

Escaping the Unemployment Trap: Does Industry-Specific Human Capital Matter? Evidence from a Field Experiment¹

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The increase in long-term unemployment over the recent recession and subsequent recovery is particularly puzzling in light of the fact that, during the same period, job openings were increasing substantially. This has led many to conclude that structural impediments to recovery are at work. However, other explanations have also been proposed, including discrimination in hiring practices. Using a résumé audit study, I explore the extent to which employers become forgiving of longer nonemployment spells when other merits appear on an applicant's résumé. In particular, I vary both duration of nonemployment and industry experience. Results indicate a strong distaste for applicants with long spells of nonemployment – even in a situation characterized by observationally superior résumés in comparison to applicants with short nonemployment spells. The results reveal a sharp drop-off in the number of interview requests—for those whose nonemployment spell topped six months, implying that those experiencing long jobless spells might become trapped in nonemployment, regardless of their prior experience.

I. INTRODUCTION

Although the unemployment rate in the U.S. declined slowly since its trough of the Great Recession, the average number of months the unemployed remained without a job continued to rise. In 2012, the duration of unemployment in the U.S. averaged around 9 months—a 140% increase from its pre-recession average. This continued high level of long-term unemployment is especially puzzling in light of the fact that, during the same period, firms were posting substantially more vacancies. The mystery is not how this high fraction of long-term unemployed arose, but rather it's why long-term unemployment has far outlived its original causes. While it has proven

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difficult to credibly establish that jobseekers' re-employment prospects decline with the length of time out of work, a number of recent audit studies show that long-term unemployment can mark jobseekers as undesirable, making it harder for them to compete against other job applicants; applicants with long non-employment spells were less likely to be invited to job interviews than observationally similar workers with shorter spells. In one study, the authors report that at eight months of unemployment, callbacks are about 45 percent lower than at one month of unemployment, Kroft *et al.* (2013). In similar work, Eriksson and Rooth (2013) and Oberholzer-Gee (2008) report results consistent with the long-term nonemployed having significantly lower chances of being invited for an interview. This worrisome pattern raises serious concerns about the social and macroeconomic dysfunctions that such chronic joblessness might cause.

Employers invest a good deal in screening applicants, but no screening process is perfect so hiring is commonly an investment made under uncertainty. Part of the hiring decision may thus be influenced by employers' beliefs about the average characteristics of different groups (statistical discrimination) and differential treatment may reflect these beliefs. Are employers' screening decisions based solely on easily observable characteristics such as the length of a nonemployment spell? When other productivity-related merits are revealed, do they rely less on this variable in screening applicants? These questions are directly relevant for economic policy making, however, as implications for labor market policy are likely to be different based on what factors explain the documented pattern.

Previous résumé audit studies on non-employment discrimination have focused exclusively on measuring callback differentials across observationally similar workers who differ only in their nonemployment spell². While these studies consistently find discrimination against individuals with long spells of nonemployment, the reported callback gaps across groups do not reveal the intensity of employer beliefs. If job seekers with short nonemployment spells are only marginally preferred, it implies that firms, all else equal, favor applicants with short jobless spells. An individual who had been without a job for a long time would only suffer from discrimination when there is a nearly identical applicant but with a shorter nonemployment spell competing for the same vacancy. This is very different from the case when the long-term nonemployed are believed to be significantly less productive on average than those with shorter durations. In this case applicants with long

² Kroft *et al.*, (2013); Eriksson and Rooth (2011); Oberholder-Gee (2008).

nonemployment spells would suffer from discrimination also in a situation characterized by superior résumés in comparison to the favored group (the short-term nonemployed).

This study explores the extent to which employers become forgiving of longer nonemployment spells when other merits appear on an applicant's résumé: in this case, having worked in the same type of firm as the prospective employer³. While worker characteristics such as education may be thought to index more general skills of worker trainability into and adaptability at a new job position (Thurow, 1975), work experience might be more indicative of the accumulation of specific skills that are not readily transferred to all other employers or labor market sectors. If that is the case, then employers still have strong incentives to hire those with appropriate specific skills in order to minimize the incidence and costs of unproductive training. As a result, the probability to be matched to an employer in sector j will crucially depend on whether the applicant's own skills acquired through previous training and work experiences matches or at least functionally relates to those skills required in sector j .

While several studies have explored the importance of skills which are either specific to a given employer or completely general, many others have looked at industry-specific skills as an important component of the typical worker's human capital stock⁴. These studies conclude that workers are valued not only based on skills that are completely general and/or firm-specific, but rather on some skills that are specific to their industry or line of work. For example, all employers in the banking industry may value a common set of skills that are vital to the working conditions in that industry. However, these same skills may not be valued by employers looking to fill similar vacancies in closely related or different industries. In this audit study, I manipulate the length of time out of work and "relevancy" of prior industry experience to highlight the interaction between the higher returns to industry-relevant experience and the duration of nonemployment. 3360 fictitious résumés were sent to online job ads across multiple occupations in different areas of the U.S. after randomly manipulating applicants' credentials to uncover how different résumé characteristics affect firms' decisions on whether to interview an applicant. The résumés were constructed to plausibly represent relatively young applicants with six years of work experience out of college. Employment status and the duration of the current nonemployment spell were randomized across résumés and

³ I refer to work experience that is transferable between the same type of firms in an industry as industry-specific human capital.

⁴ Neal (1995) and Kletzer (1993). Also, see Willis (1986) for a review of empirical work on human capital. Neal (1995)

appeared as an end date for the applicant's most recent job. In addition, I randomized whether applicants have worked previously (or are currently employed) in the same type of firm as the prospective employer by randomly assigning half of the résumés jobs with similar firms from the same industry and the other half jobs from different (no relevant experience) industries. This setup allows me to examine the strength of negative beliefs about those with long spells of nonemployment and the extent to which relevant industry experience compensates for any unfavorable treatment.

The reported results for my entire sample reveal that applicants with long nonemployment spells are less likely to be invited for a job interview. A graphical examination of the data (Figure I) reveals a sharp drop off in average interview requests after six months of nonemployment. Applicants with one month of nonemployment need to send about 10 résumés to get one interview request whereas applicants with seven months of nonemployment need to send about 35.

Results from comparing applicants with relevant industry experience to others with no relevant experience reveal a large and significant premium for applicants from the same type of firm as the prospective employer. The probability to receive an interview request is higher for jobseekers with skills specific to firms that produce similar products and services. However, this is only true for those with short nonemployment spells. After six months of non-employment, the return to industry-relevant experience declines dramatically and the response gap between applicants with specific experience and those with no relevant experience becomes statistically insignificant. Between one and six months of nonemployment, the average interview requests for applicants who apply to job openings with similar type of firms is 8 percent higher than that of applicants without relevant industry experience.

