seeker may also learn more about the (negative) effects on offers than the experienced, the claim assumes that the net effect is stronger for the inexperienced than the experienced.

occupation.[39] Moreover, Table C.11 and C.12 directly test whether beliefs causally affect whether the reservation wage or the minimum experience requirement is from the preferred occupation, for which no evidence is found. This alleviates the concern that the results could be spurious.

Search outcomes

Next, we investigate the effects of beliefs on preliminary search outcomes. Since our intervention neither directly affected employers' decisions nor indirectly affected the market equilibrium (given the tiny proportion of job seekers that participated in our surveys relatively to the population of job seekers on the job board), any effect on search outcomes arises is likely to be only due to job seekers adjusting their search behavior in response to our experimental intervention.

Positive feedback to applications

Table 6 reports the regression results for the impact of beliefs about labor market competition on receiving positive feedback to applications – whether receiving any positive feedback from employers for at least one application, and the average number of daily positive feedbacks from employers in each timeframe. The IV regression results highlight that beliefs do not causally influence either the likelihood nor the number of positive feedbacks. Given our previous results showed that beliefs positively affect the reservation wage and the minimum work experience required among the jobs applied for, these null results suggest that such upgrading in search toward higher-quality jobs does not seem to lower job seekers' likelihood of getting an offer and the number of offers.

In view of our earlier discussion regarding the differences between the employed and the unemployed job seekers in the lowest acceptable quality of jobs sought, we recognize, however, that these overall results of positive feedbacks may also mask differences between those two groups. Appendix Tables C.8 and C.9 reveal that beliefs neither affect the likelihood of getting any positive feedback nor the number of positive feedbacks in the first 5 days for either group, i.e., in the timeframe with the strongest adjustment to the lowest possible quality of the job sought. In the timeframes of 6-10 and 11-20 days, there is some indication of a marginal decrease in getting any positive feedback for employed job seekers, but not for unemployed job seekers. Taken together, the signs of these estimates are consistent with the (lack of) adjustment for (un)employed job seekers to the lowest acceptable quality of jobs sought, albeit the effects are generally small and not very statistically significant.

[39] It is important to note, that theoretically, the reservation value is defined as the minimum *utility* of a job that one would accept and hence, this value must be the same across jobs in different occupations. Consequently, any *change* in this utility-value arising from changes in beliefs applies to *any* job regardless of occupation. Of course, the minimum monetary level (wage offer) a job seeker demands from a given job may differ between occupations due preferences over occupations or other non-monetary differences. However, changes in of these monetary levels across occupations arising from changes in beliefs must be of the same sign (given these fixed differences in preferences, etc.).

<Table 6 is about here>

Highest possible quality of potential job offers

Finally, we restrict our analysis to the *maximum* of the wages posted and the *maximum* work experience required among all applications with positive feedbacks. These measures capture the "best job" among those that could be landed at by the job seekers. Table 7 reports the regression results. The IV regression results show that beliefs have slightly positive effect on the maximum wage posted, and have stronger positive effects on the maximum experience required in medium-term periods, implying that exogenously increased competition beliefs causally upgrade the quality of the jobs job seekers possibly can land at even though the chances and number of offers stay unchanged.

<Table 7 is about here>

6. Robustness checks

In this section, we summarize a series of robustness checks that explores ideas such as alternative forms of updating, falsification tests, variations to or splits of our analytical sample, as well as validity of instruments. Overall, we find that our results are robust.

6.1 Falsification test

We exploit the timing of our intervention to provide a falsification test for our identification strategy. Using the search behavior and outcomes in the week prior to the day of starting our survey, we estimate the same IV regressions as in section 5. Intuitively, the instrumented beliefs should not affect behavior and outcomes in the pre-experiment period. Appendix Table C.13 report the results, which confirm that the coefficients on posterior future beliefs are close to zero and statistically insignificant in all regressions. These results also provide additional and more convincing evidence that suggests that we had implemented a successful randomization in addition to the randomization check reported in Appendix Table C.3.

6.2 App time-use data

In addition to the analysis shown in our pre-analysis plan, we also managed to obtain additional data on job seekers' daily usage time (in minutes) of the job board's App as an alternative measure of search effort, albeit limited to a period of 13 days in October 2021 due to data collection being highly resource intensive according to the job board. Given this limitation on the total number of days for which we could collect the data, the specific timeframe was selected to maximize the total number of survey participants who have complete data for the first 5 days after our intervention. The usage time data describe the "raw" search

effort and may better describe actual search effort compared to the number of applications.[40] On average, 93% of our survey participants opened the App in the first 5 days after completing our survey, and spent 15.7 minutes daily on the App. Appendix Table C.14 reports IV regression estimates on whether job seekers opened the app and the average of daily time spent in the App in the first 5 days after intervention. Similar to our main results regarding search effort, the estimates are not statistically significant.

6.3 Alternative sample

For the main results of search effort and feedback measures reported in Tables 2 and 6, we include the job seekers with zero applications. In view of the analysis of other outcome measures that implicitly restrict the sample to job seekers that made at least one application in each timeframe after intervention, we redo the analyses reported in Tables 2 and 6 also imposing this sample restriction. Note adding this sample restriction makes estimation of Table 2's first three columns impossible. We report the results in Tables C.15 and C.16 respectively, for the full sample and by work status to shed light on the heterogeneity in the effect of beliefs on the lowest acceptable quality of the jobs sought and positive feedback to applications across employed and unemployed job seekers. The search effort estimates are qualitatively identical to those that include job seekers with zero applications. The feedback estimates conditional on at least one application in each timeframe become more negative compared to those with zero applications. This effect is driven entirely by the employed job seekers. The reason for the null effect of beliefs on unconditional feedback in the short term of 1-5 days may be due to a marginal increase of the likelihood of making any applications, as indicated in Appendix Table C.8, which offsets the negative effect of getting any positive feedback conditionally.

6.4 Preferred vs. non-preferred occupations

Given that job seekers can process the competition of other non-preferred occupations differently based on the provided information about their preferred occupations, and that about half of applications are made to occupations other than their preferred occupation, we further split our sample into the two types of occupations, and then estimate the same IV regressions regarding all search behavior and matching outcomes described in this section. Appendix Tables C.17 and C.18 report the results for preferred and non-preferred occupations, respectively, which are found to be similar. Hence, it is likely that job seekers also change their perceived competition of non-preferred occupations in the same direction as that of their preferred occupations.

6.5 Attentive vs. inattentive survey participants

[40] The two search effort measures, number of daily applications (asinh) and daily usage time (asinh) (for the 13 days when data for both measures are available) is highly correlated: the correlation coefficient is 0.583 and statistically significant (p-value <0.001).

In the survey we implemented an attention check question. We already investigated whether attention paid to answering the survey questions affects belief updating in Table C.6 and found attentive participants, who account for 70% of job seekers in the treatments with information, do display a greater rate of learning than their inattentive counterparts. We now explore if this inattention affects search behavior and outcomes by excluding inattentive participants (who made mistakes in the attention check question), under the assumption that participants who did not answer the attention check question in the *Control* and *Goal* treatments are attentive. Table C.19 report the results. Results are qualitatively similar to our main results. If anything, the regression estimates become more significant. This makes intuitive sense as it is this group of people who are most likely to pay closer attention to our information provision, likely think more deeply about the implications of such information, and hence will respond more strongly. The practical – and admittedly obvious – implications for job-boards, who consider running information campaigns, is the need to guarantee the users' attention to those information campaigns.

6.6 Female vs. Male survey participants

It is well documented in the literature that women shy away from competitive work settings whereas men covet in (Niederle and Vesterlund, 2007; Flory et al., 2015). Therefore, it is interesting to investigate if beliefs about labor market competition lead to differential search behavior and outcomes for female and male job seekers.

As shown in Tables C.20 and C.21, beliefs increase the likelihood of applying for jobs for males but do not change the likelihood for females. In terms of the number of applications the point estimates for men are positive while the opposite is true for women – although neither is significant. Beliefs significantly increase the lowest acceptable quality of jobs sought for females. For males, these effects are smaller in size and most effects are not statistically significant. Finally, beliefs increase the possible quality of potential job offers for men but not women. Taken together, the results suggests that male and female job seekers react differently to an increase in beliefs about labor market competition: men adjust more in terms of effort but upgrade the quality of job sought less than women, and (consequently) obtain better preliminary search outcomes.

6.7 Alternative instruments

The validity of our instruments hinges on the fulfillment of the exogeneity assumptions stated in section 5.1. That is, our experimental intervention only affects the variation in search behavior and outcomes through changes in beliefs, but does not directly affect search or any unobserved factor that is correlated with search. As information itself operates essentially through beliefs, it is most likely that the information intervention satisfies this assumption. However, unlike information, it is possible that goal setting has a direct effect on search, which would violate the exogeneity assumption of using it as an instrument. To explore this, we redo the analyses for all search behavior and outcomes by adding a goal-setting dummy variable (equal to one for the two treatments where goals were elicited and zero otherwise) into the second

stage of the regressions. Appendix Table C.22 reports the IV regression results that allow for the *direct* effect of goal-elicitation in addition to the usual (*indirect)* effect of beliefs on search. We find that the *indirect* effects remain similar to our main results, and the *direct* goal-setting effects are statistically significant in 7 out of 72 cases, which alleviates any worries regarding the validity of our instruments. Moreover, we note that simply eliciting intended effort in this context does not appear to help solve any potential self-control problems (Wu et al., 2008; Clark et al., 2020; He et al., 2023) as the effect of setting a goal on actual effort is insignificant throughout.

6.8 Alternative forms of belief updating

Throughout, we relied on a standard Bayesian updating equation, with the minor variation that the signal was about the past prior instead of the future prior. To check whether our results are sensitive to the form of updating assumed, we explore various alternatives in Online Appendix D, both in terms of their effects on the belief updating itself as well as on the respective search behavior and outcomes.

First, we allow for belief updating in response to perception gap to be heterogenous across selected preferred occupations. Since it is possible that the same perception gap (e.g., 30 fewer applications per vacancy) in different occupations (e.g., banking vs. car manufacturing) are very different situations, we add the interaction terms of each of 53 preferred occupation dummies and the perception gap in equation (5.2) and redo the analyses for all search behavior and outcomes. Appendix Table D.1 reports the regression results, which are qualitatively similar to the main results.

Second, instead of allowing for updating to differ linearly between optimistic and pessimistic job seekers, a split informed by prior literature, we can estimate belief updating using (restricted cubic) splines in order to fit the data better.[41] As Figure D.1 illustrates, the best-fitted belief implied by the cubic spline and our prior piece-wise belief are broadly similar for intermediate belief levels. Table D.2-D.4 re-estimate the IV regressions based on the restricted cubic splines for both the full sample as well as the employed and unemployed job seekers. The estimated impact of beliefs on the lowest acceptable quality of jobs sought remain significant and qualitatively similar for the employed job seekers, although the impact on reservation wages turns to be slightly smaller and insignificant for the full sample of job seekers.

Finally, we repeat our analysis for two other, more "behaviorally-inspired" updating methods: (1) A naïve updating where the job seeker acts as if the past information is a direct signal about the future and thus relies on a perception gap that is based on the log-difference between this signal and the future prior belief instead of the past prior belief. Alternatively, (2) we model updating as a two-step process according to which the job seeker first updates her past posterior belief (for which we do not have any data) based on the information about the past, and then uses this updated belief about the past to revise her belief about the future. The belief updating graph and estimates are very similar to those in section 4. Similarly, all IV regressions that rely on either approach in the first stage result in qualitatively similar estimates to

[41] We estimate the standard restricted cubic splines with the resulting five knots being automatically determined by Harrell's (2001) recommended percentiles.

those in section 4.2. Given that job seekers view the level of occupation-specific labor market competition to be fairly stable (the correlation coefficient between a participant's past and future prior beliefs in natural logarithms is 0.821, p-value <0.001 as shown in Figure 2), it is unsurprising that the belief measures are quite interchangeable in the regressions.

6.9 Intent-to-treat effects

Throughout this paper, our focus was on estimating the causal impact of beliefs on job search behavior and outcomes, which takes advantage of the exogeneous variations in beliefs induced by the information-provision experiment. For completeness and policy relevance, we report the intention-to-treat effects of our experimental intervention in Appendix Tables E.1-E.3. Since our type of information provision generally increases beliefs of job seekers who are optimistic about labor market competition but decreases beliefs of those who are pessimistic, the overall intention-to-treat effects are often muted as the opposing changes in beliefs and consequently the resulting opposing behavioral changes (if they exist) tend to simply cancel out each other.

7. Conclusions

We explore evidence on how job seeker's beliefs about labor market competition impacts their job search behavior and outcomes using data from an information-provision experiment which is embedded in an online survey and conducted on a nationwide Chinese job board. After eliciting job seekers' priors about past and future months' competition, we randomized whether participants were provided with information about last month's applications per vacancy numbers and whether their personal daily application goal was elicited. Afterwards, we re-elicited their beliefs about next month's competition. We also collect novel and detailed administrative data regarding job seekers' resumes, job search behavior and preliminary search outcomes.

We find that most job seekers' beliefs deviate from the actual competition level, often by a large percentage, and that they update their beliefs in a manner consistent with Bayesian Updating. Our results show that while intended search effort increases in beliefs, neither job seekers' real effort nor their tendency to switch to other, non-preferred occupations is affected by those beliefs. In contrast to the prediction from a sequential search model, we find that lowest acceptable quality of jobs sought both in terms of reservation wage and the minimum required work experience among the applications made increase in their beliefs. In terms of search outcomes, we show that this adjustment in search behavior does not lead to worse outcomes. Neither the likelihood or the number of positive feedbacks from employers to application made nor the maximum wage offer or maximum experience required among applications receiving positive feedbacks decreases in beliefs.[42]

[42] This finding mirrors the finding from Banerjee and Sequeira (2020) that job seekers who lower their reservation wage when searching do not increase their likelihood of being employed.

While our results raise intriguing theoretical questions as to why the reservation wage is increasing in beliefs, most point estimates of search behavior and outcomes tend to be small and often insignificant, despite our large sample size.[43] This echoes previous findings of many information-provision experiments regarding the impact of beliefs on behavioral outcomes (e.g., Bhat et al., 2022; Dhia et al., 2022; Fehr et al., 2022, and more evidence summarized in the review paper by Haaland et al., 2023, p.48), which emphasizes the importance of using revealed-preference data other than data directly from the intervention-implementation survey *per se* (e.g., Miano, 2022) to understand the effects of beliefs on actual behavior.

One likely cause of this may be that the exogenously-induced belief variation only represents a small part of the total variation in belief induced by a large variety of different sources, making it be less important than researchers may like to believe. The effect of our intervention may also be short-lived due to the arrival of new information or important events such as positive or negative feedback to applications, etc. Another reason for such small effects may lie in the intention-choice gap as highlighted by the different impact of beliefs on intended and actual job search in our data. Understanding how to best design information-campaigns in order to bridge this gap appears like an important next step for the information-provision literature.

Our results imply that, if such belief effects on behavior are deemed desirable to be promoted, providing information likely needs to be a regular activity by job boards or government, rather than a one-time task. Providing tailored/individualized information outside of a survey, but directly on, say, the job-ad pages of job boards' app or personalized report-cards could further strengthen the salience of such information in the eyes of job seekers. Indeed, we believe that the prevalence of online-job and their willingness to trial new features may not only be a great source of insights into the job-search process but also be a fantastic opportunity to engineer a labor market that leads to better outcomes for workers.

There are two natural directions that this research could be fruitfully extended. First, understanding the mechanism(s) through which beliefs about competition affects search behavior, is of immediate relevance. Explicitly relating these beliefs to beliefs about the (the marginal) likelihood of receiving a job offer (or more proximately measures such as call-back rates), the wage offer distribution, etc., would inform how available job market statistics such as application per vacancies affect key primitives of job-search models. Similarly, understanding better how job seekers extract information from fairly aggregate labor market data about their particular situation, e.g., occupation, sector, job level, or region, would be useful. In our particular case, learning more about their beliefs about alternative occupations could help to better understand their incentives for broadening their search across occupations, for example.

Second, combining information-provision experiment on job search with matched employer-employee data would allow researchers to investigate potential impacts of beliefs on job offer acceptance, work performance and exit in the subsequent stages of recruitment and employment.

[43] Our sample size is far beyond the minimum size of 700 respondents per treatment arm recommended by Haaland et al. (2023).

References

Abebe, G., Caria, A.S., Fafchamps, M., Falco, P., Franklin, S. and Quinn, S., 2021. Anonymity or distance? Job search and labour market exclusion in a growing African city. *The Review of Economic Studies, 88*(3), pp.1279-1310.

Abebe, G., Caria, S., Fafchamps, M., Falco, P., Franklin, S., Quinn, S. and Shilpi, F., 2020. Matching frictions and distorted beliefs: Evidence from a job fair experiment. *Department of Economics, Oxford University (mimeo)*.

Abel, M., Burger, R., Carranza, E. and Piraino, P., 2019. Bridging the intention-behavior gap? The effect of plan-making prompts on job search and employment. *American Economic Journal: Applied Economics, 11*(2), pp.284-301.

Alfonsi, L., Bandiera, O., Bassi, V., Burgess, R., Rasul, I., Sulaiman, M. and Vitali, A., 2020. Tackling youth unemployment: Evidence from a labor market experiment in Uganda. *Econometrica, 88*(6), pp.2369-2414.

Altmann, S., Falk, A., Jäger, S. and Zimmermann, F., 2018. Learning about job search: A field experiment with job seekers in Germany. *Journal of Public Economics, 164*, pp.33-49.

Altmann, S., Cairo, S., Mahlstedt, R. and Sebald, A., 2022a. Do Job Seekers Understand the UI Benefit System (And Does It Matter)? IZA Discussion Paper No. 15747.

Altmann, S., Glenny, A., Mahlstedt, R. and Sebald, A., 2022b. The direct and indirect effects of online job search advice. IZA Discussion Paper No. 15830.

Banerjee, A.V. and Sequeira, S., 2020. Spatial mismatches and imperfect information in the job search.

Bandiera, O., Bassi, V., Burgess, R., Rasul, I., Sulaiman, M. and Vitali, A., 2021. The search for good jobs: Evidence from a six-year field experiment in Uganda. Available at SSRN 3910330.

Beam, E.A., 2016. Do job fairs matter? Experimental evidence on the impact of job-fair attendance. *Journal of Development Economics, 120*, pp.32-40.

Belot, M., Kircher, P. and Muller, P., 2019. Providing advice to jobseekers at low cost: An experimental study on online advice. *The Review of Economic Studies, 86*(4), pp.1411-1447.

Benghalem, H., Cahuc, P. and Villedieu, P., 2021. The lock-in effects of part-time unemployment benefits. CEPR Discussion Paper No. DP15921

Bhat, B., De Quidt, J., Haushofer, J., Patel, V.H., Rao, G., Schilbach, F. and Vautrey, P.L.P., 2022. *The long-run effects of psychotherapy on depression, beliefs, and economic outcomes* (No. w30011). National Bureau of Economic Research.

Bhole, M., Fradkin, A. and Horton, J., 2021. Information about vacancy competition redirects job search. SocArXiv. April, 7.

Burdett, K. and Vishwanath, T., 1988. Declining reservation wages and learning. *The Review of Economic Studies, 55*(4), pp.655-665.

Burdett, K. and Mortensen, D.T., 1998. Wage differentials, employer size, and unemployment. *International Economic Review*, pp.257-273.

Cairo, S. and Mahlstedt, R., 2021. Transparency of the welfare system and labor market outcomes of unemployed workers. IZA Discussion Paper No. 14940.

Caliendo, M., Cobb-Clark, D.A. and Uhlendorff, A., 2015. Locus of control and job search strategies. *Review of Economics and Statistics, 97*(1), pp.88-103.

Card, D., Mas, A., Moretti, E., and Saez, E. (2012). Inequality at work: The effect of peer salaries on job satisfaction. *American Economic Review*, 102(6), 2981-3003.

Carranza, E., Garlick, R., Orkin, K. and Rankin, N., 2021. Job search and hiring with two-sided limited information about workseekers' Skills. IZA Discussion Paper No. 14529.

Clark, D., Gill, D., Prowse, V. and Rush, M., 2020. Using goals to motivate college students: Theory and evidence from field experiments. *Review of Economics and Statistics, 102*(4), pp.648-663.

Conlon, J.J., Pilossoph, L., Wiswall, M. and Zafar, B., 2018. *Labor market search with imperfect information and learning* (No. w24988). National Bureau of Economic Research.

Cullen, Z. and Perez-Truglia, R., 2022. How much does your boss make? The effects of salary comparisons. *Journal of Political Economy, 130*(3), pp.766-822.

Dhia, A.B., Crépon, B., Mbih, E., Paul-Delvaux, L., Picard, B. and Pons, V., 2022. *Can a website bring unemployment down? Experimental evidence from France* (No. w29914). National Bureau of Economic Research.

Drahs, S., Haywood, L. and Schiprowski, A., 2018. Job search with subjective wage expectations.

Fehr, D., Mollerstrom, J. and Perez-Truglia, R., 2022. Your place in the world: Relative income and global inequality. *American Economic Journal: Economic Policy, 14*(4), pp.232-68..

Ganguli, I., Gaulé, P. and Vuletić Čugalj, D., 2020. Biased beliefs and entry into scientific careers. Upjohn Institute Working Paper 20-334.

Gee, L.K., 2019. The more you know: Information effects on job application rates in a large field experiment. *Management Science, 65*(5), pp.2077-2094.

Haaland, I., Roth, C. and Wohlfart, J., 2023. Designing information provision experiments. *Journal of Economic Literature, 61*(1), pp.3-40.

Harrell, F. E., Jr. 2001. Regression Modeling Strategies: With Applications to Linear Models, Logistic Regression, and Survival Analysis. New York: Springer.

He, H., Roel, M., Su, R., and Weng, Q., 2023. Information, Goal Setting and Performance: A Field Experiment. *Working Paper*.

Hoff, P.D., 2009. *A first course in Bayesian statistical methods* (Vol. 580). New York: Springer.

Horton, J.J. and Johari, R., 2018. Buyer signaling improves matching: Evidence from a field experiment. *Available at SSRN 3245704*.

Hsiaw, A., 2013. Goal-setting and self-control. *Journal of Economic Theory, 148*(2), pp.601-626.

Ibañez, M. and Riener, G., 2018. Sorting through affirmative action: Three field experiments in Colombia. *Journal of Labor Economics, 36*(2), pp.437-478.

Imbens, G.W. and Angrist, J.D., 1994. Identification and estimation of local average treatment effects. *Econometrica: Journal of the Econometric Society*, pp.467-475.

Jones, S. and Santos, R., 2022. Can information correct optimistic wage expectations? Evidence from Mozambican job-seekers. *Journal of Development Economic*, 159, pp 1-14.

Jäger, S., Roth, C., Roussille, N. and Schoefer, B., 2022. *Worker beliefs about outside options* (No. w29623). National Bureau of Economic Research.

Kelley, E.M., Ksoll, C., and Magruder, J., 2022. How do Online Job Portals affect Employment and Job Search? Evidence from India. *Working Paper*.

Kiss, A., Garlick, R., Orkin, K., Hensel, L., 2023, Jobseekers' Beliefs about Comparative Advantage and (Mis)Directed Search. *Working Paper*.

Koch, A.K. and Nafziger, J., 2011. Self-regulation through goal setting. *Scandinavian Journal of Economics, 113*(1), pp.212-227.

