Employer Feedback and the Direction of Job Search*

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Abstract

We study how job seekers adjust application strategies over a search spell and in response to employer feedback. Using high-frequency application data, we document three findings. First, as a spell progresses, job seekers concentrate applications in fewer submarkets, while the positive-reply rate rises. Second, job seekers direct a larger share of subsequent applications toward occupations with higher positive-reply rates. Third, this reallocation is stronger for occupations in which job seekers lack prior experience. These findings suggest an adaptive search process in which job seekers learn about their relative prospects across submarkets from employer feedback and redirect applications accordingly.

Keywords: Job search, employer feedback, learning, directed search
JEL Codes: J24, J64, D83

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1 Introduction

Job seekers must decide where to apply under uncertainty about their prospects across labor markets, such as their comparative advantage across occupations and the economic conditions prevailing across industries. Applications generate not only job opportunities but also employer responses and subsequent interactions that may provide information about those prospects. As feedback arrives, job seekers may redirect their effort toward markets they perceive as more promising. Job search may therefore involve a gradual transition from exploration to exploitation.[1] This paper asks how the direction of search evolves over the course of a spell and how it changes following employer feedback.

These questions concern a dimension of job search that is largely absent from classical search theories. In random search models (e.g., McCall, 1970; Burdett and Mortensen, 1998), workers receive offers drawn from a fixed distribution of opportunities, so application behavior is untargeted. In directed search models (e.g., Moen, 1997; Menzio and Shi, 2011), workers target a specific type of job, often called a "submarket," rather than applying uniformly across all jobs. In both traditions, the search strategy is fixed for the duration of the spell. In practice, however, the direction of search can evolve endogenously as the search process itself produces information. This evolution matters because a worker's application allocation determines which vacancies she encounters and, ultimately, which matches can form.

We study these dynamics using rich, high-frequency application-level data from Zhaopin, the largest online job platform in China.[2] Our sample follows more than 100,000 employed and unemployed job seekers between 2018 and 2024. For each application, we observe detailed vacancy characteristics, including occupation, industry, location, posted wage, and job requirements. The distinctive feature of the data is that we also observe employers' subsequent actions at daily frequency. These actions, including expressions of interest, requests for contact, résumé-processing actions, and interview invitations, are visible to the applicant. We therefore observe not only where workers search, but also the employer feedback they receive while searching. Linking the source and timing of these signals to subsequent applications allows us to study how employer feedback redirects search across labor markets.

Our first finding is that job seekers' search strategies shift systematically from broad exploration toward more concentrated application over a spell. As an ongoing spell progresses, job seekers submit fewer applications and target fewer occupations, industries, and locations. Their applications also become increasingly concentrated in the categories that emerge as their

[1] See Weitzman (1979) for an early model of sequential decision-making under incomplete information featuring the exploration-exploitation trade-off. In such models, agents trade off exploiting currently attractive options against exploring alternatives with uncertain returns.

[2] *Zhaopin* means "recruitment" in Chinese. The platform's website is `www.zhaopin.com`.

primary targets near the end of the spell. Moreover, this narrowing is accompanied by a rising positive-reply rate, consistent with job seekers improving the allocation of search effort as information accumulates. This within-spell pattern contrasts sharply with the raw comparison across completed spells: job seekers with longer spells search more broadly and receive fewer positive replies. By exploiting variation within individual spells, we show that differences in the composition of short- and long-duration spells mask the shift toward less intensive but more targeted search within a spell.

Our second finding uses the timing of employer responses to ask whether feedback shapes the subsequent direction of search. Around the first positive reply from an occupation, the share of applications directed to that occupation rises sharply and remains approximately three percentage points higher over the following ten days. There is no comparable increase before the reply. At the weekly frequency, receiving a positive reply from an occupation is associated with an 18.0 percentage point increase in the probability of applying to that occupation again and a 7.8 percentage point increase in its share of subsequent applications. Conversely, positive feedback from a competing occupation draws search effort in the opposite direction. Workers therefore respond to the source of feedback. This suggests that job seekers learn about where they are likely to succeed from employer feedback and reallocate search effort accordingly.

Lastly, several additional results sharpen the learning interpretation. First, the response to a positive reply is stronger for occupations outside the worker's reference occupation and for occupations in which she has never worked. Because workers are likely to hold less precise beliefs about unfamiliar jobs, feedback from these markets should be particularly informative. Second, workers respond to the relative strength of feedback, directing a larger share of subsequent applications toward occupations with higher positive-reply rates. Third, the response is stronger when the positive reply comes from a vacancy whose posted wage exceeds the worker's expected salary, suggesting that workers respond to information about both their probability of success and the returns to searching in a particular market. Although positive feedback could strengthen self-confidence and motivation (Bénabou and Tirole, 2002; Compte and Postlewaite, 2004), a purely generic encouragement channel would not by itself predict the source-specific reallocation we observe. These patterns are therefore more consistent with workers using employer responses to update beliefs about their relative prospects across labor markets.

Taken together, these results reveal an adaptive search process: workers initially apply broadly and, as they receive signals of employer interest, progressively concentrate their applications in markets that generate more favorable responses. To our knowledge, this paper provides the first empirical evidence on how the direction of job search evolves within a spell and changes following employer feedback. Viewed through the lens of models of occupational learning (Miller, 1984; Moscarini, 2005; Papageorgiou, 2014; Groes, Kircher and Manovskii,

2015), these patterns suggest that workers use information generated during search to update their beliefs about their prospects and reallocate subsequent applications across labor markets.

These findings contribute to three strands of literature. First, we contribute to the study of job seekers' search behavior. A large body of work examines measures of search intensity, including the number of search methods used (Shimer, 2004), time allocated to search (Krueger and Mueller, 2010; Aguiar, Hurst and Karabarbounis, 2013; Mukoyama, Patterson and Şahin, 2018), and the number of applications submitted (Marinescu, 2017; Faberman and Kudlyak, 2019). Little attention has been paid to the targetedness and direction of search. A recent exception is Altmann, Mahlstedt, Rattenborg and Sebald (2023), who document the occupational targeting strategies of unemployed workers in Denmark. We add a dynamic perspective, showing how targetedness evolves within a spell and how the direction of applications changes following employer feedback.

Second, we contribute to the literature on how search behavior evolves over the course of a search spell and, more broadly, to work on the mechanisms underlying duration dependence in job finding (Van den Berg and Van Ours, 1996; Kroft et al., 2013, 2016; Jarosch and Pilossoph, 2019; Mueller et al., 2021). Prior research studies the dynamics of search intensity over an unemployment spell (Marinescu and Skandalis, 2021; DellaVigna, Heining, Schmieder and Trenkle, 2022; Faberman and Kudlyak, 2019), as well as the evolution of reservation wages (Brown et al., 2011; Krueger and Mueller, 2016) and of the wages of applied-to jobs (Kudlyak, Lkhagvasuren and Sysuyev, 2013; Fluchtmann, Glenny, Harmon and Maibom, 2024). We complement these studies by tracing how the breadth and targetedness of search change over a search spell. These adjustments reveal a countervailing force in duration dependence: although search intensity declines, workers reallocate their remaining search effort toward directions that generate more favorable employer responses.

Third, we contribute to work on the role of information in job search. A number of recent field experiments examine how job-search advice and information provision affect application behavior and employment outcomes (Belot, Kircher and Muller, 2019, 2025; Altmann, Glenny, Mahlstedt and Sebald, 2022; Dhia, Crépon, Mbih, Paul-Delvaux, Picard and Pons, 2022; Kiss, Garlick, Orkin and Hensel, 2023). Related experiments study public or private counseling services (Bennmarker, Grönqvist and Öckert, 2013; Behaghel, Crépon and Gurgand, 2014; Krug and Stephan, 2016). Whereas these studies examine information supplied externally by advisors or institutions, we study information generated endogenously through workers' own interactions with employers.[3] By observing employer responses at the application level and following subsequent applications at high frequency, we provide direct evidence that workers redirect search toward the labor-market segments from which positive feedback originates. Most

[3]Related research examines other forms of employer-generated information, including public employer evaluations (Pallais, 2014) and the tone of managerial feedback (Liu, 2026).

closely related to our setting, studies of recruitment rejection show that rejection and its framing affect subsequent search persistence and reapplication (Brands and Fernandez-Mateo, 2017; Bapna et al., 2021; Boring et al., 2025).

The remainder of the paper is organized as follows. Section 2 describes the data source and reports summary statistics. Section 3 documents the dynamics of search behavior over the spell. Section 4 examines how employer feedback shapes subsequent search behavior. Section 5 concludes.

2 Data

2.1 Sample

Our data come from Zhaopin.com, one of China's largest online job boards. The analysis sample is a random draw of 20,000 job seekers per year from 2018 to 2024. For each job seeker, we observe demographics, education, work experience, job preferences, and job search status, as well as all applications submitted during the year. Job seekers can browse job postings and apply directly to employers through the platform. Each application is linked to information about the corresponding job posting, including its industry, occupation, salary range, location, and job requirements. A key advantage of the platform data is that they record employer responses within 24 hours of each application and classify them as positive or non-positive. Positive replies are employer-initiated responses, including interview invitations, phone calls, exchanges of contact information, and follow-up conversations. This measure captures early-stage employer interest in an applicant.

Job postings to which sampled seekers apply are concentrated in operational, support, and sales roles, with a substantial share coming from small and medium-sized private firms.[4] Among these jobs, the most common occupation is Sales Operations, which accounts for 13.75% of applications. Other frequently targeted occupations include Technician/Operator (5.81%), Administration/Logistics (5.64%), and Sales Management (4.94%). More than 50% of applications are directed to firms with fewer than 100 employees, and approximately 70% are directed to private firms. About 80% of these job postings require at least an associate or bachelor's degree, and 60% require 3 years or less of work experience. Nearly all are full-time positions.

Following Faberman and Kudlyak (2019), we separate search spells using a five-week inactivity threshold. A new spell begins with a job seeker's first observed application or with the first application submitted after more than five weeks without application activity. The spell

[4]Because the sampling frame consists of job seekers rather than vacancies, the postings are not necessarily representative of the platform's overall vacancy distribution.

extends through the last application before the next such inactivity period. For each spell, we construct measures of search behavior, including the number of applications submitted, the industries and occupations targeted, and employer response rates. We infer employment status from the dated work histories reported in job seekers' resumes and classify status over the entire search spell. A spell is classified as stable unemployed if the job seeker remains unemployed throughout the spell, and as stable on the job if the same job covers the entire spell. Spells involving employment entry or exit, a change of employer, or otherwise unstable reference-job information are excluded from the baseline sample.[5] Stable-unemployed seekers account for 41.62% of the resulting stable-status sample.

2.2 Employer Feedback

An important feature of the platform is that applicants receive relatively rapid feedback from employers. For each application, we observe whether the employer responds and whether the response is classified as positive by the platform. Among applicants who eventually receive a reply, approximately 80% do so within 24 hours of submission and 90% within 48 hours.

The platform classifies a range of employer actions as positive replies, including messages expressing interest, résumé processing actions, requests for further information or contact, and interview invitations. Table 1 summarizes the actions included in this measure. Non-positive replies include neutral inquiries and negative responses, such as marking the applicant as "not suitable." Automatic replies are excluded. Conditional on receiving a human response, more than 80% of replies are classified as positive.

Table 1: Actions Included in the Positive-Reply Measure

Type of action	Recorded actions
Affirmative messages	Sending a preset reply expressing interest, such as "Let's talk."
Résumé processing	Bookmarking or saving a résumé, forwarding it to a colleague through the platform, or viewing the attachment.
Requests for information or contact	Requesting a résumé file, requesting access to an applicant's contact details, requesting a phone call or an exchange of contact details.
Interview invitations	Inviting an applicant to an interview.

Notes: This table lists the employer actions classified as positive replies by the platform.

Applicants can observe positive employer feedback through direct messages and updates to

[5] Appendix I details the construction of employment histories and reference jobs and provides the precise definitions of stable-unemployed and stable-employed search spells. Because applications are recorded separately by calendar year, we additionally require the first observed application of each retained spell to occur after the 35th day of the year. This restriction reduces the risk of misclassifying a search that began in the previous year as a new spell starting with the first application observed in the current year.

their application status. The application-progress display makes expressions of employer interest and interview invitations visible even when the employer does not send a direct message. Applicants are also informed when an employer marks them as unsuitable. Appendix I.6 illustrates how employers provide feedback and how it is displayed to applicants. The data record applications and employer responses on the platform. Subsequent recruitment activities that take place outside the platform, including interviews, offers, and hires, are not captured in these records.

The platform also provides personalized job recommendations based primarily on the occupational, location, and salary preferences recorded in applicants' résumés. Employer feedback is not used to generate these recommendations.

2.3 Summary Statistics

Table 2 reports job seeker characteristics for the pooled sample and separately for unemployed and employed searchers. For unemployed searchers, the reference job is the most recent job preceding the first application. For employed searchers, it is the job held throughout the search spell. The two groups differ systematically in their demographic and career characteristics. Employed searchers are older and more experienced: 32.6% report at least ten years of experience, compared with 25.5% of unemployed searchers, while only 1.4% report no prior experience, compared with 6.4% among unemployed searchers. Employed searchers are also more likely to hold a bachelor's degree and report higher reference-job salary and expected salary. For example, the average lower bound of reference-job salary is RMB 6,546 for employed searchers and RMB 4,851 for unemployed searchers.

Table 3 reports search behavior at the spell level by completed duration. Approximately 53.4% of spells last no more than one week, whereas 15.5% last at least seven weeks. Longer spells contain more applications both in total and per active week. Average applications per active week increase from 4.85 among spells lasting no more than one week to 7.85 among spells lasting at least seven weeks, while the corresponding number of total applications increases from 4.85 to 71.54. The average positive-reply rate declines from 36.3% to 29.4% across these groups. Longer spells also exhibit greater breadth of search. The average number of occupations searched rises from 1.76 to 6.77, the number of industries from 2.89 to 18.31, and the number of cities from 1.19 to 3.12. At the same time, applications become less concentrated as spell duration increases. The share of applications directed to the most frequently targeted occupations falls from 84.5% to 64.6%, while the corresponding top-industry share falls from 70.4% to 32.5%. Posted salaries also increase with spell duration. The average lower bound rises from RMB 7,091 among spells lasting no more than one week to RMB 7,563 among spells

Table 2: Job Seeker Characteristics

	All	Unemployed	Employed
Demographics			
Male (%)	53.70	50.15	56.23
Age	29.24	28.29	29.92
Education			
High school or less (%)	10.01	10.42	9.71
Vocational or associate degree (%)	44.36	46.10	43.09
Bachelor's degree (%)	40.89	38.33	42.76
Graduate degree (%)	4.73	5.14	4.43
Experience			
No experience (%)	3.40	6.40	1.40
Up to 3 years (%)	23.57	27.21	21.14
3–10 years (%)	43.25	40.86	44.84
10 or more years (%)	29.79	25.54	32.63
Monthly Salary (RMB)			
Reference job: lower bound	5848.33	4850.54	6545.63
Reference job: upper bound	8449.26	7121.15	9377.69
Expected salary: lower bound	7092.58	6192.34	7738.18
Expected salary: upper bound	10016.30	8735.69	10935.01
Number of searchers	101704	42329	59375

Notes: This table reports the summary statistics for job seekers. Each job seeker appears once, using their earliest observed search spell. Employment status is defined over the duration of that spell.

lasting at least seven weeks, while the average upper bound rises from RMB 10,912 to RMB 11,610. Positive-reply rates nevertheless decline with completed spell length. Table A.4 reports search behavior and employer feedback by completed spell duration separately for unemployed and employed searchers.