I then explore how the gap in interview requests between short term and long-term nonemployed varies with an applicant's work experience. The results indicate that recently nonemployed applicants with no relevant experience are more likely to be invited for an interview than those with experience who have been nonemployed for more than six months.

The experiment reveals direct evidence on how the length of time out of work affects re-employment prospects of heterogeneous workers by emphasizing employer role in generating negative duration dependence. In particular, it identifies the casual effect of nonemployment spells on the probability of receiving an interview request that arise either from employers' beliefs about

the quality of the long-term unemployed or because employers prefer to hire those with the shortest duration of nonemployment. In the former case, employers may then engage in statistical discrimination when the productivity of workers is only imperfectly observed or they may associate long nonemployment spells with a loss in human capital. While there is a broad agreement that human capital may atrophy with long nonemployment spells, there is little if any evidence on how that differs between general and industry-specific human capital. The distinction between workers (résumés) with skills specific to the same type of firms and those with no industry-specific skills will shed light on the implications of long spells of non-employment on the different types of human capital.

The remainder of the paper is organized as follows. Section II provides an overview on the literature of duration dependence and adverse selection. I provide an informal conceptual framework that helps interpret the findings with respect to industry-specific experience and duration dependence. Section III details the research design, with sub-section (III.A.) discussing my study's experimental design; and (III.B.) describing the measurement of firms' responses. Section IV presents results with alternative theoretical explanations, while Section 5 concludes.

II. WHAT EXPLAINS NEGATIVE DURATION DEPENDENCE?

A common finding is that among unemployed workers, for the most part, those with the shortest spells are more likely to find a job than those with longer spells (Layard et al., 1991; van der Berg & van Ours, 1996). This is referred to as negative duration dependence. An important question in the study of unemployment has been whether otherwise similar people with different lengths of unemployment have different probabilities of exiting unemployment (true duration dependence) or whether unobserved heterogeneity of the unemployed gives rise to spurious duration dependence. If unemployed workers have constant but different hazard rates, then the better workers (those with higher hazard rates) tend to exit unemployment earlier, leaving a pool of less-qualified workers as the ones who disproportionately make it to long-term unemployment. True duration dependence instead arises when the outflow rate at any point in time depends on the amount of time that has already passed. Intuitively, anyone entering unemployment will experience negative time dependence in the arrival rate of job opportunities.

This genuine (true) effect has been justified using several demand and supply side explanations. On the supply side, Devine and Kiefer (1991) summarize a number of studies which report a negative relationship between workers' search intensity and unemployment duration. This may be primarily due to workers becoming discouraged (and as a result search passively for vacancies as their jobless spells increase), or because skills and work training atrophy during unemployment (Sinfield, 1981). Furthermore, Heckman and Borjas (1980) document that there is a negative duration dependence in the arrival of job opportunities during unemployment. Individuals with long jobless spells find it more difficult to know the existence of jobs, either due to the loss of networks and social contacts (Calvo-Armengol, 2000), or because the long-term unemployed become stigmatized by other workers in the market (Gregg and Wadsworth, 1996). Finally, Coles and Smith (1994) and Gregg and Petrongolo (1997) provide another supply side explanation revealing that the number of vacancies sampled by the unemployed fall rapidly as unemployment lengths leading to negative duration dependence.

Alternatively, a lot of attention has been recently devoted to the demand side explanations for duration dependence. The underlying factor behind the decline in outflow rate with duration of unemployment in this case is focused on firms screening and ranking strategies when evaluating job applicants (Kroft *et al*, 2013; Vishwanath, 1989; Lockwood, 1991; Blanchard and Diamond (1994)).

This paper attempts to study the nature of unemployment discrimination rather than its mere presence by providing direct evidence on how employers react to different signals on an applicant's résumé when productivity is not perfectly observed to them. I explore whether the weight that employers place on the recent gap in work experience when making hiring decisions is influenced by other merits that appears on an applicant's résumé. To be precise, I study whether employers adjust their beliefs about the productivity of long-term nonemployed applicants, as opposed to unemployed ones, when their résumés indicate experience in a similar type of firm. Since employers cannot distinguish whether the worker is actively looking for employment when not employed, the reported nonemployment spell continues to the best available information about an applicant's labor market status.

If employers place great weight on the duration of an applicant's nonemployment spell when choosing whom to hire, then signaling other attributes may not help overcome this unfavorable

treatment. The findings posit that in situations when heterogeneity is unobserved by the employer they may then engage in statistical discrimination against the long-term nonemployed. If firms find it costly to test workers they may rely on nonemployment duration as a measure on which to base their hiring decisions. The basic insight is that nonemployment duration may be a useful signal of applicants' productivity, provided that productivity is imperfectly observable and correlated with group identity. This behavior will hurt applicants whose productivity is not low as much as those who are. In a situation like this, unobserved heterogeneity will itself generate duration dependence.

II.A. Employer Beliefs and Nonemployment Duration

In this section, I describe how firms hiring behavior may reveal information about their beliefs in favor or against certain types of workers. Job seekers present their characteristics to employers by sending résumés with detailed information on experience, education, etc. Firms evaluate these characteristics but may also have certain beliefs about certain unobservable aspects that correlate with productivity. When faced with incomplete information on the actual productivity of workers, employers may proxy for unobservable characteristics using the observed signals. One such variable that correlates with productivity is the length of a jobless spell. Individuals with long nonemployment spells may have their skills atrophy and as a result become relatively less productive. For this reason, previous résumé audits have experimentally varied nonemployment duration to quantify callback gaps between otherwise identical applicants. This study contributes to the literature on duration dependence by experimentally manipulating industry experience and nonemployment duration to examine whether the former can compensate for negative impacts of the latter.

Can relevant industry experience compensate for long spells of nonemployment? From a worker's perspective, in an environment where applicants with short term spells are favored over others with long nonemployment spells, jobseekers from the disfavored group might be able to increase their likelihood of finding employment by applying to jobs at similar type of firms.. These applicants (who are assumed to be more productive and to require less training) appeal more to employers than do others without relevant industry experience. Bishop (1998) provides compelling evidence that job-specific skills are essential to firms looking to fill job openings. He argues that in most jobs, productivity derives directly from skills specific to the job, the occupation, and the occupation-cluster. Bishop reports on a series of meta-analyses of empirical studies which all concluded that in

almost all jobs, productivity derives directly from generic and cognitive skills specific to the industry or occupation.

II.B. Conceptual Framework

In this section, I provide a conceptual framework of how firms evaluate observationally identical applicants with different spells of non-employment. The model also illustrates how the differential treatment would change when firm specific skills are augmented to résumés of the unfavorable group.