Leibbrandt, A. and List, J.A., 2018. Do equal employment opportunity statements backfire? Evidence from a natural field experiment on job-entry decisions (No. w25035). National Bureau of Economic Research.

Laibson, D., 1997. Golden eggs and hyperbolic discounting. *The Quarterly Journal of Economics, 112*(2), pp.443-478.

Manski, C.F., 2004. Measuring expectations. *Econometrica, 72*(5), pp.1329-1376.

Miano, A., 2022. Search costs, outside options, and on-the-job search. Job market paper, Harvard University.

Mortensen, D.T. and Pissarides, C.A., 1994. Job creation and job destruction in the theory of unemployment. *The Review of Economic Studies, 61*(3), pp.397-415.

Mueller, A.I., Spinnewijn, J. and Topa, G., 2021. Job seekers' perceptions and employment prospects: Heterogeneity, duration dependence, and bias. *American Economic Review, 111*(1), pp.324-363.

Mueller, A.I. and Spinnewijn, J., 2023. Expectations data, labor market, and job search. *Handbook of Economic Expectations*, pp.677-713.

Mühlböck, M., Kalleitner, F., Steiber, N. and Kittel, B., 2022. Information, reflection, and successful job search: A labor market policy experiment. *Social Policy & Administration, 56*(1), pp.48-72.

O'Donoghue, T. and Rabin, M., 1999. Doing it now or later. *American Economic Review, 89*(1), pp.103-124.

Pissarides, C.A., 1985. Short-run equilibrium dynamics of unemployment, vacancies, and real wages. *The American Economic Review, 75*(4), pp.676-690.

Potter, T., 2021. Learning and job search dynamics during the great recession. *Journal of Monetary Economics, 117*, pp.706-722.

Rogerson, R., Shimer, R. and Wright, R., 2005. Search-theoretic models of the labor market: A survey. *Journal of Economic Literature, 43*(4), pp.959-988.

Rothschild, M., 1974. A two-armed bandit theory of market pricing. *Journal of Economic Theory, 9*(2), pp.185-202.

Shrestha, S.A. and Yang, D., 2019. Facilitating worker mobility: A randomized information intervention among migrant workers in Singapore. *Economic Development and Cultural Change, 68*(1), pp.63-91.

Spinnewijn, J., 2015. Unemployed but optimistic: Optimal insurance design with biased beliefs. *Journal of the European Economic Association, 13*(1), pp.130-167.

Van den Berg, G.J. and Van der Klaauw, B., 2006. Counseling and monitoring of unemployed workers: Theory and evidence from a controlled social experiment. *International Economic Review, 47*(3), pp.895-936.

Wright, R., Kircher, P., Julien, B. and Guerrieri, V., 2021. Directed search and competitive search equilibrium: A guided tour. *Journal of Economic Literature, 59*(1), pp.90-148.

Wu, G., Heath, C. and Larrick, R. (2008). A prospect theory model of goal behavior. *Unpublished manuscript.*

Contents

List of Figures

List of Tables

1. Main Figures and Tables

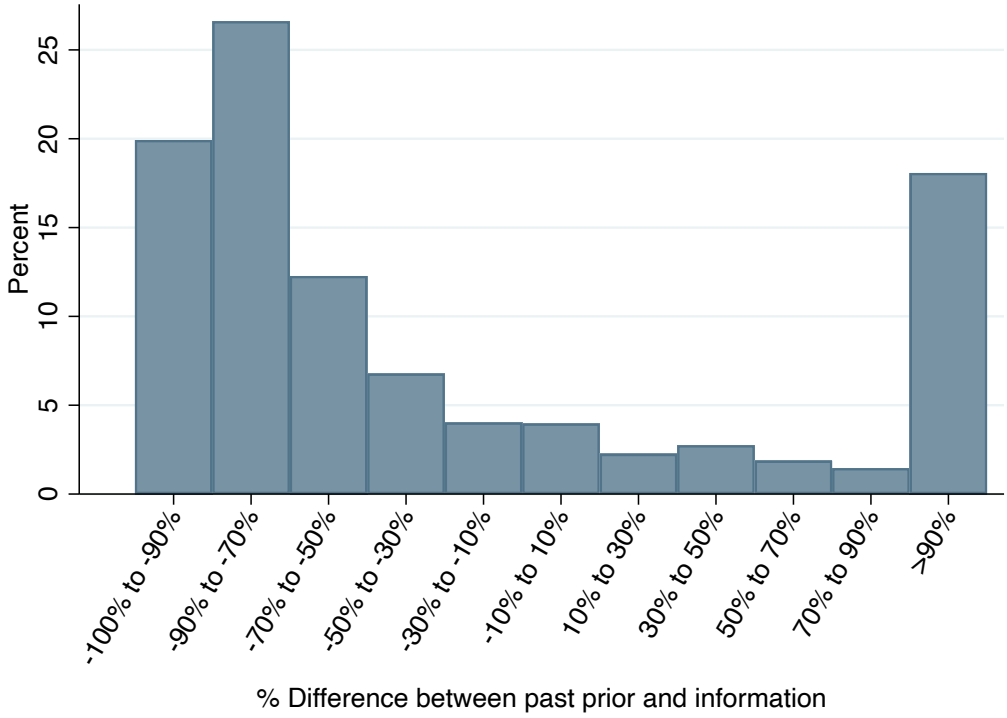


Figure 1: Distribution of Misperceptions

Notes: This figure plots the distribution of misperceptions defined as the difference between past prior beliefs about labor market competition in preferred occupation and actual competition, divided by actual competition ($N = 13,589$). Bins are centered at 0%, i.e., no misperception, with a typical bin size of 20 percentage points and the upper but not lower limits included, i.e., $(a, b]$. The exception to this rule is the two corner bins. As misperceptions are limited to -100% by construction, the left-most bin only features a bin size of 10 percentage points and includes both limits. The right-most bin starts at 90% for the reason of symmetry, resulting in an equal number of bins to the left and the right of 0%, and includes any value above 90% as positive misperceptions are unbounded.

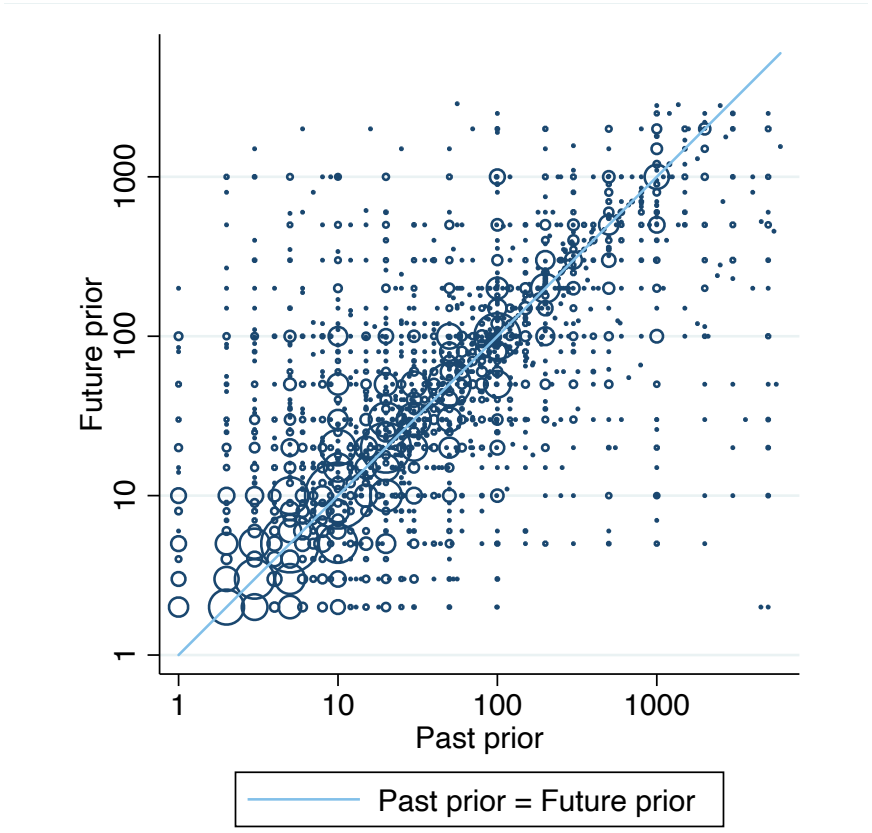


Figure 2: Relationship between Past and Future Prior Belief

Notes: This figure plots the relationship between the participant' past and future prior beliefs about labor market competition in preferred occupation in natural logarithms. Bubble-size is determined by the frequency of the data points.

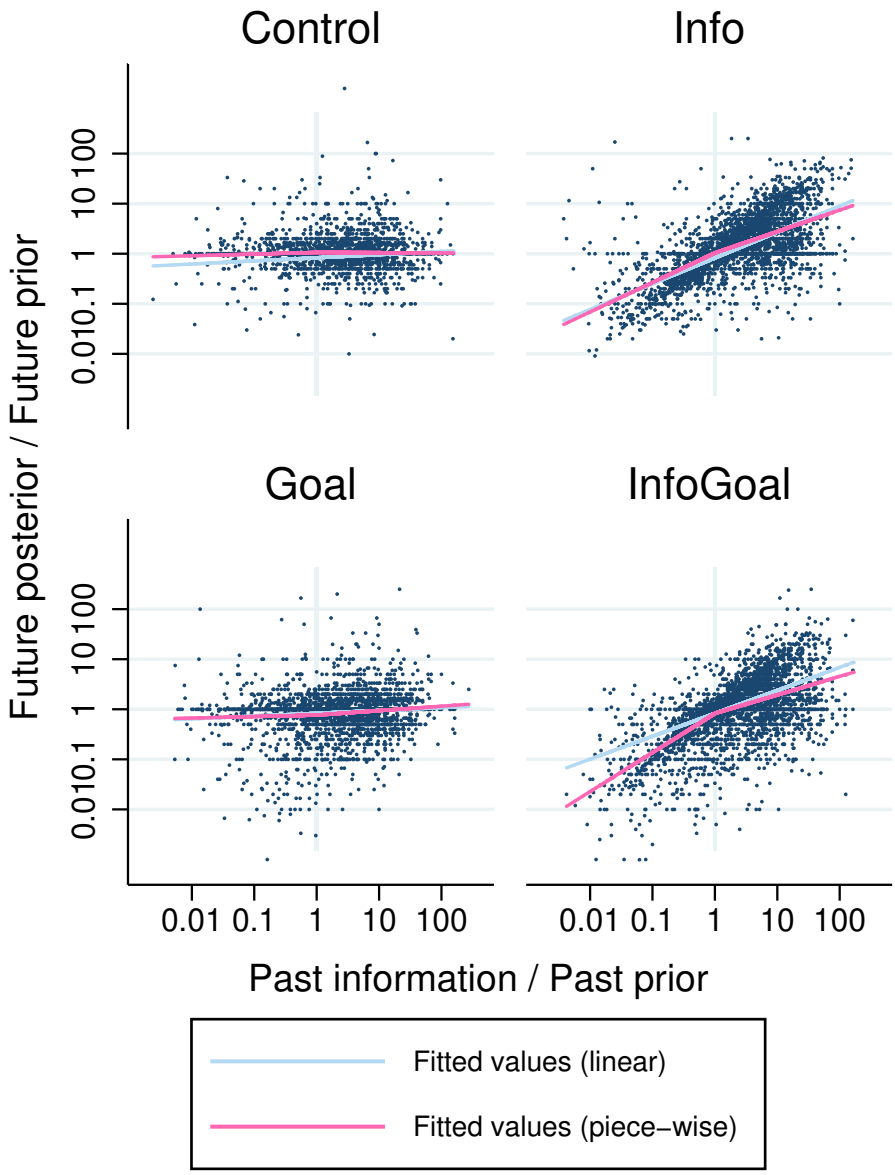


Figure 3: Belief Updating

Notes: This figure plots the belief updating process for each treatment separately. Each sub-figure plots the logged ratio of future posterior belief over future prior belief against the logged ratio of information over past prior belief. There are two fitted lines in each figure – the blue line is based on a homogenous learning rate across optimistic and pessimistic participants, and pink line allows for heterogeneous learning rates across optimistic and pessimistic types; they are estimated based on econometric models corresponding to equation (4.3) and (4.5) but omitting the control variables.

Table 1: Belief Updating

Dep. Var.: ln(Future posterior / Future prior)	(1)	(2)	(3)	(4)
ln(Past info/Past prior)	0.0616***	0.0577***	-0.0325*	0.0343*
	(0.00790)	(0.0183)	(0.0184)	(0.0200)
Info × ln(Past info/Past prior)	0.455***	0.619***	0.566***	0.560***
	(0.0146)	(0.0355)	(0.0380)	(0.0481)
Goal × ln(Past info/Past prior)	-0.00774	-0.0397	0.143***	-0.00550
	(0.0111)	(0.0275)	(0.0301)	(0.0351)
InfoGoal × ln(Past info/Past prior)	0.395***	0.590***	0.859***	0.748***
	(0.0152)	(0.0385)	(0.0340)	(0.0415)
ln(Past info/Past prior) × Confidence future prior		0.000811		
		(0.00741)		
Info × ln(Past info/Past prior) × Confidence future prior		-0.0759***		
		(0.0146)		
Goal × ln(Past info/Past prior) × Confidence future prior		0.0148		
		(0.0114)		
InfoGoal × ln(Past info/Past prior) × Confidence future prior		-0.0906***		
		(0.0158)		
Optimistic × ln(Past info/Past prior)			0.0846***	-0.0450
			(0.0237)	(0.0279)
Optimistic × Info × ln(Past info/Past prior)			-0.141***	-0.130**
			(0.0410)	(0.0643)
Optimistic × Goal × ln(Past info/Past prior)			-0.192***	0.0978**
			(0.0322)	(0.0472)
Optimistic × InfoGoal × ln(Past info/Past prior)			-0.591***	-0.375***
			(0.0375)	(0.0586)
Info				-0.0127
				(0.0387)
Goal				-0.325***
				(0.0365)
InfoGoal				-0.241***
				(0.0421)
Constant	0.304	0.346	0.384	0.501
	(0.365)	(0.361)	(0.357)	(0.359)
Job seeker characteristics	Yes	Yes	Yes	Yes
Observations	13589	13589	13589	13589

Notes: This table reports estimates for belief updating from OLS regressions based on econometric models corresponding to equations (4.3), (4.4) and (4.5) described in section 4.2 in columns (1), (3) and (4), as well as equation (4.3) augmented with the three-way interactions between treatment dummies, perception gap and confidence in future prior beliefs in column (2). Estimates for job seeker's characteristics are not reported. Job seeker's characteristics include gender, age (and squared), highest level of education (indicator), years of work experience (and squared), work status, province of current residence (indicator), preferred occupation (indicator), and month of competition index provided (indicator). Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 2: The Impact of Beliefs on Search Effort

Dep. Var.:	Applied			asinh(# of daily applications)		
	(1)	(2)	(3)	(4)	(5)	(6)
Sample: 1-5 days:						
ln(Future posterior)	0.00793***	0.0154*	0.00851	0.0138***	0.00319	-0.00150
	(0.00274)	(0.00903)	(0.00827)	(0.00495)	(0.0159)	(0.0146)
Sample: 6-10 days:						
ln(Future posterior)	0.00260	0.00280	0.0000140	0.000964	0.00321	0.000285
	(0.00298)	(0.00981)	(0.00900)	(0.00455)	(0.0149)	(0.0137)
Sample: 11-20 days:						
ln(Future posterior)	0.000321	-0.00684	-0.00292	0.00221	-0.0217*	-0.0199*
	(0.00297)	(0.00981)	(0.00899)	(0.00405)	(0.0131)	(0.0120)
Sample: 21-30 days:						
ln(Future posterior)	0.000763	0.00545	0.00664	0.00221	-0.0103	-0.00855
	(0.00296)	(0.00973)	(0.00892)	(0.00377)	(0.0123)	(0.0113)
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controls Past	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13589	13589	13589	13589	13589	13589
Estimator	OLS	IV.1	IV.2	OLS	IV.1	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on search effort based on the data of the dependent variables in the month after the survey-completion day. The dependent variable in columns (1)-(3) is whether the job seeker applied for any job in a given time period, and in columns (4)-(6) is the average number of daily applications made (inverse hyperbolic sine) in a given time period. For each time period, the data is estimated and the results are reported separately. Each column uses the estimator indicated in the bottom panel: OLS corresponds to equation (5.1) described in section 5.1, IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Since the sample includes job seekers making zero application in each time period, the number of observations is the same across time periods and consequently is reported only once in the bottom panel. Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past refer to the daily number of applications made in the week prior to the survey-starting day. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 3: The Impact of Experimental Intervention on Intended Applications

Dep. Var.: asinh(Goals)	(1)	(2)
ln(Past info/Past prior)	-0.0713***	-0.000901
	(0.0162)	(0.0302)
InfoGoal × ln(Past info/Past prior)	0.111***	0.108***
	(0.0132)	(0.0414)
Optimistic × ln(Past info/Past prior)		-0.0901**
		(0.0390)
Optimistic × InfoGoal × ln(Past info/Past prior)		-0.0526
		(0.0571)
InfoGoal		0.185***
		(0.0472)
ln(Future prior)	0.114***	0.112***
	(0.0161)	(0.0161)
Constant	3.289***	3.263***
	(0.495)	(0.487)
Job seeker characteristics	Yes	Yes
Observations	6814	6814

Notes: This table reports estimates from OLS regressions for the impact of experimental intervention on the goal set (inverse hyperbolic sine). Estimates for job seeker's characteristics, which are identical to those in Table 1, are not reported. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4: The Impact of Beliefs on Occupation Switching

Dep. Var.: Occupation switching	(1)	(2)	(3)
Sample: 1-5 days:			
ln(Future posterior)	0.00253	-0.00480	0.00175
	(0.00208)	(0.00679)	(0.00617)
Observations	9256	9256	9256
Sample: 6-10 days:			
ln(Future posterior)	-0.00102	-0.00144	0.00180
	(0.00243)	(0.00807)	(0.00734)
Observations	7034	7034	7034
Sample: 11-20 days:			
ln(Future posterior)	0.00208	-0.00519	0.000515
	(0.00231)	(0.00819)	(0.00746)
Observations	7265	7265	7265
Sample: 21-30 days:			
ln(Future posterior)	0.00155	0.00327	0.000791
	(0.00263)	(0.00919)	(0.00830)
Observations	5989	5989	5989
Job seeker characteristics	Yes	Yes	Yes
Controls past	Yes	Yes	Yes
Estimator	OLS	IV.1	IV.2

This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on occupation switching in a given time period based on the data of the dependent variables in the month after the survey-completion day. For each time period, the data is estimated and the results are reported separately. Each column uses the estimator indicated in the bottom panel: OLS corresponds to equation (5.1) described in section 5.1, IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past refer to the proportions of applications made in non-preferred occupations in the week prior to the survey-starting day. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5: The Impact of Beliefs on Lowest Acceptable Quality of Jobs Sought

Dep. Var.:	ln(Reservation wage)			Minimum experience		
	(1)	(2)	(3)	(4)	(5)	(6)
Sample: 1-5 days:						
ln(Future posterior)	0.00886**	0.0291**	0.0198*	0.0196**	0.0642**	0.0470**
	(0.00377)	(0.0119)	(0.0108)	(0.00765)	(0.0256)	(0.0233)
Observations	9256	9256	9256	9256	9256	9256
Sample: 6-10 days:						
ln(Future posterior)	0.0157***	0.0187	0.0149	0.0202**	0.0581*	0.0526*
	(0.00396)	(0.0128)	(0.0117)	(0.00966)	(0.0318)	(0.0289)
Observations	7034	7034	7034	7034	7034	7034
Sample: 11-20 days:						
ln(Future posterior)	0.00949**	0.0226*	0.0231*	0.00743	0.0528*	0.0481*
	(0.00389)	(0.0135)	(0.0123)	(0.00892)	(0.0320)	(0.0292)
Observations	7265	7265	7265	7265	7265	7265
Sample: 21-30 days:						
ln(Future posterior)	0.00496	-0.0128	-0.0107	0.00805	0.0331	0.0482
	(0.00437)	(0.0157)	(0.0142)	(0.0104)	(0.0371)	(0.0336)
Observations	5989	5989	5989	5989	5989	5989
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	OLS	IV.1	IV.2	OLS	IV.1	IV.2

This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on lowest acceptable quality of jobs sought based on the data of the dependent variables in the month after the survey-completion day. The dependent variable in columns (1)-(3) is the minimum of the wages posted (natural logarithm) and in columns (4)-(6) is the minimum of the experience required among all applications made by the job seeker in a given time period. For each time period, the data is estimated and the results are reported separately. Each column uses the estimator indicated in the bottom panel: OLS corresponds to equation (5.1) described in section 5.1, IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past refer to either the minimum of the wages posted or minimum experience required among all applications made by the job seeker in the week prior to the survey-starting day for the two independent variables, respectively. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6: The Impact of Beliefs on Positive Feedback

Dep. Var.:	Got pos. feedback			asinh(# of daily pos. feedbacks)		
	(1)	(2)	(3)	(4)	(5)	(6)
Sample: 1-5 days:						
ln(Future posterior)	0.00399	-0.00439	-0.00733	0.00739***	0.00134	-0.00130
	(0.00296)	(0.00977)	(0.00896)	(0.00284)	(0.00922)	(0.00845)
Sample: 6-10 days:						
ln(Future posterior)	0.000566	-0.00321	-0.00457	-0.000324	0.00350	0.00266
	(0.00286)	(0.00944)	(0.00866)	(0.00240)	(0.00776)	(0.00711)
Sample: 11-20 days:						
ln(Future posterior)	0.000978	-0.0151	-0.0126	0.00135	-0.0106*	-0.00954*
	(0.00296)	(0.00976)	(0.00895)	(0.00193)	(0.00625)	(0.00573)
Sample: 21-30 days:						
ln(Future posterior)	-0.00157	0.00370	0.00323	-0.000505	-0.00450	-0.00411
	(0.00282)	(0.00930)	(0.00852)	(0.00175)	(0.00574)	(0.00526)
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13589	13589	13589	13589	13589	13589
Estimator	OLS	IV.1	IV.2	OLS	IV.1	IV.2

This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on positive feedback based on the data of the dependent variables in the month after the survey-completion day. The dependent variable in columns (1)-(3) is whether the job seeker received any positive feedback from employers to applications in a given time period, and in columns (4)-(6) is the average number of daily positive feedbacks (inverse hyperbolic sine) in a given time period. For each time period the data is estimated and the results are reported separately. Each column uses the estimator indicated in the bottom panel: OLS corresponds to equation (5.1) described in section 5.1, IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Since the sample includes job seekers making zero application in each time period, the number of observations is the same across time periods and consequently is reported only once in the bottom panel. Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past refer to the daily number of positive feedbacks from employers to applications made by the job seeker in the week prior to the survey-starting day. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7: The Impact of Beliefs on Highest Possible Quality of Potential Job Offers

Dep. Var.:	ln(Max. wage | pos. feedback)			Max. experience | pos. feedback		
	(1)	(2)	(3)	(4)	(5)	(6)
Sample: 1-5 days:						
ln(Future posterior)	0.0118***	0.00856	0.00841	0.0291***	0.00978	-0.000283
	(0.00408)	(0.0141)	(0.0127)	(0.0111)	(0.0374)	(0.0338)
Observations	6553	6553	6553	6553	6553	6553
Sample: 6-10 days:						
ln(Future posterior)	0.0141***	0.0222	0.0243*	0.0256*	0.0775*	0.0889**
	(0.00489)	(0.0163)	(0.0147)	(0.0135)	(0.0448)	(0.0405)
Observations	4612	4612	4612	4612	4612	4612
Sample: 11-20 days:						
ln(Future posterior)	0.00512	0.00465	0.00660	0.0244*	0.0871**	0.0771*
	(0.00456)	(0.0157)	(0.0143)	(0.0128)	(0.0437)	(0.0400)
Observations	5195	5195	5195	5195	5195	5195
Sample: 21-30 days:						
ln(Future posterior)	0.00741	0.00324	0.0156	0.00607	0.0207	0.0477
	(0.00523)	(0.0189)	(0.0171)	(0.0132)	(0.0482)	(0.0434)
Observations	4201	4201	4201	4201	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	OLS	IV.1	IV.2	OLS	IV.1	IV.2

This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on highest possible quality of potential job offers conditional on receiving positive feedback based on the data of the dependent variables in the month after the survey-completion day. The dependent variable in columns (1)-(3) is the maximum of the wages posted (natural logarithm) and in columns (4)-(6) is the maximum of the work experience required among all applications made by the job seeker in a given time period. For each time period the data is estimated and the results are reported separately. Each column uses the estimator as indicated in the bottom panel: OLS corresponds to equation (5.1) described in section 5.1, IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past include the maximum of the wages posted or maximum of the work experience required among all applications made by the job seeker in the week prior to the survey-starting day for the two independent variables, respectively. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

A. Experimental Design

A.1. Appendix: Instructions of Experiment

Below, you will find the exact instructions of our experiment, i.e., the labor market survey, for the *GoalInfo* treatment. Note, all other treatments are a strict subset of the treatment shown below. In particular, all treatments ask questions 1-3, and 6-7, with the *Control* treatment eliciting no further question. The *Goal* also features question 5. The Info Treatment asks question 4. The *InfoGoal* treatment also asks 4 and 5 in addition.