3 Search Behavior over the Spell

This section documents three patterns in job seekers' behavior over the course of a search spell. First, applicants submit fewer applications and target a narrower range of occupations over time. Second, applications become increasingly concentrated in the most frequently targeted occupation. Third, the positive-reply rate rises over the spell. Similar patterns emerge across industries and cities. Together, these findings suggest a gradual transition from broad

Table 3: Search Behavior and Employer Feedback by Completed Search-Spell Duration

	All	≤1 week	2–3 weeks	4–6 weeks	≥7 weeks
Panel A: Search Behavior (2018–2024)					
Completed spell duration (days)	20.55	1.91	13.73	30.84	83.07
Applications per active week	6.23	4.85	8.14	7.38	7.85
Total applications	20.70	4.85	18.49	27.64	71.54
Active application weeks	2.66	1.00	2.22	3.36	8.22
Occupations searched	3.19	1.76	3.51	4.29	6.77
Industries searched	7.17	2.89	7.97	10.24	18.31
Cities searched	1.68	1.19	1.66	1.97	3.12
Applications outside reference occupation (%)	55.48	56.37	54.71	55.00	53.82
Applications outside reference industry (%)	82.96	82.63	83.11	83.06	83.82
Applications in most-targeted occupation (%)	76.43	84.53	69.37	67.35	64.59
Applications in most-targeted industry (%)	55.10	70.39	41.25	38.83	32.51
Posted salary: lower bound (thousands of RMB)	7.17	7.09	7.03	7.20	7.56
Posted salary: upper bound (thousands of RMB)	11.02	10.91	10.80	11.08	11.61
Applications exceeding expected salary (%)	57.70	57.96	58.05	57.83	56.31
Applications exceeding reference-job salary (%)	75.19	75.73	75.42	74.87	73.42
Applications requiring a bachelor's degree (%)	29.25	27.42	28.62	30.84	34.81
Number of search spells	143145	76498	24291	20211	22145
Panel B: Employer Feedback (2021-2024)					
Any employer reply (%)	41.42	42.88	41.49	40.16	37.69
Positive employer reply (%)	34.34	36.26	34.40	32.76	29.44
Positive reply rate by occupation and industry					
Outside reference occupation (%)	35.12	36.91	35.54	34.37	31.15
Within reference occupation (%)	36.66	38.27	37.30	36.59	32.83
Outside reference industry (%)	33.14	34.85	33.28	32.08	29.02
Within reference industry (%)	32.24	33.49	33.52	32.76	29.66
Positive reply rate by posted salary					
Above reference-job salary (%)	32.23	34.10	32.40	31.02	28.01
Not above reference-job salary (%)	31.88	32.37	32.75	32.14	30.33
Above expected salary (%)	34.47	37.35	34.55	32.79	28.97
Not above expected salary (%)	33.69	35.32	34.23	33.09	30.21
Number of search spells	79179	41813	13245	11236	12885

Notes: The unit of observation is a stable search spell. A job seeker may contribute multiple spells. Columns group spells by completed duration. Panel A covers 2018–2024, whereas Panel B is restricted to 2021–2024, when employer-feedback data are available. Counts of occupations, industries, and cities, as well as top-category application shares, are calculated using applications with nonmissing information for the relevant dimension.

exploration to more focused search, accompanied by increasingly favorable employer feedback.

To examine how search behavior evolves within a spell, we estimate

$$Y_{isw} = \beta_0 + \sum_{n=2}^{N} \beta_n D_{isw}(n) + \beta_\eta \eta_{isw} + \gamma_{is} + \delta_{cym} + X'_{isw}\theta + \varepsilon_{isw}, \tag{1}$$

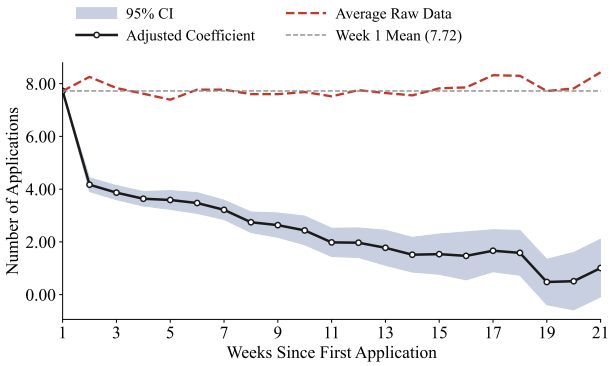
where Y_{isw} is an outcome for job seeker i in search spell s and week w. The unit of observation is a job seeker-spell-week with at least one recorded application. Weeks are indexed relative to the first application in the spell. The indicators $D_{isw}(n)$ identify the n-th week of the spell, with the first week omitted. The indices c, y, and m denote the city, year, and month associated with the observation. The main outcomes include application volume, the number of occupations targeted, measures of application concentration, and the positive-reply rate. To address potential bias arising because the final week of a search spell may end before the seven-day interval is complete, we introduce η_{isw}, an indicator for whether the observation corresponds to the final week of the spell. For outcomes other than posted salary, the covariates X_{isw} include the logs of the mean lower and upper posted salary bounds across vacancies applied to that week. The specification further includes individual-by-spell fixed effects γ_{is} and city-by-year-by-month fixed effects δ_{cym}. The coefficients β_n therefore capture within-spell changes relative to the first week, conditional on local labor market shocks. We estimate analogous specifications across industries and cities.

A key empirical advantage of the panel structure is that it allows us to control for unobserved heterogeneity across job seekers within a search spell. This is important for distinguishing the true within-spell dynamics of search behavior from changes in the composition of job seekers observed at different durations. In the raw data, job seekers with longer completed search spells appear to submit more applications, search more broadly, and have lower positive-reply rates. However, this pattern conflates within-person dynamics over the course of a spell with cross-sectional heterogeneity, as job seekers with longer search durations may differ systematically in motivation, ability, or labor-market prospects. By controlling for individual-by-spell fixed effects, we find the opposite pattern: job seekers gradually narrow their search scope, concentrate their applications, and receive more positive employer responses.

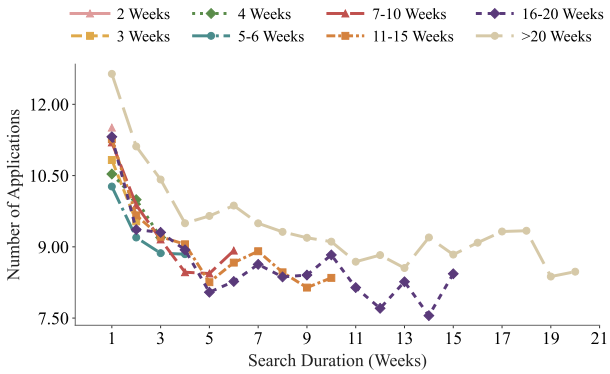
The duration analysis covers 2018–2024. Specifications involving employer feedback cover 2021–2024, the period for which feedback is observed. Standard errors are clustered at the city level. In the following figures, we plot the adjusted profiles for the first 21 weeks by adding the corresponding first-week sample mean to the estimated week coefficients. This normalization expresses the estimated duration profile in the levels of the outcome, making its magnitude easier to interpret.

Figure 1: Search Intensity over the Spell

(a) Number of Applications: Regression Adjusted



(b) Number of Applications: Raw Averages



Notes: This figure shows how weekly application volume evolves over a search spell. Panel (a) reports regression-adjusted profiles estimated from Equation (1); the black line with circles shows adjusted levels, the shaded areas denote 95% confidence intervals based on city-clustered standard errors, and the red dashed line shows the corresponding raw averages. Panel (b) reports raw weekly averages separately by completed spell length.

3.1 Search Intensity Declines

We first examine search intensity, measured by the number of applications submitted per week. Figure 1a shows that, after controlling for individual-by-spell fixed effects, application volume declines substantially over the search spell, with the largest decline occurring early in the spell. The raw averages mask much of this decline because job seekers with longer completed spells tend to submit more applications. This is confirmed in Figure 1b. Moreover, within each spell-length group, application volume declines over time. This decline in search intensity is consistent with the evidence in Faberman and Kudlyak (2019). We focus on a less studied dimension of search behavior: how job seekers change the portfolio of their applications as a spell progresses. Specifically, we examine whether they narrow the scope of search, concentrate applications on particular opportunities, and receive increasingly favorable employer responses. Appendix Figure A.12 shows that these within-spell patterns are similar for unemployed and employed job seekers. We therefore focus on the pooled sample.

3.2 Search Scope Narrows

We first examine the breadth of search, measured by the number of distinct occupations represented among a job seeker's applications in each week. A larger number indicates that the job seeker is exploring a broader range of occupational opportunities. Figure 2a plots the regression-adjusted number of occupations targeted over the search spell as a solid black line, together with

the corresponding raw averages as a dashed red line for comparison. The regression-adjusted profile shows that job seekers gradually narrow their search scope by applying to fewer occupations. The number of occupations targeted falls sharply from approximately 2.13 in the first week to 1.77 in the second week and then declines more gradually. Similar patterns emerge for industries and cities, as shown in Figure 2c and Figure 2e. These changes reflect a narrowing of search scope alongside a decline in application volume.

The raw weekly average, shown by the red dashed line in Figure 2a, does not display the same decline. This difference is consistent with changes in the composition of the observed sample across weeks: job seekers with longer completed spells tend to target more occupations in any given week and are disproportionately represented at longer durations. To illustrate this composition effect, Figure 2b reports raw averages separately by completed spell length.[6] Within each duration group, the number of occupations targeted declines steadily over time. Job seekers in longer-duration groups generally target more occupations, although differences across most groups are modest. Those whose spells last more than 20 weeks, however, consistently target a much broader range of occupations. The corresponding industry and city results show similar patterns.

3.3 Search Concentration Rises

We next examine how job seekers allocate applications across occupations over the course of a search spell. For each job seeker, we define the "final occupation" as the occupation receiving the most applications in the penultimate week with recorded application activity.[7] This measure allows us to trace how the share of applications directed toward an occupation that is prominent near the end of the spell evolves over the course of search. We complement this analysis below with concentration measures that identify the largest occupational application share separately in each week, without using subsequent applications to select the occupation.

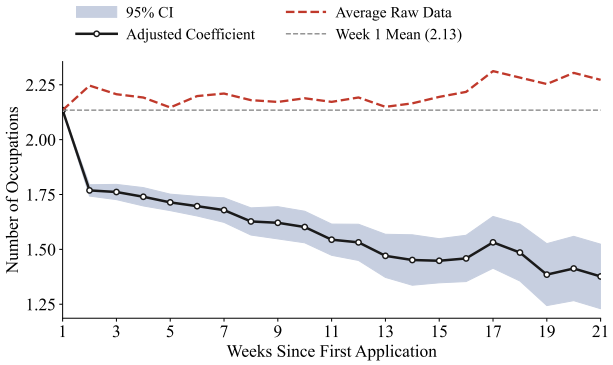
Figure 3a shows the share of applications directed to the final occupation over the search spell. The regression-adjusted share, shown by the solid black line, rises substantially with search duration, although the corresponding raw average, shown by the dashed red line, declines slightly. The contrast again reflects differences in the composition of job seekers observed at different search durations. After accounting for individual-by-spell fixed effects, job seekers

[6] Within each duration group, we retain only the weeks observed for all spells in that group. For example, for spells lasting 7–10 weeks, we report only the first six weeks. This restriction prevents changes in the composition of a duration group at its last observed weeks. It necessarily excludes spells lasting no more than one week, which account for approximately 53.44% of all spells; job seekers in these spells apply to an average of 1.76 occupations. Due to their inclusion in the calculation of the first-week mean, the overall first-week mean in Figure 2a is lower than the group-specific first-week averages in Figure 2b.

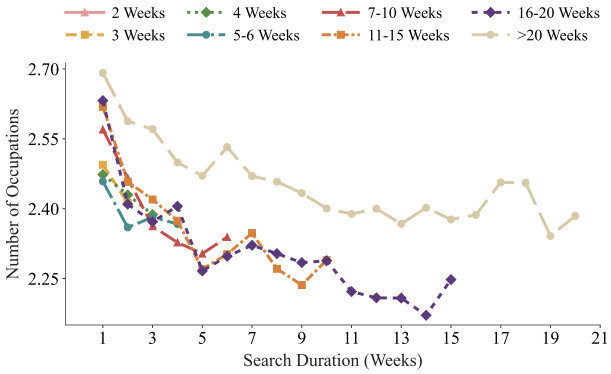
[7] We use the penultimate observed active week because the final week may cover less than a full week of search. We exclude spells lasting less than one week from this exercise.

Figure 2: Search Scope over the Spell

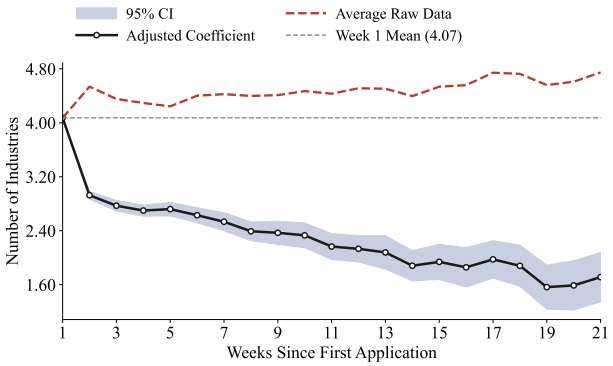
(a) Number of Occupations: Regression Adjusted



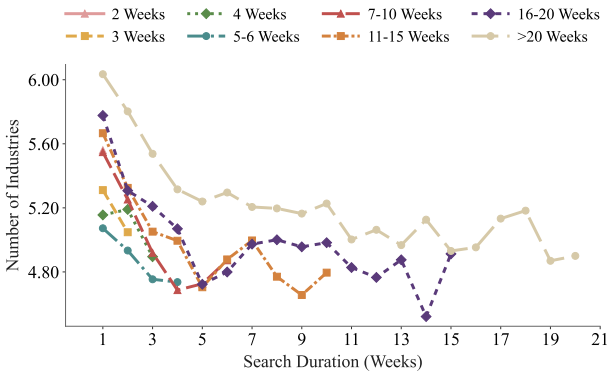
(b) Number of Occupations: Raw Average



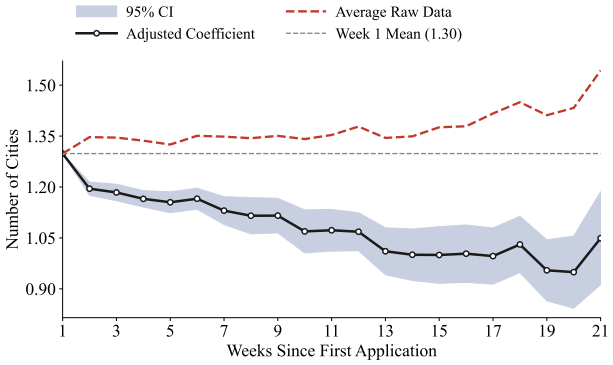
(c) Number of Industries: Regression Adjusted



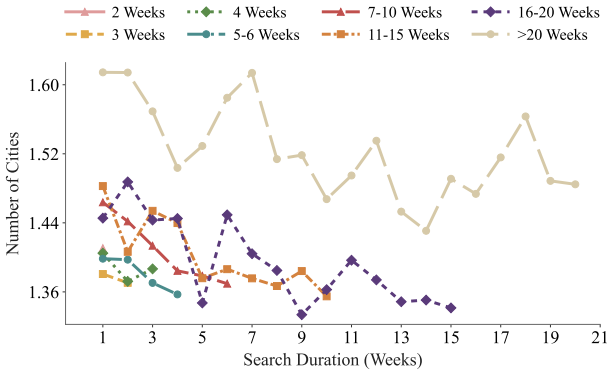
(d) Number of Industries: Raw Average



(e) Number of Cities: Regression Adjusted



(f) Number of Cities: Raw Average



Notes: This figure reports the weekly number of occupations, industries, and cities represented among job seekers' applications. In Panels (a), (c), and (e), the solid black lines show the regression-adjusted profiles estimated from Equation (1), while the dashed red lines show the corresponding raw averages. Shaded areas denote 95% confidence intervals based on city-clustered standard errors. Panels (b), (d), and (f) report raw averages by completed spell length.

increasingly direct their applications toward the occupation that becomes their primary target later in the spell. This pattern is consistent with Carrillo-Tudela and Visschers (2023), who emphasize endogenous occupational reallocation during unemployment as workers' career prospects evolve; our application data show such reallocation within the search process.

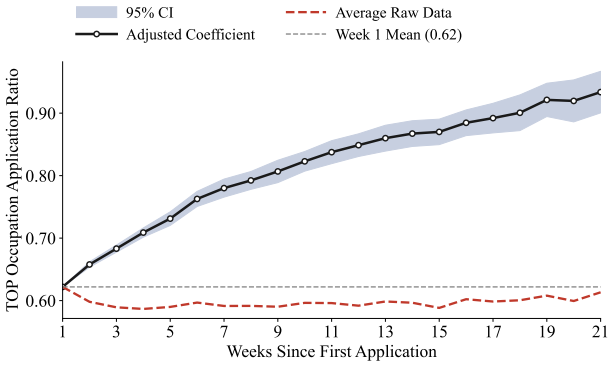
To examine this pattern separately across spells of different lengths, Figure 3b reports raw application shares by completed spell length. Within each duration group, the share of applications directed to the final occupation rises over time. The increase tends to be more gradual for longer spells, suggesting that job seekers with longer search spells take more time to concentrate their applications. One may worry that the final occupation's share is mechanically high near the end of the spell. The fact that the increase begins well before that week, however, indicates that concentration toward the eventual top occupation develops gradually over the course of search. The corresponding industry and city results exhibit similar patterns.

Appendix Figure A.2 shows the mirror-image pattern for the occupation, industry, and city receiving the most applications in the first week of the search spell. The share of applications directed to these initially dominant categories falls sharply after the first week and remains substantially lower thereafter. Combined with the rising share directed to categories that become dominant near the end of the spell, this pattern suggests that job seekers gradually shift away from their initial search targets when those targets do not quickly lead to a successful search outcome and reallocate applications toward other types of jobs.