Assume that each applicant $i \in \{1, 2, \dots, I\}$ submits a résumé to firm $j \in \{1, 2, \dots, J\}$ that conveys a number of observed characteristics Y_{ji} , unemployment duration, $D_{ji} \in \{S, L\}$ ⁵, and a vector of productivity-related unobserved characteristics Z_{ji} . Conditional on these characteristics, each firm j will assign a value $P_{ji} : f(Y_{ji}, D_{ji}, Z_{ji})$ to résumé i .

Each firm receives multiple applications, and as a result, only the applicants with the highest value of P_{ji} will be invited for an interview. For every firm observing identical characteristics and therefore identical average observed group characteristics: $\bar{Y}_{jS} = \bar{Y}_{jL} = \bar{Y}$, I define a firm's evaluation gap as the difference between firms average evaluation of the short term (S) and long term nonemployment (L) groups as follows:

$$\Delta \bar{P}_j = \bar{P}_j(\bar{Y}, S, Z_j^S) - \bar{P}_j(\bar{Y}, L, Z_j^L)$$

Where $\Delta \bar{P}_j$ corresponds to firm's j differential treatment of applicants according to their nonemployment duration.

If firms have negative beliefs concerning the productivity of the long-term nonemployed, then they will engage in statistical discrimination.

⁵ S refers to a short spell of non-employment, whereas L refers to a long non-employment spell.

This occurs when: $P_j(\bar{Y}, S = v, E(Z_j^S | \bar{Y})) \geq P_j(\bar{Y}, L = v, E(Z_j^L | \bar{Y}))$

Can applicants with long nonemployment spells overcome discrimination if their résumés were enhanced with firm-specific skills?

Assigning the long-term nonemployed with experience from the same type of firm as the prospective employer is characterized below by augmenting their observed characteristics with δY_j

$$\Delta \bar{P}_j = \bar{P}_j(\bar{Y}, S = v, E(Z_j^S | \bar{Y})) \geq \bar{P}_j(\bar{Y} + \delta Y_j, L = v, E(Z_j^L | \bar{Y} + \delta Y_j))$$

Augmenting the merits of the long-term nonemployed by assigning them firm-specific experience (δY_j) therefore discloses to what extent negative employer beliefs concerning unobserved group productivity can be re-evaluated.

No significant change in $\Delta \bar{P}_j$ after augmenting merits of the disfavored group implies that employers have strong negative priors about the long-term nonemployed to the extent that having relevant experience does not satisfy the compensatory condition. To test for this hypothesis, I adopt a résumé audit study – in which two easily observable characteristics are experimentally varied – to formally test the degree to which industry specific human capital can compensate for the stigma of long-term nonemployment.

III. FIELD EXPERIMENTS

Unequal treatment and discrimination in hiring practices have proved hard to document using survey data due to the lack of all the characteristics that employers observe when making a hiring decision. Aggregate data using household and employer surveys may bias any measured differences in outcomes for two groups due to the presence of factors observed by employers but not by the researcher. Thus observed labor market gaps between groups could be due to employer discrimination, to differences in productivity characteristics not observable in data, or to both. As a result, researchers began to employ a wide variety of experimental and quasi-experimental techniques in an attempt to measure differential preferences for one group over another. Studying

discrimination using experimental audit studies was first implemented by sending pairs of trained “auditors”, matched in all respects that might affect productivity in employer’s eyes except for the variable of interest, job interviews. However, despite matching auditors on numerous characteristics and training them for several days to coordinate interview styles, these experiments were very costly to implement and hardly accounted for the many differences that exist between auditors in a pair. Researchers have later developed audit studies by replacing real auditors with fictitious résumés allowing the generation of a large number of data points at a much small cost than a conventional audit. These résumé audits consist of sending fictional job applications that are carefully matched on all aspects except for the variable of interest, to real job openings and tracking the subsequent callback. This methodology insures that any differences in measured outcomes can be solely due to the manipulation of the variable of interest, and allows the research to isolate any demand effects that may affect results. Moreover, this approach allows disentangling employer discrimination from other factors that affect the job finding rate of unemployed applicants such as unemployment insurance or network effects.

Although experiments using fictitious résumés allow the researcher to explore only the interviewing stage of the hiring process, they permit much more control over the experimental variables. Of equal importance is the fact that résumé audit experiments allow the generation of a large sample at a much lower cost than do conventional audits.

III.A. Experimental Design

My experimental design differs from conventional audit studies, in which comparable participants are sent in for actual interviews, and instead closely follows the methodology used in Bertrand and Mullainathan (2004) and Kroft, *et al.* (2012) to generate fictitious résumés, locate job ads according to a predetermined model, and measure interview request rates. All of the experimental protocols were approved by the Institutional Review Board (IRB) at Northeastern University.

Using a major online job board, résumés were sent in response to job ads across different regions of the United States between August and December 2012⁶. Work histories and other résumé characteristics were randomly selected and assigned to different templates using a résumé generator

⁶ My sample includes a fixed number of jobs across the largest 20 metropolitan statistical areas of the U.S.

program adopted from Lahey and Beasley (2007). The program mixed and matched different characteristics based on real résumés (available on the web) to randomly create new ones for specified positions⁷. When randomly combined, every part of the résumé becomes a potential control variable that can be interacted with the variable of interest, independently from other variables. This allowed me to randomize characteristics across thousands of résumés, leaving room for testing different interactions of characteristics with group status⁸.

The sample of jobs I applied to generally required five to six years of work experience and an undergraduate degree. Within each MSA, job openings were selected from four major industries and three different occupation categories. Following the occupational and industry classification system used in the Current Population Survey, I group job postings into four broad industry categories: Finance, Wholesale and Retail Trade, Professional and Business Services, and Healthcare Services. Furthermore, in each industry, job ads were chosen to be Administrative occupations, Sales occupations, and Professional occupations. I created a unique set of e-mail addresses that I used to track employer responses on a rolling basis.

Once a job opening was identified, résumés were randomly sampled without replacement from a bank of résumés and sent to each firm in random order over a two day period. The treatment groups differed on whether an applicant is currently employed or not, the length of his nonemployment spell, and whether he had worked in the same of firm as the prospective employer. (In the Appendix, I provide an example of two résumés used to apply for an Administrative position at a Bank in New Jersey. Sample 1 is a fictitious résumé for a long-term unemployed applicant with experience in the same type of firm as the prospective employer. Sample 2 is for a short-term unemployed with no industry specific).