In the experiment/survey, each numbered question is elicited on a separate page, with a [*Next Page Button*] at the end. For simplicity, we present just the questions here without any indication of page breaks, etc. The actual survey did not number questions but featured a progress-bar. For screenshots of the survey, please see the subsection A.2.

Labor market survey
We are a research team from [*platform-name*]. In order to serve you better, we would like to ask you a few questions to understand your perception of current labor market. This questionnaire will take you about 3 minutes to complete. There are no right or wrong answers. Please answer truthfully. Thank you for your cooperation!

1. Please select **one occupation that best describes where you want to work in** from the following list.

   [*Dropdown Menu with the following items for the main- and then sub-category. See Table A.1 below for respective items.*]

2. How many applications do you think were made **on average** per vacancy in your chosen occupation [*name of the preferred occupation*] on [*platform-name*] in [**August** / **September** / **October** / **November 2021**]?

   How sure are you about your answer to the previous question?
   [*very sure, sure, somewhat unsure, unsure, very unsure*]

3. How many applications do you think will be made *on average* per vacancy in your chosen occupation [*name of the preferred occupation*] on [*platform-name*] in **the next month starting from today**?

   How sure are you about your answer to the previous question?
   [*very sure, sure, somewhat unsure, unsure, very unsure*]

4. On the next page, we will provide you with information on **how many applications were actually made on average per vacancy** in your chosen occupation [*name of the preferred occupation*] in [**August** / **September** / **October** / **November 2021**] based on data from [*platform-name*] , so that you will get a better idea about the current labor market competition.
   Note: This information is only shown once and you will not be able to come back to it. We thus would like to ask you to **review the information carefully**.

   [*Part 2 of this question is separated by a Next Page Button*]

   For the vacancies in [*name of the preferred occupation*] on [*platform-name*] in [**August** / **September** / **October** / **November 2021**], you estimated that they received on average [**XX**] applications; statistical data from [*platform-name*] show that they **actually** received on average [**YY**] applications.
   In other words, your estimate was [**MM% higher/lower** than the actual number, i.e. (XX-YY)/YY) / your estimate was **equal to** the actual number].

   [*Part 3 of this question is separated by a Next Page Button*]

   Please answer: According to the above information regarding the current labor market competition in [name of the occupation] occupation, which of the following statement is true?
   (a) The actual labor market is more competitive than your estimate.
   (b) The actual labor market is as competitive as your estimate.
   (c) The actual labor market is less competitive than your estimate.

   [*If a wrong choice is made, a message will pop up and say "Wrong answer, please consider and choose again". Then, respondents need to answer this question again (up to three times) with appearance order of options shuffled in a new page. After three times of wrong answer, the correct answer will be shown.*]

5. On typical days that you will be searching for jobs on [*platform-name*] in **the next month starting from today**, **on average**, how many jobs do you plan to apply for **daily**?

6. We now ask you again about your expectations regarding labor market competition for **the next month starting from today.** You are free to keep the same answer as last time or revise it.

   How many applications do you think will be made **on average** per vacancy in your chosen occupation [*name of the preferred occupation*] on [*platform-name*] in **the next month starting from today**?

   How sure are you about your answer to the previous question?
   [*very sure, sure, somewhat unsure, unsure, very unsure*]

7. Would you like to learn about the labor market through information pushed by [*platform-name*] in a month's time?
   [*yes / no*]

Table A.1: Occupation Main- and Sub-Categories for Question 1 of Labor Market Survey

Occupation Main-Category	Sub-Category
Sales, Customer service, Marketing	Sales management
	Sales administration, Commercial
	Customer service, pre-sales, after-sales technical support
	Marketing
	Public relations, Media
	Advertising, Exhibition
Finance, Human resources, Administration	Finance, Audit, Tax
	Human Resources
	Administration, Logistics, Secretary
Project, Quality, Senior management	Project Management, Project Coordination
	Quality management, Safety protection
	Senior management
IT, Internet, Communication	Software, Internet Development, System integration
	Hardware development
	Internet product, Operation management
	IT quality management, Testing, Configuration management
	IT operation and maintenance, technical support
	IT management, Project coordination
	Telecommunication, Communication technology development and application
Real estate, Construction, Property management	Real estate development, Broker, Intermediary
	Civil engineering, Architecture, Renovation, Municipal engineering
	Property management
Finance	Banking
	Securities, Futures, Investment management, Services
	Insurance
	Trust, Guarantee, Auction, Pawn
Procurement, Trade, Transportation, Logistics	Procurement, Trade
	Transportation services
	Logistics and warehousing
Production, Manufacturing	Production management, Operations
	Electronics, Electrical appliances, Semiconductors, Instruments
	Automobile manufacturing
	Automobile sales and services
	Mechanical design, manufacturing, maintenance
	Apparel, Textile, Leather design, Production
	Technician, Operator
	Bio, Pharmaceutical, Medical devices
	Chemical industry
Media, Printing, Art, Design	Film and television, Media, Publishing, Printing
	Art, Design
Consulting, Law, Education, Translation	Consulting, Advisory , Research, Data analysis
	Education, Training
	Lawyer, Legal services, Compliance
	Translation (interpretation and translation)
Service industry	Store and supermarket, Hotel, Entertainment management, Services
	Travel, vacation, Immigration services
	Cooking, Cuisine making, Food research and development
	Health, Beauty, Hairdressing, Fitness
	Hospital, Medical, Nursing
	Community, Resident, Housekeeping services
Energy, Environmental Protection, Agriculture	Energy, Mineral, Geological exploration
	Environmental science, Environmental protection
	Agriculture, Forestry, Animal husbandry, Fishery

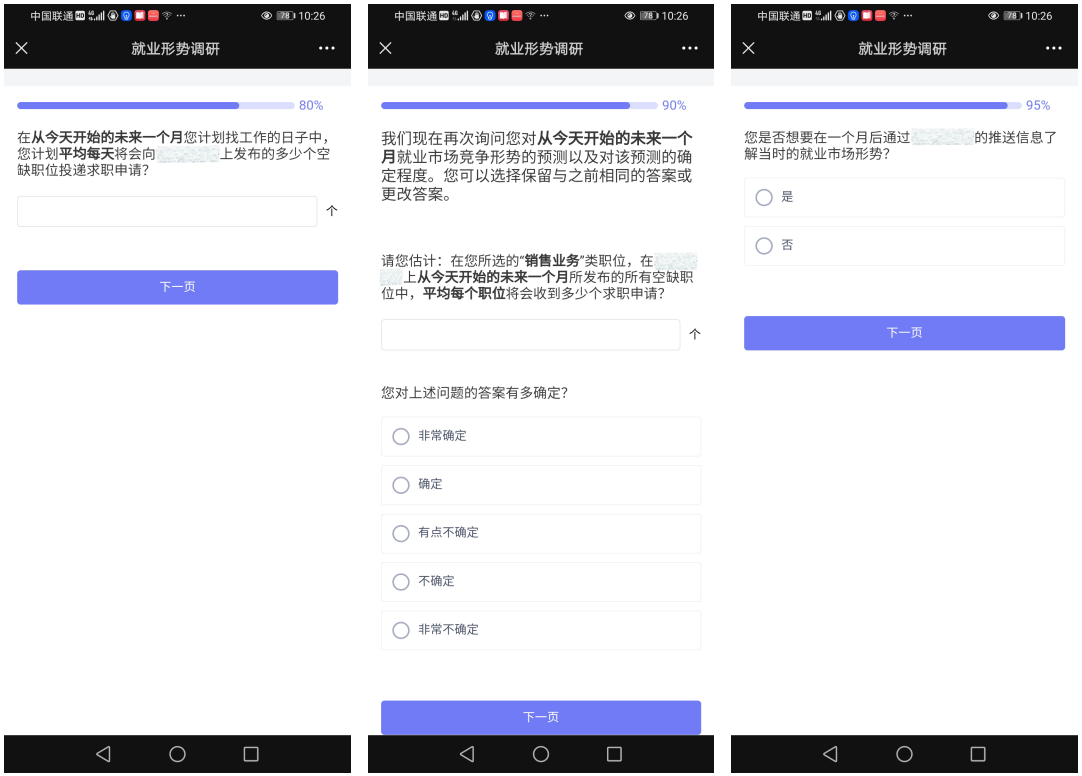
A.2. Appendix: Screenshots of Experiment

(a) Landing Page **(b)** Q1 **(c)** Q1 **(d)** Q2 **(e)** Q3

Figure A.1: Screenshots of the Questionnaire in *InfoGoal* treatment (in Chinese)

(a) Q4 **(b)** Q4 **(c)** Q4 **(d)** Q4 **(e)** Q4

Figure A.1: Screenshots of the Questionnaire in *InfoGoal* treatment (in Chinese), continued



(a) Q5 **(b)** Q6 **(c)** Q7

Figure A.1: Screenshots of the Questionnaire in *InfoGoal* treatment (in Chinese), continued

Notes: Survey questions in other treatments are a strict subset of the questions in the *InfoGoal* treatment. See Appendix A.1 for the questionnaire translated into English.

(a) **(b)** **(c)**

Figure A.2: Screenshots of App Message and Survey Landing page

Note: When the app message is pushed to a target job seeker, it shows on both the cellphone's lock screen (a) and is stored in the notice section of the app for a week (b). The message reads "Guess how many others are competing with you for a position? 1-2 minutes to answer the survey with payment". Clicking either (a) or (b) directs the user to the survey landing page (c). Clicking the blue button on the survey landing page opens the questionnaire. For users who are not pushed the app message, they can go directly to the survey landing page (c) from the designated survey channel in the app.

Table A.2: Competitiveness Index by Occupation and Month Provided via Survey

Occupation	August	September	October	November
Administration/logistics/clerical	76	100	125	137
Advertising/exhibition	15	17	22	24
Agriculture/forestry/livestock/fisheries	15	20	24	24
Art/design	38	48	68	72
Banking	21	29	31	31
Biological/pharmaceutical/medical devices	18	21	27	30
Car manufacturing	11	13	18	15
Car sales & service	18	21	26	26
Chemical	16	20	25	25
Civil/construction/renovation/municipal engineering	50	68	97	105
Clothing/textile/leather design/production	20	23	29	27
Community/residential/home services	33	38	51	45
Consulting/advisory/research/data analysis	14	19	22	23
Cooking/cuisine/food development	25	29	35	36
Customer service/pre-sales/post-sales technical support	22	27	34	34
Education/training	42	54	64	67
Electronics/electrical appliance/semiconductors/instrumentation	17	21	26	29
Energy/mineral/geological exploration	13	16	20	20
Environmental science/environmental protection	16	22	31	34
Film/media/publishing/printing	30	39	50	58
Finance/audit/tax	76	122	153	163
Hardware development	9	13	16	15
Health/beauty/hair/fitness	19	22	28	27
Hospital/medical/nursing	32	38	48	45
Human resources	55	70	88	100
IT management/project coordination	20	22	20	19
IT operations/technical support	22	27	29	29
IT quality management/testing/configuration management	43	59	68	95
Insurance	13	15	17	17
Internet product/operations management	35	46	62	67
Lawyer/legal/compliance	24	28	33	38
Logistics/warehousing	33	40	50	51
Markets	25	30	34	35
Mechanic/operator	28	35	48	44
Mechanical design/manufacturing/maintenance	21	25	30	29
Production management/operations	26	32	37	33
Project management/project coordination	32	38	45	45
Property management	40	50	64	64
Public relations/media	24	28	35	38
Purchasing/trading	46	58	70	68
Quality management/safety protection	26	30	35	35
Real estate development/brokerage/agency	37	47	62	65
Sales administration/commercial	23	29	33	34
Sales management	33	39	45	47
Sales operations	19	24	29	32
Securities/futures/investment management/services	31	38	46	47
Senior management	63	78	90	95
Software/internet development/systems Integration	21	29	35	37
Supermarket/hotel/entertainment management/service	23	28	37	37
Telecommunications/communications technology development and applications	15	17	22	21
Translation (interpreting & translating)	33	39	40	44
Transport services	193	206	274	279
Travel/vacation/immigration services	18	23	28	29
Trusts/guarantees/auctions/pawnbroking	11	12	11	15

B. Proofs

To find the comparative statics of w_R and e^* with respect to k, we differentiate both equations.[1]
Starting with equation (3.2), we get

$$\begin{aligned}\frac{\partial w_R}{\partial k} =& -c'(e)\frac{\partial e}{\partial k} + f_e(e,k)\frac{\partial e}{\partial k}\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w)\\ &+ f_k(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w) - f(e,k)\cdot\frac{\beta}{1-\beta}[1-F(w_R)]\frac{\partial w_R}{\partial k}\end{aligned}$$

which simplifies to

$$\frac{\partial w_R}{\partial k} = \frac{f_k(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w)}{1+f(e,k)\cdot\frac{\beta}{1-\beta}[1-F(w_R)]} < 0 \tag{B.1}$$

The derivate is negative since $f_k(e,k) < 0$ while all terms in the denominator are positive. Next, we differentiate (3.3) with respect to k:

$$\begin{aligned}c''(e)\frac{\partial e}{\partial k} =& f_{e^2}(e,k)\frac{\partial e}{\partial k}\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w)\\ &+ f_{e,k}(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w)\\ &- f_e(e,k)\cdot\frac{\beta}{1-\beta}[1-F(w_R)]\frac{\partial w_R}{\partial k}\end{aligned}$$

which can be written as:

$$\frac{\partial e}{\partial k} = \frac{f_{e,k}(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w) - \frac{\partial w_R}{\partial k}\cdot f_e(e,k)\cdot\frac{\beta}{1-\beta}\cdot[1-F(w_R)]}{c''(e) - f_{e^2}(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w)} \tag{B.2}$$

We observe that since $c'' > 0$ and $f_{e^2} < 0$, the denominator is strictly positive. The first term in the numerator is (weakly) negative, $f_{e,k}(e,k) \le 0$, while the second term is positive, $f_e > 0$, $\frac{\partial w_R}{\partial k} < 0$. It follows that if there is no impact of k on the marginal return to effort, i.e., $f_{e,k}(e,k) = 0$, then $\frac{\partial e}{\partial k} > 0$. This represents the case where there is no direct-effect of k on the marginal effort, with the indirect effect from w_R determining the overall behavioral response. Next, we observe that the RHS is increasing in $f_{e,k}$. It follows that if $f_{e,k}$ is sufficiently negative (recall $f_{e,k} \le 0$), then $\frac{\partial e^*(k)}{\partial k} < 0$.[2]

Example: multiplicative case $f(e,k) = h(e)\cdot g(k)$ with $h' > 0, h'' < 0, g' < 0$.
Instead of looking at (B.2) directly, one elegant way of doing so is to combine (B.1) and (B.2) ($g(k)$ cancels), to get

$$w_R = b - c(e) + c'(e)\cdot\frac{h(e)}{h'(e)} \tag{B.3}$$

Differentiating with respect to k yields

$$\begin{aligned}\frac{\partial w_R}{\partial k} &= \frac{\partial e}{\partial k}\cdot\left(-c'(e) + c''(e)\frac{h(e)}{h'(e)} + c'(e)\frac{h'(e)h'(e) - h(e)h''(e)}{h'(e)^2}\right)\\ \frac{\partial w_R}{\partial k} &= \frac{\partial e}{\partial k}\cdot\left(\frac{h(e)}{h'(e)^2}\cdot[c''(e)h'(e) - c'(e)h''(e)]\right)\end{aligned}$$

As the term multiplying $\frac{\partial e}{\partial k}$ is positive ($c'' > 0, h' > 0, c' > 0, -h'' > 0$ and $h(e) > 0$ for $e > 0$), it follows that the derivative of w_R and e with respect to k have the same sign. Together with our previous observation (B.1), it follows that effort must decrease in k.

Alternative Model: constant reservation wage.
Exploring what happens if the reservation wage was fixed is a trivial extension given our previous results. Setting $\frac{\partial w_R}{\partial k} = 0$

[1] To keep the notation manageable, we omit the explicit dependence of w_R and e^* on k, i.e., $w_R(k)$, $e^*(k)$ as well as any stars.
[2] Note that in this argument, we freely vary $f_{e,k}$ without any regard for $f(e,k)$ and its other derivatives. Given that we view f to be the *subjective* job arrival rate, we do not consider this to be inappropriate, as what matters in this problem, is how the job seeker thinks her primitives are changing with her belief about the state of competition in the job market.

in (B.2), we immediately see that the effect of labor market competition is fully determined by $f_{e,k}(e,k)$.

Extension: the wage offer distribution depends on k.
Suppose that in addition to $f(e,k)$, the job seeker also updates her belief about the offer distribution in response to changes in beliefs about k. As in Mortensen (1986),we capture this by a translation of the distribution function F by a constant μ.[3] The simplest way to write this in our model is express the wage offer as $w+\mu(k)$, with $\mu(k)=0$ at the initial k. As competition puts downward pressure on the (mean) wage, we assume $\mu'<0$.
Equation (3.2) hence becomes $w_R = b - c(e) + f(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w+\mu(k)-w_R]\,dF(w)$. Equation (3.3) is adjusted similarly. $\frac{\partial w_R}{\partial k}$ hence generalizes to

$$\frac{\partial w_R}{\partial k} = \frac{f_k(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w) + f(e,k)\cdot\frac{\beta}{1-\beta}\cdot[1-F(w_R)]\cdot\mu'(k)}{1+f(e,k)\cdot\frac{\beta}{1-\beta}[1-F(w_R)]} \tag{B.4}$$

Hence, becoming more pessimistic about the offer distribution results in a secondary effect that (further) pushes the reservation wage downward. For effort, we get

$$\frac{\partial e}{\partial k} = \frac{f_{e,k}(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w) + f_e(e,k)\cdot\frac{\beta}{1-\beta}\cdot[1-F(w_R)]\cdot[\mu'(k)-\frac{\partial w_R}{\partial k}]}{c''(e) - f_{e^2}(e,k)\cdot\frac{\beta}{1-\beta}\int_{w_R}^{\infty}[w-w_R]\,dF(w)} \tag{B.5}$$

The derivative highlights that the direct effect on effect of an increase in k, captured by $f_e(e,k)\cdot\frac{\beta}{1-\beta}\cdot[1-F(w_R)]\cdot\mu'(k)$, is negative. Moreover, we can also see that the direct effect exceeds the indirect effect of $\mu'(k)$ on the reservation wage as $\frac{f(e,k)\cdot\frac{\beta}{1-\beta}\cdot[1-F(w_R)]\cdot\mu'(k)}{1+f(e,k)\cdot\frac{\beta}{1-\beta}[1-F(w_R)]}$ in equation (B.4) is smaller than 1.
It follows that changes in beliefs about the wage offer distribution arising from a change in k have an unambiguous effect on effort. However, whether the joint effect of k on e is positive or negative still depends on $f_{e,k}$ and how much the job seeker updates her belief about the wage offer distribution.

[3] G is a translation of F if there is a constant μ such that $G(w+\mu) = \mathrm{F(w)}$ for all w.

C. Tables and Figures

C.1. Summary Statistics and Randomization

Table C.1: Variable Definitions

Variable Name	Definition
Experiment:	
Control	=1 if in *Control* treatment; 0 otherwise
Info	=1 if in *Info* treatment; 0 otherwise
Goal	=1 if in *Goal* treatment; 0 otherwise
InfoGoal	=1 if in *InfoGoal* treatment; 0 otherwise
Info seen	Month for which information was provided
Past information	Labor market competition data: # of applications / # of vacancies
Experiment:	
Past prior	Belief about the average # of applications per vacancy in preferred occupation in month prior to the experiment
Confidence past prior	Confidence in past prior belief; =0 if very unsure, =1 unsure, etc. (5-level scale)
Future prior	Belief about the average # of applications per vacancy in preferred occupation in the next month
Confidence future prior	Confidence in future prior belief; =0 if very unsure, =1 unsure, etc. (5-level scale)
Future posterior	Belief about the average # of applications per vacancy in preferred occupation in the next month; re-elicited *after* information was/was not provided
Confidence future posterior	Confidence in future posterior belief; =0 if very unsure, =1 unsure, etc. (5-level scale)
Goals	Average daily # of applications a job seeker intends to complete in the next month
Past information / Past prior	Past Information divided by past prior belief
Optimistic beliefs	=1 if past prior $<$ past information; 0 otherwise
Pessimistic beliefs	=1 if past prior $>$ past information; 0 otherwise
Accurate beliefs	=1 if past prior = past information; 0 otherwise
Resume Data:	
Female	=1 if the job seeker is female; 0 otherwise
Age	Age of job seeker (in years)
Work experience	Years of work experience
Work status	Categorical variable that indicates whether job seeker is unemployed, employed, or a student (this variable is degraded/used as several 0-1 dummies in subsequent analyses)
Highest education	Increasing categorical variable indicating job seeker's highest level of education; =0 for middle school, =1 for high school, =2 for college, =3 for bachelor, =4 for master or above, and =5 for other education types (this variable is degraded/used as several 0-1 dummies in subsequent analyses)
Past Application Behavior:	
Applications at $-t$	# of applications made on t days prior to the experiment
Outcome Variables:	
Applied	=1 if the job seeker made any applications (in a given time period); 0 otherwise
# of daily applications	Average number of daily applications (in a given time period)
Occupation switching	proportion of job application is in a different occupation than their preferred occupation (in a given time period)
Reservation wage	Minimum of the specified monthly wages (in job ad, in Chinese Yuan) among the jobs that the job seeker applied for (in a given time period)
Minimum experience	Increasing categorical variable indicating the minimum experience required (in job ad) among the jobs that the job seeker applied for (in a given time period); =0 for no-experience, =1 for $<$ 1 year, =2 for 1-3 years, =3 for 3-5 years, =4 for 5-10 years, and =5 for $>$10 years

Table C.1: Variable Definitions, continued

Variable Name	Definition
Got positive feedback	=1 if at least one job application receives a positive feedback from the employer within 24 hours from the time of the application (in a given time period); 0 otherwise
# of daily positive feedbacks	Average number daily of applications that receive a positive feedback from the employer within 24 hours from the time of the application (in a given time period)
Max wage | pos. feedback	Maximum of the specified monthly wages (in job ad, in Chinese Yuan) among the jobs that the job seeker applied for and received a positive feedback within 24 hours from the time of the application (in a given time period)
Max experience | pos. feedback	Maximum of the experience required (in job ad) among the jobs that the job seeker applied for and received a positive feedback within 24 hours from the time of the application (in a given time period); =0 for no-experience, =1 for $<$ 1 year, =2 for 1-3 years, =3 for 3-5 years, =4 for 5-10 years, and =5 for $>$10 years
Opened App	=1 the job seeker opened the App (in a given time period); 0 otherwise
App time use	Average daily time (in minutes) spent on the App (in a given time period).