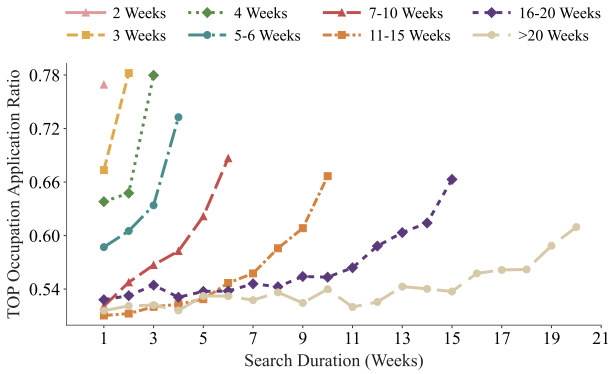
Appendix Figure A.3 reports two alternative measures of concentration: the largest application share in each week and the Herfindahl–Hirschman Index (HHI), defined as the sum of squared application shares. Unlike the fixed first-week and final-category measures, these statistics summarize the distribution of applications within each week. Because they are constructed from application shares, they are unchanged by a proportional change in applications across all categories. They therefore complement the number of categories targeted by measuring how concentrated applications are across those categories. The adjusted top-1 occupational share rises from approximately 0.81 in the first week to 0.87 in week 21, while the occupational HHI rises from approximately 0.77 to 0.84. These profiles provide further evidence that the applicants' portfolios become increasingly concentrated over the course of a search spell. To assess whether the increases in the top-1 share and the HHI are driven entirely by weeks with only one application, Appendix Figure A.4 repeats the concentration analysis after excluding such weeks. The concentration measures continue to rise over the course of the spell, although less sharply than in the baseline.

Figure 3: Search Concentration over the Spell

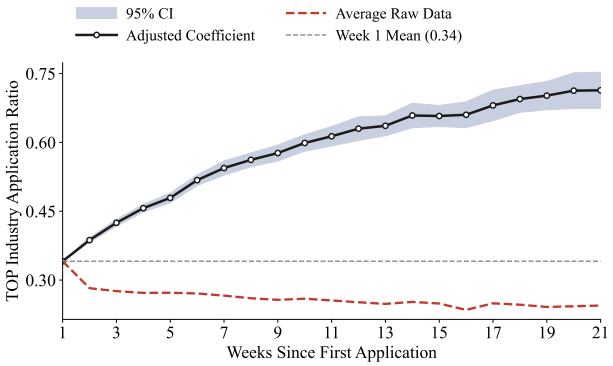
(a) Final Occupation Share: Regression Adjusted



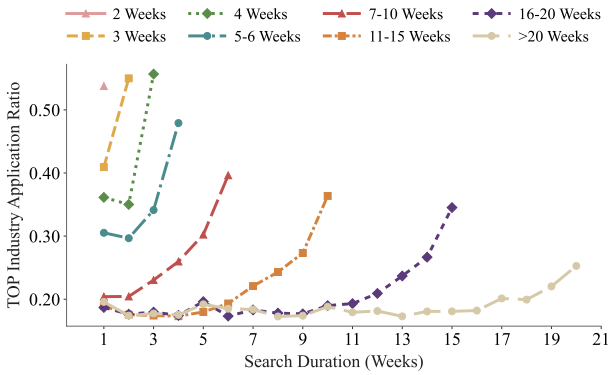
(b) Final Occupation Share: Raw Average



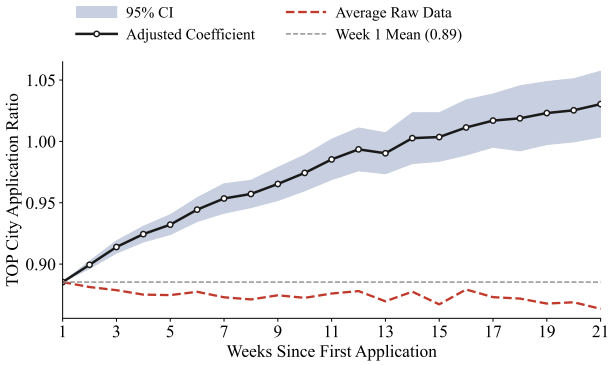
(c) Final Industry Share: Regression Adjusted



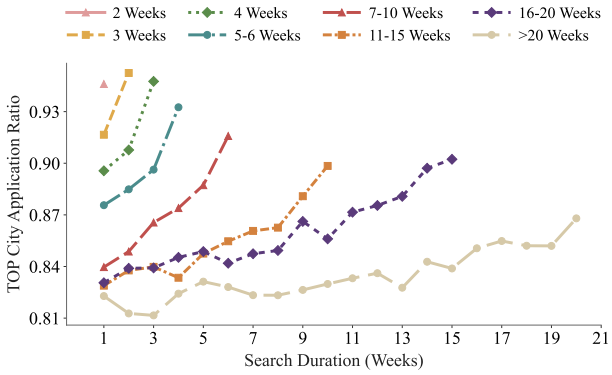
(d) Final Industry Share: Raw Average



(e) Final City Share: Regression Adjusted



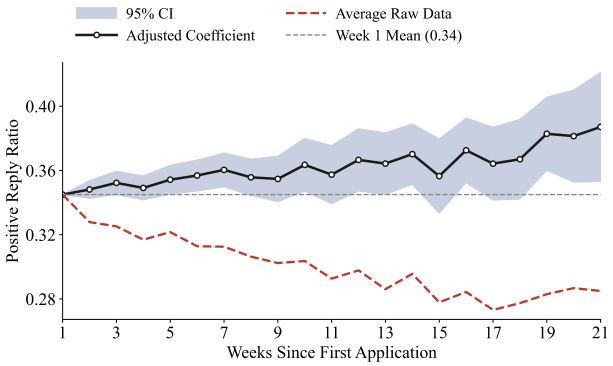
(f) Final City Share: Raw Average



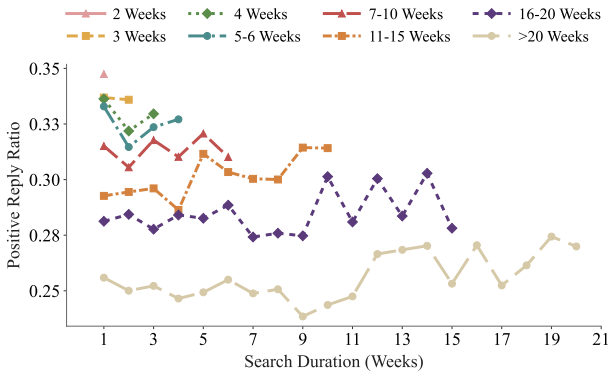
Notes: This figure reports the weekly application share directed to the occupation, industry, or city receiving the most applications in the penultimate active week of each search spell. Panels (a), (c), and (e) show regression-adjusted profiles estimated from Equation (1), together with the corresponding raw averages. Shaded areas denote 95% confidence intervals based on city-clustered standard errors. Panels (b), (d), and (f) report raw application shares separately by completed spell length.

Figure 4: Positive-Reply Rate over the Spell

(a) Regression-Adjusted and Raw Average



(b) Raw Averages by Completed Spell Length



Notes: This figure reports positive-reply rates over the search spell. Panel (a) shows the regression-adjusted profile estimated from Equation (1) as a solid black line and the corresponding pooled raw average as a dashed red line. The adjusted profile is expressed in levels by adding the first-week sample mean to the estimated week coefficients. The shaded area denotes the 95% confidence interval. Panel (b) reports raw weekly averages separately by completed spell length.

3.4 Positive-Reply Rate Increases

We next examine whether the narrowing and concentration of search coincide with changes in application outcomes. As with many online job boards, the platform does not record whether an application ultimately results in a hire, so we cannot observe either realized matches or post-match outcomes such as starting wages and job tenure. We instead use positive employer responses, which are analogous to the callback outcomes commonly used in correspondence studies, such as Bertrand and Mullainathan (2004) and Kroft et al. (2013). A positive reply signals employer interest at an intermediate stage of the hiring process and therefore provides a useful measure of employer response to an application.

We define the positive-reply rate as the share of applications that receive a positive employer response. A higher positive-reply rate is consistent with job seekers directing applications toward vacancies more likely to generate early-stage employer interest. Panel (a) of Figure 4 reveals a sharp contrast between the raw and regression-adjusted profiles. The pooled raw average declines substantially with elapsed search duration, whereas the profile estimated with individual-by-spell fixed effects trends upward. Thus, job seekers observed at longer durations receive less favorable responses on average, but applications submitted by a given job seeker become more likely to receive a positive response as the spell progresses.

Panel (b) of Figure 4 clarifies how changes in sample composition generate this contrast. At a given elapsed duration, job seekers with longer completed spells generally have lower positive-reply rates than those with shorter spells. Within completed-duration groups, however, the raw

profiles do not exhibit the pronounced decline observed in the pooled average. As shorter spells end, the pooled sample becomes increasingly composed of job seekers with longer spells. This compositional shift drives the decline in the pooled average and masks the increase within spells. Together with the preceding evidence on narrowing and concentration, this pattern is consistent with job seekers progressively reallocating their remaining search effort toward vacancies with better job prospects.

The increase in positive-reply rate may operate through two margins. First, job seekers reallocate applications across occupations, industries, and locations toward markets in which they are more likely to receive a favorable response. The evidence in the previous subsection is consistent with this mechanism. As the search spell progresses, workers shift applications away from categories that dominate their search initially and increasingly concentrate on categories that become prominent later in the spell. Such reallocation toward more promising search directions can raise the overall positive-reply rate.

Second, job seekers adjust the types of vacancies they target. Figure A.5 shows that the posted wages and education requirements of applied-to jobs decline over the search spell. This pattern suggests that, as search continues without a successful outcome, job seekers gradually shift toward vacancies with lower wage offers and less stringent education requirements, thereby expanding the set of jobs for which they are likely to be viable candidates. To assess whether application outcomes also improve within fixed search directions, Figure A.6 traces positive-reply rates within the occupation, industry, and city receiving the most applications in either the first or the penultimate active week. The adjusted positive-reply rate rises within the initially and eventually dominant occupations and cities, whereas the industry profiles are less precisely estimated and exhibit no consistent upward pattern.

Taken together, these patterns document substantial changes in the direction and effectiveness of search over a spell. Job seekers submit fewer applications, target fewer occupations, and allocate their applications more selectively. At the same time, each application becomes more likely to receive favorable employer responses. In the next section, we examine more directly whether employer feedback shapes subsequent search behavior.

4 Employer Feedback and Subsequent Search Behavior

The previous section shows that job seekers gradually narrow and concentrate their search over the course of a spell while receiving increasingly favorable employer responses. We now examine whether employer feedback changes subsequent search behavior. We begin with the first positive reply and study how job seekers reallocate their applications following this salient signal.

4.1 First Positive Reply

We use an event-study specification to trace application behavior around the first positive reply received from a given occupation. The analysis is conducted at the daily frequency. For each job seeker–occupation pair, we compare applications before and after the first positive reply from that occupation. We normalize event time so that $k = 0$ denotes the day immediately preceding the reply and $k = 1$ denotes the day on which the reply is received.[8]

Our baseline specification is

$$Y_{isjt} = \beta_0 + \sum_{k=-5}^{10} \beta_k D_{isjt}^k + \alpha R_{isjt}^{-j} + X'_{isjt}\theta + \gamma_{is} + \psi_j + \delta_{cym} + \vartheta_{q(t)} + \varepsilon_{isjt}. \tag{2}$$

Here, Y_{isjt} denotes either the share or the number of applications directed to occupation j by job seeker i in spell s on day t. The indicators D_{isjt}^k denote event time relative to the first positive reply from occupation j, with the day immediately preceding the reply ($k = 0$) omitted. Thus, the coefficients β_k measure changes in application behavior relative to the day before the first positive reply. We include five pre-event days and ten post-event days.[9] The variable R_{isjt}^{-j} indicates whether the job seeker i receives a positive reply from another occupation. The vector X_{isjt} includes the daily mean log lower and upper bounds of posted salaries, a final-day indicator, the number of replies received from occupation j before its first positive reply, and the number of days between the first application to occupation j within the spell and the first positive reply from that occupation. The specification further includes individual-by-spell fixed effects γ_{is}, occupation fixed effects ψ_j, city-by-year-by-month fixed effects δ_{cym}, and day-of-week fixed effects $\vartheta_{q(t)}$. Standard errors are clustered at the city level. We also estimate an analogous specification at the industry level, replacing occupations with industries.

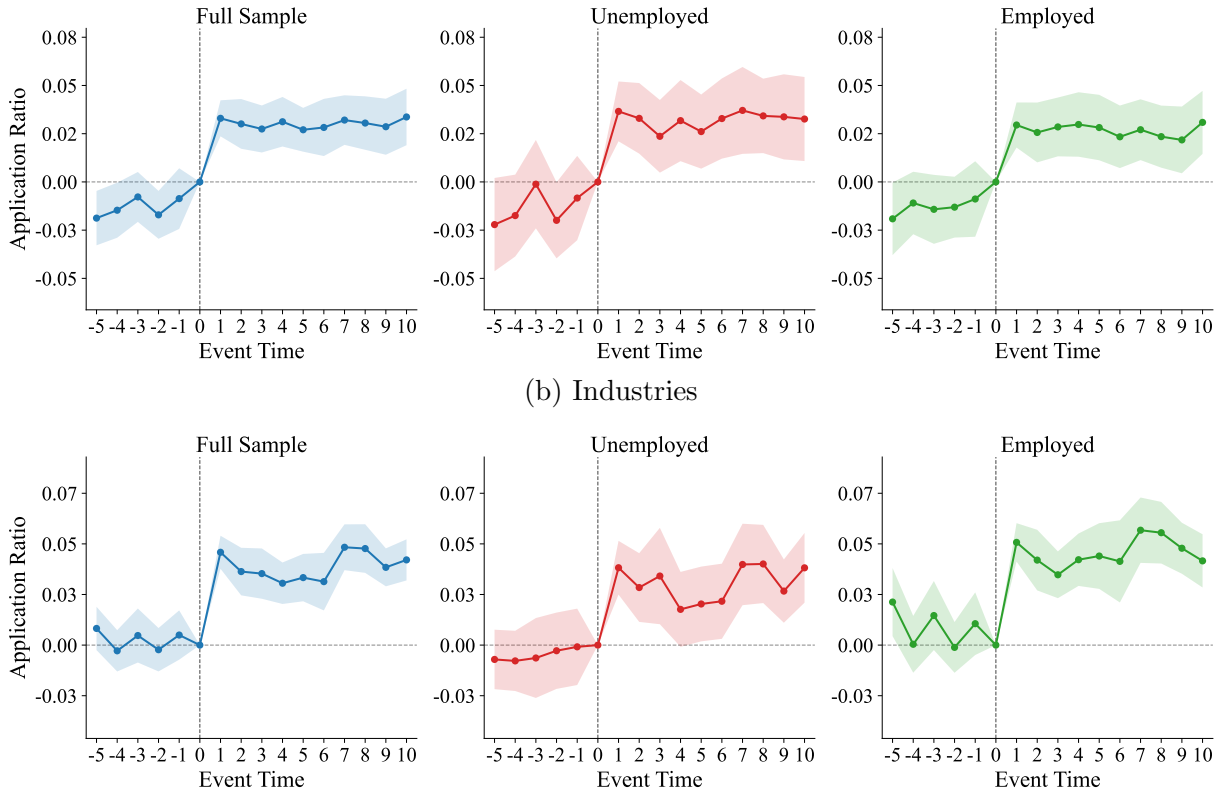
Figure 5 shows a sharp and persistent increase in the share of applications directed to the replying occupation following the first positive reply. On the day of the reply, the application share rises by approximately 3.3 percentage points relative to the preceding day. The increase remains close to 3 percentage points throughout the subsequent 10-day window. The corresponding industry estimates display a similar pattern.

The response in application counts is less persistent. Appendix Figure A.7 shows that the applications to the replying occupation increase by about one application on the day of the reply, but most of this increase dissipates soon over the following days. The distinction between

[8] Because replies are recorded within 24 hours of submission, we use the application date as a proxy for the reply date.

[9] To ensure sufficient observations on both sides of the event, we require at least three days between the job seeker's first application to an occupation and the first positive reply from that occupation, and at least five days between the reply and the last application to that occupation. These restrictions provide minimum pre- and post-event windows while retaining a sufficiently large sample.

Figure 5: Application Shares around the First Positive Reply



Notes: This figure reports event-study estimates of application shares directed to a given occupation or industry around the time when the job seeker receives the first positive reply from an application in that category. The omitted period is the day immediately preceding the reply ($k = 0$), and $k = 1$ denotes the reply day. Estimates are reported separately for the pooled, unemployed, and employed samples. Shaded areas denote 95% confidence intervals based on city-clustered standard errors.

application shares and levels is informative. Application counts also reflect changes in overall search intensity, whereas application shares capture the allocation of a given amount of search effort across occupations. The persistent increase in application shares therefore indicates a sustained reallocation of search effort toward the occupation that provided positive feedback, even as overall application volume declines over the search spell, as shown in Figure 1.

These patterns indicate that workers redirect search following positive employer feedback. Importantly, application behavior is stable before the first positive reply, with no evidence of anticipatory reallocation. The absence of a pre-trend reduces the concern that the post-reply increase reflects an ongoing shift toward that occupation and supports interpreting it as a response to employer feedback.