⁷ The program was adjusted to fit the protocols of the experiment. Available from the author by request or at <http://www.nber.org/data/> (under "Other"). The web program creates .rtf files that can be opened from `résumé-randomizer-framemaster.exe`, which then creates .doc résumés, .sav information files, and .txt tab delimited data. After all résumés in a session have been created, `filegather.exe` collects data information from .txt files into a tab delimited .dat file that can be opened in a spreadsheet program.

⁸ In ongoing work, I explore the impact of short-term employment relationships on the probability of receiving an interview request by varying the number of job transitions on a subsample of the generated résumés. Preliminary results show that applicants who repeatedly switch jobs are less favored than others with long employment relationships.

All profiles were males with names that are considered minimally informative about an applicant's race⁹. While, age was not explicitly listed on the résumés, it was indirectly conveyed to employers through the number of years an individual has worked since graduation. In particular, all résumés were assigned a total of six working years with no nonemployment gaps in between. The focus on this younger cohort of the population is particularly important due to the long-term adverse labor market outcomes that may result from discrimination at the first stage of the career (Arulampalam, 2001; Gregg, 2001; Gregg and Tominey, 2004).

Each résumé was assigned two different jobs with three years of tenure at each. The job title and job description were determined according to the job posting's industry and occupation categories. For example, résumés generated for a financial analyst vacancy at a bank would either be assigned previous jobs at similar type of firms as that of the advertised vacancy (other banks) or experience in an industry other than finance (e.g. financial analyst with a retail chain such as Walgreens). Half of the generated templates were assigned experience with similar type of firms whereas the other half were randomly assigned experience in industries different from that of the prospective employer. Few job ads (4 percent of my sample) required specific credentials (such as knowledge of SAS). For these job ads, I listed the required experience on each of the résumés sent.

Educational history was chosen to match the requirements of the advertised jobs and institutions were randomly selected from a sample of schools that belong to the same tier¹⁰. Each type of résumé was assigned the minimum qualifications required for the job to ensure a reasonably high response rate. Residential addresses were randomly assigned to each résumé to match each employer's metropolitan area. Additionally, I randomized each résumé's layout to ensure that no two résumés that were sent to the same employer looked the same.

Résumés indicating that the applicant is currently nonemployed were randomly assigned a nonemployment spell (in months) according to a discrete uniform distribution on the interval [1,

⁹ Though the same names are used repeatedly in the experiment, the design was constructed such that no job ad received multiple résumés with the same name.

¹⁰ I used an online survey through which companies were asked to rank universities based on the employability of their graduates.

12]¹¹. Nonemployment duration appeared on the résumé in the form of an end date for the applicant's most recent job.

III.B. Measuring Responses

The study does not allow me to observe firms' hiring decisions, but rather whether applicants received a request for an interview (via e-mail)¹². Interview requests were recorded by matching employer IDs with the original submitted résumés using a job number assigned to each position considered¹³. Since residential addresses assigned to each résumé included nonexistent street numbers, interview requests via regular mail could not be measured¹⁴. To minimize inconvenience to firms, invitations were immediately declined and firms were notified about the objective of the study. Those that never replied were informed about the study 6 months after the applications were sent.

IV. RESULTS

IV.A. Nonparametric Evidence.

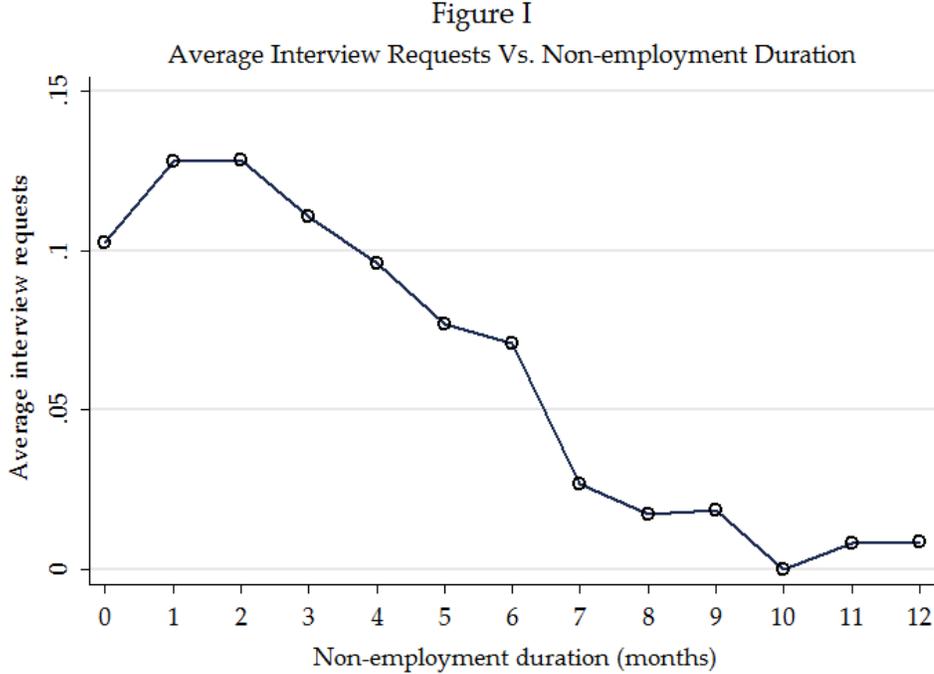
Figure II displays the fraction of applications that received interview requests as a function of nonemployment duration. The dots correspond to average interview requests received for each month of nonemployment, while the curve around these dots is a smoothed local mean, which is generated using a Gaussian kernel. The pattern in the figure provides clear evidence of declining interview requests as the length of nonemployment spells increase. The rate of decline in interview requests appears to drop sharply after six months of nonemployment and stabilizes afterwards.

¹¹ Most of the real résumés collected online show that current unemployed applicants list both the year and months of when they last worked.

¹² Résumés were not assigned telephone numbers. Since none of the résumés that were sent to a given firm had a telephone number, any effect such a signal could have on interview requests will therefore be equally distributed across all applicants.

¹³ A few employers requested a telephone number to conduct a phone interview. Those employers were debriefed about the objective of the experiment and their requests were recorded as interview requests.

¹⁴ Several human resource specialists informed me that employers rarely, if ever, reach out to job candidates for interview using regular mail.



Notes: The figure reports average interview requests by length of nonemployment spell (months). Résumés where the individual is currently employed are assigned a nonemployment duration of zero.

In Table A.1, I group my data into three bins to facilitate comparisons among different treatment groups. Résumés assigned a duration between [1, 3] were grouped under short-term nonemployed; résumés assigned a duration between [4, 6] were grouped as medium term nonemployed; and finally those assigned a duration between [7, 12] were grouped under long-term nonemployed. The table reports average interview requests for the full sample and each treatment group. Included in brackets under each rate is the number of applications submitted in that cell.