Table C.2: Summary Statistics

	Median	Mean	Std. Dev.	Min.	Max.	Obs.
Experiment:						
Control	0.00	0.25	0.43	0.000	1	13589
Info	0.00	0.25	0.43	0.000	1	13589
Goal	0.00	0.25	0.43	0.000	1	13589
InfoGoal	0.00	0.25	0.44	0.000	1	13589
Info seen: August	0.00	0.25	0.43	0.000	1	13589
Info seen: September	0.00	0.32	0.47	0.000	1	13589
Info seen: October	0.00	0.28	0.45	0.000	1	13589
Info seen: November	0.00	0.15	0.36	0.000	1	13589
Past information	47.00	59.69	41.07	9.000	279	13589
Survey Data:						
Past prior	18.00	102.18	355.81	1.000	5964	13589
Confidence past prior	2.00	2.00	1.01	0.000	4	13589
Future prior	20.00	93.15	244.33	2.000	2875	13589
Confidence future prior	2.00	2.09	0.99	0.000	4	13589
Future posterior	25.00	77.98	251.86	1.000	5000	13589
Confidence future posterior	2.00	2.40	0.97	0.000	4	13589
Goals	5.00	67.63	4116.57	0.000	339494	6814
Past information / past prior	2.90	7.09	12.96	0.002	274	13589
Optimistic beliefs	1.00	0.71	0.45	0.000	1	13589
Pessimistic beliefs	0.00	0.28	0.45	0.000	1	13589
Accurate beliefs	0.00	0.01	0.10	0.000	1	13589
Resume Data:						
Female	0.00	0.44	0.50	0.000	1	13589
Age	28.50	29.67	7.38	15.833	60	13589
Work experience	6.38	7.96	7.03	0.000	41	13589
Work status: unemployed	0.00	0.37	0.48	0.000	1	13589
Work status: employed	0.00	0.47	0.50	0.000	1	13589
Work status: student	0.00	0.16	0.36	0.000	1	13589
Highest education: middle school	0.00	0.01	0.11	0.000	1	13589
Highest education: highschool	0.00	0.09	0.29	0.000	1	13589
Highest education: college	0.00	0.35	0.48	0.000	1	13589
Highest education: bachelor	0.00	0.49	0.50	0.000	1	13589
Highest education: master or above	0.00	0.05	0.22	0.000	1	13589
Highest education: other	0.00	0.00	0.04	0.000	1	13589

Table C.2: Summary Statistics, continued

	Median	Mean	Std. Dev.	Min.	Max.	Obs.
Outcome Variables - Timeframe: 1 to 5 days:						
Applied	1.00	0.68	0.47	0.000	1	13589
# of daily applications	0.40	1.70	4.41	0.000	121	13589
Occupation switching	0.57	0.53	0.44	0.000	1	9258
Reservation wage	5500.50	6729.40	4833.77	500.000	130000	9258
Minimum experience	0.00	0.65	1.16	0.000	5	9258
Got positive feedback	0.00	0.45	0.50	0.000	1	18294
# of daily positive feedbacks	0.00	0.40	0.99	0.000	26	18294
Max wage | pos. feedback	9000.50	11583.91	11328.08	500.000	215000	6555
Max experience | pos. feedback	2.00	1.94	1.46	0.000	5	6555
Outcome Variables - Timeframe: 1 to 30 days:						
Applied	1.00	0.85	0.36	0.000	1	13589
# of daily applications	0.30	0.96	2.46	0.000	75	13589
Occupation switching	0.59	0.54	0.42	0.000	1	11487
Reservation wage	5000.50	5674.06	3938.07	500.000	130000	11487
Minimum experience	0.00	0.34	0.88	0.000	5	11487
Got positive feedback	1.00	0.67	0.47	0.000	1	18294
# of daily positive feedbacks	0.07	0.20	0.46	0.000	14	18294
Max wage | pos. feedback	10500.50	14037.24	15798.66	500.000	245000	9734
Max experience | pos. feedback	2.00	2.37	1.47	0.000	5	9734
Outcome Variables - Timeframe -7 to -1 days:						
Occupation switching	0.60	0.54	0.44	0.000	1	13586
Reservation wage	5500.50	6793.00	5153.50	500.000	150000	13586
Minimum experience	0.00	0.68	1.19	0.000	5	13586
Max wage | pos. feedback	9000.50	11396.54	12681.46	500.000	245000	9336
Max experience | pos. feedback	2.00	1.79	1.46	0.000	5	9336
Past Application Behavior:						
Applications at -1	1.00	4.16	9.97	0.000	133	13589
Applications at -2	0.00	1.99	7.26	0.000	136	13589
Applications at -3	0.00	1.57	6.59	0.000	126	13589
Applications at -4	0.00	1.08	5.61	0.000	126	13589
Applications at -5	0.00	1.05	5.38	0.000	121	13589
Applications at -6	0.00	1.08	5.34	0.000	121	13589
Applications at -7	0.00	1.04	5.09	0.000	121	13589
Past Positive Feedback:						
# of positve feedbacks at -1	0.00	1.14	2.97	0.000	67	13589
# of positve feedbacks at -2	0.00	0.48	1.83	0.000	60	13589
# of positve feedbacks at -3	0.00	0.37	1.59	0.000	48	13589
# of positve feedbacks at -4	0.00	0.27	1.38	0.000	42	13589
# of positve feedbacks at -5	0.00	0.26	1.39	0.000	67	13589
# of positve feedbacks at -6	0.00	0.26	1.30	0.000	41	13589
# of positve feedbacks at -7	0.00	0.24	1.16	0.000	34	13589
App Time Use:						
Opened App | 1 to 5 days	1.00	0.93	0.26	0.000	1	1661
App daily time use | 1 to 5 days	8.32	15.69	23.05	0.000	247	1661
Opened App at -1	1.00	0.92	0.27	0.000	1	1661
App daily time use at -1	17.15	32.82	53.15	0.000	1039	1661

Table C.3: Randomization Check

	Control (1)			Info (2)			Goal (3)			InfoGoal (4)		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Survey:												
Past prior	3,331	99.609	341.951	3,444	99.621	352.381	3,355	108.686	388.753	3,459	100.890	338.513
Confidence past prior	3,331	2.012	0.999	3,444	2.003	1.005	3,355	1.995	1.008	3,459	2.004	1.009
Future prior	3,331	93.095	252.406	3,444	87.848	218.895	3,355	95.976	247.497	3,459	95.756	257.036
Confidence future prior	3,331	2.083	0.977	3,444	2.101	1.002	3,355	2.083	0.984	3,459	2.091	0.990
Past information	3,331	59.814	41.325	3,444	60.062	41.397	3,355	59.380	41.258	3,459	59.515	40.318
Optimistic beliefs	3,331	0.716	0.451	3,444	0.711	0.453	3,355	0.706	0.456	3,459	0.717	0.450
Pessimistic beliefs	3,331	0.273	0.446	3,444	0.278	0.448	3,355	0.285	0.452	3,459	0.276	0.447
Accurate beliefs	3,331	0.011	0.103	3,444	0.011	0.103	3,355	0.009	0.096	3,459	0.007	0.081
Resume:												
Female	3,331	0.447	0.497	3,444	0.438	0.496	3,355	0.442	0.497	3,459	0.443	0.497
Age	3,331	$29.878^{(2)**}$	7.593	3,444	29.500	7.216	3,355	29.695	7.361	3,459	29.611	7.343
Work experience	3,331	8.125	7.242	3,444	7.831	6.885	3,355	7.982	7.010	3,459	7.915	6.999
Work status: unemployed	3,331	$0.391^{(4)***}$	0.488	3,444	0.379	0.485	3,355	0.372	0.483	3,459	0.350	0.477
Work status: employed	3,331	0.462	0.499	3,444	0.463	0.499	3,355	0.475	0.499	3,459	0.479	0.500
Work status: student	3,331	0.147	0.354	3,444	0.159	0.365	3,355	0.153	0.360	3,459	0.171	0.377
Highest education: middle school	3,331	0.015	0.122	3,444	0.012	0.108	3,355	0.014	0.119	3,459	0.011	0.106
Highest education: highschool	3,331	0.089	0.284	3,444	0.095	0.294	3,355	0.092	0.289	3,459	0.093	0.290
Highest education: college	3,331	0.346	0.476	3,444	0.350	0.477	3,355	0.362	0.481	3,459	0.355	0.479
Highest education: bachelor	3,331	0.491	0.500	3,444	0.492	0.500	3,355	0.478	0.500	3,459	0.487	0.500
Highest education: master or above	3,331	0.057	0.233	3,444	0.048	0.214	3,355	0.051	0.221	3,459	0.052	0.223
Highest education: other	3,331	0.002	0.046	3,444	0.002	0.048	3,355	0.002	0.046	3,459	0.001	0.034
Application:												
Applications at -1	3,331	4.027	9.460	3,444	4.075	9.995	3,355	4.396	10.531	3,459	4.138	9.883
Applications at -2	3,331	1.974	7.495	3,444	1.959	6.583	3,355	1.942	6.890	3,459	2.086	7.992
Applications at -3	3,331	1.577	6.648	3,444	1.564	6.749	3,355	1.484	6.258	3,459	1.639	6.677
Applications at -4	3,331	1.250	6.412	3,444	1.040	5.691	3,355	0.960	5.052	3,459	1.064	5.206
Applications at -5	3,331	1.055	5.183	3,444	1.088	5.685	3,355	0.982	4.868	3,459	1.085	5.712
Applications at -6	3,331	0.999	4.986	3,444	1.061	4.849	3,355	1.018	4.961	3,459	1.222	6.393
Applications at -7	3,331	1.111	5.224	3,444	0.934	4.586	3,355	0.987	4.660	3,459	1.126	5.778

Table C.3: Randomization Check, continued

	Control (1)			Info (2)			Goal (3)			InfoGoal (4)		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Positive Feedback:												
# of positve feedbacks at -1	3,331	1.156	3.083	3,444	1.047	2.487	3,355	1.232	3.328	3,459	1.131	2.944
# of positve feedbacks at -2	3,331	0.450	1.613	3,444	0.510	2.077	3,355	0.483	1.891	3,459	0.457	1.681
# of positve feedbacks at -3	3,331	0.380	1.574	3,444	0.384	1.574	3,355	0.345	1.688	3,459	0.357	1.535
# of positve feedbacks at -4	3,331	0.330	1.699	3,444	0.264	1.427	3,355	0.233	1.187	3,459	0.246	1.161
# of positve feedbacks at -5	3,331	0.281	1.710	3,444	0.265	1.274	3,355	0.265	1.489	3,459	0.233	1.029
# of positve feedbacks at -6	3,331	0.237	1.005	3,444	0.282	1.310	3,355	0.262	1.508	3,459	0.262	1.339
# of positve feedbacks at -7	3,331	0.236	1.012	3,444	0.228	1.160	3,355	0.224	1.113	3,459	0.254	1.310
Other Outcome Variables - Timeframe -7 to -1 days												
Occupation switching	3,331	$0.528^{(2)**}$	0.443	3,442	0.552	0.444	3,355	0.542	0.442	3,458	0.539	0.443
Reservation wage	3,331	6,850.047	4,982.481	3,442	6,731.775	4,929.571	3,355	6,756.710	5,447.369	3,458	6,834.212	5,240.834
Minimum experience	3,331	0.696	1.217	3,442	0.663	1.173	3,355	0.659	1.165	3,458	0.690	1.204
Got positive feedback	3,331	0.697	0.460	3,442	0.681	0.466	3,355	0.693	0.461	3,458	0.679	0.467
# of positive feedbacks	3,331	3.068	6.249	3,442	2.980	6.603	3,355	3.039	6.068	3,458	2.940	5.865
Max wage | pos. feedback	2,321	11,342.025	12,492.705	2,344	11,307.840	12,097.317	2,324	11,429.554	12,819.800	2,347	11,506.336	13,291.439
Max experience | pos. feedback	2,321	1.805	1.440	2,344	1.762	1.468	2,324	1.791	1.458	2,347	1.808	1.478

Notes: This table reports the Kolmogorov-Smirnov Pairwise randomization test results between treatments. The superscript next to the mean of each treatment shows the column number to which treatment (column) is compared, and the asterisks mark the significance level of the difference following the conventional manner. If, for a given variable, two treatments are not significantly different at conventional levels, no superscript is added. This comparison is only conducted to the "right" to avoid double counting, i.e., *Control* (1) is compared to *Info* (2), *Goal* (3), *InfoGoal* (4), Info (2) is compared to *Goal* (3) and *InfoGoal* (4), etc. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

C.2. Beliefs and Goals

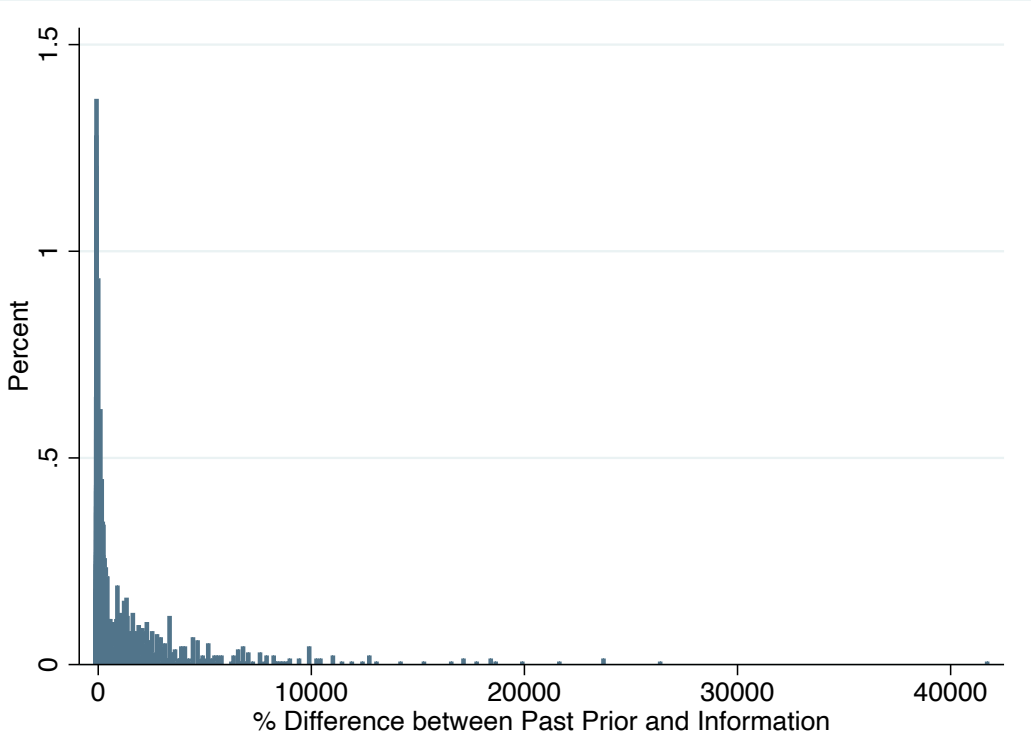


Figure C.1: Distribution of Misperceptions (Uncensored)

Table C.4: Determinants of Past Prior Beliefs

Dep. Var: ln(Past prior)	(1)	(2)
Employed	-0.0352	-0.0301
	(0.0303)	(0.0304)
Student	-0.0286	-0.0231
	(0.0473)	(0.0474)
Age	-0.0680**	-0.0633**
	(0.0277)	(0.0278)
Age^2	0.000998**	0.000923**
	(0.000408)	(0.000409)
Female	0.174***	0.177***
	(0.0319)	(0.0319)
Highest education: highschool	-0.160	-0.159
	(0.129)	(0.129)
Highest education: college	0.00440	-0.0000316
	(0.127)	(0.127)
Highest education: bachelor	0.184	0.178
	(0.128)	(0.129)
Highest education: master or above	0.407***	0.396***
	(0.144)	(0.144)
Highest education: other	0.0581	0.0558
	(0.298)	(0.299)
Work experience	0.0314***	0.0303**
	(0.0122)	(0.0122)
Work $experience^2$	-0.000741*	-0.000709*
	(0.000412)	(0.000413)
asinh(# of daily applications | -7 to -1 days)		0.0885***
		(0.0284)
asinh(# of daily pos feedbacks | -7 to -1 days)		-0.0411
		(0.0508)
Occupation Fixed Effects	Yes	Yes
Month Fixed Effects	Yes	Yes
Observations	13589	13589

Notes: This table reports estimates from OLS regressions for the determinants of past prior beliefs about labor market competition in the preferred occupation. Estimates for control variables, which include indicators for preferred occupation and month of competition index provided, are not reported. The omitted category for work status is unemployed and for highest education is middle school, respectively. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

We investigate how job seekers' individual characteristics and past search relate to past prior beliefs. We see from Table C.4 that participants who are females, hold a master degree or above, and who are more active in their job search in the past week tend to have higher belief about last month's competition. The past prior has a convex relationship with age – decreasing (increasing) with age before (after) 34 ($\approx 0.0629/(2 \cdot 0.000916)$) years old, and a concave relationship with work experience (years) – increasing (decreasing) with work experience before (after) 21 ($\approx 0.0301/(2 \cdot 0.000703)$) years.

Table C.5: Determinants of Misperceptions

	Pessimists		Optimists	
Dep. Var: ln(Past prior/Past info)	(1)	(2)	(3)	(4)
Employed	0.0669*	0.0668*	-0.0139	-0.0110
	(0.0376)	(0.0377)	(0.0217)	(0.0217)
Student	0.232***	0.231***	-0.0883***	-0.0832***
	(0.0630)	(0.0633)	(0.0319)	(0.0319)
Age	-0.0392	-0.0390	-0.0396**	-0.0366*
	(0.0362)	(0.0363)	(0.0189)	(0.0188)
Age^2	0.000606	0.000600	0.000582**	0.000541*
	(0.000520)	(0.000520)	(0.000285)	(0.000283)
Female	0.0153	0.0172	0.00133	-0.0000482
	(0.0399)	(0.0400)	(0.0223)	(0.0224)
Highest education: highschool	-0.183	-0.185	-0.0565	-0.0481
	(0.170)	(0.170)	(0.0851)	(0.0847)
Highest education: college	-0.124	-0.132	0.0234	0.0359
	(0.162)	(0.162)	(0.0840)	(0.0837)
Highest education: bachelor	-0.162	-0.172	0.0935	0.111
	(0.162)	(0.163)	(0.0858)	(0.0856)
Highest education: master or above	-0.202	-0.217	0.248**	0.268***
	(0.176)	(0.177)	(0.0984)	(0.0983)
Highest education: other	0.278	0.266	0.268	0.286
	(0.290)	(0.292)	(0.181)	(0.181)
Work experience	-0.000556	-0.000922	0.0186**	0.0181**
	(0.0161)	(0.0161)	(0.00839)	(0.00838)
Work $experience^2$	-0.000307	-0.000303	-0.000517*	-0.000487*
	(0.000513)	(0.000512)	(0.000293)	(0.000291)
asinh(# of daily applications | -7 to -1 days)		0.0345		-0.00252
		(0.0340)		(0.0200)
asinh(# of daily pos feedbacks | -7 to -1 days)		-0.0514		0.0752**
		(0.0646)		(0.0350)
Occupation Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Observations	3781	3781	9681	9681

Notes: This table reports estimates from OLS regressions for the determinants of misperceptions about labor market competition in the preferred occupation. Estimates for control variables, which include indicators for preferred occupation and month of competition index provided, are not reported. The omitted category for work status is unemployed and for highest education is middle school, respectively. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Further notice that for column 1 and 2, a negative coefficient implies more accurate beliefs while for column 3 and 4, the opposite is true.

When examining the impact of individual characteristics and past search on misperceptions, we use a slightly different misperception measure – the logged ratio of past prior and information, which not only approximates percentage difference between past prior belief and information, but also helps limits the impact of outliers in belief. We split the sample into optimists and pessimists (excluding participants with accurate past beliefs). Note that a negative (positive) coefficient for pessimists (optimists) indicates holding a past prior belief closer to the truth, i.e., having lower misperception. We see from Table C.5 that pessimistic job seekers who are either employed or students tend hold more incorrect beliefs than those that are unemployed. For optimistic job seekers, students (again) tend to be more misinformed, whereas those with at least a master-level education tend to hold more accurate beliefs. Similarly, for optimists misperception decreases with the number of positive feedbacks received in past week. For optimists, misperception has a convex relationship with age – increasing (decreasing) in age before (after) 34 ($\approx 0.0368/(2 \cdot 0.000544)$) years; and a concave relationship with work experience (years) – decreasing (increasing) with experience before (after) 19 ($\approx 0.0183/(2 \cdot 0.000492)$) years.