We assess the robustness of these findings to alternative sample restrictions and controls. Figure A.8 removes the requirement that at least five days elapse between the first positive reply and the last application to the same category. Figure A.9 additionally controls for cumulative

prior applications to that category. Figure A.10 extends the event window. The post-reply increase in application shares remains evident across all these specifications.

4.2 Positive Replies

The event-study evidence above shows that search effort shifts toward an occupation following the first positive reply received within that occupation. We now examine whether this relationship extends beyond the first reply by relating positive feedback received in one week to the allocation of search effort in the following week. In particular, we ask whether job seekers continue to target occupations from which they receive positive feedback and how they allocate applications among the occupations to which they continue to apply. We estimate the following specification:

$$Y_{isjt} = \beta_0 + \beta_1 P_{isj,t-1} + \beta_2 Z + \beta_3 P_{isj,t-1} \times Z + \rho L_{ist} + \gamma_{is} + \psi_j + \delta_{cym} + \varepsilon_{isjt}. \tag{3}$$

The dependent variable Y_{isjt} measures job seeker i's search activity in occupation j during week t of spell s. We consider two outcomes: (i) an indicator for whether an occupation j targeted in week $t-1$ is targeted again in week t, conditional on the job seeker submitting at least one application on the platform in week t (Continuation); and (ii) the share of week-t applications directed to occupation j (Application Share). Continuation captures the extensive margin of whether to continue searching in a previously targeted occupation, whereas Application Share captures the intensive margin of application allocation conditional on continuing to target that occupation. The indicator $P_{isj,t-1}$ equals one if at least one application submitted to occupation j in week $t-1$ receives a positive reply. The variable Z denotes a characteristic that varies across specifications. The baseline specification omits it and its interaction with positive feedback. We then consider three extensions. First, Z indicates whether occupation j differs from the job seeker's reference occupation, allowing us to examine whether the response to positive feedback differs between reference and non-reference occupations. Second, Z indicates whether the job seeker has never worked in occupation j, allowing us to examine heterogeneity by prior occupational experience. Third, Z indicates whether the job seeker received a positive reply from another occupation $j' \neq j$ in the preceding week, allowing us to examine how feedback from alternative occupations affects subsequent search toward occupation j. Across these specifications, β_1 captures the effect of positive feedback from occupation j on subsequent search toward that occupation, while β_3 captures how this relationship varies with the characteristic represented by Z. The specification includes individual-by-spell fixed effects γ_{is}, occupation fixed effects ψ_j, city-by-year-by-month fixed effects δ_{cym}, and a final-week indicator L_{ist}. We also estimate an analogous specification at the industry level.

Table 4: Positive Replies and Subsequent Search Behavior

	Continuation (1)	Application Share (2)
Panel A. Baseline		
Positive reply in $t-1$	0.180***	0.078***
	(0.004)	(0.004)
Observations	240,787	118,970
R^2	0.253	0.617
Panel B. Heterogeneity by Reference Occupation		
Positive reply in $t-1$	0.072***	0.037***
	(0.005)	(0.003)
Outside reference occupation	-0.396***	-0.183***
	(0.007)	(0.007)
Positive reply × Outside reference	0.078***	0.038***
	(0.004)	(0.003)
Observations	240,787	118,970
R^2	0.312	0.637
Panel C. Heterogeneity by Prior Occupational Experience		
Positive reply in $t-1$	0.091***	0.043***
	(0.005)	(0.003)
Never worked in occupation	-0.380***	-0.186***
	(0.006)	(0.008)
Positive reply × Never worked	0.050***	0.030***
	(0.005)	(0.004)
Observations	240,787	118,970
R^2	0.321	0.641
Panel D. Feedback from Other Occupations		
Positive reply in $t-1$	0.103***	0.040***
	(0.006)	(0.003)
Positive reply in another in $t-1$	-0.257***	-0.126***
	(0.005)	(0.008)
Positive reply × Positive another	0.082***	0.061***
	(0.004)	(0.004)
Observations	240,787	118,970
R^2	0.276	0.625

Notes: This table reports the effect of positive employer feedback received in week $t-1$ on subsequent search behavior in week t. Panel A reports the baseline specification. Panel B allows the relationship to differ between the reference occupation and other occupations. Panel C allows it to differ according to whether the job seeker has previously worked in the occupation. Panel D allows it to differ by whether there is also positive feedback in another occupation. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 4 shows a strong positive association between feedback from an occupation and subsequent search effort directed toward it. Panel A shows that receiving a positive reply from an occupation in week $t-1$ is associated with an 18.0 percentage point increase in the probability of continuing to apply to the occupation in week t, and a 7.8 percentage point increase in its share of applications. Thus, positive employer feedback predicts both continued search in that occupation and, among occupations that remain in the search portfolio, a larger share of applications directed toward that occupation.

Panels B and C show that job seekers respond more strongly to positive feedback in occupations with which they are less familiar. In panel B, job seekers are, on average, substantially less likely to apply to non-reference occupations, as indicated by the large negative coefficient on the non-reference indicator. Yet positive feedback disproportionately increases both the probability of continuing to search in these occupations and the share of applications directed toward them. The positive interaction indicates that the response to positive feedback is larger outside the reference occupation, by 7.8 percentage points for the probability of continuation and 3.8 percentage points for the application share. We find a similar pattern in Panel C when familiarity is measured by previous work experience. These results are consistent with a learning interpretation: feedback is more consequential when workers have less prior information about their prospects in a particular occupation. A favorable employer response may therefore reveal that a worker's skills are more valuable in an unfamiliar search direction than the worker initially perceived.

Panel D examines feedback from competing occupations. Conditional on receiving no positive reply from occupation j, positive feedback from another occupation is associated with a 25.7 percentage point lower probability of continuing to apply to j and a 12.6 percentage point lower share of subsequent applications directed toward j, relative to receiving no positive feedback from either occupation. These estimates indicate that the source of feedback matters. Positive feedback from one occupation is associated with a reallocation of search effort away from competing occupations and toward the occupation in which employers have expressed interest. This pattern is consistent with job seekers using employer responses to compare opportunities across occupations when deciding where to direct subsequent applications.

The interaction between positive replies to applications in occupation j and in other occupations sharpens this interpretation. When positive replies arrive from both j and at least one alternative occupation, the shift away from j is substantially attenuated. Relative to receiving no positive feedback, the combined coefficients imply a 7.2 percentage point decline in continuation and a 2.5 percentage point decline in its application share. When favorable signals arrive from several occupations, workers therefore spread their search effort more broadly rather than reallocating it decisively toward a single occupation. This is what one would expect

if employer feedback provides information about the relative attractiveness or accessibility of different search directions.

Table A.1 further controls for the numbers of applications to the same occupation and to other occupations in the previous week, and the results are barely changed. As shown in Table A.5, the corresponding estimates are positive for both unemployed and employed job seekers. Appendix Figure A.11 further examines heterogeneity by the within-week submission date of the first application that receives a positive reply. The coefficient on subsequent application share is larger when the application was submitted earlier in the week. This pattern is consistent with earlier feedback allowing job seekers more time to redirect their search.

Taken together, these findings are consistent with job seekers learning from employer feedback. A positive reply to an application in a given occupation is followed by greater search effort in that occupation, and this reallocation is strongest when workers have less prior experience in the occupation and therefore less precise information about their prospects. Conversely, favorable feedback from competing occupations draws search effort away from the focal occupation. These patterns suggest that employer responses help workers learn where their labor market prospects are stronger and progressively redirect applications accordingly.

4.3 Positive Reply Intensity

We next examine whether the intensity of employer feedback predicts how job seekers allocate their subsequent search effort across occupations. For job seeker i in spell s, let π_{isjt} denote the positive-reply rate for applications submitted to occupation j in week t, defined as the number of positive replies received from applications to occupation j divided by the number of applications submitted to that occupation. Because overall reply rates may differ substantially across job seekers and over time, we normalize this measure by the job seeker's average positive-reply rate across occupations in the same week:

$$\hat{\pi}_{isjt} = \frac{\pi_{isjt}}{\frac{1}{N_{ist}} \sum_k \pi_{iskt}},$$

where N_{ist} denotes the number of occupations to which job seeker i applies in week t. Thus, $\hat{\pi}_{isjt}$ measures the positive-reply rate from occupation j relative to the positive feedback the same job seeker receives from all targeted occupations in that week. A value above one indicates that occupation j generates a higher positive-reply rate than the job seeker's contemporaneous average. Because the normalized measure is undefined when the average rate is zero, we exclude weeks in which no occupation receives positive feedback.

We study the effect of this relative feedback measure on search behavior in the following week

using

$$Y_{isjt} = \beta_0 + \beta_1 \hat{\pi}_{isj,t-1} + \beta_2 Z + \beta_3 \hat{\pi}_{isj,t-1} \times Z + \rho L_{ist} + \gamma_{is} + \psi_j + \delta_{cym} + \varepsilon_{isjt}. \tag{4}$$

Here, Y_{isjt} denotes Continuation or Application Share for occupation j in week t, as defined in the previous subsection. The baseline specification omits Z_{isjt} and its interaction term. In the heterogeneity specifications, Z_{isjt} is defined in two alternative ways: as an indicator that occupation j differs from the job seeker's reference occupation, or as an indicator that the job seeker has no prior work experience in occupation j. The coefficient β_1 captures the effect of relative positive feedback on subsequent search, while β_3 captures the differential effect for occupations outside the job seeker's reference occupation or, in the alternative specification, for occupations in which the job seeker has no prior work experience. We use the same fixed effects as in the preceding specifications and cluster standard errors at the city level.

The results in Table 5 show that job seekers subsequently allocate more search effort toward occupations from which they receive relatively favorable feedback. A one-unit increase in $\hat{\pi}_{isj,t-1}$ is associated with a 2.8 percentage point increase in the probability of continuing to apply to occupation j, and a 1.9 percentage point increase in its application share. Because $\hat{\pi}_{isj,t-1}$ is normalized by the job seeker's contemporaneous average across occupations, these estimates capture responses to the relative strength of employer feedback across alternative search directions rather than simply to a worker's overall success in obtaining replies.

The heterogeneity results provide further support for this interpretation. Panels B and C show that relatively favorable feedback is associated with a larger reallocation of search effort toward occupations outside the worker's reference occupation and occupations in which the worker has no prior experience. For continuation, the interactions with both indicators are positive and statistically significant. For application share, the estimates are directionally similar, although the interaction is statistically significant only for occupations outside the worker's reference occupation.

These patterns are consistent with job seekers using employer feedback to learn which occupations offer them better prospects. Workers may initially have imperfect information about the occupations in which their skills are most valued. Differences in positive-reply rates across occupations provide information about relative employer demand for those skills. Job seekers subsequently shift their search toward occupations that generate more favorable feedback, with some evidence that this response is stronger in less familiar search directions, where prior information is likely to be more limited.

Although the relative positive-reply rate provides a theoretically natural summary of the strength of favorable feedback across occupations, we also consider a simpler measure using

Table 5: Relative Positive-Reply Rates and Subsequent Search Behavior

	Continuation (1)	Application Share (2)
Panel A. Baseline		
Relative positive reply rate in $t-1$	0.028***	0.019***
	(0.001)	(0.001)
Observations	195,468	90,967
R^2	0.225	0.598
Panel B. Heterogeneity by Reference Occupation		
Relative positive reply rate in $t-1$	0.004**	0.010***
	(0.002)	(0.001)
Outside reference occupation	-0.392***	-0.172***
	(0.009)	(0.007)
Positive reply rate × Outside reference	0.015***	0.004**
	(0.002)	(0.002)
Observations	195,468	90,967
R^2	0.291	0.623
Panel C. Heterogeneity by Prior Occupational Experience		
Relative positive reply rate in $t-1$	0.011***	0.012***
	(0.002)	(0.001)
Never worked in occupation	-0.379***	-0.177***
	(0.008)	(0.009)
Positive reply rate × Never worked	0.006***	0.001
	(0.002)	(0.001)
Observations	195,468	90,967
R^2	0.302	0.627

Notes: This table reports the effect of the relative positive-reply rate in week $t-1$ on subsequent search behavior in week t. Panel A reports the baseline specification. Panel B allows the relationship to differ between the reference occupation and other occupations. Panel C allows it to differ according to whether the job seeker has previously worked in the occupation. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

the log number of positive replies from a given occupation in the previous week. Table A.2 reports the results, which exhibit a similar pattern. A higher number of positive replies from an occupation predicts a greater probability of continuing to search in that occupation, and a larger share of subsequent applications directed toward it. Under the log specification, a one-percent increase in the number of positive replies is associated with a 0.207 percentage point increase in continuation and a 0.077 percentage point increase in application share.

4.4 Positive Replies from High-Wage Vacancies

The preceding results are consistent with job seekers using employer feedback to learn about their relative prospects across occupations. We next provide further evidence for this interpretation by exploiting variation in the quality of the vacancies generating positive replies. If a positive reply conveys information about a worker's prospects in an occupation, a reply from a more attractive vacancy should provide a stronger signal. We therefore examine whether positive replies from high-paying vacancies are associated with greater subsequent targeting of the corresponding occupation.

We measure the strength of this signal using the posted wage of the vacancy generating the positive reply. For each job seeker, we observe an expected salary reported in their job preferences, which remains fixed over the search period. We classify a positive reply as a high-wage positive reply if it comes from a vacancy whose posted wage exceeds the job seeker's expected salary. Such a reply is potentially more informative than a positive reply from a lower-wage vacancy: it indicates not only that an employer in the occupation is interested in the worker, but also that this interest comes from a job that satisfies the worker's stated wage target. Under a learning interpretation, this should provide a stronger signal that the worker's skills are valued in that occupation and therefore induce a larger reallocation of subsequent search toward it.

We test this prediction using the following specification:

$$\begin{aligned} Y_{isjt} = \beta_0 + \beta_1 P_{isj,t-1} + \beta_2 H_{isj,t-1} + \beta_3 Z + \beta_4 P_{isj,t-1} \times Z + \beta_5 H_{isj,t-1} \times Z \\ + \rho L_{ist} + \gamma_{is} + \psi_j + \delta_{cym} + \varepsilon_{isjt}. \end{aligned}$$

Here $P_{isj,t-1}$ indicates that job seeker i received at least one positive reply from occupation j in week $t-1$, and $H_{isj,t-1}$ indicates that at least one such reply came from a vacancy whose posted wage exceeds the job seeker's expected salary. Because $H_{isj,t-1} = 1$ only when a positive reply is received, β_1 captures the relationship associated with a positive reply from a lower-wage vacancy, while β_2 captures the additional relationship associated with a high-wage positive reply. As in the previous subsection, Y_{isjt} denotes Continuation or Application Share toward

occupation j in week t. The variable Z captures prior familiarity with the occupation and varies across specifications. We consider whether occupation j lies outside the job seeker's reference occupation and, separately, whether the job seeker has never previously worked in occupation j. The interactions allow both the response to a positive reply and the incremental response to a high-wage positive reply to vary with prior familiarity.

The estimates in Table 6 show that positive feedback from higher-wage vacancies is followed by substantially larger changes in search behavior. In the baseline specification, a positive reply from a vacancy below the job seeker's expected salary is associated with a 12.7 percentage point increase in the probability of continuing to search in the occupation, and a 5.1 percentage point increase in application share. A high-wage positive reply generates an additional increase of 8.6 percentage points in continuation, and 4.3 percentage points in application share. Thus, relative to receiving no positive feedback, a positive reply from a high-wage vacancy is associated with a 21.3 percentage point increase in the probability of continuation, and a 9.4 percentage point increase in application share.

The heterogeneity patterns reinforce this interpretation. Panel B shows that the incremental response to a high-wage positive reply is stronger for occupations outside the job seeker's reference occupation in both continuation and application share. Panel C shows that a similar pattern appears when unfamiliarity is measured by the absence of prior work experience in the occupation. These results are consistent with more favorable feedback being particularly informative in search directions about which workers initially have less information.

Table A.3 reports the analogous specification using the log number of high-wage positive replies rather than an indicator for receiving at least one such reply and yields the same conclusion. Table A.6 shows that the stronger response to high-wage positive replies is present among both unemployed and employed job seekers, indicating that the result is not driven by either type of search.