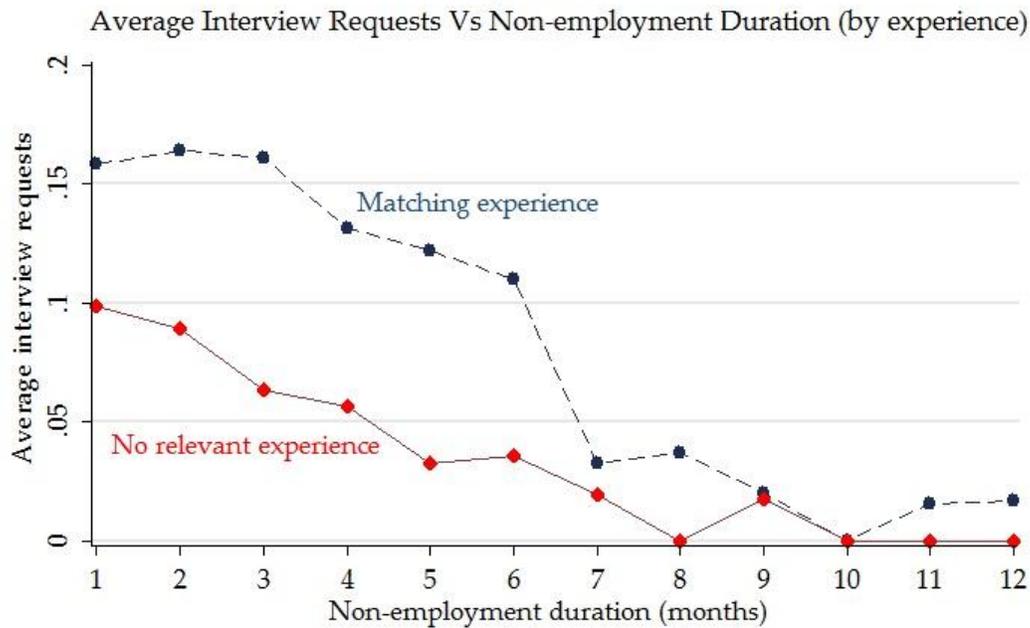
Table A.2 reports for the entire sample and different subsamples of sent résumés, the mean interview request rate for applicants with experience in the same type of firm (column 1) and different industry experience (column 2), as well as the difference (column 3) between these interview request rates. Row 1 of Table A.1 presents the results for all occupations, while rows 2-4 break down the full sample across the different occupations considered. In sum, 279 of the résumés

sent (8.3%) received a request for an interview. Résumés for employed applicants (Column 2 of Table A.1) have a 10.25 percent chance of receiving an interview request, while the interview request rate for otherwise identical nonemployed applicants (Column 3 of Table A.1) averaged 7.2% percent. The gap in interview requests between employed and nonemployed applicants varied between occupations and was highest in sales jobs, with employed candidates having twice the chance of nonemployed applicants of receiving a request for an interview. Columns 6-7 display results for nonemployed applicants with a spell of 3 months or less, while columns 8-9 report results for nonemployed candidates with jobless spells greater than three and less than or equal to six. Finally, the last two columns of Table A.1 report results for nonemployed applicants who have been out of work for seven months or more (up to 12 months).

Nonemployment duration and Industry Experience

Figure II provides disaggregated evidence on the relationship between average interview requests and nonemployment duration by dividing the sample depending on whether résumés were assigned experience in the same type of firm as the prospective employer or not. The blue dots report average interview requests for applicants with experience in a similar firm, while the red diamonds report average response rates for applicants with no relevant experience. The pattern reveals a sharp drop in the fraction of applications receiving an interview request after 6 months of nonemployment for those with experience in a similar firm as the prospective employer. The rate for those with no relevant experience declines steadily before 6 months and hits zero for résumés with 8, 10, 11, and 12 months of nonemployment.

Figure II



Notes: Figure II reports average response rate by nonemployment duration (months) for applicants with experience in a same type of firm (blue dots) and others with no relevant industry experience (red diamonds). Résumés where the individual is currently employed are assigned a duration of zero.

Table A.2 presents descriptive results for mean interview requests that are consistent with the graphical analysis in Figure II. Overall, 109 of the 1080 résumés (10.09%) of nonemployed applicants that were assigned similar firm experience as that of the prospective employer received an invite for an interview, while only 47 of the 1080 (4.35%) résumés of nonemployed applicants that had no relevant experience received interview requests. The industry premium is calculated as the difference between the average interview requests of each group (column 3). A standard test for the hypothesis that the two proportions are equal is rejected at the 1%.

The table also reports the same descriptive statistics for each nonemployment spell and tests whether the difference at each month is significant. As shown in column 3, nonemployed from the same type of firm as the prospective employer are greatly favored over those without similar experience. However, this is only true for applicants who have been out of work for six months or less only. The industry premium at long nonemployment durations declines dramatically and becomes not statistically different from zero.

IV.B. Regression Results.

Table A.3 reports results from estimating a linear probability¹⁵ model using the following specification:

$$\begin{aligned} R_i = & \alpha_1 \mathbf{SAME}_i + \alpha_2 \mathbf{DIFF}_i + \alpha_3 \mathbf{LTsame}_i + \alpha_4 \mathbf{LTdifferent}_i \\ & + \alpha_5 \mathbf{TREND_0_6_SAME}_i + \alpha_6 \mathbf{TREND_7_12_SAME}_i \\ & + \alpha_7 \mathbf{TREND_0_6_DIFF}_i + \alpha_8 \mathbf{TREND_7_12_DIFF}_i + \varepsilon_i \end{aligned}$$

where R_i is an indicator that equals to 1 if applicant i receives an interview request and 0 otherwise.

The regression includes 8 variables with no constant term. Four of these are: a dummy for those with experience in the same type of firm (\mathbf{SAME}_i), a dummy for those with no relevant experience (\mathbf{DIFF}_i), a dummy for those with similar firm experience who have not been employed for more than six months (\mathbf{LTsame}_i) and one for those without industry experience who have not been employed for more than six months ($\mathbf{LTdifferent}_i$). I also define four trend variables; two for those with similar firm experience and two for those without it. For those with similar firm experience I define a variable equal to the number of months not employed up to 6 ($\mathbf{TREND_0_6_SAME}_i$). Those who haven't been employed for more than 6 months have a value of 6 on this variable. The second trend for those with similar firm experience ($\mathbf{TREND_7_12_SAME}_i$) counts the number of months not employed beyond 6 months and is equal to zero for those with spells less than 7 months. Two similar trends are defined for those without industry experience: $\mathbf{TREND_0_6_DIFF}_i$ and $\mathbf{TREND_7_12_DIFF}_i$ respectively.