Table C.6: Learning Rates by Job seeker's characteristics

	Attentive	University	Employed	Female
α_{Info}	0.494***	0.495***	0.446***	0.513***
	(0.0154)	(0.0196)	(0.0206)	(0.0186)
$\alpha_{InfoGoal} - \alpha_{Goal}$	0.427***	0.422***	0.362***	0.431***
	(0.0175)	(0.0218)	(0.0223)	(0.0224)
	Inattentive	No University	Unemployed	Male
α_{Info}	0.337***	0.412***	0.461***	0.425***
	(0.0298)	(0.0213)	(0.0236)	(0.0188)
$\alpha_{InfoGoal} - \alpha_{Goal}$	0.330***	0.362***	0.438***	0.355***
	(0.0296)	(0.0270)	(0.0299)	(0.0256)
Estimated Differences				
α_{Info}	0.157***	0.0834***	-0.0151	0.0875***
	(0.0322)	(0.0289)	(0.0313)	(0.0264)
$\alpha_{InfoGoal} - \alpha_{Goal}$	0.0975***	0.0595**	-0.0761**	0.0756***
	(0.0321)	(0.0302)	(0.0333)	(0.0282)

Notes: This table reports estimates for learning rate of various groups of job seekers from OLS regressions based on econometric models corresponding to equation (4.3) in the top two panels, and estimated difference between the two groups in the same column in the bottom panel. In the top two panels, α_{Info} indicates the learning rate estimates for the *Info* treatment (net of any repeated elicitation effect), and $\alpha_{InfoGoal} - \alpha_{Goal}$ indicates the learning rate estimates for the *InfoGoal* treatment (net of any repeated elicitation and second-thoughts effects). In the bottom panel, the corresponding estimates indicate the difference between the topmost and the second top sample estimates. In column (1), attentive vs. inattentive refers to the situation whether the job seeker in the two treatments with information made no vs. at least one mistake in the attention check question in the survey after providing information. The "attentive" sample includes all "attentive" job seekers in the *Info* and *InfoGoal* treatments, and all job seekers in the *Control* and *Goal* treatments; the "inattentive" sample includes all "inattentive" job seekers in the *Info* and *InfoGoal* treatments, and all job seekers in the *Control* and *Goal* treatments. In columns (2)-(4), the group of job seekers included in each sample is indicated in the column heading of the top two panels, and the data are estimated and the results are reported separately. Estimates for job seeker's characteristics, which are identical to those in Table 1, are not reported. In columns (2)-(4), the corresponding characteristic used as the grouping criterion is naturally omitted. The number of observation to compute the learning rates in each group are $N_{\text{Attentive}} = 11,663$, $N_{\text{Inattentive}} = 8,612$, $N_{\text{University}} = 7,332$, $N_{\text{No University}} = 6,257$, $N_{\text{Employed}} = 6,762$, $N_{\text{Unemployed}} = 5,064$, $N_{\text{Female}} = 6,013$, $N_{\text{Male}} = 7,576$. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

C.3. Search Behavior

Table C.7: The Impact of Beliefs on Search Effort - Robustness: IV Regressions based only on Job Seekers in *Goal* and *InfoGoal* Treatments

Dep. Var.:	Applied		asinh(# of daily applications)	
	(1)	(2)	(3)	(4)
Sample: 1-5 days:				
ln(Future posterior)	0.00748	0.00483	0.00504	0.00711
	(0.0134)	(0.0126)	(0.0237)	(0.0223)
Sample: 6-10 days:				
ln(Future posterior)	0.00886	0.00372	0.0163	0.0135
	(0.0145)	(0.0136)	(0.0220)	(0.0207)
Sample: 11-20 days:				
ln(Future posterior)	-0.00103	0.00531	-0.0172	-0.0144
	(0.0145)	(0.0136)	(0.0193)	(0.0181)
Sample: 21-30 days:				
ln(Future posterior)	0.0102	0.0114	0.00112	0.00431
	(0.0145)	(0.0136)	(0.0182)	(0.0171)
Job seeker characteristics	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes
Observations	6814	6814	6814	6814
Estimator	IV.1	IV.2	IV.1	IV.2

Notes: See notes to Table 2. The only difference is the sample included, which is job seekers that set goals in the *Goal* and *InfoGoal* treatments.

Table C.8: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Employed Job Seekers

Dep. Var.:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.0252*	0.0185	0.00102	-0.00474	-0.00795	-0.00297	0.0509***	0.0352**	0.136***	0.102***
	(0.0137)	(0.0123)	(0.0232)	(0.0209)	(0.0103)	(0.00915)	(0.0188)	(0.0167)	(0.0441)	(0.0392)
Observations	6762	6762	6762	6762	4544	4544	4544	4544	4544	4544
Sample: 6-10 days:										
ln(Future posterior)	-0.0112	-0.00617	-0.0358	-0.0297	-0.00215	0.000138	0.0510**	0.0378**	0.132**	0.0762
	(0.0147)	(0.0132)	(0.0220)	(0.0198)	(0.0121)	(0.0107)	(0.0200)	(0.0177)	(0.0549)	(0.0483)
Observations	6762	6762	6762	6762	3543	3543	3543	3543	3543	3543
Sample: 11-20 days:										
ln(Future posterior)	-0.0161	-0.00901	-0.0552***	-0.0455**	-0.00365	0.000151	0.0457**	0.0279	0.115**	0.0805*
	(0.0146)	(0.0132)	(0.0198)	(0.0178)	(0.0118)	(0.0103)	(0.0208)	(0.0181)	(0.0541)	(0.0470)
Observations	6762	6762	6762	6762	3827	3827	3827	3827	3827	3827
Sample: 21-30 days:										
ln(Future posterior)	0.00609	0.00887	-0.0193	-0.0189	0.0166	0.00844	0.0108	0.00895	0.0115	0.0483
	(0.0148)	(0.0133)	(0.0188)	(0.0169)	(0.0127)	(0.0110)	(0.0229)	(0.0199)	(0.0594)	(0.0516)
Observations	6762	6762	6762	6762	3240	3240	3240	3240	3240	3240
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table C.8: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Employed Job Seekers, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	-0.00849	-0.00664	-0.00470	-0.00454	0.0139	0.0100	0.0600	0.0613
	(0.0147)	(0.0132)	(0.0129)	(0.0116)	(0.0221)	(0.0195)	(0.0591)	(0.0523)
Observations	6762	6762	6762	6762	3069	3069	3069	3069
Sample: 6-10 days:								
ln(Future posterior)	-0.0277**	-0.0221*	-0.0121	-0.00936	0.0332	0.0279	0.0871	0.0528
	(0.0141)	(0.0127)	(0.0108)	(0.00976)	(0.0269)	(0.0232)	(0.0732)	(0.0631)
Observations	6762	6762	6762	6762	2207	2207	2207	2207
Sample: 11-20 days:								
ln(Future posterior)	-0.0283*	-0.0205	-0.0162*	-0.0126	0.0364	0.0254	0.0806	0.0326
	(0.0148)	(0.0133)	(0.00883)	(0.00796)	(0.0246)	(0.0213)	(0.0656)	(0.0567)
Observations	6762	6762	6762	6762	2658	2658	2658	2658
Sample: 21-30 days:								
ln(Future posterior)	-0.00322	-0.00367	-0.00547	-0.00615	-0.0000981	0.0206	0.0523	0.0711
	(0.0142)	(0.0128)	(0.00815)	(0.00735)	(0.0299)	(0.0253)	(0.0768)	(0.0651)
Observations	6762	6762	6762	6762	2166	2166	2166	2166
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates from IV regressions for the impact of beliefs about labor market competition on search behavior and outcomes based on the sample of job seekers that are employed at the time of taking the survey and based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.9: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Unemployed Job Seekers

Dep. Var.:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.00745	0.00504	-0.00129	-0.00459	0.000979	0.0102	0.000866	-0.00634	0.0162	0.0160
	(0.0144)	(0.0133)	(0.0263)	(0.0243)	(0.0105)	(0.00964)	(0.0169)	(0.0155)	(0.0376)	(0.0345)
Observations	5064	5064	5064	5064	3518	3518	3518	3518	3518	3518
Sample: 6-10 days:										
ln(Future posterior)	0.0217	0.00744	0.0417*	0.0280	0.00207	0.0112	-0.0294	-0.0334**	-0.0310	0.00368
	(0.0159)	(0.0147)	(0.0249)	(0.0230)	(0.0124)	(0.0112)	(0.0186)	(0.0169)	(0.0444)	(0.0401)
Observations	5064	5064	5064	5064	2652	2652	2652	2652	2652	2652
Sample: 11-20 days:										
ln(Future posterior)	0.00938	0.0112	0.0102	0.00657	-0.0125	-0.00541	-0.00432	0.00389	-0.0139	0.00297
	(0.0159)	(0.0147)	(0.0219)	(0.0203)	(0.0129)	(0.0121)	(0.0195)	(0.0182)	(0.0463)	(0.0432)
Observations	5064	5064	5064	5064	2601	2601	2601	2601	2601	2601
Sample: 21-30 days:										
ln(Future posterior)	0.00469	0.00156	-0.0135	-0.0129	-0.00875	-0.00207	-0.0350	-0.0331	0.0989*	0.0953*
	(0.0156)	(0.0144)	(0.0203)	(0.0188)	(0.0149)	(0.0141)	(0.0241)	(0.0228)	(0.0555)	(0.0525)
Observations	5064	5064	5064	5064	2104	2104	2104	2104	2104	2104
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table C.9: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Unemployed Job Seekers, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	-0.00406	-0.00755	-0.00183	-0.00672	0.0200	0.0102	-0.0552	-0.0663
	(0.0157)	(0.0146)	(0.0157)	(0.0145)	(0.0221)	(0.0197)	(0.0584)	(0.0523)
Observations	5064	5064	5064	5064	2571	2571	2571	2571
Sample: 6-10 days:								
ln(Future posterior)	0.0279*	0.0156	0.0149	0.0101	0.0356	0.0357*	0.0200	0.0474
	(0.0155)	(0.0143)	(0.0137)	(0.0127)	(0.0230)	(0.0208)	(0.0651)	(0.0588)
Observations	5064	5064	5064	5064	1832	1832	1832	1832
Sample: 11-20 days:								
ln(Future posterior)	0.00539	0.00492	-0.000844	-0.00196	-0.00606	0.00168	0.0566	0.0862
	(0.0157)	(0.0146)	(0.0111)	(0.0103)	(0.0230)	(0.0213)	(0.0697)	(0.0646)
Observations	5064	5064	5064	5064	1926	1926	1926	1926
Sample: 21-30 days:								
ln(Future posterior)	0.00474	0.00205	-0.00898	-0.00794	0.0221	0.0206	-0.0277	0.00406
	(0.0149)	(0.0138)	(0.0101)	(0.00940)	(0.0287)	(0.0272)	(0.0711)	(0.0673)
Observations	5064	5064	5064	5064	1568	1568	1568	1568
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates from IV regressions or the impact of beliefs about labor market competition on search behavior and outcomes based on the sample of job seekers that are unemployed at the time of taking the survey and based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.10: The Impact of Beliefs on Lowest Acceptable Quality of Jobs Sought - Robustness: IV Regressions by Search Experience based only on Employed Job Seekers

Dep. Var.:	Reservation Wage				Minimum Experience			
Sample:	Inexperienced		Experienced		Inexperienced		Experienced	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample: 1-5 days:								
ln(Future posterior)	0.0232	0.0162	0.0878***	0.0668***	0.0614	0.0397	0.209***	0.169***
	(0.0247)	(0.0224)	(0.0287)	(0.0250)	(0.0634)	(0.0575)	(0.0628)	(0.0548)
Observations	1974	1974	2570	2570	1974	1974	2570	2570
Sample: 6-10 days:								
ln(Future posterior)	0.0356	0.0248	0.0642**	0.0409	0.00342	-0.0116	0.229***	0.123*
	(0.0268)	(0.0242)	(0.0297)	(0.0255)	(0.0776)	(0.0701)	(0.0788)	(0.0670)
Observations	1482	1482	2061	2061	1482	1482	2061	2061
Sample: 11-20 days:								
ln(Future posterior)	0.0434	0.0373	0.0591**	0.0219	-0.0288	-0.0180	0.216***	0.112*
	(0.0312)	(0.0275)	(0.0290)	(0.0243)	(0.0853)	(0.0751)	(0.0723)	(0.0603)
Observations	1665	1665	2162	2162	1665	1665	2162	2162
Sample: 21-30 days:								
ln(Future posterior)	0.0368	0.0439	-0.0121	-0.0151	-0.0140	0.00826	0.00800	0.0606
	(0.0306)	(0.0267)	(0.0341)	(0.0293)	(0.0892)	(0.0773)	(0.0815)	(0.0701)
Observations	1387	1387	1853	1853	1387	1387	1853	1853
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on lowest acceptable quality of jobs sought based on the sample of job seekers that are employed at the time of taking the survey and based on the data of the dependent variables in the month after the survey-completion day by the job seekers degree of experience in the 30 days prior to taking the survey. Job seekers are classified as being inexperienced (experienced) if they made less or equal (more) than the median number of applications made by the current sample in their preferred occupation in the 30 days prior to taking the survey. The dependent variables, the IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in Table 5. See notes to corresponding tables.

Table C.11: Robustness: The Impact of Beliefs on whether Reservation Wage is from the Preferred Occupation

Dep. Var.: Reservation wage is from pref. occ.	(1)	(2)	(3)	(4)
Sample: 1-5 days:				
ln(Future posterior)	0.00425	0.00786	-0.00317	-0.000598
	(0.0120)	(0.00942)	(0.0109)	(0.00856)
Observations	9258	9256	9258	9256
Sample: 6-10 days:				
ln(Future posterior)	0.00537	0.00443	0.00107	-0.00293
	(0.0137)	(0.0106)	(0.0124)	(0.00965)
Observations	7034	7034	7034	7034
Sample: 11-20 days:				
ln(Future posterior)	-0.00831	-0.00554	-0.000258	-0.00393
	(0.0144)	(0.0112)	(0.0130)	(0.0102)
Observations	7266	7265	7266	7265
Sample: 21-30 days:				
ln(Future posterior)	-0.00795	-0.00286	-0.00526	-0.00498
	(0.0156)	(0.0122)	(0.0141)	(0.0110)
Observations	5990	5989	5990	5989
Job seeker characteristics	No	Yes	No	Yes
Controls past	No	Yes	No	Yes
Estimator	IV.1	IV.1	IV.2	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on whether reservation wage is from the preferred occupation based on the data of the dependent variables in the month after the survey-completion day. In case of a tie, i.e., when the lowest wage among applications in the preferred occupation is the same as the one in non-preferred occupations, the outcome variable is coded as 0.5. For each time period, the data is estimated and the results are reported separately. Each column uses the estimator indicated in the bottom panel: IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past refer to whether the reservation wage is from the preferred occupation in the week prior to the survey-starting day. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table C.12: Robustness: The Impact of Beliefs on whether Lowest Experience Required is from the Preferred Occupation

Dep. Var.: Lowest experience is from pref. occ.	(1)	(2)	(3)	(4)
Sample: 1-5 days:				
ln(Future posterior)	-0.00344	0.000618	-0.00908	-0.00489
	(0.0109)	(0.00817)	(0.00985)	(0.00742)
Observations	9258	9256	9258	9256
Sample: 6-10 days:				
ln(Future posterior)	0.00243	0.00286	-0.000181	-0.00178
	(0.0127)	(0.00959)	(0.0115)	(0.00872)
Observations	7034	7034	7034	7034
Sample: 11-20 days:				
ln(Future posterior)	0.00324	0.00927	0.000494	0.00160
	(0.0129)	(0.00970)	(0.0118)	(0.00884)
Observations	7266	7265	7266	7265
Sample: 21-30 days:				
ln(Future posterior)	-0.0116	-0.00874	-0.00330	-0.00332
	(0.0143)	(0.0109)	(0.0129)	(0.00986)
Observations	5990	5989	5990	5989
Job seeker characteristics	No	Yes	No	Yes
Controls past	No	Yes	No	Yes
Estimator	IV.1	IV.1	IV.2	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on whether the lowest experience required is from the preferred occupation based on the data of the dependent variables in the month after the survey-completion day. In case of a tie, i.e., when the minimum experience required among applications in the preferred occupation is the same as the one in non-preferred occupations, the outcome variable is coded as 0.5. For each time period, the data is estimated and the results are reported separately. Each column uses the estimator indicated in the bottom panel: IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past refer to whether the minimum experience required is from the preferred occupation in the week prior to the survey-starting day. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table C.13: The Impact of Beliefs on Past Search Behavior and Outcomes

Dep. Var.:	# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln(Future posterior)	0.00625	0.00601	0.00457	0.00262	-0.000117	-0.000714	-0.0199	-0.0171
	(0.0163)	(0.0149)	(0.00792)	(0.00726)	(0.0107)	(0.00979)	(0.0221)	(0.0203)
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13589	13589	13586	13586	13586	13586	13586	13586
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2
Dep. Var.:	Got pos. feed.		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ln(Future posterior)	-0.0144	-0.00886	-0.000334	0.00335	-0.00485	-0.00422	-0.0310	-0.0279
	(0.00923)	(0.00845)	(0.00903)	(0.00827)	(0.0129)	(0.0119)	(0.0315)	(0.0290)
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13589	13589	13589	13589	9336	9336	9336	9336
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on search behavior and outcomes based on the data on the dependent variables for the week prior to the survey-starting day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.14: The Impact of Beliefs on Search Effort - Robustness: IV Regressions using App Time Use Data

Dep. Var.:	Opened App			asinh(App daily time use)		
	(1)	(2)	(3)	(4)	(5)	(6)
Sample: 1-5 days:						
ln(Future posterior)	-0.00457	0.0120	0.000526	-0.000520	-0.0941	-0.0744
	(0.00496)	(0.0159)	(0.0141)	(0.0225)	(0.0760)	(0.0674)
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controls Past	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1661	1661	1661	1661	1661	1661
Estimator	OLS	IV.1	IV.2	OLS	IV.1	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition in the preferred occupation on search effort. The time-use dataset covers data from the 8th to the 20th of October, 2021. The analysis includes all job seekers from our main sample that started the survey after the 8th and completed it by the 15th of October, resulting in a balanced app-use dataset that includes data for the day prior to the survey starting day and 5 days after the survey completion day. The dependent variable in columns (1)-(3) is whether the job seeker opened the App in the given time period, and in columns (4)-(6) is the average daily time (in minutes) spent on the App (inverse hyperbolic sine) in a given time period. Each column uses the estimator indicated in the bottom panel: OLS corresponds to equation (5.1) described in section 5.1, IV.1 corresponds to equations (5.2) and (5.3), and IV.2 corresponds to equations (5.4) and (5.3). Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past refer to the time spent on it on the day prior to the survey starting day for the two corresponding dependent variables respectively. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table C.15: The Impact of Beliefs on Search Effort - Robustness: IV Regressions Conditional on Applying in each time period

	Full sample		Employed		Unemployed	
Dep. Var.: asinh(# of daily applications)	(1)	(2)	(3)	(4)	(5)	(6)
Sample: 1-5 days:						
ln(Future posterior)	-0.0101	-0.00851	-0.0273	-0.0295	0.000895	-0.00213
	(0.0195)	(0.0177)	(0.0290)	(0.0258)	(0.0316)	(0.0289)
Observations	9258	9258	4545	4545	3519	3519
Sample: 6-10 days:						
ln(Future posterior)	0.00322	0.0111	-0.0378	-0.0208	0.0430	0.0491
	(0.0221)	(0.0201)	(0.0335)	(0.0296)	(0.0344)	(0.0312)
Observations	7034	7034	3543	3543	2652	2652
Sample: 11-20 days:						
ln(Future posterior)	-0.0324	-0.0304	-0.0777**	-0.0599**	0.00523	0.000508
	(0.0210)	(0.0191)	(0.0308)	(0.0268)	(0.0352)	(0.0329)
Observations	7266	7266	3828	3828	2601	2601
Sample: 21-30 days:						
ln(Future posterior)	-0.0275	-0.0215	-0.0445	-0.0447	-0.0334	-0.0227
	(0.0233)	(0.0210)	(0.0331)	(0.0288)	(0.0389)	(0.0367)
Observations	5990	5990	3241	3241	2104	2104
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: See notes to Table 2. The only difference is the sampling restriction, i.e., the sample includes job seekers that make at least 1 application in each time period. The sample of analysis is indicated in the column heading.

Table C.16: The Impact of Beliefs on Positive Feedback - Robustness: IV Regressions Conditional on Applying in each time period

	Full sample				Employed				Unemployed			
Dep. Var.:	Got pos. feedback		asinh(# pos. feedb.)		Got pos. feedback		asinh(# pos. feedb.)		Got pos. feedback		asinh(# pos. feedb.)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sample: 1-5 days:												
ln(Future posterior)	-0.0213**	-0.0183*	-0.00916	-0.00906	-0.0392**	-0.0295*	-0.0193*	-0.0150*	-0.00703	-0.00927	-0.000798	-0.000882
	(0.0108)	(0.00984)	(0.00673)	(0.00611)	(0.0170)	(0.0151)	(0.0102)	(0.00906)	(0.0168)	(0.0154)	(0.0108)	(0.00991)
Observations	9258	9258	9258	9258	4545	4545	4545	4545	3519	3519	3519	3519
Sample: 6-10 days:												
ln(Future posterior)	-0.00641	-0.00377	-0.000304	0.00392	-0.0329	-0.0272	-0.0123	-0.00419	0.0258	0.0226	0.00745	0.00950
	(0.0129)	(0.0117)	(0.00782)	(0.00711)	(0.0203)	(0.0179)	(0.0119)	(0.0105)	(0.0191)	(0.0173)	(0.0121)	(0.0109)
Observations	7034	7034	7034	7034	3543	3543	3543	3543	2652	2652	2652	2652
Sample: 11-20 days:												
ln(Future posterior)	-0.0220*	-0.0208*	-0.00753	-0.00463	-0.0340*	-0.0233	-0.000849	0.00604	-0.00367	-0.00612	-0.00764	-0.00403
	(0.0131)	(0.0120)	(0.00784)	(0.00715)	(0.0197)	(0.0172)	(0.0114)	(0.00999)	(0.0208)	(0.0194)	(0.0128)	(0.0119)
Observations	7266	7266	7266	7266	3828	3828	3828	3828	2601	2601	2601	2601
Sample: 21-30 days:												
ln(Future posterior)	-0.000811	-0.00163	-0.00279	-0.00376	-0.0209	-0.0223	-0.000552	0.00188	0.00885	0.00980	0.00177	0.00200
	(0.0146)	(0.0132)	(0.00871)	(0.00786)	(0.0219)	(0.0190)	(0.0124)	(0.0108)	(0.0223)	(0.0211)	(0.0141)	(0.0133)
Observations	5990	5990	5990	5990	3241	3241	3241	3241	2104	2104	2104	2104
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: See notes to Table 6. The only difference is the sampling restriction, i.e., the sample includes job seekers that make at least 1 application in each time period. The sample of analysis and dependent variable are indicated in the column headings.