5 Conclusion

This paper uses high-frequency application data from a major online job platform in China to study how the direction of job search evolves within a spell and responds to employer feedback. By tracing the evolution of application strategies and linking it to employer responses, our analysis opens part of the black box of the matching process and highlights the value of employer feedback in shaping the direction of search. We document a systematic transition from broad exploration to targeted application. As a spell progresses, job seekers apply across fewer occupations, industries, and locations, and increasingly concentrate their applications in the categories that emerge as their primary targets. Meanwhile, their positive-reply rate rises

Table 6: Positive Replies from High-Wage Vacancies and Subsequent Search Behavior

	Continuation (1)	Application Share (2)
Panel A. Baseline		
Positive reply in $t-1$	0.127***	0.051***
	(0.004)	(0.003)
High-wage positive reply in $t-1$	0.086***	0.043***
	(0.003)	(0.003)
Observations	240,769	118,964
R^2	0.256	0.618
Panel B. Heterogeneity by Reference Occupation		
Positive reply in $t-1$	0.042***	0.024***
	(0.006)	(0.004)
High-wage positive reply in $t-1$	0.049***	0.022***
	(0.005)	(0.004)
Outside reference occupation	-0.394***	-0.182***
	(0.007)	(0.007)
Positive reply × Outside reference	0.063***	0.022***
	(0.006)	(0.005)
High-wage positive reply × Outside reference	0.025***	0.025***
	(0.006)	(0.005)
Observations	240,769	118,964
R^2	0.313	0.638
Panel C. Heterogeneity by Prior Occupational Experience		
Positive reply in $t-1$	0.061***	0.028***
	(0.006)	(0.004)
High-wage positive reply in $t-1$	0.049***	0.026***
	(0.004)	(0.003)
Never worked in occupation	-0.378***	-0.185***
	(0.006)	(0.008)
Positive reply × Never worked	0.036***	0.017***
	(0.006)	(0.005)
High-wage positive reply × Never worked	0.025***	0.020***
	(0.005)	(0.005)
Observations	240,769	118,964
R^2	0.323	0.642

Notes: This table reports the effect of positive replies from high-wage vacancies in week $t-1$ on subsequent search behavior in week t. Panel A reports the baseline specification. Panel B allows the relationship to differ between the reference occupation and other occupations. Panel C allows it to differ according to whether the job seeker has previously worked in the occupation. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

even as overall application intensity declines.

Employer feedback is closely associated with this reallocation of search effort. Following a positive reply from an occupation, job seekers are more likely to continue applying to that occupation and devote a larger share of subsequent applications to it. Positive feedback from competing occupations, by contrast, redirects search effort away. Workers thus respond to the source of feedback, not simply to overall search success. These responses are stronger in occupations outside the worker's prior experience and when the reply comes from a vacancy whose posted wage exceeds the worker's expected salary. Taken together, the evidence is consistent with workers using employer responses to learn where they are likely to succeed and where the returns to search are highest, and gradually redirecting effort toward those submarkets.

These results point to an adaptive view of job search. Rather than entering a spell with a fixed search direction, workers experiment across submarkets, receive signals about employer demand for their skills, and reallocate applications as information accumulates. Job search therefore involves not only locating vacancies within a market, but also learning which markets are worth pursuing. This perspective calls for models in which applications generate information about workers' comparative advantage or labor market conditions across occupations and in which the direction of search is an endogenous, dynamic choice. Such a framework could build on models where workers learn about their employment prospects from search outcomes (Gonzalez and Shi, 2010) and update their expectations in response to realized offers (Conlon et al., 2018). It could then quantify how information frictions prolong search and contribute to occupational misallocation (Guvenen et al., 2020).

This perspective also has implications for the design of online job platforms and for policy debates over employer nonresponse. Our findings point to a potential benefit for feedback provision: timely, market-specific signals may help job seekers redirect applications toward more promising search directions. Online platforms could provide such signals through standardized status updates or incorporate information revealed during search into their recommendation systems (Horton, 2017). By helping workers identify promising opportunities more quickly, these features could improve the allocation of search effort and reduce unproductive experimentation. At the same time, mandating feedback might impose compliance costs, generate uninformative boilerplate responses, or alter employers' recruiting behavior. The optimal design of employer-feedback mechanisms therefore remains an important question for future research.

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APPENDICES FOR ONLINE PUBLICATION

I Data Details

This appendix describes the construction of employment histories, application-level employment status, and the reference jobs used in the analysis. These measures are constructed from dated work histories reported in job seekers' resumes.

I.1 Resume Histories

A work-history record is retained if it has a valid job-seeker identifier, a nonmissing experience order, a start date, and information for at least one of the following fields: industry, occupation, or salary. We exclude records whose end date precedes the start date and records with implausible end dates. A missing end date is treated as indicating an open-ended employment interval. Because retained employment histories must be chronologically coherent and nonoverlapping, an open-ended interval can be retained only as the job seeker's latest job. An earlier open-ended interval followed by a later job would create an overlap and is therefore excluded from the sample.

When an ID×experience-order cell contains multiple records, we retain one record according to a deterministic ranking. We first rank records by the number of nonmissing fields among industry, occupation, and salary. Ties are broken by the availability of salary, occupation, and industry information, in that order, followed by salary values, job dates, and the original row order. The resulting ID×experience-order cells are unique. We further require retained employment intervals across experience orders not to overlap. Applications submitted by job seekers without an admissible matched resume history are excluded from the application–resume panel.

We represent a conventional job record as the half-open interval

$$[\text{Job Start Date}, \text{Job End Date}).$$

A worker is therefore employed in a job on its recorded start date but not on its recorded end date. Records with identical start and end dates are retained as evidence of a same-day employment event, but they are not assigned an artificial positive duration. A search spell containing such an event is classified as having unstable reference information and is excluded from the stable-status sample.

Monthly salary ranges are parsed into lower and upper bounds. For a range such as RMB

6,000–8,000, we record the two endpoints directly. For open-ended ranges, "RMB 6,000 or below" is assigned a lower bound of RMB 1 and an upper bound of RMB 6,000, while "RMB 6,000 or above" is assigned a lower bound of RMB 6,000 and a missing upper bound.

I.2 Application-Level Status and the Reference Job

For each application date, we compare the date with every admissible employment interval in the job seeker's resume. An application is classified as employed if its date falls within a retained employment interval and unemployed if it falls within none. The nonoverlap requirement ensures that an application date cannot be covered by multiple jobs.

The application-level reference job depends on the job seeker's employment status. For an employed searcher, the reference job is the job held on the application date. For an unemployed searcher, it is the most recent identifiable job that began before the application date. If no such job is observed, the application remains in the panel, but its reference-job characteristics are coded missing. Missing reference-job information therefore does not by itself exclude a job seeker from analyses that do not use these characteristics.

Application-level regressions use reference-job characteristics matched to each application date. Under the stable-status definition, the reference job remains constant throughout every spell in the main sample. For a stable-unemployed searcher, it is the most recent identifiable job preceding the first application in the spell. For a stable-employed searcher, it is the single job held throughout the spell. We use the term "reference job" rather than "previous job" because it refers to a previous job only for unemployed searchers but a current job for employed searchers.

I.3 Search Spells and Stable Employment Status

Applications are ordered within each searcher–year. A new search spell begins when an application follows more than 35 days without observed application activity. The observed spell extends from its first application date through its last application date. The main descriptive statistics use all retained spells to characterize search behavior and each job seeker's earliest retained spell to characterize job seeker attributes.

Employment status is classified over the complete observed spell rather than separately at each application date. A spell is classified as stable unemployed if no positive-duration employment interval overlaps the spell and no same-day employment event occurs within it. A spell is classified as stable employed if exactly one employment interval covers the entire spell, no second job overlaps it, and no same-day employment event occurs within it. All remaining spells are classified as mixed-status spells or as having an unstable reference job. This residual

category includes spells involving employment entry or exit, a change of employer, multiple overlapping reference jobs, a job covering only part of the spell, and a same-day employment event.

The pooled sample contains 101,704 job seekers with stable employment status. Of these, 42,329 are stable unemployed and 59,375 are stable employed. Stable-unemployed searchers therefore account for 41.62% of the pooled sample. Mixed-status spells and spells with unstable reference-job information are excluded.

I.4 Construction of Variables

Demographic, education, experience, expected-salary, and reference-job variables are measured once using the first identified spell. Age is not reported for 2020 because birth-year information is unavailable for that year. Reference-job salary is measured using the lower and upper monthly salary bounds. Expected salary is taken from the job seeker's reported expected monthly salary range.

Measures of search intensity and scope are constructed within each retained spell and then averaged across spells. Spell length is the number of calendar days from the first through the last application, inclusive. Applications per active week equal the total number of applications divided by the number of spell weeks containing at least one application. Search scope is measured by the number of distinct occupations, industries, and cities represented among the spell's applications. An application is classified as outside the reference occupation or industry when the corresponding field in the job posting differs from that of the reference job. The top-occupation and top-industry shares are the fractions of applications directed to the most frequently targeted occupation and industry, respectively. Salary-comparison indicators compare the lower bounds of posted salaries with the corresponding bounds of the job seeker's expected salary or reference-job salary.

For the descriptive statistics in Table 3, the employer reply and positive-reply rates are calculated as the fractions of applications within a spell receiving a reply and a positive reply, respectively. Reply outcomes are reported for 2021–2024, the years for which employer-response information is available.

I.5 Industry and Occupation Classification

Zhaopin employs proprietary taxonomies designed for its online recruitment platform, rather than China's official occupation and industry classifications. Their primary purpose is to facilitate matching between job seekers and employers. Occupation categories are constructed

and continuously refined based on the content of job postings. Zhaopin analyzes newly posted vacancies and groups vacancies with similar job responsibilities into occupation categories using its internal classification algorithms. As labor demand evolves and new types of jobs emerge, the categories are periodically updated to reflect changes in employers' hiring practices. The resulting occupation taxonomy is therefore more granular and responsive to labor-market developments than conventional occupational classifications.

For example, China's National Occupational Classification places workers engaged in producing cakes, bread, biscuits, and other baked goods in the broad category of Bakery Food Production Workers. Within this category, only a few occupations such as Pastry and Bread Baker and Pastry Decorator are recognized separately. Zhaopin instead distinguishes among more specialized recruitment categories, including Cake Decorator, Chinese Pastry Chef, Baker, Dessert Chef, and Western Pastry Chef, among others. These finer distinctions reflect differences in job responsibilities and specialized labor demand that are relevant to recruitment but are not captured by the administrative classification.

The industry taxonomy follows a similar logic. Industries are organized to facilitate recruitment and job search and therefore reflect how firms and job seekers distinguish labor-market segments in practice. Because industry and occupation taxonomies differ in their level of aggregation, their absolute category counts are not directly comparable. For example, an apparent difference between the numbers of industries and occupations targeted may partly reflect differences in classification granularity rather than differences in search behavior. We therefore examine how the breadth and concentration of search evolve over time within each dimension, rather than comparing their absolute levels across industries and occupations.

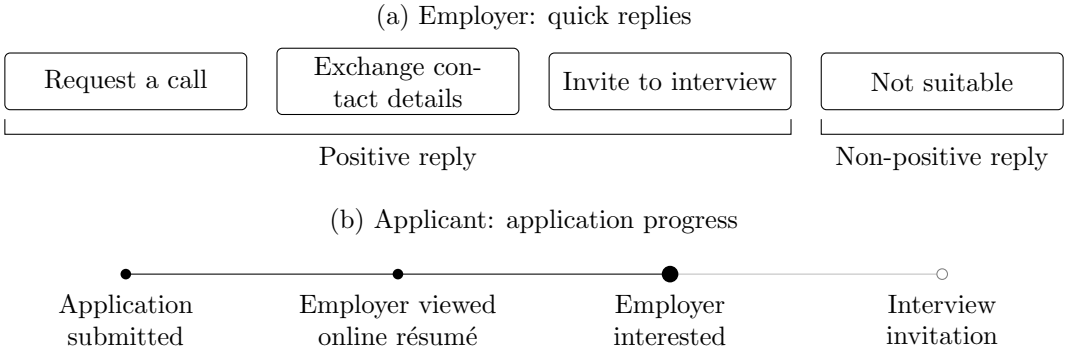
I.6 Employer Feedback and Application Progress

Employers can express interest and initiate further contact through standardized response buttons, without writing a separate message. Panel (a) of Figure A.1 shows four quick-action buttons: *Request a call*, *Exchange contact details*, *Invite to interview*, and *Not suitable*. The first three are classified as positive replies, while the fourth is classified as a non-positive reply. Employers can also send messages directly to applicants. The full set of actions included in the positive-reply measure is reported in Table 1.

Panel (b) of Figure A.1 illustrates the application-progress display visible to applicants, which includes the statuses *Submitted*, *Viewed*, *Interested*, and *Interview invitation*. The *Viewed* status indicates that the employer has opened the applicant's online résumé. The *Interested* status conveys preliminary employer interest in the application, while an interview invitation is displayed as a separate status. These updates allow applicants to observe employer interest

and interview invitations even when employers do not send a direct message. Applicants are also informed when an employer marks them as unsuitable.

Figure A.1: Employer Replies and Application Progress

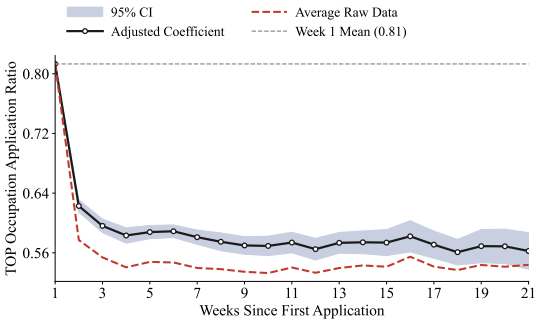


II Additional Results

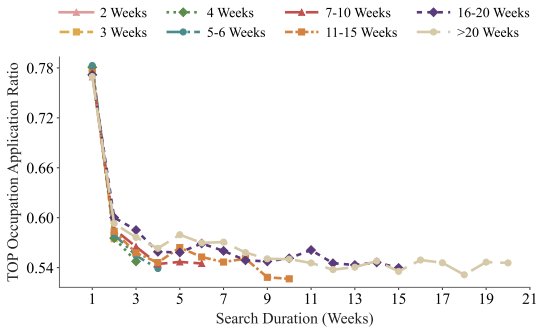
II.1 Search Behavior over the Spell

Figure A.2: Application Shares to First-Week Top Categories over the Spell

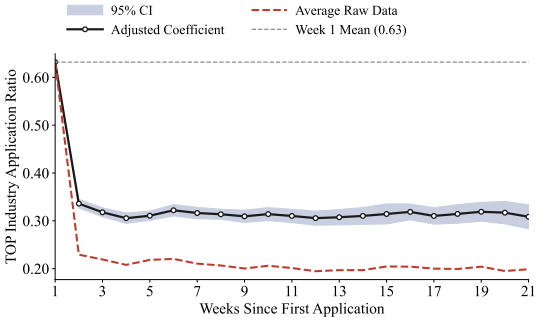
(a) First Occupation Share: Regression Adjusted



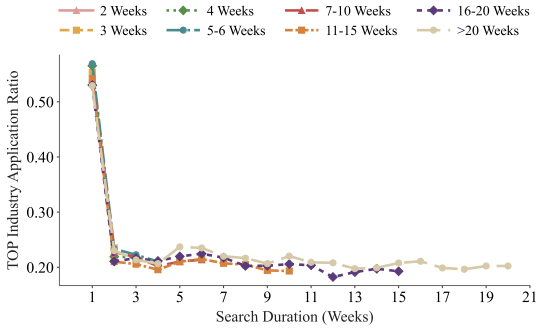
(b) First Occupation Share: Raw Average



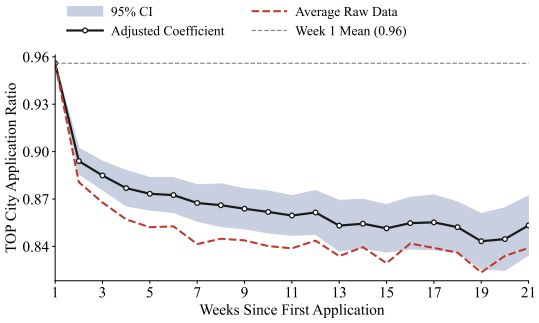
(c) First Industry Share: Regression Adjusted