With this specification the first coefficient of the first trend variable is the rate of decline of interview requests with each month of nonemployment up to 6 months and the coefficient on the second trend gives the rate of decline after 6 months. The coefficient on the dummy interacting experience group with more than 6 months of nonemployment is an estimate of the decline in the rate of interview requests moving from 6 to 7 months.

¹⁵ Results from estimating the model using Probit and Logit specifications are quantitatively similar.

The results in column 1 of Table A.3 reveal that the rate of interview requests for résumés with similar firm experience drops 1.13 percentage points for each additional month of nonemployment up to six months. Interestingly, the rate of interview requests drops by 7.9 percentage points as the nonemployment spell listed on these résumés tops six months. After six months of nonemployment, the decline in the rate of interview requests slows down and becomes insignificant with each additional month of nonemployment. Similarly, the results indicate that the interview request rate for résumés that listed no relevant experience drops 1.41 percentage points with each month of nonemployment up to six months. For each nonemployment month beyond six, the decline in the rate of interview becomes small and not statistically significant.

Columns 2-4 of Table A.3 show that the estimates are robust to adding baseline characteristics (different occupations considered in the experiment), city fixed effects, and controls for résumé layout, respectively.

Table A.4 shows interview requests separated by the three different occupation categories. Résumés that were assigned experience from a similar type of firm as the prospective employer received significantly higher interview requests across all occupations. Results from comparing rows 1 and 2 of Table A.4 indicate that firm experience matters more in professional occupations than the other two job categories. In general, the table indicates that the overall results are not driven by one occupation in particular. The finding that the rate of interview requests drops sharply after six months of nonemployment is statistically significant in both professional and administrative occupations while it is not for sales occupations.

Figures 3-5 in the appendix provide graphical evidence for the differences in the average interview requests across occupations. In figures 3b, 4b, and 5b, the data are grouped into bins of 2 months. The pattern in each graph suggests that recently nonemployed applicants with no relevant experience are more likely to receive interview requests than those with similar firm experience who have been out of work for more than six months.

IV.C. Alternative Theoretical Explanations

Section II provided a number of prominent explanations as to why individual re-employment prospects decline with the length of time out of work. The main evidence of negative duration dependence as presented in Figure I is consistent with predictions of Blanchard and Diamond (1994)'s ranking model, Vishwanath (1989) and Lockwood (1991)'s screening models, as well as with the view that long nonemployment spells may cause loss of human capital (Sinfield, 1981) which reduce individuals job finding rate. Blanchard and Diamond (1994) argue that the fall in the exit probability with the duration of the unemployment spell can be due to firms ranking behavior where each vacancy can get more than one applicant, and as a result, firms choose the one with the shortest duration of unemployment. Although, the model is consistent with the full sample, it is not clear how duration dependence due to ranking varies with industry experience.

The experiment reveals higher "returns" to industry-relevant experience for interview requests at low durations of nonemployment and greater negative duration dependence in the interview request rate for those with industry-relevant experience. We can therefore reject the hypothesis that the increase in long-term unemployment over the recent recession is entirely due to an increase in skills mismatch between the non-employed and employers demand. To the extent that a mismatch between workers' skills and the demand of available jobs is generating prolonged spells of nonemployment, then one would expect those with relevant skills to have better job market prospects than others with no relevant experience. However, evidence from Figure II calls the mismatch hypothesis is called into question by the fact that job seekers with long nonemployment spells received far less interview requests on average than inexperienced short term jobless workers--even when they applied to jobs at similar type of firms.

An alternative explanation for the heterogeneity in duration dependence is that industry-specific human capital depreciates very fast with the duration of non-employment. Employed workers accumulate two types of human capital. Some of this human capital is general and will transferable across all jobs, while some human capital is match-specific and will depend on the type of firm, occupation, or industry work experience. Once a worker moves from one job to another, some human capital will be lost. In this study, résumés are constructed such that the skills and activities assigned to previous jobs are exactly matched to those demanded by firms (there is no loss of occupation-specific human capital). As explained in the experimental design, résumés are either

assigned work experience with the same type of firm as the prospective employer or with an employer in different industry. This suggests that returns to relevant work experience (specific human capital) as presented in Figure II are return to specific human capital that are transferrable between the same type of firms in a given industry.

One reason why negative duration dependence is stronger among those with specific industry experience is the possibility that human capital specific to firms of the same type depreciates very fast with the duration of non-employment (according to Figure II, one could conclude that it takes nine months for six years of industry-specific human capital to depreciate completely), and thus after nine months the long-term nonemployed with and without industry-specific work experience are viewed the same by employers in that sector. However, the sharp drop in the rate of interview requests after six months of non-employment suggests that human capital depreciation is unlikely the sole mechanism behind the results; for what the gap is actually measuring, is the return to relevant industry skills and there is no reason to see that dropping sharply between six and seven months of nonemployment.

Another potential explanation for the pattern is related to the literature of statistical discrimination as pioneered by Arrow (1973) and Phelps (1972). In this literature, productivity is not perfectly observed, and thus the observable characteristics of workers are used to determine their expected productivity. In this case, firms may statistically discriminate against the long-term unemployed because they are negatively selected towards the less able. The empirical results presented in the paper show that the negative slope of the interview request function (with respect to nonemployment duration) for those with same type of experience as the prospective employer increases sharply after six months of nonemployment. Thus, the fact that employers discriminate more against the long-term unemployed with industry-specific work experience than the short-term unemployed without industry-specific work experience shows the extent of statistical discrimination against the long-term unemployed in general.

V. CONCLUSION

The paper attempts to measure the intensity of discrimination against the long-term unemployed by exploring the extent to which employers become forgiving of longer nonemployment spells when other merits appear on an applicant's résumé: in this case, having worked in the same type of firm as the prospective employer. The evidence suggests that discrimination is an important factor to why individuals with long nonemployment spells are doing poorly in the labor market. Results from tracking employer responses to job applications which differed in experience and nonemployment duration reveal a sharp drop off in the probability of receiving an interview request after six months of nonemployment. Additionally, I find that nonemployed jobseekers who have worked in the same type of firm for which the employer is hiring are greatly favored over those without similar experience. However, this is only true for those who have been nonemployed for less than six months. Most importantly, the data reveals that recently nonemployed applicants with no relevant industry experience are more likely to be invited for an interview than those with experience who have been out of work for more than six months.