Table C.17: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Data from Preferred Occupation

Dep. Var.:	Applied		# of daily applications		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample: 1-5 days:								
ln(Future posterior)	-0.00295	-0.00986	-0.00802	-0.0121	0.0192	0.0126	0.0699*	0.0555*
	(0.00851)	(0.00780)	(0.0115)	(0.0106)	(0.0123)	(0.0112)	(0.0366)	(0.0336)
Observations	13589	13589	13589	13589	5071	5071	5071	5071
Sample: 6-10 days:								
ln(Future posterior)	-0.00352	-0.00335	0.00828	0.00732	-0.000936	-0.00490	-0.0139	-0.00390
	(0.00846)	(0.00775)	(0.0105)	(0.00961)	(0.0143)	(0.0133)	(0.0438)	(0.0405)
Observations	13589	13589	13589	13589	3775	3775	3775	3775
Sample: 11-20 days:								
ln(Future posterior)	-0.00496	-0.00225	-0.0115	-0.00710	0.0155	0.0121	0.0374	0.0391
	(0.00867)	(0.00795)	(0.00909)	(0.00833)	(0.0161)	(0.0148)	(0.0452)	(0.0416)
Observations	13589	13589	13589	13589	3944	3944	3944	3944
Sample: 21-30 days:								
ln(Future posterior)	-0.00274	0.00113	-0.0106	-0.00775	-0.0337*	-0.0211	0.0315	0.0526
	(0.00833)	(0.00764)	(0.00852)	(0.00781)	(0.0192)	(0.0176)	(0.0551)	(0.0506)
Observations	13589	13589	13589	13589	3221	3221	3221	3221
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table C.17: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Data from Preferred Occupation, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Sample: 1-5 days:								
ln(Future posterior)	-0.00282	-0.00720	0.00172	-0.000232	-0.0321*	-0.0201	-0.0175	-0.00601
	(0.00857)	(0.00786)	(0.00650)	(0.00596)	(0.0168)	(0.0152)	(0.0478)	(0.0433)
Observations	13589	13589	13589	13589	3282	3282	3282	3282
Sample: 6-10 days:								
ln(Future posterior)	0.00121	-0.00106	0.00415	0.00365	-0.00432	0.00118	0.0872	0.116**
	(0.00762)	(0.00699)	(0.00510)	(0.00467)	(0.0196)	(0.0180)	(0.0573)	(0.0529)
Observations	13589	13589	13589	13589	2252	2252	2252	2252
Sample: 11-20 days:								
ln(Future posterior)	-0.000472	0.00269	-0.00446	-0.00202	-0.0260	-0.0239	0.102*	0.0898*
	(0.00803)	(0.00736)	(0.00399)	(0.00366)	(0.0202)	(0.0186)	(0.0590)	(0.0545)
Observations	13589	13589	13589	13589	2575	2575	2575	2575
Sample: 21-30 days:								
ln(Future posterior)	-0.00789	-0.00557	-0.00321	-0.00274	-0.0239	-0.00808	-0.0266	0.0201
	(0.00740)	(0.00678)	(0.00352)	(0.00322)	(0.0250)	(0.0233)	(0.0662)	(0.0617)
Observations	13589	13589	13589	13589	2037	2037	2037	2037
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates or the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions based on the data of the dependent variables in the month after the survey-completion day and only from the preferred occupation. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.18: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Data from Non-Preferred Occupation

Dep. Var.:	Applied		# of daily applications		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample: 1-5 days:								
ln(Future posterior)	0.0109	0.00884	0.000381	-0.000668	0.0313*	0.0255	0.0687**	0.0500
	(0.00923)	(0.00846)	(0.0125)	(0.0115)	(0.0174)	(0.0155)	(0.0348)	(0.0310)
Observations	13589	13589	13589	13589	5696	5696	5696	5696
Sample: 6-10 days:								
ln(Future posterior)	-0.00289	-0.00344	-0.00814	-0.00769	0.0271	0.0179	0.0994**	0.0734*
	(0.00917)	(0.00840)	(0.0114)	(0.0104)	(0.0180)	(0.0164)	(0.0421)	(0.0383)
Observations	13589	13589	13589	13589	4211	4211	4211	4211
Sample: 11-20 days:								
ln(Future posterior)	-0.00594	-0.00317	-0.0186*	-0.0185**	0.0204	0.0243	0.0501	0.0301
	(0.00940)	(0.00861)	(0.00998)	(0.00915)	(0.0176)	(0.0162)	(0.0408)	(0.0375)
Observations	13589	13589	13589	13589	4461	4461	4461	4461
Sample: 21-30 days:								
ln(Future posterior)	-0.00121	-0.00212	-0.00623	-0.00501	-0.0213	-0.0245	-0.0150	-0.0165
	(0.00905)	(0.00829)	(0.00925)	(0.00848)	(0.0204)	(0.0186)	(0.0465)	(0.0425)
Observations	13589	13589	13589	13589	3631	3631	3631	3631
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table C.18: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Data from Non-Preferred Occupation, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Sample: 1-5 days:								
ln(Future posterior)	-0.00912	-0.0112	-0.00158	-0.00236	0.0266	0.0238	0.0110	-0.0121
	(0.00899)	(0.00824)	(0.00744)	(0.00682)	(0.0204)	(0.0183)	(0.0536)	(0.0481)
Observations	13589	13589	13589	13589	3893	3893	3893	3893
Sample: 6-10 days:								
ln(Future posterior)	-0.00572	-0.00292	-0.00150	-0.00131	0.0385*	0.0382*	0.0482	0.0480
	(0.00819)	(0.00751)	(0.00606)	(0.00556)	(0.0228)	(0.0205)	(0.0605)	(0.0542)
Observations	13589	13589	13589	13589	2665	2665	2665	2665
Sample: 11-20 days:								
ln(Future posterior)	-0.0133	-0.0148*	-0.00773	-0.00865*	0.00431	0.00996	0.0178	0.000352
	(0.00865)	(0.00793)	(0.00482)	(0.00442)	(0.0211)	(0.0194)	(0.0576)	(0.0530)
Observations	13589	13589	13589	13589	3053	3053	3053	3053
Sample: 21-30 days:								
ln(Future posterior)	0.00548	0.00460	-0.00240	-0.00246	0.0106	0.0222	-0.00642	0.0136
	(0.00808)	(0.00740)	(0.00451)	(0.00413)	(0.0247)	(0.0220)	(0.0632)	(0.0563)
Observations	13589	13589	13589	13589	2451	2451	2451	2451
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions based on the data of the dependent variables in the month after the survey-completion day and only from the non-preferred occupation. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.19: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Attentive Job Seekers

Dep. Var.:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.0161*	0.00976	-0.00718	-0.00688	-0.00239	0.00666	0.0328***	0.0217**	0.0770***	0.0594**
	(0.00907)	(0.00845)	(0.0160)	(0.0149)	(0.00689)	(0.00633)	(0.0118)	(0.0109)	(0.0260)	(0.0238)
Observations	11663	11663	11663	11663	7953	7953	7953	7953	7953	7953
Sample: 6-10 days:										
ln(Future posterior)	0.000399	-0.00193	-0.00548	-0.00639	0.00108	0.00258	0.0216*	0.0183	0.0695**	0.0644**
	(0.00987)	(0.00919)	(0.0150)	(0.0140)	(0.00814)	(0.00753)	(0.0128)	(0.0119)	(0.0320)	(0.0296)
Observations	11663	11663	11663	11663	6062	6062	6062	6062	6062	6062
Sample: 11-20 days:										
ln(Future posterior)	-0.0116	-0.00734	-0.0232*	-0.0190	-0.00624	-0.000874	0.0229*	0.0222*	0.0472	0.0390
	(0.00985)	(0.00917)	(0.0132)	(0.0123)	(0.00808)	(0.00749)	(0.0134)	(0.0124)	(0.0320)	(0.0296)
Observations	11663	11663	11663	11663	6256	6256	6256	6256	6256	6256
Sample: 21-30 days:										
ln(Future posterior)	0.00777	0.0114	-0.00851	-0.00280	-0.00000659	-0.00205	-0.0114	-0.0148	0.0404	0.0456
	(0.00978)	(0.00911)	(0.0124)	(0.0115)	(0.00934)	(0.00859)	(0.0157)	(0.0145)	(0.0382)	(0.0351)
Observations	11663	11663	11663	11663	5132	5132	5132	5132	5132	5132
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table C.19: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Attentive Job Seekers, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	-0.00528	-0.00765	-0.00346	-0.00451	0.00827	0.00843	0.00210	-0.00227
	(0.00983)	(0.00916)	(0.00920)	(0.00857)	(0.0144)	(0.0131)	(0.0381)	(0.0348)
Observations	11663	11663	11663	11663	5609	5609	5609	5609
Sample: 6-10 days:								
ln(Future posterior)	-0.00756	-0.00795	-0.00305	-0.00292	0.00477	0.00620	0.103**	0.122***
	(0.00950)	(0.00885)	(0.00776)	(0.00723)	(0.0164)	(0.0151)	(0.0450)	(0.0413)
Observations	11663	11663	11663	11663	3953	3953	3953	3953
Sample: 11-20 days:								
ln(Future posterior)	-0.0188*	-0.0154*	-0.00987	-0.00838	0.00519	0.00199	0.116***	0.118***
	(0.00982)	(0.00914)	(0.00626)	(0.00583)	(0.0159)	(0.0146)	(0.0444)	(0.0410)
Observations	11663	11663	11663	11663	4446	4446	4446	4446
Sample: 21-30 days:								
ln(Future posterior)	0.00592	0.00870	-0.00196	0.000188	-0.00257	0.0107	0.0262	0.0637
	(0.00932)	(0.00868)	(0.00570)	(0.00531)	(0.0192)	(0.0176)	(0.0494)	(0.0453)
Observations	11663	11663	11663	11663	3576	3576	3576	3576
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions based on the data of the dependent variables in the month after the survey-completion day and only for the "attentive" job seekers. "Attentive" refers to the situation that the job seeker in the two treatments with information made no mistake in the attention check question in the survey after providing information. The "attentive" sample includes all "attentive" job seekers in the Info and InfoGoal treatments, and all job seekers in the Control and Goal treatments. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.20: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Female Job Seekers

Dep. Var.:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	-0.00205	-0.00644	-0.0261	-0.0309	-0.0162*	-0.00994	0.0346**	0.0208	0.0915***	0.0726***
	(0.0124)	(0.0114)	(0.0217)	(0.0201)	(0.00932)	(0.00851)	(0.0158)	(0.0144)	(0.0302)	(0.0276)
Observations	6013	6013	6013	6013	4052	4052	4052	4052	4052	4052
Sample: 6-10 days:										
ln(Future posterior)	-0.000605	-0.00191	-0.00736	-0.0105	0.00256	0.00380	0.0196	0.0157	0.0239	0.0375
	(0.0135)	(0.0124)	(0.0198)	(0.0183)	(0.0111)	(0.0102)	(0.0176)	(0.0163)	(0.0389)	(0.0360)
Observations	6013	6013	6013	6013	2987	2987	2987	2987	2987	2987
Sample: 11-20 days:										
ln(Future posterior)	0.00755	0.00953	-0.0292*	-0.0248	0.00718	0.0126	0.0353*	0.0288*	0.0842**	0.0733**
	(0.0135)	(0.0124)	(0.0176)	(0.0162)	(0.0115)	(0.0105)	(0.0185)	(0.0168)	(0.0391)	(0.0355)
Observations	6013	6013	6013	6013	3049	3049	3049	3049	3049	3049
Sample: 21-30 days:										
ln(Future posterior)	0.0128	0.0131	-0.0150	-0.0126	0.0112	0.00188	-0.0342	-0.0304	0.00351	0.0278
	(0.0133)	(0.0122)	(0.0161)	(0.0149)	(0.0134)	(0.0122)	(0.0222)	(0.0202)	(0.0467)	(0.0426)
Observations	6013	6013	6013	6013	2460	2460	2460	2460	2460	2460
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table C.20: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Female Job Seekers, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	-0.0216	-0.0226*	-0.0108	-0.0154	-0.00488	-0.0115	0.0116	-0.0123
	(0.0134)	(0.0124)	(0.0132)	(0.0122)	(0.0180)	(0.0165)	(0.0462)	(0.0424)
Observations	6013	6013	6013	6013	2951	2951	2951	2951
Sample: 6-10 days:								
ln(Future posterior)	-0.00192	-0.00165	0.00308	0.00197	0.00125	-0.00653	-0.00954	0.0130
	(0.0129)	(0.0119)	(0.0108)	(0.00993)	(0.0211)	(0.0191)	(0.0579)	(0.0525)
Observations	6013	6013	6013	6013	2043	2043	2043	2043
Sample: 11-20 days:								
ln(Future posterior)	-0.00784	-0.00751	-0.0122	-0.0103	0.00131	-0.00263	0.0148	0.0192
	(0.0133)	(0.0122)	(0.00880)	(0.00812)	(0.0223)	(0.0203)	(0.0599)	(0.0545)
Observations	6013	6013	6013	6013	2250	2250	2250	2250
Sample: 21-30 days:								
ln(Future posterior)	0.0158	0.0122	-0.00237	-0.00403	0.00421	-0.000676	-0.0459	0.0137
	(0.0125)	(0.0116)	(0.00791)	(0.00729)	(0.0249)	(0.0227)	(0.0656)	(0.0596)
Observations	6013	6013	6013	6013	1763	1763	1763	1763
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates from IV regressions for the impact of beliefs about labor market competition on search behavior and outcomes based on the sample of female job seekers and based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.21: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Male Job Seekers

Dep. Var.:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.0297**	0.0197	0.0323	0.0250	0.00662	0.0112	0.0272	0.0209	0.0386	0.0115
	(0.0132)	(0.0120)	(0.0234)	(0.0211)	(0.00992)	(0.00888)	(0.0177)	(0.0158)	(0.0414)	(0.0371)
Observations	7576	7576	7576	7576	5204	5204	5204	5204	5204	5204
Sample: 6-10 days:										
ln(Future posterior)	0.00844	0.00314	0.0102	0.00506	-0.00639	-0.00145	0.0179	0.0154	0.0935*	0.0603
	(0.0143)	(0.0130)	(0.0223)	(0.0202)	(0.0117)	(0.0104)	(0.0185)	(0.0165)	(0.0495)	(0.0441)
Observations	7576	7576	7576	7576	4047	4047	4047	4047	4047	4047
Sample: 11-20 days:										
ln(Future posterior)	-0.0228	-0.0191	-0.0187	-0.0217	-0.0155	-0.0118	0.0150	0.0213	0.0300	0.0235
	(0.0143)	(0.0130)	(0.0195)	(0.0177)	(0.0116)	(0.0105)	(0.0194)	(0.0176)	(0.0492)	(0.0445)
Observations	7576	7576	7576	7576	4216	4216	4216	4216	4216	4216
Sample: 21-30 days:										
ln(Future posterior)	-0.00344	-0.00104	-0.00890	-0.00789	-0.00782	-0.00325	0.0104	0.00855	0.0618	0.0704
	(0.0143)	(0.0130)	(0.0187)	(0.0169)	(0.0128)	(0.0113)	(0.0221)	(0.0196)	(0.0563)	(0.0500)
Observations	7576	7576	7576	7576	3529	3529	3529	3529	3529	3529
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table C.21: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based only on Male Job Seekers, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	0.00935	0.00396	0.0150	0.0125	0.0271	0.0360*	0.0127	0.0168
	(0.0143)	(0.0130)	(0.0129)	(0.0117)	(0.0223)	(0.0196)	(0.0605)	(0.0530)
Observations	7576	7576	7576	7576	3602	3602	3602	3602
Sample: 6-10 days:								
ln(Future posterior)	-0.00403	-0.0100	0.00424	0.00290	0.0391	0.0532**	0.172**	0.149**
	(0.0138)	(0.0125)	(0.0112)	(0.0101)	(0.0249)	(0.0221)	(0.0690)	(0.0610)
Observations	7576	7576	7576	7576	2569	2569	2569	2569
Sample: 11-20 days:								
ln(Future posterior)	-0.0268*	-0.0246*	-0.0103	-0.0106	0.0130	0.0202	0.151**	0.120**
	(0.0144)	(0.0130)	(0.00892)	(0.00808)	(0.0220)	(0.0200)	(0.0632)	(0.0575)
Observations	7576	7576	7576	7576	2945	2945	2945	2945
Sample: 21-30 days:								
ln(Future posterior)	-0.0101	-0.00862	-0.00795	-0.00518	-0.00265	0.0151	0.114	0.103*
	(0.0138)	(0.0125)	(0.00835)	(0.00756)	(0.0283)	(0.0250)	(0.0706)	(0.0623)
Observations	7576	7576	7576	7576	2438	2438	2438	2438
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates from IV regressions for the impact of beliefs about labor market competition on search behavior and outcomes based on the sample of male job seekers and based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table C.22: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions Allowing for a Direct Treatment Effect

Dep. Var.:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.0141	0.00109	-0.000632	0.00181	-0.00631	-0.00368	0.0294**	0.0185*	0.0616**	0.0460**
	(0.00901)	(0.00820)	(0.0159)	(0.0145)	(0.00680)	(0.00620)	(0.0119)	(0.0108)	(0.0257)	(0.0234)
Sets goal	0.0111	0.00757	0.0113	0.0121	-0.0148**	-0.0140**	0.00740	0.00406	0.0177	0.0125
	(0.00801)	(0.00794)	(0.0141)	(0.0140)	(0.00607)	(0.00600)	(0.0106)	(0.0105)	(0.0229)	(0.0226)
Observations	13589	13589	13589	13589	9256	9256	9256	9256	9256	9256
Sample: 6-10 days:										
ln(Future posterior)	0.00150	-0.00343	0.00207	-0.0102	-0.00196	0.00267	0.0192	0.0141	0.0554*	0.0223
	(0.00980)	(0.00892)	(0.0149)	(0.0136)	(0.00802)	(0.00730)	(0.0128)	(0.0116)	(0.0316)	(0.0288)
Sets goal	0.000229	-0.00129	0.00412	0.000617	-0.00466	-0.00334	0.00411	0.00244	-0.00953	-0.0198
	(0.00871)	(0.00864)	(0.0132)	(0.0131)	(0.00725)	(0.00718)	(0.0115)	(0.0114)	(0.0286)	(0.0283)
Observations	13589	13589	13589	13589	7034	7034	7034	7034	7034	7034
Sample: 11-20 days:										
ln(Future posterior)	-0.00815	-0.0110	-0.0232*	-0.0147	-0.00242	-0.00130	0.0235*	0.0124	0.0495	0.0322
	(0.00979)	(0.00891)	(0.0131)	(0.0119)	(0.00811)	(0.00737)	(0.0134)	(0.0122)	(0.0317)	(0.0288)
Sets goal	-0.00426	-0.00502	-0.00414	-0.00191	0.000529	0.00129	-0.00445	-0.00787	0.00891	0.00378
	(0.00871)	(0.00863)	(0.0117)	(0.0116)	(0.00690)	(0.00684)	(0.0114)	(0.0113)	(0.0270)	(0.0267)
Observations	13589	13589	13589	13589	7265	7265	7265	7265	7265	7265
Sample: 21-30 days:										
ln(Future posterior)	0.00732	0.000465	-0.0104	-0.00783	0.00124	-0.00315	-0.00926	-0.00439	0.0318	0.0126
	(0.00972)	(0.00885)	(0.0123)	(0.0112)	(0.00918)	(0.00824)	(0.0157)	(0.0141)	(0.0371)	(0.0333)
Sets goal	0.00531	0.00329	0.00188	0.00219	0.00324	0.00200	-0.00475	-0.00295	-0.0785**	-0.0843***
	(0.00864)	(0.00856)	(0.0110)	(0.0109)	(0.00789)	(0.00779)	(0.0135)	(0.0133)	(0.0319)	(0.0315)
Observations	13589	13589	13589	13589	5989	5989	5989	5989	5989	5989
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.3	IV.4	IV.3	IV.4	IV.3	IV.4	IV.3	IV.4	IV.3	IV.4

Table C.22: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions Allowing for a Direct Treatment Effect, continued

Dep. Var.:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	-0.00553	-0.00613	-0.000180	0.00155	0.0105	0.0154	0.0165	0.0459
	(0.00975)	(0.00888)	(0.00920)	(0.00838)	(0.0141)	(0.0127)	(0.0373)	(0.0336)
Sets goal	0.00298	0.00289	0.00205	0.00252	0.00607	0.00735	0.0510	0.0597*
	(0.00868)	(0.00860)	(0.00819)	(0.00811)	(0.0123)	(0.0122)	(0.0327)	(0.0323)
Observations	13589	13589	13589	13589	6553	6553	6553	6553
Sample: 6-10 days:								
ln(Future posterior)	-0.00255	-0.00731	0.00352	-0.00629	0.0260	0.0108	0.0815*	0.0666
	(0.00943)	(0.00859)	(0.00774)	(0.00705)	(0.0161)	(0.0148)	(0.0444)	(0.0407)
Sets goal	0.00513	0.00373	0.00419	0.00135	-0.00419	-0.00868	-0.00606	-0.0109
	(0.00839)	(0.00832)	(0.00689)	(0.00683)	(0.0142)	(0.0141)	(0.0391)	(0.0387)
Observations	13589	13589	13589	13589	4612	4612	4612	4612
Sample: 11-20 days:								
ln(Future posterior)	-0.0160	-0.0149*	-0.0112*	-0.00653	0.00759	0.000308	0.0801*	0.0591
	(0.00975)	(0.00888)	(0.00624)	(0.00568)	(0.0154)	(0.0140)	(0.0431)	(0.0389)
Sets goal	-0.00285	-0.00260	-0.00232	-0.00112	-0.00643	-0.00839	0.0215	0.0154
	(0.00868)	(0.00860)	(0.00555)	(0.00550)	(0.0132)	(0.0131)	(0.0368)	(0.0365)
Observations	13589	13589	13589	13589	5195	5195	5195	5195
Sample: 21-30 days:								
ln(Future posterior)	0.00542	0.00506	-0.00433	-0.00515	0.00282	-0.00873	0.0226	0.0101
	(0.00928)	(0.00845)	(0.00573)	(0.00522)	(0.0188)	(0.0168)	(0.0479)	(0.0426)
Sets goal	0.00863	0.00842	-0.000564	-0.000967	-0.0361**	-0.0399**	-0.0393	-0.0437
	(0.00826)	(0.00818)	(0.00510)	(0.00505)	(0.0158)	(0.0157)	(0.0403)	(0.0398)
Observations	13589	13589	13589	13589	4201	4201	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.3	IV.4	IV.3	IV.4	IV.3	IV.4	IV.3	IV.4

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions that allow for a direct effect of goal setting in the IV.1 (here, IV.3) and IV.2 (here, IV.4) second-stage specification corresponding to equation (5.3) described in section 5.1, i.e., we include the dummy for the two treatments with goal setting in the second stage. The data used is for the dependent variables in a month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

D. Alternative Forms of Updating

In this section, we describe two alternative ways to model belief updating and repeat our analysis for each. Our results are shown to be robust to such alternative specifications.

The typical belief-updating equation is based on a signal s that informs some belief μ. Let μ^{post} refer to the posterior and μ^{prior} the prior belief. It can be expressed as one of the following expressions[4]

$$\begin{aligned} \ln(\mu^{post}) &= (1-\beta)\cdot\ln(\mu^{prior}) + \beta\cdot\ln(s) \\ \ln(\mu^{post}) &= \ln(\mu^{prior}) + \beta\cdot[\ln(s) - \ln(\mu^{prior})] \\ \ln\left(\frac{\mu^{post}}{\mu^{prior}}\right) &= \beta\cdot\ln\left(\frac{s}{\mu^{prior}}\right) \end{aligned} \tag{D.1}$$

The key idea in the second or third expression above is that the decision maker uses the information gap, i.e., $\ln(s) - \ln(\mu^{prior})$ to inform how much she updates her belief (from the prior to the posterior).

In our setting, we provide a signal about the past (competitiveness of the labor market), s_{t-1}, and ask the survey taker to update her belief about the present (market condition) μ_t. Consequently, we used the following updating equation in our paper (see subsection *Belief Updating*):

$$\ln(\mu_t^{post}) = \ln(\mu_t^{prior}) + \beta\cdot[\ln(s_{t-1}) - \ln(\mu_{t-1}^{prior})] \tag{D.2}$$

In other words, the information gap becomes the (log) difference between the past signal and the past belief.

In this section, we will extend this simple belief updating equation in four ways, with the first two being straightforward generalizations and the latter two falling more into a "behavioral" alternative.

First, we will allow for **Heterogeneous Updating by Preferred Occupation**, which naturally arises if the informativeness of the signal varies with the job seeker's (preferred) occupation. In this case, β_j will depend on the preferred occupation j. Second, instead of maintaining a linear relationship between the information gap and the belief updating - or the piece-wise linear relationship as done in equation (4.2) - we allow for a non-linear relationship, estimating the belief-updating equation with (restricted cubic) **splines**.