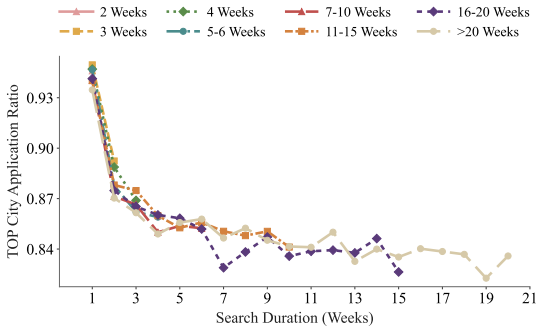
(d) First Industry Share: Raw Average



(e) First City Share: Regression Adjusted

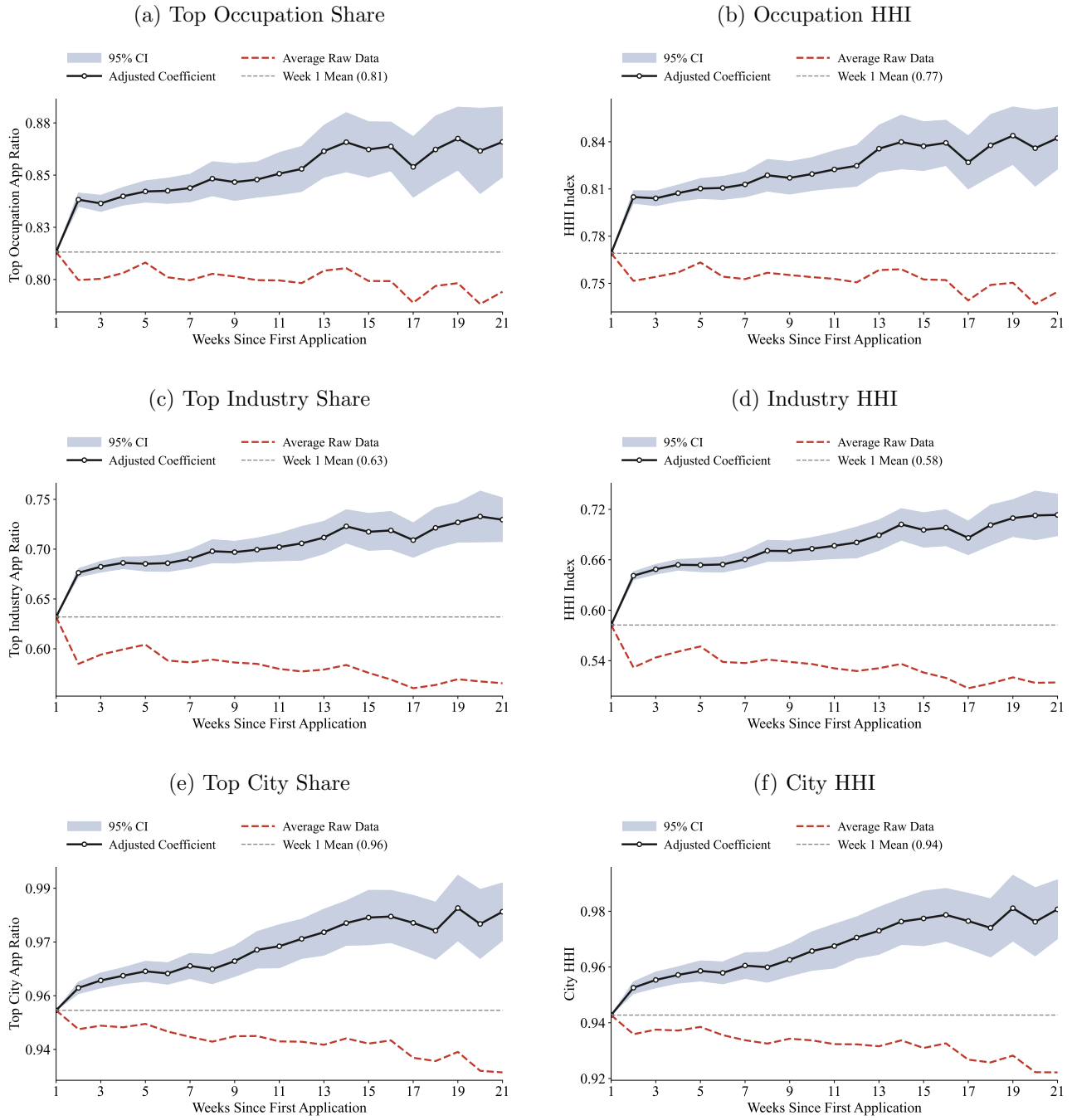


(f) First City Share: Raw Average



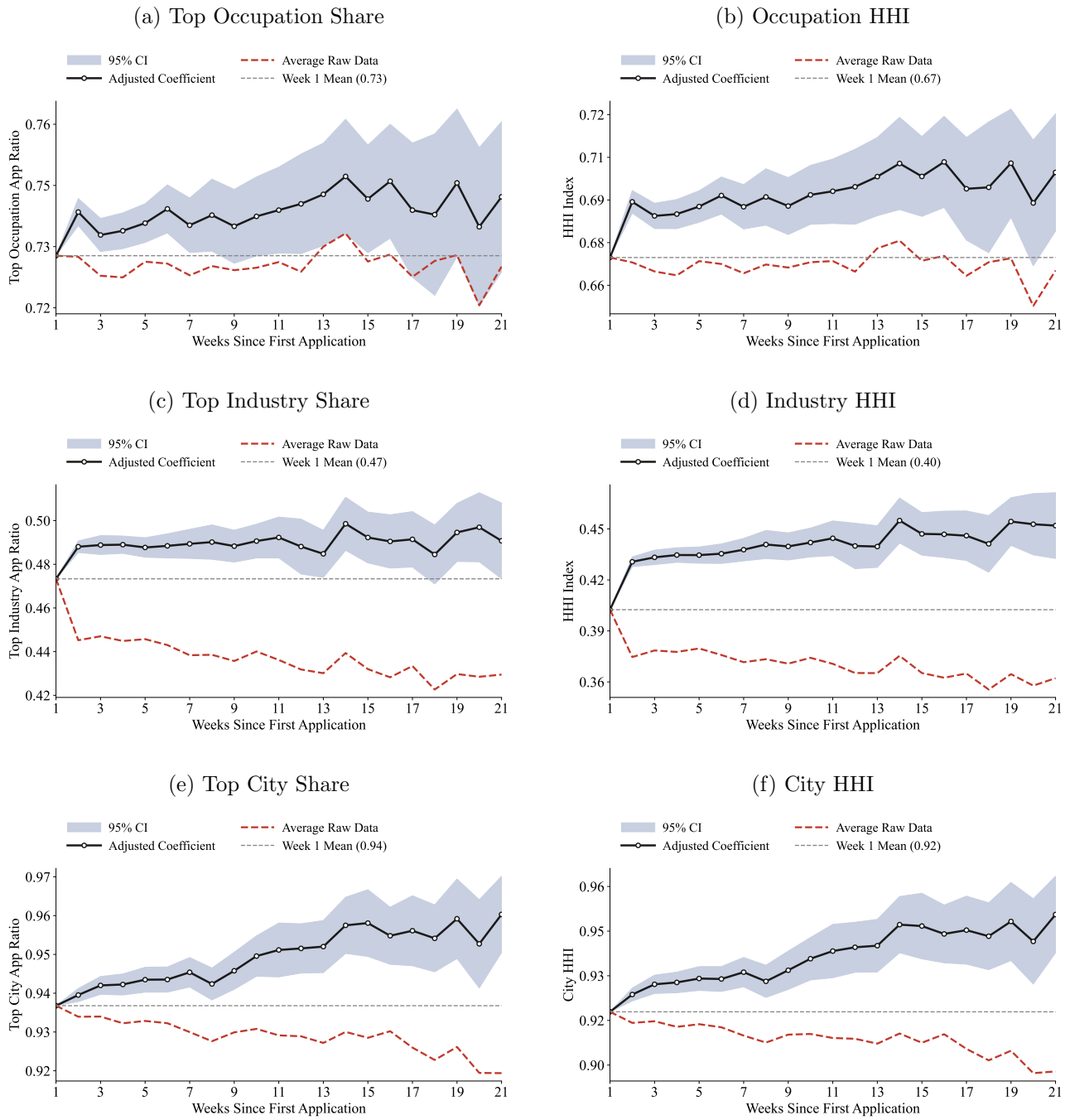
Notes: This figure tracks the occupation, industry, and city receiving the most applications in the first week of each search spell and reports the share of applications subsequently directed to that fixed category. Panels (a), (c), and (e) show regression-adjusted profiles estimated from Equation (1); the black lines with circles show adjusted levels, the red dashed lines show the corresponding raw averages, and shaded areas denote 95% confidence intervals based on city-clustered standard errors. Panels (b), (d), and (f) report raw application shares separately by completed spell length.

Figure A.3: Alternative Measures of Application Concentration



Notes: This figure reports alternative measures of application concentration over the search spell. Panels (a), (c), and (e) show the share of applications directed to the most frequently targeted occupation, industry, and city, respectively. Panels (b), (d), and (f) report the corresponding Herfindahl–Hirschman indices, defined as the sum of squared application shares across occupations and industries. All panels show regression-adjusted profiles estimated from Equation (1); shaded areas denote 95% confidence intervals based on city-clustered standard errors.

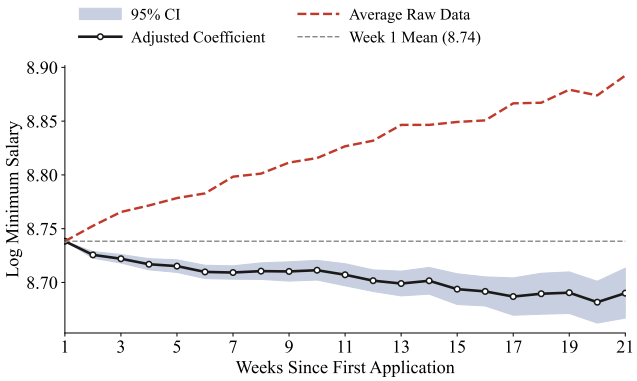
Figure A.4: Alternative Measures of Application Concentration for No-single Application



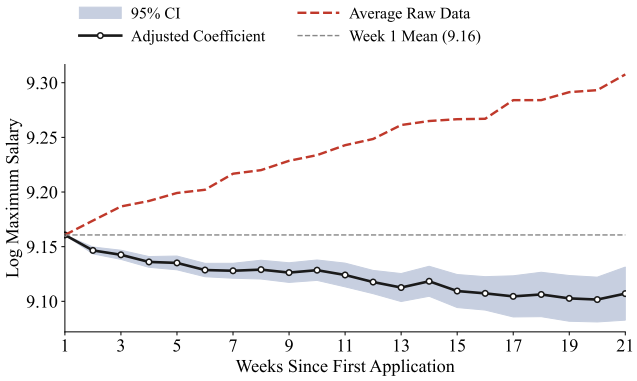
Notes: This figure reports alternative measures of application concentration over the search spell, where weeks with only one application are dropped. Panels (a), (c), and (e) show the share of applications directed to the most frequently targeted occupation, industry, and city, respectively. Panels (b), (d), and (f) report the corresponding Herfindahl–Hirschman indices. All panels show regression-adjusted profiles estimated from Equation (1); shaded areas denote 95% confidence intervals based on city-clustered standard errors.

Figure A.5: Characteristics of Applied-To Jobs over the Spell

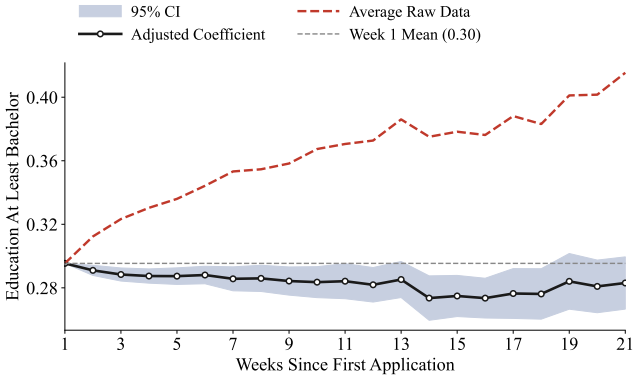
(a) Posted Wage: Lower Bound



(b) Posted Wage: Upper Bound

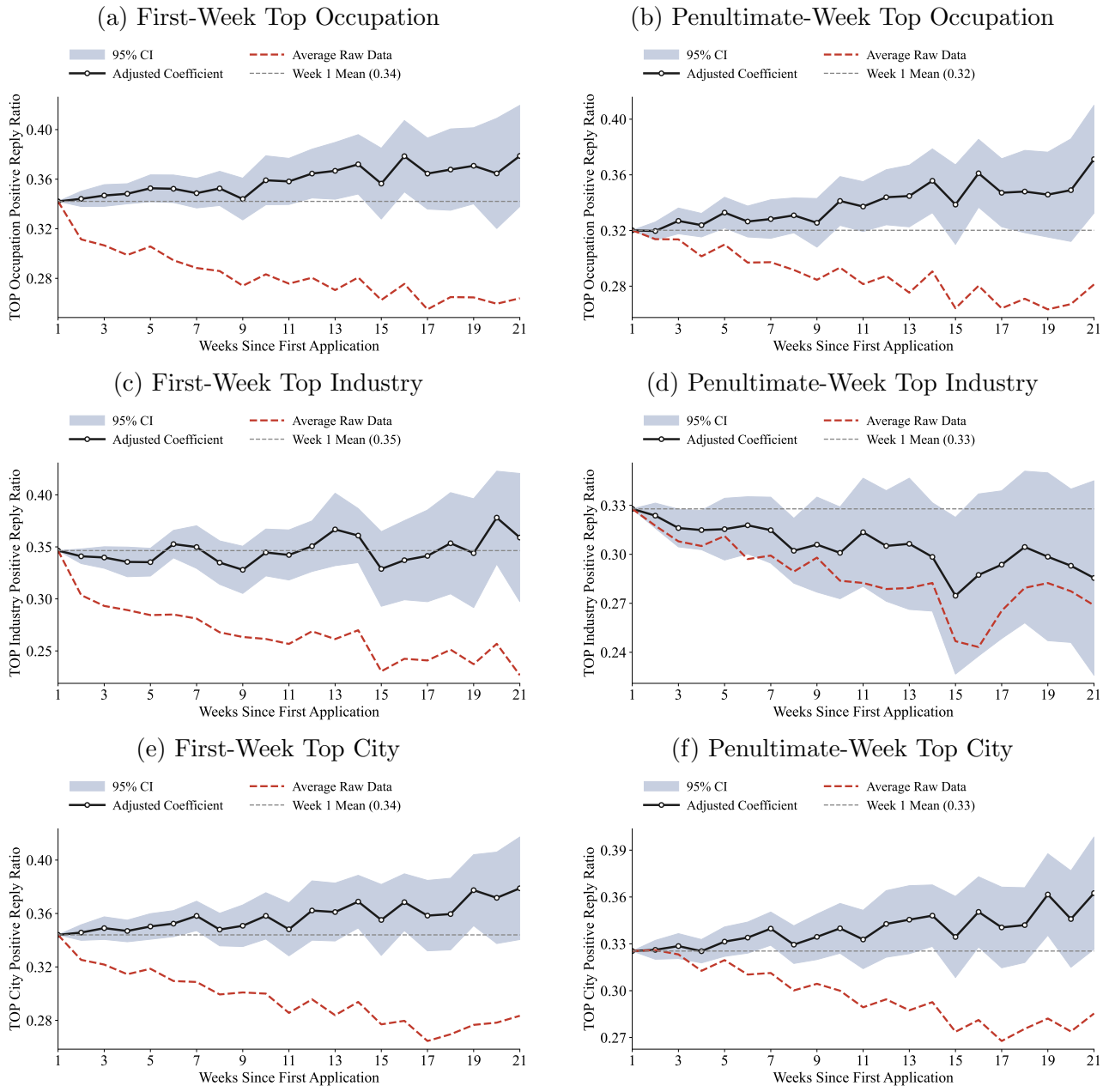


(c) Education Requirement



Notes: This figure reports characteristics of jobs to which job seekers apply over the search spell. Panels (a) and (b) report the logs of the weekly mean lower and upper bounds of posted wages, respectively. Panel (c) reports the education requirement of applied-to jobs. All panels show regression-adjusted profiles estimated from Equation (1); shaded areas denote 95% confidence intervals based on city-clustered standard errors.

Figure A.6: Positive-Reply Rates within Initially and Eventually Targeted Categories

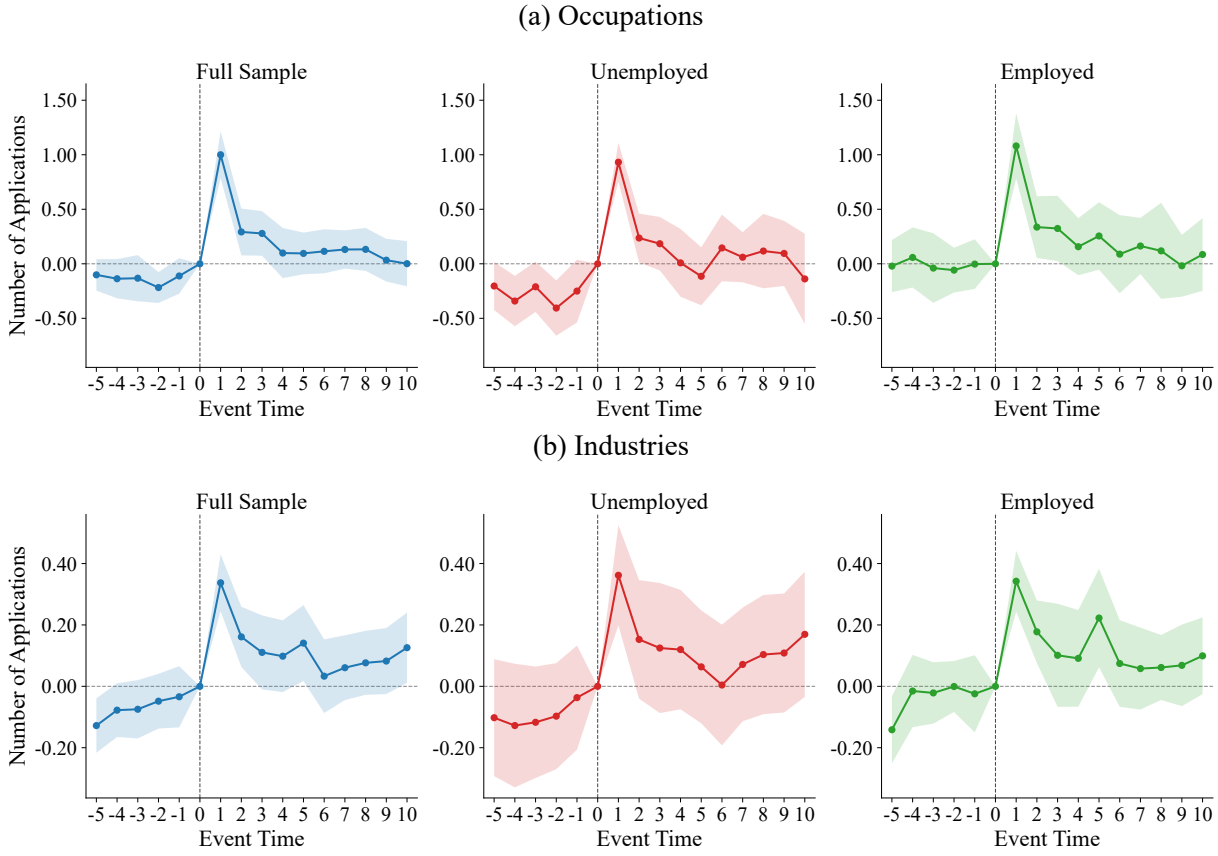


Notes: This figure tracks the occupation, industry, and city receiving the most applications in the first week and the penultimate week of each search spell and reports the positive-reply rate in that category. The black lines with circles show adjusted levels and the shaded areas denote 95% confidence intervals. The red dashed lines show the corresponding raw averages.