The finding that recently employed workers are more likely to receive interview requests than those who are currently unemployed is inconsistent with the predictions from theories that emphasize the signaling attributes of unemployment (Greenwald, 1986). Greenwald's work as well as work by Gibbens and Katz (1991), show that employed workers tend to be of higher quality than unemployed ones. However, one reason why employed jobseekers may not be as attractive to firms as those who are recently unemployed is the concern that employed workers are not serious job seekers and might be intrinsically less loyal and especially prone to job hopping (Kroft *et al.*, 2013). Kroft *et al.* (2013) shed light on other reasons for this pattern including the possibility of easier wage negotiations with unemployed workers (those with no other options) relative to employed ones.

While results from this study speak mostly directly to younger job seekers with relatively little work experience, evidence from disaggregating the vacancy and unemployment relationship by different age groups reveals an increase in vacancies for a given level of unemployment across all categories (Ghayad and Dickens, 2012). This suggests that similar forces are likely to be at work among older age groups.

All together, the results shed light on an important labor market phenomenon which is the dependence of re-employment probabilities on the length of a jobless spell even when observable differences across individuals are controlled for. This negative duration dependence contributes to the incidence of long-term unemployment. The evidence in this paper suggests that some of this duration dependence may be due to employer's hiring behavior. In a situation when employers cannot perfectly observe the productivity of job seekers, they may then engage in statistical discrimination against the long-term nonemployed by using nonemployment duration as a measure on which to base their hiring decisions. This behavior will hurt job seekers with long jobless spells whose productivity is not low as much as those who are. In this case, it becomes increasingly harder for job seekers to find work as their unemployment duration increases. Thus it is possible that heterogeneity that is unobservable to employers as well as econometricians may be responsible for a type of true duration dependence making fuzzy the lines between the two explanations for the observed empirical regularity.

Evidence from previous work on disaggregating the vacancy and unemployment relationship by duration of unemployment revealed that all the increase in vacancies relative to unemployment is driven by the long-term unemployed (Ghayad & Dickens; 2012). One claim for why the Beveridge curve relationship for the long-term unemployed has apparently shifted is a mismatch between the skills of the long-term unemployed and the demand of available jobs. The experiment provides results consistent with the long-term unemployed having significantly lower chances of being invited to job interviews. Furthermore, the mismatch hypothesis is called into question by the fact that job seekers with long nonemployment spells received far less interview requests on average than inexperienced short term jobless workers-- even when they applied to jobs at similar type of firms.

In an extension to this study, I am evaluating the impact on hiring decisions in New York City after the recently enacted anti-discrimination bill protecting the unemployed. The law which has been effective since June 11 of 2013, prohibits employers and employment agencies from basing hiring decisions on an applicant's unemployment history.

REFERENCES

- Arrow, K.J., 1973. The Theory of Discrimination. In: Ashenfelter, O., Rees, A. (Eds.), *Discrimination in Labor Markets*. Princeton University Press, pp. 3–33.
- Arulampalam, Wiji, “Is Unemployment Really Scarring? Effects of Unemployment Persistence on Wages.” *The Economic Journal* 111 (2001), 585-606.
- Bertrand, Marianne, and Sendhil Mullainathan, “Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination,” *American Economic Review*, 94 (2004), 991-1013.
- Blanchard, Olivier J., and Peter Diamond, “Ranking, Unemployment Duration, and Wages,” *Review of Economic Studies*, 61 (1994), 417-434.
- Bishop, John, “The Changing Educational Quality of the Workforce: Occupation-specific Versus General Education and Training,” *The American Academy of Political and Social Science*, 24 (1998)
- Calvo-Armengol, Antoni, “Job Contact Networks,” *mimeo*, Universitat Pompeu Fabra, Barcelona Spain, (2000).
- Coles, Melvyn G., and Eric Smith, “Marketplaces and Matching,” *International Economic Review*, 39 (1998), 239-254.
- Devine, Theresa J., and Nicholas Kiefer, “Empirical Labor Economics; The Search Approach,” *Oxford University Press*, New York, (1991).
- Eriksson, Stefan, and Dan-Olof Rooth, “Do Employers Use Unemployment as a Sorting Criterion When Hiring? Evidence from a Field Experiment,” Unpublished manuscript, 2011.
- Gibbons, Robert and Lawrence F. Katz, “Layoffs and Lemons”, *Journal of Labor Economics*, 9 (1991),351-380.
- Ghayad, Rand, and William T. Dickens, “What Can We Learn by Disaggregating the Vacancy and Unemployment Relationship,” Working Paper, 2012, Federal Reserve Bank of Boston.
- Gregg, Paul, “The Impact of Youth Unemployment on Adult Employment in the NCDS,” *The Economic Journal*, 111 (2001), 623-53.
- Gregg, Paul, and Emma Tominey, “The Wage Scar from Youth Unemployment.” The Centre for Market and Public Organization, Working Paper Series No. 04/097, 2004, University of Bristol, UK.
- Gregg, Paul, and Barbara Petrongolo, “Random or Non-random Matching ? Implications for the Use of the UV Curve as a Measure of Matching Effectiveness,” Discussion Paper no. 348, 2007, (CEP, London School of Economics).
- Gregg, Paul, and Jonathan Wadsworth, “It Takes Two: Employment Polarization in the OECD’, Centre for Economic Performance Discussion Paper no. 304, 1996, London School of Economics and Political Science, London.
- Greenwald, Bruce C., “Adverse Selection in the Labour Market”, *Review of Economic Studies*, 53 (1986),325-347.
- Heckman, James J., and Georges Borjas, “Does Unemployment Cause Future Unemployment? Definitions, Questions and Answers from a Continuous Time Model of Heterogeneity and State Dependence,” *Economica*, 47 (1980), 247-283.

- Kletzer, Lori G. "Returns to Seniority after Permanent Job Loss." *American Economic Review* 79 (June 1989): 536-43
- Lahey, Joanna, and Ryan Beasley, "Computerizing Audit Studies", 2007,
Available at SSRN: <http://ssrn.com/abstract=1001038>
- Layard, Richard, Stephen Nickell, and Richard Jackman, "*Unemployment: Macroeconomic Performance and the Labour Market*" (Oxford University Press), 1991.
- Kroft, Kory, Fabian Lange, and Mathew Notowidigdo, "Duration Dependence and Labor Market Conditions: Evidence from a Field Experiment," *Quarterly Journal of Economics*, 2013.
- Lockwood, Ben, "Information Externalities in the Labour Market and the Duration of Unemployment," *Review of Economic Studies*, 58 (1991), 733-753.
- Neal, Derek. "Links between Ability and Specialization: An Explanation for Observed Correlations between Wages and Mobility." Mimeo-graphed. Chicago:University of Chicago, May 1995.
- Oberholzer-Gee, Felix, "Nonemployment Stigma as Rational Herding: A Field Experiment," *Journal of Economic Behavior & Organization*, 65 (2008), 30-40.
- Phelps, E., 1972. The statistical theory of racism and sexism. *Am. Econ. Rev.* 62, 659–661.
- Sinfield, Adrian, "What Unemployment Means," Oxford University Press: Martin Robertson Ed., 1981.
- Thurow, Lester C. 1975. *Generating Inequality: Mechanisms of Distribution in the U.S. Economy*. New York: Basic Books.
- van den Berg, Gerard J., and Jan C. van Ours, "Unemployment Dynamics and Duration Dependence," *Journal of Labor Economics*, 14 (1996), 100-125.
- Willis, Robert. "Wage Determinants: A Survey and Reinterpretation of Human Capital Earnings Functions." *Handbook of Labor Economics*, edited by O. Ashenfelter and R. Layard. New York: Elsevier, 1986.
- Vishwanath, Tara, "Job Search, Stigma Effect, and Escape Rate from Unemployment," *Journal of Labor Economics*, 7(1989), 487-502.