Naive Updating. If the decision maker naively treat s_{t-1} as a direct signal about the future labor market, i.e., $s_t = s_{t-1}$, then she could simply relate s_{t-1} to her current prior μ_t^{prior} to determine the information gap. In this case, she could pretend to update her belief according $\ln(\mu_t^{post}) = \ln(\mu_t^{prior}) + \beta\cdot[\ln(s_t) - \ln(\mu_t^{prior})]$ using s_{t-1} instead. The updating equation for a naive-updater can be expressed as:

$$\ln(\mu_t^{post}) = \ln(\mu_t^{prior}) + \beta\cdot[\ln(s_{t-1}) - \ln(\mu_t^{prior})] \tag{D.3}$$

Two-Step Updating. Next, we look at the case where the decision maker first updates her past posterior belief according to the belief updating equation, i.e., $\ln(\mu_{t-1}^{post}) = \ln(\mu_{t-1}^{prior}) + \beta\cdot[\ln(s_{t-1}) - \ln(\mu_{t-1}^{prior})]$, and then combines this belief with her view of how the current labor market condition is related to the past, e.g., $\ln(\mu_t) = \alpha_0 + \alpha_1\cdot\ln(\mu_{t-1})$. Combining the two equation yields an updating equation that relates the future posterior to the signal and the past prior only:

$$\ln(\mu_t^{post}) = \alpha_0 + \alpha_1\ln(\mu_{t-1}^{prior}) + \alpha_1\beta\cdot[\ln(s_{t-1}) - \ln(\mu_{t-1}^{prior})] \tag{D.4}$$

We refer to this type of updating as *two-step updating*.

The difference between our main specification (D.2) and the naive-updater (D.3) is that the information gap is based on the past instead of the current prior belief, while the difference to a two-step updater (D.4) is that we also control for current prior belief instead of the past prior belief.

[4] In line with our paper, we choose to write beliefs in log-terms in this section. Whether beliefs are specified in logs, linear terms, etc., typically depends on the setting / belief in question.

D.1. Heterogeneous Updating by Preferred Occupation

Table D.1: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions with Heterogeneity in Belief Updating by Preferred Occupation

								cond. pos. Feedback	
Dep. Var.:	Applied	Applications	Occ. sw.	R-wage	Min. exp.	Got pos feed.	# pos feed.	Max. wage	Max. exp.
Sample: 1-5 days:									
ln(Future posterior)	0.0112	-0.00492	-0.00392	0.0287**	0.0616**	-0.00802	-0.000583	0.00866	-0.00570
	(0.00871)	(0.0154)	(0.00645)	(0.0112)	(0.0243)	(0.00943)	(0.00890)	(0.0130)	(0.0345)
Observations	13589	13589	9256	9256	9256	13589	13589	6553	6553
Sample: 6-10 days:									
ln(Future posterior)	0.00367	0.00264	0.00182	0.0152	0.0508*	-0.00394	0.00330	0.0159	0.0681
	(0.00948)	(0.0144)	(0.00760)	(0.0121)	(0.0299)	(0.00913)	(0.00750)	(0.0151)	(0.0416)
Observations	13589	13589	7034	7034	7034	13589	13589	4612	4612
Sample: 11-20 days:									
ln(Future posterior)	-0.00603	-0.0158	-0.000600	0.0205	0.0386	-0.0142	-0.00741	0.00394	0.0398
	(0.00947)	(0.0127)	(0.00760)	(0.0125)	(0.0297)	(0.00944)	(0.00603)	(0.0142)	(0.0396)
Observations	13589	13589	7265	7265	7265	13589	13589	5195	5195
Sample: 21-30 days:									
ln(Future posterior)	0.00903	-0.00642	0.00526	-0.0258*	0.00743	0.00420	-0.00182	0.00521	0.000700
	(0.00941)	(0.0119)	(0.00860)	(0.0147)	(0.0348)	(0.00898)	(0.00554)	(0.0173)	(0.0440)
Observations	13589	13589	5989	5989	5989	13589	13589	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions that allow for belief-updating to vary with a job seeker's preferred occupation, i.e., we interact the treatment · perception gap terms with the 53 preferred occupation dummies. The data used is for the dependent variables in a month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

D.2. Spline-Based Belief Updating

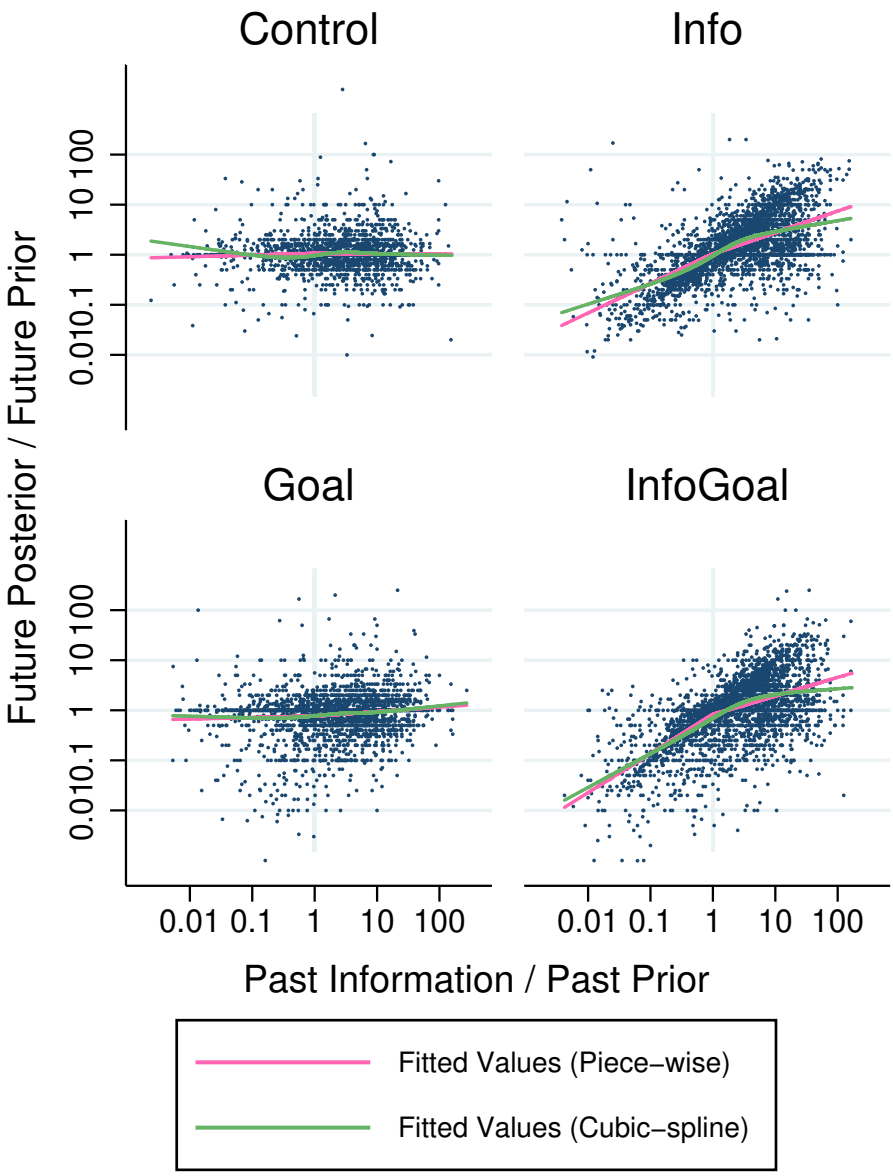


Figure D.1: Spline-Based Belief Updating

Notes: See notes to Figure 3. The only difference is the form of belief updating assumed, i.e., in addition to piece-wise belief updating, it also graphs the non-linear belief updating based on (restricted cubic) splines, with the resulting five knots being automatically determined by the data.

Table D.2: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions with Spline-Based Belief Updating

								cond. pos. Feedback	
Dep. Var.:	Applied	Applications	Occ. sw.	R-wage	Min. exp.	Got pos feed.	# pos feed.	Max. wage	Max. exp.
Sample: 1-5 days:									
ln(Future posterior)	0.00776	-0.0000573	0.00183	0.0173	0.0449*	-0.00734	-0.000531	0.00616	-0.00272
	(0.00820)	(0.0145)	(0.00610)	(0.0106)	(0.0230)	(0.00887)	(0.00837)	(0.0125)	(0.0332)
Observations	13589	13589	9256	9256	9256	13589	13589	6553	6553
Sample: 6-10 days:									
ln(Future posterior)	0.000493	0.00142	0.00298	0.0145	0.0375	-0.00445	0.00282	0.0230	0.0789**
	(0.00891)	(0.0135)	(0.00723)	(0.0115)	(0.0285)	(0.00858)	(0.00705)	(0.0145)	(0.0399)
Observations	13589	13589	7034	7034	7034	13589	13589	4612	4612
Sample: 11-20 days:									
ln(Future posterior)	-0.00111	-0.0182	0.000232	0.0235*	0.0420	-0.0121	-0.00887	0.00818	0.0741*
	(0.00891)	(0.0119)	(0.00737)	(0.0122)	(0.0288)	(0.00887)	(0.00568)	(0.0142)	(0.0395)
Observations	13589	13589	7265	7265	7265	13589	13589	5195	5195
Sample: 21-30 days:									
ln(Future posterior)	0.00766	-0.00720	0.00147	-0.00750	0.0369	0.00304	-0.00425	0.0144	0.0467
	(0.00884)	(0.0112)	(0.00824)	(0.0141)	(0.0333)	(0.00844)	(0.00521)	(0.0170)	(0.0431)
Observations	13589	13589	5989	5989	5989	13589	13589	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions that allow for belief updating to vary non-linearly with the information gap, and is estimated using (restricted cubic) splines, with the resulting five knots being automatically determined by the data. The regressions are based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table D.3: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions with Spline-Based Belief Updating based only on Employed Job Seekers

								cond. pos. Feedback	
Dep. Var.:	Applied	Applications	Occ. sw.	R-wage	Min. exp.	Got pos feed.	# pos feed.	Max. wage	Max. exp.
Sample: 1-5 days:									
ln(Future posterior)	0.0157	-0.00466	-0.00232	0.0326**	0.0960**	-0.00748	-0.00432	0.00480	0.0501
	(0.0122)	(0.0208)	(0.00906)	(0.0165)	(0.0388)	(0.0131)	(0.0115)	(0.0192)	(0.0514)
Observations	6762	6762	4544	4544	4544	6762	6762	3069	3069
Sample: 6-10 days:									
ln(Future posterior)	-0.00531	-0.0286	0.00135	0.0382**	0.0581	-0.0204	-0.00893	0.0259	0.0382
	(0.0131)	(0.0197)	(0.0105)	(0.0174)	(0.0476)	(0.0126)	(0.00967)	(0.0228)	(0.0617)
Observations	6762	6762	3543	3543	3543	6762	6762	2207	2207
Sample: 11-20 days:									
ln(Future posterior)	-0.00789	-0.0444**	0.00134	0.0284	0.0804*	-0.0211	-0.0115	0.0264	0.0230
	(0.0131)	(0.0177)	(0.0101)	(0.0179)	(0.0464)	(0.0132)	(0.00789)	(0.0211)	(0.0562)
Observations	6762	6762	3827	3827	3827	6762	6762	2658	2658
Sample: 21-30 days:									
ln(Future posterior)	0.00903	-0.0181	0.00978	0.0132	0.0366	-0.00475	-0.00620	0.0216	0.0767
	(0.0132)	(0.0168)	(0.0110)	(0.0199)	(0.0516)	(0.0127)	(0.00729)	(0.0252)	(0.0649)
Observations	6762	6762	3240	3240	3240	6762	6762	2166	2166
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions that allow for belief updating to vary non-linearly with the information gap, and is estimated using (restricted cubic) splines, with the resulting five knots being automatically determined by the data. The regressions are based on the sample of job seekers that are employed at the time of taking the survey and based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

Table D.4: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions with Spline-Based Belief Updating based only on Unemployed Job Seekers

								cond. pos. Feedback	
Dep. Var.:	Applied	Applications	Occ. sw.	R-wage	Min. exp.	Got pos feed.	# pos feed.	Max. wage	Max. exp.
Sample: 1-5 days:									
ln(Future posterior)	0.00744	-0.00115	0.0115	-0.00583	0.0167	-0.00533	-0.00473	0.00864	-0.0594
	(0.0133)	(0.0242)	(0.00957)	(0.0154)	(0.0342)	(0.0145)	(0.0144)	(0.0196)	(0.0518)
Observations	5064	5064	3518	3518	3518	5064	5064	2571	2571
Sample: 6-10 days:									
ln(Future posterior)	0.00796	0.0281	0.0127	-0.0329**	-0.00953	0.0149	0.00972	0.0351*	0.0423
	(0.0146)	(0.0229)	(0.0112)	(0.0168)	(0.0399)	(0.0143)	(0.0126)	(0.0208)	(0.0589)
Observations	5064	5064	2652	2652	2652	5064	5064	1832	1832
Sample: 11-20 days:									
ln(Future posterior)	0.0148	0.0103	-0.00670	0.00257	-0.00551	0.00755	-0.000310	-0.000765	0.0866
	(0.0147)	(0.0202)	(0.0120)	(0.0181)	(0.0430)	(0.0145)	(0.0102)	(0.0213)	(0.0646)
Observations	5064	5064	2601	2601	2601	5064	5064	1926	1926
Sample: 21-30 days:									
ln(Future posterior)	0.00244	-0.0119	-0.00275	-0.0292	0.0927*	0.00285	-0.00804	0.0161	-0.00158
	(0.0144)	(0.0187)	(0.0140)	(0.0226)	(0.0521)	(0.0138)	(0.00936)	(0.0272)	(0.0674)
Observations	5064	5064	2104	2104	2104	5064	5064	1568	1568
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions that allow for belief updating to vary non-linearly with the information gap, and is estimated using (restricted cubic) splines, with the resulting five knots being automatically determined by the data. The regressions are based on the sample of job seekers that are unemployed at the time of taking the survey and based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

D.3. Naive Updating

Figure D.2 depicts the belief-updating assuming beliefs are updated in a naive-fashion (equation D.3), e.g., the signal about the past (s_{t-1}) is simply treated as a signal about the present (s_t). Hence, the information-gap, the x-axis, is now based on the future-prior belief. We observe, once again, that beliefs in the *Info* and *InfoGoal* treatment are updated in line with the information-gap. It also seems that the observations are more centered around the 45 degree line in the two treatments with information (compared to Figure 3).

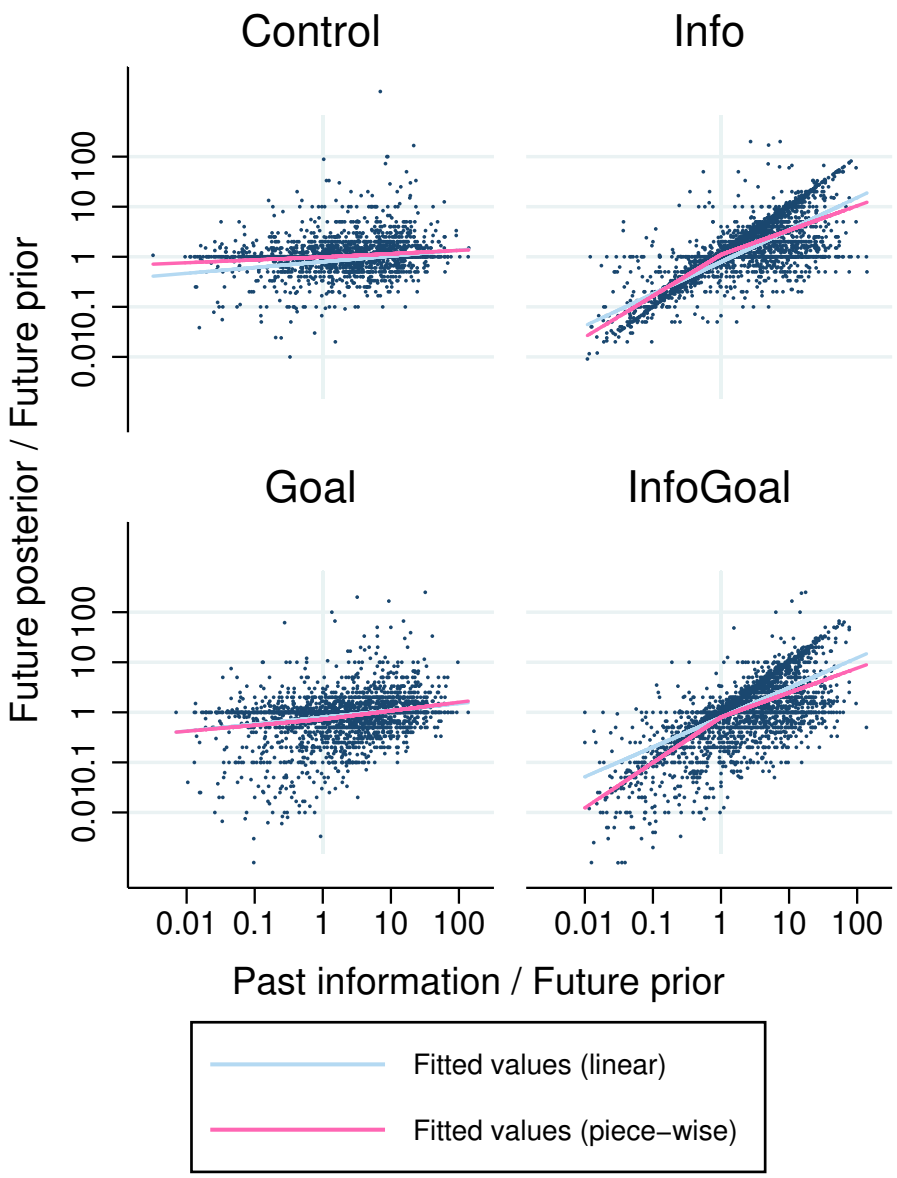


Figure D.2: Naive Belief Updating

Notes: See notes to Figure 3. The only difference is the form of belief updating assumed, i.e., naive belief updating, corresponding to equation D.3 as described in Appendix D

The belief-updating regression results, Table D.5 are similar to our main estimates. The same is true for the reduced-form estimates for the intended application effort (Table D.6) and all other IV-regressions (Table D.7), which rely on the respective naive-updating regressions (both in its simple form (IV.1) and allowing for differential updating between optimists and pessimists (IV.2). Note, for optimism (pessimism) to be consistent with (the idea of) naive-updating, it is analogously defined in terms of the signal relative to the future prior belief.)

Table D.5: Belief Updating - Naive

Dep. Var: ln(Future posterior / Future prior)	(1)	(2)	(3)	(4)
ln(Past info/Future prior)	0.127***	0.119***	0.0197	0.0640***
	(0.00782)	(0.0180)	(0.0164)	(0.0181)
Info × ln(Past info/Future prior)	0.526***	0.737***	0.707***	0.770***
	(0.0135)	(0.0304)	(0.0256)	(0.0325)
Goal × ln(Past info/Future prior)	0.0204*	-0.00460	0.209***	0.0607*
	(0.0113)	(0.0287)	(0.0302)	(0.0359)
InfoGoal × ln(Past info/Future prior)	0.478***	0.711***	0.946***	0.853***
	(0.0149)	(0.0366)	(0.0301)	(0.0374)
ln(Past info/Future prior) × Confidence future prior		0.00232		
		(0.00718)		
Info × ln(Past info/Future prior) × Confidence future prior		-0.0969***		
		(0.0130)		
Goal × ln(Past info/Future prior) × Confidence future prior		0.0116		
		(0.0118)		
InfoGoal × ln(Past info/Future prior) × Confidence future prior		-0.108***		
		(0.0151)		
Optimistic × ln(Past info/Future prior)			0.0986***	0.0127
			(0.0213)	(0.0256)
Optimistic × Info × ln(Past info/Future prior)			-0.234***	-0.350***
			(0.0299)	(0.0479)
Optimistic × Goal × ln(Past info/Future prior)			-0.244***	0.0414
			(0.0322)	(0.0479)
Optimistic × InfoGoal × ln(Past info/Future prior)			-0.615***	-0.433***
			(0.0340)	(0.0539)
Info				0.121***
				(0.0310)
Goal				-0.304***
				(0.0352)
InfoGoal				-0.194***
				(0.0371)
Constant	0.109	0.128	0.178	0.248
	(0.343)	(0.341)	(0.335)	(0.327)
Job seeker characteristics	Yes	Yes	Yes	Yes
Observations	13589	13589	13589	13589

Notes: See notes to Table 1. The only difference is the form of belief updating assumed, i.e., naive belief updating, corresponding to equation D.3 as described in Appendix D.

Table D.6: The Impact of Experimental Intervention on Intended Applications - Naive Belief Updating

Dep. Var: asinh(Goals)	(1)	(2)
ln(Past info/Future prior)	0.0669	0.0965
	(0.215)	(0.217)
InfoGoal × ln(Past info/Future prior)	0.109***	0.114***
	(0.0142)	(0.0428)
Optimistic × ln(Past info/Future prior)		-0.0405
		(0.0381)
Optimistic × InfoGoal × ln(Past info/Future prior)		-0.0644
		(0.0537)
InfoGoal		0.191***
		(0.0390)
ln(Future prior)	0.249	0.235
	(0.214)	(0.214)
Constant	2.748***	2.715***
	(1.057)	(1.048)
Job seeker characteristics	Yes	Yes
Observations	6814	6814

Notes: See notes to Table 3. The only difference is the form of belief updating assumed, i.e., naive belief updating, corresponding to equation D.3 as described in Appendix D.

Table D.7: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based on Naive Belief Updating

Dep. Var:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.00574	-0.00118	0.00358	-0.00181	-0.00684	0.000820	0.0247**	0.0172*	0.0617**	0.0420*
	(0.00854)	(0.00785)	(0.0151)	(0.0138)	(0.00642)	(0.00590)	(0.0112)	(0.0103)	(0.0242)	(0.0222)
Observations	13589	13589	13589	13589	9256	9256	9256	9256	9256	9256
Sample: 6-10 days:										
ln(Future posterior)	-0.00206	-0.00304	-0.00734	-0.0104	0.000607	0.00371	0.0123	0.0133	0.0261	0.0284
	(0.00928)	(0.00854)	(0.0141)	(0.0130)	(0.00755)	(0.00696)	(0.0120)	(0.0111)	(0.0298)	(0.0274)
Observations	13589	13589	13589	13589	7034	7034	7034	7034	7034	7034
Sample: 11-20 days:										
ln(Future posterior)	-0.0132	-0.00954	-0.0180	-0.0142	-0.00494	-0.00173	0.0144	0.0150	0.0407	0.0309
	(0.00927)	(0.00853)	(0.0124)	(0.0114)	(0.00769)	(0.00701)	(0.0127)	(0.0116)	(0.0301)	(0.0274)
Observations	13589	13589	13589	13589	7265	7265	7265	7265	7265	7265
Sample: 21-30 days:										
ln(Future posterior)	-0.00287	-0.000521	-0.0109	-0.00849	-0.00146	-0.00385	-0.00760	-0.00336	0.0229	0.0421
	(0.00920)	(0.00846)	(0.0117)	(0.0107)	(0.00854)	(0.00777)	(0.0146)	(0.0133)	(0.0345)	(0.0314)
Observations	13589	13589	13589	13589	5989	5989	5989	5989	5989	5989
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table D.7: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based on Naive Belief Updating, continued

Dep. Var:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	-0.00385	-0.00700	0.00336	0.000793	0.0120	0.0129	0.0334	0.0263
	(0.00924)	(0.00850)	(0.00872)	(0.00802)	(0.0131)	(0.0120)	(0.0348)	(0.0319)
Observations	13589	13589	13589	13589	6553	6553	6553	6553
Sample: 6-10 days:								
ln(Future posterior)	-0.00661	-0.00843	-0.00493	-0.00670	0.00660	0.0136	0.0617	0.0702*
	(0.00893)	(0.00822)	(0.00734)	(0.00675)	(0.0152)	(0.0140)	(0.0419)	(0.0387)
Observations	13589	13589	13589	13589	4612	4612	4612	4612
Sample: 11-20 days:								
ln(Future posterior)	-0.0161*	-0.0141*	-0.00741	-0.00620	-0.000270	0.00292	0.0574	0.0544
	(0.00924)	(0.00849)	(0.00591)	(0.00544)	(0.0145)	(0.0133)	(0.0406)	(0.0373)
Observations	13589	13589	13589	13589	5195	5195	5195	5195
Sample: 21-30 days:								
ln(Future posterior)	0.000770	0.00254	-0.00634	-0.00486	-0.00661	0.00445	0.000644	0.0245
	(0.00879)	(0.00809)	(0.00543)	(0.00499)	(0.0176)	(0.0159)	(0.0446)	(0.0405)
Observations	13589	13589	13589	13589	4201	4201	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates for the impact of beliefs about labor market competition on search behavior and outcomes from IV regressions that assume naive belief updating corresponding to equation D.3 as described in Appendix D. The data used is for the dependent variables in a month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

D.4. Two-step Updating

Next, we present the two-step updating estimates. Note, the dependent variable is the posterior belief instead of the belief ratio, given that α_1 may not need to be 1 in equation D.4 (as a consequence, we omit the belief-updating figure). The belief-updating estimates (Table D.8), the reduced-form estimates for the intended application effort (Table D.9), and the IV-regression estimates (Table D.10), are similar to our main estimates.