II.2 First Positive Reply

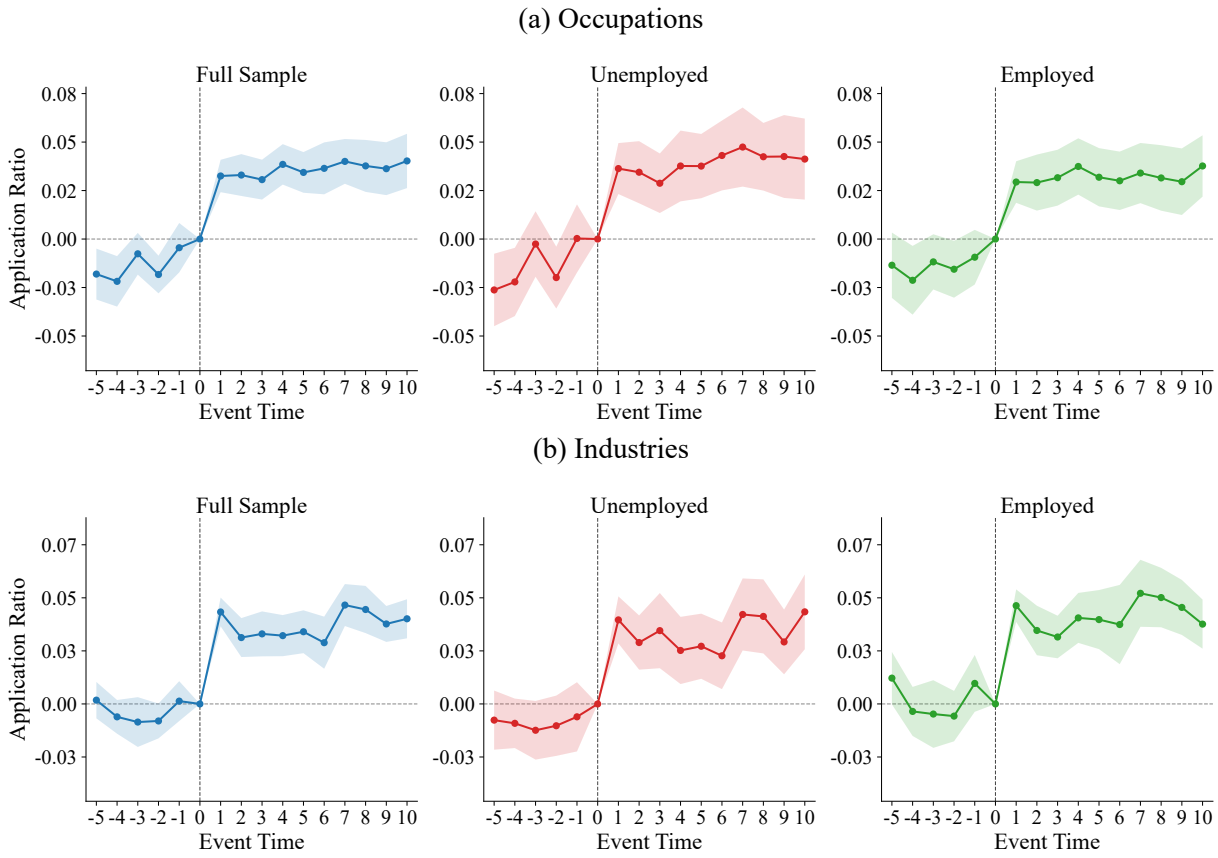
This subsection supplements the event-study analysis around the first positive reply. We first report application-count estimates, then examine alternative sample restrictions and controls, and finally display the application-share estimates over an extended event window.

Figure A.7: Application Counts around the First Positive Reply



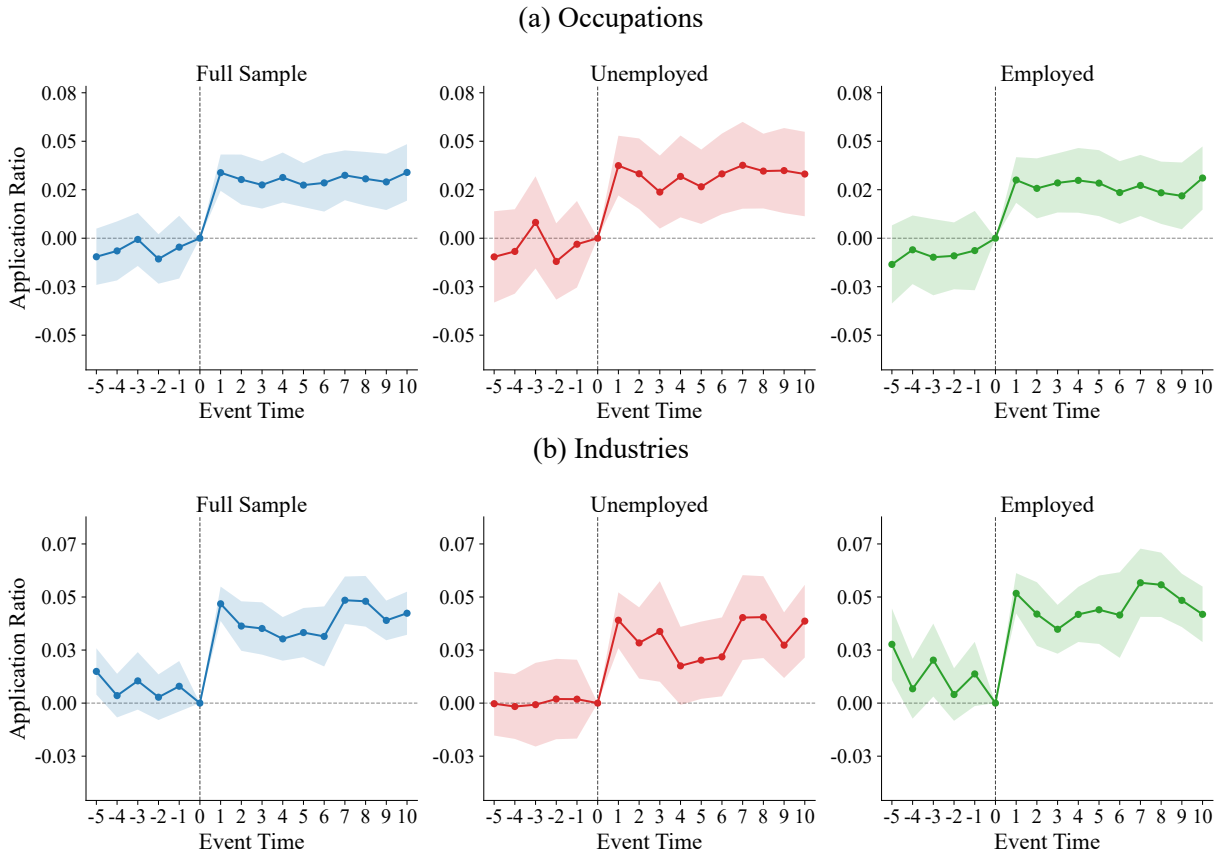
Notes: This figure reports event-study estimates of the number of applications directed to a given occupation or industry around the time when the job seeker receives the first positive reply from an application in that category.

Figure A.8: Application Shares without the Five-Day Post-Reply Restriction



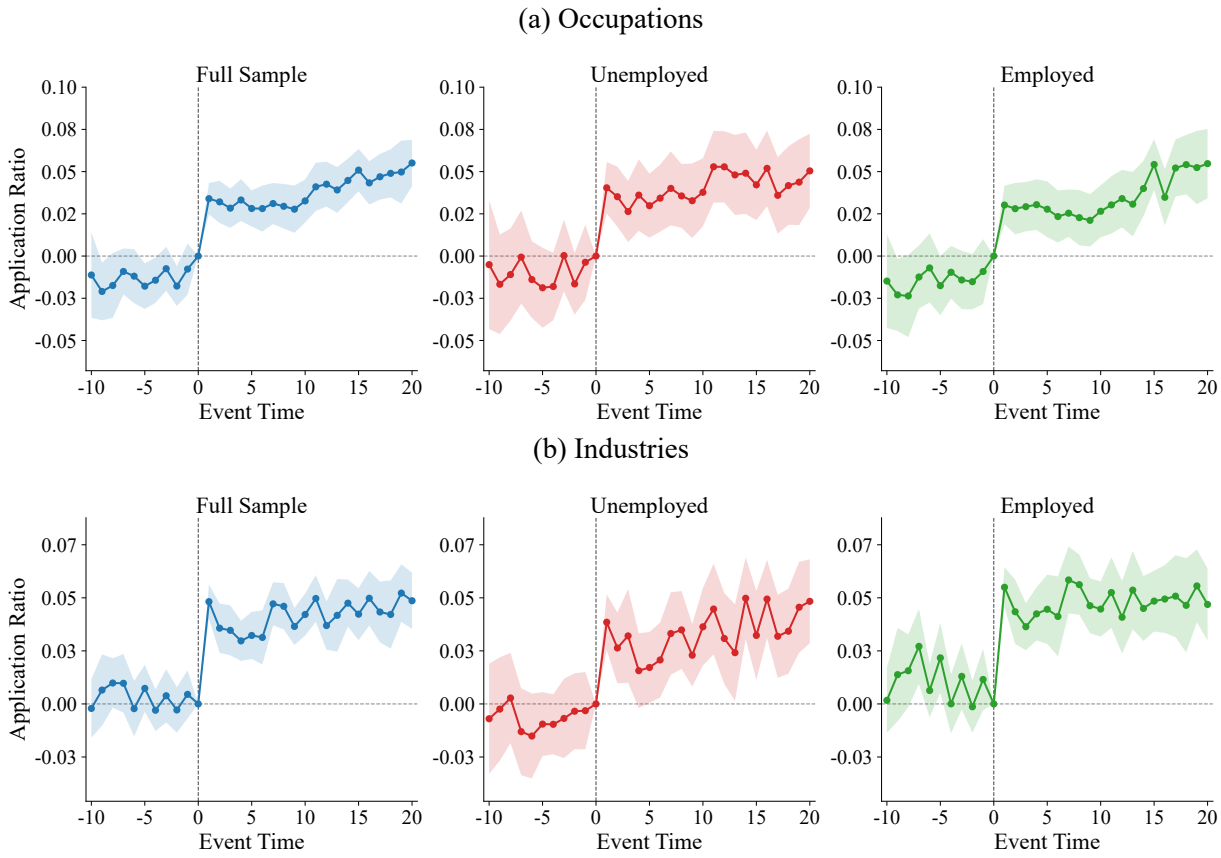
Notes: This figure reports event-study estimates of application shares without requiring at least five days between the first positive reply and the last application to the same occupation or industry. All other baseline restrictions and controls are retained.

Figure A.9: Application Shares Controlling for Prior Applications



Notes: This figure reports event-study estimates of application shares with an additional control for cumulative prior applications to the same occupation or industry. The count excludes current-day applications and is held fixed from $k = 0$ onward.

Figure A.10: Application Shares over an Extended Event Window



Notes: This figure reports event-study estimates of application shares using an extended estimation window of $k = -13, \ldots, 29$. The figure displays $k = -10, \ldots, 20$; the baseline sample restrictions and controls are retained.

II.3 Weekly Feedback Regressions

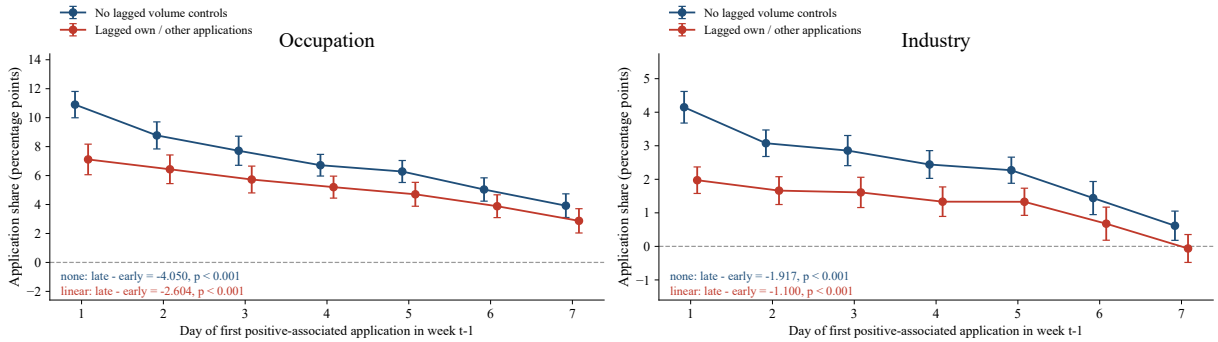
This subsection presents additional results from the weekly feedback regressions.

Table A.1: Positive Replies and Subsequent Search Behavior

	Continuation (1)	Application Share (2)
Panel A. Baseline		
Positive reply in $t-1$	0.134***	0.054***
	(0.006)	(0.004)
Observations	240,787	118,970
R^2	0.288	0.645
Panel B. Heterogeneity by Reference Occupation		
Positive reply in $t-1$	0.023***	0.015***
	(0.008)	(0.004)
Outside reference occupation	-0.369***	-0.161***
	(0.006)	(0.005)
Positive reply × Outside reference	0.100***	0.044***
	(0.005)	(0.004)
Observations	240,787	118,970
R^2	0.333	0.660
Panel C. Heterogeneity by Prior Occupational Experience		
Positive reply in $t-1$	0.047***	0.023***
	(0.008)	(0.004)
Never worked in occupation	-0.354***	-0.163***
	(0.005)	(0.006)
Positive reply × Never worked	0.071***	0.036***
	(0.005)	(0.004)
Observations	240,787	118,970
R^2	0.341	0.662
Panel D. Feedback from Other Occupations		
Positive reply in $t-1$	0.072***	0.027***
	(0.006)	(0.004)
Positive reply in another in $t-1$	-0.224***	-0.100***
	(0.006)	(0.006)
Positive reply × Positive another	0.066***	0.043***
	(0.004)	(0.004)
Observations	240,787	118,970
R^2	0.305	0.651

Notes: This table reports the effect of positive employer feedback received in week $t-1$ on subsequent search behavior in week t, with additionally controlling for the numbers of applications to the same occupation and other occupations in the preceding week. Panel A reports the baseline specification. Panel B allows the relationship to differ between the reference occupation and other occupations. Panel C allows it to differ according to whether the job seeker has previously worked in the occupation. Panel D allows it to differ by whether there is also positive feedback in another occupation. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Figure A.11: Positive Replies and Subsequent Search Behavior: Within-Week Timing



Notes: This figure relates the within-week timing of applications receiving positive replies in week $t-1$ to application shares in week t. The left and right panels report occupation- and industry-level estimates, respectively. Days 1–7 identify the application date of the earliest application recorded as receiving a positive reply within each job seeker–spell–category–week. They refer to the relative search week, not calendar weekdays or exact reply-receipt dates. The omitted group has no recorded positive reply in week $t-1$. Blue estimates omit lagged application-volume controls; red estimates additionally control for the numbers of applications to the focal and other categories in week $t-1$. Both specifications use the same sample within each panel and include individual-by-spell, category, and city-by-year-by-month fixed effects and a final-week indicator. Coefficients are expressed in percentage points. Bars indicate 95% confidence intervals based on city-clustered standard errors. The late-minus-early contrast compares the average coefficients for days 5–7 with those for days 1–3.

Table A.2: Positive Reply Counts and Subsequent Search Behavior

	Continuation (1)	Application Share (2)
Panel A. Baseline		
Log number of positive replies in $t-1$	0.207***	0.077***
	(0.002)	(0.002)
Observations	113,820	63,923
R^2	0.368	0.662
Panel B. Heterogeneity by Reference Occupation		
Log number of positive replies in $t-1$	0.093***	0.047***
	(0.003)	(0.003)
Outside reference occupation	-0.323***	-0.144***
	(0.008)	(0.007)
Log positive replies × Outside reference	0.134***	0.039***
	(0.004)	(0.004)
Observations	113,820	63,923
R^2	0.403	0.674
Panel C. Heterogeneity by Prior Occupational Experience		
Log number of positive replies in $t-1$	0.105***	0.052***
	(0.003)	(0.002)
Never worked in occupation	-0.326***	-0.153***
	(0.008)	(0.008)
Log positive replies × Never worked	0.124***	0.034***
	(0.005)	(0.004)
Observations	113,820	63,923
R^2	0.409	0.676

Notes: This table reports the effect of the log number of positive replies in week $t-1$ on subsequent search behavior in week t. Panel A reports the baseline specification. Panel B allows the relationship to differ between the reference occupation and other occupations. Panel C allows it to differ according to whether the job seeker has previously worked in the occupation. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table A.3: High-Wage Positive Reply Counts and Subsequent Search Behavior

	Continuation (1)	Application Share (2)
Panel A. Baseline		
Log high-wage replies in $t-1$	0.222***	0.092***
	(0.004)	(0.003)
Observations	240,769	118,964
R^2	0.264	0.622
Panel B. Heterogeneity by Reference Occupation		
Log high-wage replies in $t-1$	0.094***	0.052***
	(0.003)	(0.003)
Outside reference occupation	-0.383***	-0.174***
	(0.007)	(0.007)
Log high-wage replies × Outside reference	0.117***	0.044***
	(0.004)	(0.005)
Observations	240,769	118,964
R^2	0.320	0.642
Panel C. Heterogeneity by Prior Occupational Experience		
Log high-wage replies in $t-1$	0.108***	0.058***
	(0.003)	(0.002)
Never worked in occupation	-0.375***	-0.178***
	(0.007)	(0.008)
Log high-wage replies × Never worked	0.099***	0.037***
	(0.004)	(0.005)
Observations	240,769	118,964
R^2	0.329	0.645

Notes: This table reports the effect of the log number of positive replies from high-wage vacancies in week $t-1$ on subsequent search behavior in week t. Panel A reports the baseline specification. Panel B allows the relationship to differ between the reference occupation and other occupations. Panel C allows it to differ according to whether the job seeker has previously worked in the occupation. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

III Unemployed versus Employed Job Seekers

This section presents descriptive statistics, search-spell profiles, and estimates from the weekly feedback regressions separately for unemployed and employed job seekers.

III.1 Summary Statistics

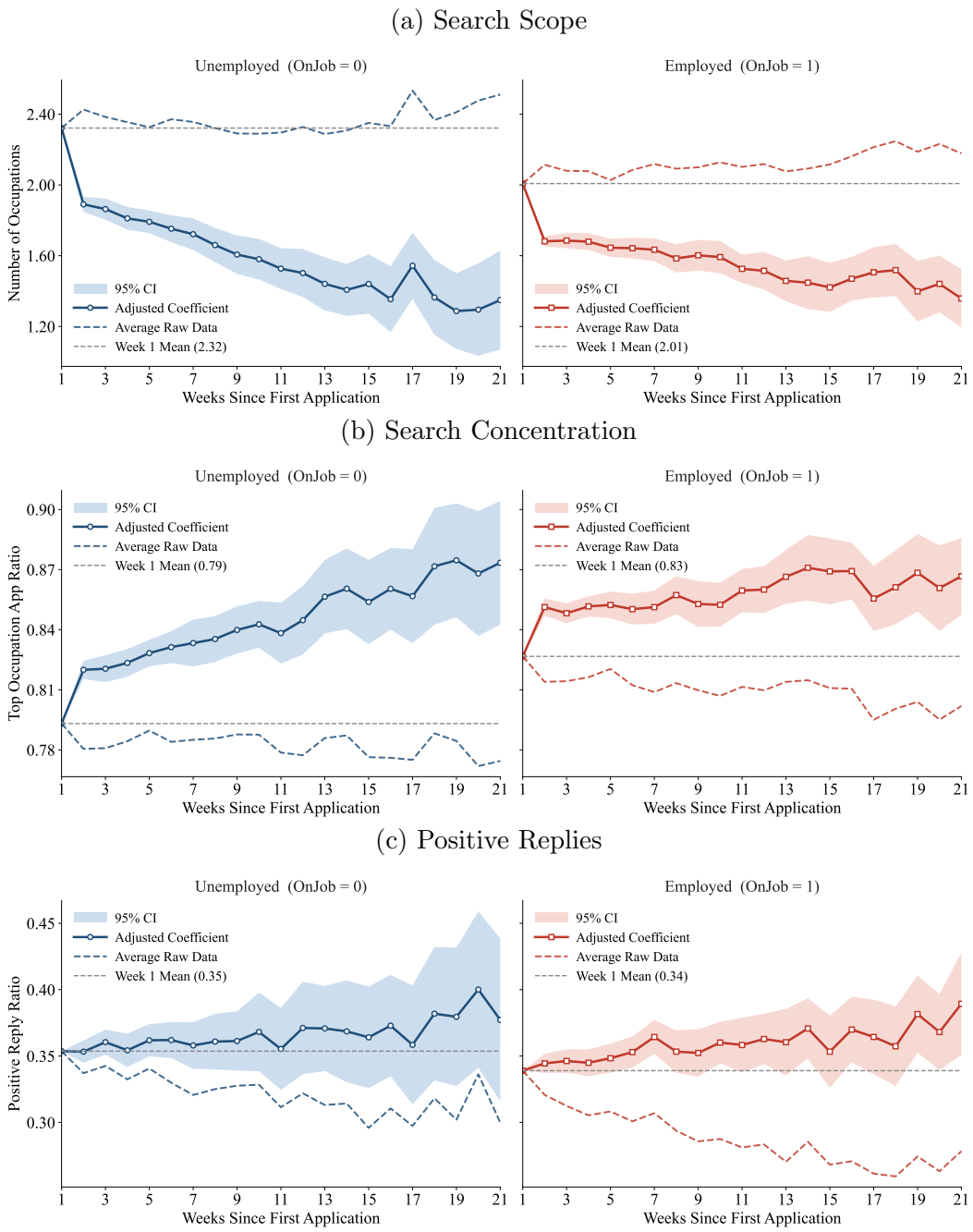
Table A.4: Search Behavior by Search Duration and Employment Status

	All		≤1 week		2–3 weeks		4–6 weeks		≥7 weeks	
	U	E	U	E	U	E	U	E	U	E
Panel A: Search Behavior (2018–2024)										
Completed spell duration (days)	19.50	21.27	1.98	1.85	13.72	13.74	30.73	30.92	79.02	85.55
Applications per active week	7.00	5.71	5.39	4.49	9.12	7.42	8.55	6.53	8.66	7.36
Total applications	22.33	19.60	5.39	4.49	20.81	16.78	32.44	24.15	75.62	69.04
Active application weeks	2.59	2.70	1.00	1.00	2.24	2.21	3.43	3.31	8.00	8.36
Occupations searched	3.50	2.98	1.88	1.68	3.86	3.24	4.82	3.90	7.58	6.28
Industries searched	7.84	6.72	3.15	2.72	8.80	7.35	11.53	9.30	20.02	17.27
Cities searched	1.75	1.63	1.21	1.17	1.78	1.58	2.14	1.85	3.30	3.01
App outside reference occupation (%)	60.06	52.47	60.94	53.44	58.99	51.64	59.58	51.74	58.82	50.79
App outside reference industry (%)	85.16	81.47	84.63	81.29	85.40	81.43	85.36	81.40	86.56	82.16
App in most-targeted occupation (%)	74.31	77.86	82.80	85.69	67.09	71.04	64.89	69.14	61.93	66.22
App in most-targeted industry (%)	52.62	56.77	68.04	71.95	38.93	42.95	36.46	40.55	29.83	34.15
Posted salary: lower bound	6.38	7.70	6.32	7.61	6.33	7.54	6.44	7.75	6.64	8.12
Posted salary: upper bound	9.82	11.84	9.73	11.70	9.73	11.58	9.89	11.94	10.20	12.47
App exceeding expected salary (%)	60.63	55.70	61.05	55.89	60.60	56.17	60.42	55.93	59.38	54.40
App exceeding reference-job salary (%)	78.25	73.18	78.64	73.82	78.28	73.38	77.80	72.82	77.23	71.21
App requiring a bachelor's degree (%)	25.93	31.49	24.33	29.47	26.08	30.49	27.41	33.34	30.09	37.69
Number of search spells	57,762	85,383	30,569	45,929	10,298	13,993	8,501	11,710	8,394	13,751
Panel B: Employer Feedback (2021-2024)										
Any employer reply (%)	42.26	40.84	43.40	42.54	41.99	41.11	41.90	38.86	39.20	36.69
Positive employer reply (%)	35.19	33.76	36.79	35.92	35.09	33.87	34.26	31.64	31.01	28.40
Positive reply rate by occupation and industry										
Outside reference occupation (%)	36.08	34.40	37.53	36.46	36.37	34.87	35.64	33.35	32.67	30.09
Within reference occupation (%)	38.63	35.42	39.68	37.45	39.20	35.97	39.48	34.57	35.29	31.29
Outside reference industry (%)	34.72	32.00	36.40	33.78	34.58	32.27	33.85	30.73	30.79	27.84
Within reference industry (%)	34.68	30.61	35.99	31.90	35.99	31.73	35.12	31.06	31.95	28.20
Positive reply rate by posted salary										
Above reference-job salary (%)	33.97	31.04	35.42	33.20	34.01	31.24	33.39	29.33	30.36	26.56
Not above reference-job salary (%)	32.98	31.26	32.91	32.07	33.02	32.59	33.73	31.18	32.44	29.24
Above expected salary (%)	35.82	33.49	38.41	36.60	35.64	33.71	34.45	31.52	30.90	27.69
Not above expected salary (%)	34.25	33.31	35.38	35.27	34.26	34.21	34.64	31.94	31.52	29.34
Number of search spells	32,306	46,873	16,665	25,148	5,690	7,555	4,807	6,429	5,144	7,741

Notes: The table reports search behavior separately for unemployed (U) and employed (E) job seekers. Columns group search spells by completed duration. Panel A covers 2018–2024; Panel B covers 2021–2024, when employer feedback is observed. The unit of observation is a search spell.

III.2 Search Behavior over the Spell

Figure A.12: Search Behavior and Positive Replies by Employment Status



Notes: This figure reports search behavior and positive-reply rates over the course of the search spell separately for unemployed and employed job seekers. Panel (a) reports the number of occupations targeted, Panel (b) the share of applications directed to the most frequently targeted occupation in each week, and Panel (c) the positive-reply rate. Solid lines report regression-adjusted profiles estimated from Equation (1), while dashed lines report raw weekly averages. Shaded areas indicate 95% confidence intervals based on standard errors clustered at the city level.

III.3 Employer Feedback and Subsequent Search

We repeat the main analysis separately for unemployed and employed job seekers. The results closely mirror those from the pooled sample. In both groups, positive employer feedback is associated with a higher probability of continuing to search in the occupation and with a larger share of subsequent applications directed toward it. The heterogeneity patterns are also similar: responses to positive feedback tend to be stronger outside the reference occupation and in occupations in which the worker has no prior experience, while positive feedback from competing occupations redirects search effort away. Positive replies from relatively high-wage vacancies are likewise followed by stronger subsequent search in the corresponding occupation. The patterns are remarkably similar by employment status.

Table A.5: Positive Replies and Subsequent Search Behavior by Employment Status

	Continuation		Application Share	
	U	E	U	E
Panel A. Baseline				
Positive reply in $t-1$	0.182***	0.178***	0.079***	0.077***
	(0.004)	(0.006)	(0.003)	(0.005)
Observations	109,008	131,475	51,315	67,209
R^2	0.254	0.264	0.622	0.625
Panel B. Heterogeneity by Reference Occupation				
Positive reply in $t-1$	0.078***	0.070***	0.038***	0.039***
	(0.007)	(0.006)	(0.005)	(0.004)
Outside reference occupation	-0.382***	-0.400***	-0.175***	-0.184***
	(0.010)	(0.008)	(0.010)	(0.008)
Positive reply × Outside reference	0.077***	0.074***	0.039***	0.035***
	(0.008)	(0.006)	(0.007)	(0.004)
Observations	109,008	131,475	51,315	67,209
R^2	0.302	0.329	0.640	0.647
Panel C. Heterogeneity by Prior Occupational Experience				
Positive reply in $t-1$	0.094***	0.091***	0.044***	0.045***
	(0.007)	(0.006)	(0.004)	(0.004)
Never worked in occupation	-0.367***	-0.384***	-0.174***	-0.190***
	(0.009)	(0.007)	(0.010)	(0.008)
Positive reply × Never worked	0.056***	0.043***	0.033***	0.025***
	(0.008)	(0.006)	(0.006)	(0.005)
Observations	109,008	131,475	51,315	67,209
R^2	0.310	0.340	0.642	0.651
Panel D. Feedback from Other Occupations				
Positive reply in $t-1$	0.108***	0.092***	0.043***	0.039***
	(0.008)	(0.007)	(0.004)	(0.004)
Positive reply in another in $t-1$	-0.246***	-0.268***	-0.111***	-0.126***
	(0.008)	(0.005)	(0.006)	(0.010)
Positive reply × Positive another	0.074***	0.095***	0.054***	0.066***
	(0.008)	(0.005)	(0.006)	(0.005)
Observations	109,008	131,475	51,315	67,209
R^2	0.272	0.289	0.629	0.633

Notes: This table reports the effect of positive employer feedback received in week $t-1$ on subsequent search behavior in week t, separately for unemployed (U) and employed (E) job seekers. All specifications include individual-by-spell, two-digit occupation, and city-by-year-by-month fixed effects, as well as a final-week indicator. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table A.6: Positive Replies from High-Wage Vacancies and Subsequent Search Behavior by Employment Status

	Continuation		Application Share	
	U	E	U	E
Panel A. Baseline				
Positive reply in $t-1$	0.123***	0.130***	0.053***	0.050***
	(0.005)	(0.005)	(0.004)	(0.004)
High-wage positive reply in $t-1$	0.091***	0.083***	0.040***	0.046***
	(0.005)	(0.005)	(0.005)	(0.005)
Observations	108,999	131,466	51,312	67,206
R^2	0.256	0.267	0.623	0.626
Panel B. Heterogeneity by Reference Occupation				
Positive reply in $t-1$	0.037***	0.045***	0.020***	0.027***
	(0.008)	(0.008)	(0.007)	(0.005)
High-wage positive reply in $t-1$	0.061***	0.043***	0.027***	0.021***
	(0.008)	(0.007)	(0.007)	(0.004)
Outside reference occupation	-0.381***	-0.399***	-0.174***	-0.183***
	(0.010)	(0.008)	(0.010)	(0.007)
Positive reply × Outside reference	0.069***	0.057***	0.032***	0.013**
	(0.010)	(0.009)	(0.009)	(0.006)
High-wage positive reply × Outside reference	0.015	0.031***	0.011	0.035***
	(0.009)	(0.011)	(0.009)	(0.008)
Observations	108,999	131,466	51,312	67,206
R^2	0.304	0.330	0.641	0.648
Panel C. Heterogeneity by Prior Occupational Experience				
Positive reply in $t-1$	0.053***	0.065***	0.027***	0.029***
	(0.008)	(0.008)	(0.006)	(0.004)
High-wage positive reply in $t-1$	0.062***	0.043***	0.026***	0.026***
	(0.007)	(0.006)	(0.006)	(0.004)
Never worked in occupation	-0.365***	-0.383***	-0.173***	-0.189***
	(0.009)	(0.006)	(0.010)	(0.008)
Positive reply × Never worked	0.049***	0.026***	0.024***	0.009
	(0.010)	(0.009)	(0.008)	(0.005)
High-wage positive reply × Never worked	0.013	0.029***	0.014*	0.026***
	(0.010)	(0.009)	(0.008)	(0.007)
Observations	108,999	131,466	51,312	67,206
R^2	0.312	0.341	0.643	0.652

Notes: This table reports the effect of positive replies from high-wage vacancies in week $t-1$ on subsequent search behavior in week t, separately for unemployed (U) and employed (E) job seekers. Panel A reports the baseline specification. Panel B allows the relationship to differ between the reference occupation and other occupations. Panel C allows it to differ according to whether the job seeker has previously worked in the occupation. Standard errors are clustered at the city level and reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.