Table D.8: Belief Updating - Two-Step Belief Updating

Dep. Var: ln(Future posterior)	(1)	(2)	(3)	(4)
ln(Past prior)	1.074***	1.065***	1.080***	1.073***
	(0.149)	(0.148)	(0.147)	(0.147)
ln(Past info/Past prior)	0.331**	0.295**	0.246	0.292*
	(0.148)	(0.148)	(0.150)	(0.150)
Info × ln(Past info/Past prior)	0.477***	0.659***	0.626***	0.649***
	(0.0154)	(0.0341)	(0.0363)	(0.0450)
Goal × ln(Past info/Past prior)	-0.0130	0.0178	0.160***	0.0279
	(0.0151)	(0.0359)	(0.0426)	(0.0517)
InfoGoal × ln(Past info/Past prior)	0.426***	0.630***	0.860***	0.755***
	(0.0161)	(0.0379)	(0.0373)	(0.0461)
ln(Past info/Past prior) × Confidence past prior		0.0119		
		(0.0104)		
Info × ln(Past info/Past prior) × Confidence past prior		-0.0868***		
		(0.0152)		
Goal × ln(Past info/Past prior) × Confidence past prior		-0.0145		
		(0.0151)		
InfoGoal × ln(Past info/Past prior) × Confidence past prior		-0.0984***		
		(0.0161)		
Optimistic × ln(Past info/Past prior)			0.0786**	-0.0262
			(0.0361)	(0.0470)
Optimistic × Info × ln(Past info/Past prior)			-0.189***	-0.233***
			(0.0401)	(0.0623)
Optimistic × Goal × ln(Past info/Past prior)			-0.221***	0.0377
			(0.0453)	(0.0688)
Optimistic × InfoGoal × ln(Past info/Past prior)			-0.553***	-0.349***
			(0.0411)	(0.0646)
Info				0.0487
				(0.0398)
Goal				-0.290***
				(0.0464)
InfoGoal				-0.228***
				(0.0452)
Constant	-0.631	-0.609	-0.567	-0.442
	(0.834)	(0.832)	(0.823)	(0.825)
Job seeker characteristics	Yes	Yes	Yes	Yes
Observations	13589	13589	13589	13589

Notes: See notes to Table 1. The only difference is the form of belief updating assumed, i.e., two-step belief updating, corresponding to equation D.4 as described in Appendix D.

Table D.9: The Impact of Experimental Intervention on Intended Applications - Two- Step Belief Updating

Dep. Var: asinh(Goals)	(1)	(2)
ln(Past info/Past prior)	0.0487	0.133
	(0.215)	(0.217)
InfoGoal × ln(Past info/Past prior)	0.115***	0.104**
	(0.0133)	(0.0412)
Optimistic × ln(Past info/Past prior)		-0.0964**
		(0.0392)
Optimistic × InfoGoal × ln(Past info/Past prior)		-0.0424
		(0.0572)
InfoGoal		0.182***
		(0.0475)
ln(Past prior)	0.212	0.221
	(0.215)	(0.215)
Constant	2.754***	2.691**
	(1.065)	(1.053)
Job seeker characteristics	Yes	Yes
Observations	6814	6814

Notes: See notes to Table 3. The only difference is the form of belief updating assumed, i.e., two-step belief updating, corresponding to equation D.4 as described in Appendix D.

Table D.10: The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based Two-Step Belief Updating

Dep. Var:	Applied		# of daily applications		Occ. switching		Reservation wage		Min. experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.00596	0.0000449	0.00372	-0.000954	-0.00673	0.00151	0.0244**	0.0168	0.0602**	0.0409*
	(0.00849)	(0.00782)	(0.0150)	(0.0138)	(0.00639)	(0.00586)	(0.0112)	(0.0102)	(0.0241)	(0.0221)
Observations	13589	13589	13589	13589	9256	9256	9256	9256	9256	9256
Sample: 6-10 days:										
ln(Future posterior)	-0.00221	-0.00206	-0.00726	-0.00840	0.000516	0.00341	0.0120	0.0114	0.0244	0.0293
	(0.00924)	(0.00850)	(0.0140)	(0.0129)	(0.00753)	(0.00689)	(0.0120)	(0.0110)	(0.0297)	(0.0272)
Observations	13589	13589	13589	13589	7034	7034	7034	7034	7034	7034
Sample: 11-20 days:										
ln(Future posterior)	-0.0130	-0.00870	-0.0181	-0.0137	-0.00467	-0.00108	0.0144	0.0149	0.0411	0.0326
	(0.00923)	(0.00850)	(0.0124)	(0.0114)	(0.00768)	(0.00697)	(0.0127)	(0.0115)	(0.0300)	(0.0272)
Observations	13589	13589	13589	13589	7265	7265	7265	7265	7265	7265
Sample: 21-30 days:										
ln(Future posterior)	-0.00291	-0.000646	-0.0116	-0.00883	-0.00124	-0.00196	-0.00677	-0.00559	0.0234	0.0399
	(0.00916)	(0.00843)	(0.0116)	(0.0107)	(0.00850)	(0.00769)	(0.0145)	(0.0131)	(0.0344)	(0.0311)
Observations	13589	13589	13589	13589	5989	5989	5989	5989	5989	5989
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

The Impact of Beliefs on Search Behavior and Outcomes - Robustness: IV Regressions based Two-Step Belief Updating, continued

Dep. Var:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Sample: 1-5 days:								
ln(Future posterior)	-0.00375	-0.00669	0.00324	0.000436	0.0118	0.0120	0.0328	0.0211
	(0.00920)	(0.00847)	(0.00867)	(0.00799)	(0.0131)	(0.0120)	(0.0347)	(0.0318)
Observations	13589	13589	13589	13589	6553	6553	6553	6553
Sample: 6-10 days:								
ln(Future posterior)	-0.00665	-0.00844	-0.00502	-0.00652	0.00691	0.0125	0.0608	0.0750*
	(0.00889)	(0.00819)	(0.00730)	(0.00672)	(0.0151)	(0.0139)	(0.0416)	(0.0383)
Observations	13589	13589	13589	13589	4612	4612	4612	4612
Sample: 11-20 days:								
ln(Future posterior)	-0.0162*	-0.0137	-0.00755	-0.00596	-0.000865	0.00334	0.0560	0.0592
	(0.00919)	(0.00846)	(0.00588)	(0.00542)	(0.0145)	(0.0133)	(0.0405)	(0.0371)
Observations	13589	13589	13589	13589	5195	5195	5195	5195
Sample: 21-30 days:								
ln(Future posterior)	0.000685	0.00151	-0.00659	-0.00513	-0.00643	0.00542	-0.000314	0.0268
	(0.00875)	(0.00806)	(0.00540)	(0.00497)	(0.0174)	(0.0157)	(0.0443)	(0.0401)
Observations	13589	13589	13589	13589	4201	4201	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: the table reports IV-Regression estimates based on two-step updating. Outcome variables are coded in the same way as the respective previous regressions, e.g., asinh(applications), ln(wage), etc. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

E. Treatment Effects

For completeness, this section reports the treatment effects for all of our outcome measures, starting with the survey-measures (beliefs and goals) and then continuing with the behavioral outcomes. We only provide an explanation for the first table, which serves as a (generic) template for the remaining tables.

Table E.1: Treatment Effects on Posterior Future Beliefs

Dep. Var.: ln(Future posterior)	(1)	(2)	(3)
Info	0.334***	-0.881***	0.788***
	(0.0329)	(0.0491)	(0.0331)
Goal	-0.196***	-0.298***	-0.202***
	(0.0388)	(0.0636)	(0.0337)
InfoGoal	0.000988	-1.297***	0.493***
	(0.0341)	(0.0542)	(0.0342)
Estimated Differences			
Goal - Info	-0.530***	0.583***	-0.990***
	(0.0333)	(0.0541)	(0.0327)
InfoGoal - Info	-0.333***	-0.416***	-0.296***
	(0.0277)	(0.0427)	(0.0333)
InfoGoal - Goal	0.197***	-0.999***	0.695***
	(0.0345)	(0.0589)	(0.0339)
Job seeker characteristics	Yes	Yes	Yes
Observations	13589	3781	9681
Sample	Full	Pessimist	Optimist

Notes: This table reports estimates for treatment effect on posterior future beliefs from OLS regressions in the top panel and the estimated differences between treatment effects in the middle panel. The sample of analysis is indicated in the bottom panel. Estimates for job seeker's characteristics, which are identical to those in Table 1, are not reported. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table E.1 reports the treatment effects on future posterior beliefs (relative to the control), with the bottom panel reporting the differences between the non-control treatments. Starting with the pessimists and optimists, column (2) and (3), we see that information (in both the *Info* and *InfoGoal* treatments) leads to a downward adjustment of beliefs for the pessimists (who think the market is more competitive than it actually is) and an upward adjustment of beliefs for the optimists vice versa. For either type, the *Goal* treatment leads to a downward reduction in beliefs. This could, for instance, be due to introspection that explicitly providing goals for daily applications may bring with it. This "goal" effect is also present when comparing the estimates between the *InfoGoal* and Info treatments. Column (1) (essentially) provides the average treatment effect (across types). On average, information appears to increase beliefs, which is in line with the fact that more people are optimists rather than pessimists.

Table E.2: Treatment Effects on the Goal Set

Dep. Var: asinh(Goals)	(1)	(2)	(3)
InfoGoal	0.215***	-0.0359	0.312***
	(0.0256)	(0.0572)	(0.0279)
Job seeker characteristics	Yes	Yes	Yes
Observations	6814	1912	4848
Sample	Full	Pessimist	Optimist

Notes: This table reports estimates for treatment effect on the goal set from OLS regressions in the top panel. The sample of analysis is indicated in the bottom panel. Estimates for job seeker's characteristics, which are identical to those in Table 1, are not reported. Robust standard errors allowing for heteroskedasticity are reported in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table E.3: Treatment Effects on Search Behavior and Outcomes

								cond. pos. Feedback	
Dep. Var:	Applied	Applications	Occ. sw.	R-wage	Min. exp.	Got pos. f.	# pos. f.	Max. wage	Max. exp.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sample: 1-5 days:									
Regression Results									
Info	0.0136	-0.0119	-0.0213***	0.0122	0.0402	0.00980	-0.00629	-0.00247	-0.0700
	(0.0108)	(0.0190)	(0.00805)	(0.0143)	(0.0309)	(0.0116)	(0.0110)	(0.0166)	(0.0441)
Goal	0.0143	0.00165	-0.0246***	0.000495	0.00231	0.0108	-0.00478	-0.00133	-0.00910
	(0.0108)	(0.0192)	(0.00820)	(0.0144)	(0.0304)	(0.0117)	(0.0111)	(0.0169)	(0.0431)
InfoGoal	0.0141	0.00997	-0.0231***	0.00937	0.0368	0.00865	0.00287	0.00534	0.0319
	(0.0108)	(0.0192)	(0.00819)	(0.0144)	(0.0305)	(0.0116)	(0.0112)	(0.0167)	(0.0436)
Estimated Differences									
Goal - Info	0.000651	0.0135	-0.00330	-0.0117	-0.0379	0.00104	0.00151	0.00114	0.0609
	(0.0107)	(0.0188)	(0.00798)	(0.0138)	(0.0305)	(0.0117)	(0.0108)	(0.0160)	(0.0432)
InfoGoal - Info	0.000431	0.0218	-0.00186	-0.00285	-0.00336	-0.00115	0.00916	0.00781	0.102**
	(0.0107)	(0.0188)	(0.00792)	(0.0137)	(0.0304)	(0.0116)	(0.0109)	(0.0158)	(0.0436)
InfoGoal - Goal	-0.000220	0.00832	0.00145	0.00887	0.0345	-0.00219	0.00765	0.00667	0.0410
	(0.0107)	(0.0190)	(0.00809)	(0.0139)	(0.0299)	(0.0116)	(0.0109)	(0.0162)	(0.0426)
Observations	13589	13589	9256	9256	9256	13589	13589	6553	6553
Sample: 6-10 days:									
Regression Results									
Info	0.00785	0.000607	0.00759	0.0114	-0.0321	-0.0137	-0.00871	0.0173	-0.0567
	(0.0118)	(0.0179)	(0.00975)	(0.0157)	(0.0386)	(0.0113)	(0.00923)	(0.0191)	(0.0517)
Goal	-0.00282	-0.00486	0.00810	-0.00315	-0.0540	-0.00743	-0.00601	-0.00889	-0.0606
	(0.0119)	(0.0180)	(0.00978)	(0.0157)	(0.0385)	(0.0114)	(0.00935)	(0.0191)	(0.0523)
InfoGoal	0.0102	0.0123	-0.00805	0.0117	-0.0309	0.00491	0.00339	0.00229	-0.0554
	(0.0117)	(0.0180)	(0.00965)	(0.0152)	(0.0384)	(0.0113)	(0.00946)	(0.0186)	(0.0518)
Estimated Differences									
Goal - Info	-0.0107	-0.00547	0.000516	-0.0146	-0.0219	0.00628	0.00270	-0.0262	-0.00391
	(0.0116)	(0.0175)	(0.00971)	(0.0157)	(0.0380)	(0.0112)	(0.00901)	(0.0192)	(0.0520)
InfoGoal - Info	0.00237	0.0117	-0.0156	0.000275	0.00122	0.0186*	0.0121	-0.0150	0.00128
	(0.0115)	(0.0175)	(0.00953)	(0.0152)	(0.0379)	(0.0111)	(0.00912)	(0.0188)	(0.0517)
InfoGoal - Goal	0.0130	0.0172	-0.0162*	0.0148	0.0231	0.0123	0.00941	0.0112	0.00519
	(0.0116)	(0.0176)	(0.00955)	(0.0151)	(0.0377)	(0.0112)	(0.00921)	(0.0188)	(0.0521)
Observations	13589	13589	7034	7034	7034	13589	13589	4612	4612
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table E.3: Treatment Effects on Search Behavior and Outcomes, continued

								cond. pos. Feedback	
Dep. Var:	Applied	Applications	Occ. sw.	R-wage	Min. exp.	Got pos. f.	# pos. f.	Max. wage	Max. exp.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sample: 11-20 days:									
Regression Results									
Info	-0.0109	-0.0191	-0.00933	-0.00186	0.0164	-0.00866	-0.00771	-0.00420	-0.0401
	(0.0117)	(0.0158)	(0.00925)	(0.0154)	(0.0364)	(0.0117)	(0.00754)	(0.0175)	(0.0494)
Goal	-0.000913	-0.00896	0.00241	-0.0240	0.0268	-0.000303	-0.00282	-0.0251	-0.0310
	(0.0118)	(0.0160)	(0.00917)	(0.0155)	(0.0366)	(0.0118)	(0.00764)	(0.0178)	(0.0499)
InfoGoal	-0.0136	-0.00542	-0.00918	0.000578	-0.0202	-0.00479	-0.00324	0.00393	-0.00797
	(0.0117)	(0.0158)	(0.00911)	(0.0151)	(0.0357)	(0.0117)	(0.00750)	(0.0184)	(0.0490)
Estimated Differences									
Goal - Info	0.00997	0.0102	0.0117	-0.0222	0.0104	0.00835	0.00489	-0.0209	0.00908
	(0.0117)	(0.0155)	(0.00928)	(0.0154)	(0.0362)	(0.0116)	(0.00742)	(0.0170)	(0.0497)
InfoGoal - Info	-0.00275	0.0137	0.000152	0.00244	-0.0366	0.00386	0.00446	0.00813	0.0322
	(0.0116)	(0.0153)	(0.00919)	(0.0149)	(0.0353)	(0.0115)	(0.00725)	(0.0176)	(0.0491)
InfoGoal - Goal	-0.0127	0.00354	-0.0116	0.0246	-0.0471	-0.00449	-0.000425	0.0290	0.0231
	(0.0116)	(0.0154)	(0.00915)	(0.0150)	(0.0354)	(0.0116)	(0.00731)	(0.0180)	(0.0495)
Observations	13589	13589	7265	7265	7265	13589	13589	5195	5195
Sample: 21-30 days:									
Regression Results									
Info	-0.00634	-0.0156	0.0121	0.0254	0.000449	-0.00965	-0.0128*	-0.0255	-0.0858
	(0.0116)	(0.0147)	(0.0106)	(0.0182)	(0.0433)	(0.0111)	(0.00689)	(0.0215)	(0.0534)
Goal	-0.00732	-0.0156	0.0122	0.0147	-0.103**	-0.00800	-0.0146**	-0.0709***	-0.112**
	(0.0117)	(0.0149)	(0.0107)	(0.0179)	(0.0427)	(0.0111)	(0.00679)	(0.0208)	(0.0536)
InfoGoal	0.00721	0.00922	0.00561	0.00668	-0.0747*	0.0121	0.00265	-0.0313	-0.0665
	(0.0117)	(0.0150)	(0.0102)	(0.0179)	(0.0417)	(0.0112)	(0.00713)	(0.0215)	(0.0525)
Estimated Differences									
Goal - Info	-0.000984	-0.0000421	0.0000478	-0.0107	-0.103**	0.00165	-0.00181	-0.0454**	-0.0263
	(0.0115)	(0.0143)	(0.0106)	(0.0176)	(0.0424)	(0.0110)	(0.00648)	(0.0206)	(0.0548)
InfoGoal - Info	0.0135	0.0248*	-0.00651	-0.0187	-0.0751*	0.0218**	0.0155**	-0.00579	0.0193
	(0.0115)	(0.0144)	(0.0101)	(0.0177)	(0.0414)	(0.0110)	(0.00686)	(0.0212)	(0.0534)
InfoGoal - Goal	0.0145	0.0248*	-0.00656	-0.00803	0.0280	0.0201*	0.0173***	0.0396*	0.0456
	(0.0116)	(0.0145)	(0.0103)	(0.0175)	(0.0410)	(0.0111)	(0.00670)	(0.0209)	(0.0537)
Observations	13589	13589	5989	5989	5989	13589	13589	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table reports estimates for treatment effect on search behavior and outcomes from OLS regressions and the estimated differences between treatment effects below. The data used is for the dependent variables in a month after the survey-completion day. The dependent variable is indicated in the column heading. Estimates for control variables are not reported. Control variables for job seeker's characteristics are identical to those in Table 1. Controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.

F. Summary of IV-Regressions Estimates

Table F.1: The Impact of Beliefs on Search Behavior and Outcomes

Dep. Var:	Applied		# of daily applications		Occ. Switching		Reservation Wage		Min. Experience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Sample: 1-5 days:										
ln(Future posterior)	0.0154*	0.00851	0.00319	-0.00150	-0.00480	0.00175	0.0291**	0.0198*	0.0642**	0.0470**
	(0.00903)	(0.00827)	(0.0159)	(0.0146)	(0.00679)	(0.00617)	(0.0119)	(0.0108)	(0.0256)	(0.0233)
Observations	13589	13589	13589	13589	9256	9256	9256	9256	9256	9256
Sample: 6-10 days:										
ln(Future posterior)	0.00280	0.0000140	0.00321	0.000285	-0.00144	0.00180	0.0187	0.0149	0.0581*	0.0526*
	(0.00981)	(0.00900)	(0.0149)	(0.0137)	(0.00807)	(0.00734)	(0.0128)	(0.0117)	(0.0318)	(0.0289)
Observations	13589	13589	13589	13589	7034	7034	7034	7034	7034	7034
Sample: 11-20 days:										
ln(Future posterior)	-0.00684	-0.00292	-0.0217*	-0.0199*	-0.00519	0.000515	0.0226*	0.0231*	0.0528*	0.0481*
	(0.00981)	(0.00899)	(0.0131)	(0.0120)	(0.00819)	(0.00746)	(0.0135)	(0.0123)	(0.0320)	(0.0292)
Observations	13589	13589	13589	13589	7265	7265	7265	7265	7265	7265
Sample: 21-30 days:										
ln(Future posterior)	0.00545	0.00664	-0.0103	-0.00855	0.00327	0.000791	-0.0128	-0.0107	0.0331	0.0482
	(0.00973)	(0.00892)	(0.0123)	(0.0113)	(0.00919)	(0.00830)	(0.0157)	(0.0142)	(0.0371)	(0.0336)
Observations	13589	13589	13589	13589	5989	5989	5989	5989	5989	5989
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Table F.1: The Impact of Beliefs on Search Behavior and Outcomes

Dep. Var:	Got pos. feedback		# of daily pos. feedbacks		Max. wage | pos. feed.		Max. exp. | pos. feed.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample: 1-5 days:								
ln(Future posterior)	-0.00439	-0.00733	0.00134	-0.00130	0.00856	0.00841	0.00978	-0.000283
	(0.00977)	(0.00896)	(0.00922)	(0.00845)	(0.0141)	(0.0127)	(0.0374)	(0.0338)
Observations	13589	13589	13589	13589	6553	6553	6553	6553
Sample: 6-10 days:								
ln(Future posterior)	-0.00321	-0.00457	0.00350	0.00266	0.0222	0.0243*	0.0775*	0.0889**
	(0.00944)	(0.00866)	(0.00776)	(0.00711)	(0.0163)	(0.0147)	(0.0448)	(0.0405)
Observations	13589	13589	13589	13589	4612	4612	4612	4612
Sample: 11-20 days:								
ln(Future posterior)	-0.0151	-0.0126	-0.0106*	-0.00954*	0.00465	0.00660	0.0871**	0.0771*
	(0.00976)	(0.00895)	(0.00625)	(0.00573)	(0.0157)	(0.0143)	(0.0437)	(0.0400)
Observations	13589	13589	13589	13589	5195	5195	5195	5195
Sample: 21-30 days:								
ln(Future posterior)	0.00370	0.00323	-0.00450	-0.00411	0.00324	0.0156	0.0207	0.0477
	(0.00930)	(0.00852)	(0.00574)	(0.00526)	(0.0189)	(0.0171)	(0.0482)	(0.0434)
Observations	13589	13589	13589	13589	4201	4201	4201	4201
Job seeker characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls past	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimator	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2	IV.1	IV.2

Notes: This table reports estimates from IV regressions for the impact of beliefs about labor market competition on search behavior and outcomes based on the data of the dependent variables in the month after the survey-completion day. The dependent variable is indicated in the column heading. The IV estimators used, as well as job seeker's characteristics and controls past included are identical to those with the same dependent variables in the respective Tables 2 and 4-7. See notes to corresponding tables.