TABLE A.1
Descriptive Statistics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Interview Requests All Resumes	Interview Requests Employed	Interview Requests Non-employed	Interview Requests Employed Same Industry	Interview Requests Employed Diff Industry	Interview Requests ST Unemployed Same Industry	Interview Requests ST Unemployed Diff Industry	Interview Requests Med Unemployed Same Industry	Interview Requests Med Unemployed Diff Industry	Interview Requests LT Unemployed Same Industry	Interview Requests LT Unemployed Diff Industry
All sent resumes	8.30% [3360]	10.25% [1200]	7.18% [2160]	14.67% [600]	5.83% [600]	16.11% [360]	8.33% [360]	12.22% [360]	4.17% [360]	1.94% [360]	0.56% [360]
Professional Occupations	8.84% [1120]	9.00% [400]	8.75% [720]	13.00% [200]	5.00% [200]	21.67% [120]	5.83% [120]	17.50% [120]	3.33% [120]	3.33% [120]	0.83% [120]
Sales Occupations	8.30% [1120]	12.75% [400]	5.83% [720]	17.50% [200]	8.00% [200]	15.00% [120]	8.33% [120]	7.50% [120]	1.67% [120]	1.67% [120]	0.83% [120]
Administrative Occupations	7.77% [1120]	9.00% [400]	7.08% [720]	13.50% [200]	4.50% [200]	11.67% [120]	10.83% [120]	11.67% [120]	7.50% [120]	0.83% [120]	0.00% [120]

Notes: The table reports mean interview requests across subsamples of the experimental data. In brackets in each cell is the number of resumes sent in that cell. Resumes with a spell between [1,3] are grouped under ST Non-employed; Resumes with a spell between [4,6] are grouped under Med Non-employed; and those with a spell greater than 6 months are grouped under LT Non-employed.

TABLE A.2

Mean Response Rates By Industry Experience

	Matching Experience	No Relevant Experience	Percent difference
	<i>Mean Response</i>	<i>Mean Response</i>	<i>(p-value)</i>
Employed	14.66% [600]	5.83% [600]	8.83% (0.0000)
Unemployed	10.09% [1080]	4.35% [1080]	5.74% (0.0000)
Unemployed Applicants	<i>duration =1</i>	15.83% [120]	9.84% [122] (0.0821)
	<i>duration =2</i>	16.39% [122]	8.93% [112] (0.0443)
	<i>duration =3</i>	16.10% [118]	6.35% [126] (0.0076)
	<i>duration =4</i>	13.13% [137]	5.64% [124] (0.0200)
	<i>duration =5</i>	12.19% [123]	3.22% [124] (0.0040)
	<i>duration =6</i>	11.00% [100]	3.57% [112] (0.0177)
	<i>duration =7</i>	3.27% [61]	1.96% [51] (0.3301)
	<i>duration =8</i>	3.70% [54]	0.00% [62] (0.0661)
	<i>duration =9</i>	2.00% [50]	1.72% [58] (0.4583)
	<i>duration =10</i>	0.00% [71]	0.00% [68] (.)
	<i>duration =11</i>	1.56% [64]	0.00% [61] (0.165)
	<i>duration =12</i>	1.66% [60]	0.00% [60] (0.1597)

Notes: The table reports, for the entire sample and different subsamples of sent resumes, the average interview requests for applicants with matching industry experience (column 1) and different industry experience (column 2), as well as the difference (column 3) of these response rates. In brackets in each cell is the number of resumes sent in that cell.

Column 3 also reports the p-value for a test of proportion testing the null hypothesis that the response rates are equal across groups with matching or no relevant experience.

TABLE A.3
The Effects of Non-employment and Industry Experience
 Dependent variable: Received a request for interview
 Sample: Unemployed Only

	(1)	(2)	(3)	(4)
<i>SAME_t</i>	0.180*** (0.022)	0.179*** (0.023)	0.176*** (0.039)	0.183*** (0.035)
<i>DIFF_t</i>	0.112*** (0.022)	0.111*** (0.023)	0.110*** (0.032)	0.111* (0.035)
<i>LTsame_t</i>	-0.0798** (0.030)	-0.0799** (0.030)	-0.0788** (0.030)	-0.0768* (0.036)
<i>LTdifferent_t</i>	-0.010 (0.019)	-0.010 (0.019)	-0.011 (0.019)	-0.006 (0.036)
<i>TREND_0_6_SAME_t</i>	-0.0113* (0.006)	-0.0113* (0.006)	-0.0114* (0.006)	-0.0122 (0.006)
<i>TREND_7_12_SAME_t</i>	-0.005 (0.004)	-0.005 (0.004)	-0.004 (0.004)	-0.0053 (0.008)
<i>TREND_0_6_DIFF_t</i>	-0.0141** (0.005)	-0.0141** (0.005)	-0.0145** (0.006)	-0.0143** (0.005)
<i>TREND_7_12_DIFF_t</i>	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)
Baseline Characteristics		X	X	X
MSA Fixed Effects			X	X
Resume Template				X
Average response rate	0.072	0.072	0.072	0.072
N	2160	2160	2160	2160
adj. R-sq	0.113	0.114	0.111	0.113

Standard errors in parentheses

* p<0.05, **p<0.01, *** p<0.001

Note: Data are resume submissions matched to employer responses.

The baseline controls are indicators for the three job categories (administrative, sales, and professional).

Standard errors (in parentheses) are clustered at the firm level to address the non-independence of errors within firms

TABLE A.4
The Effects of Non-employment and Industry Experience
Dependent variable: Received a request for interview
Sample: Unemployed Only

	All Occupations	Professional	Sales	Administrative
	(1)	(2)	(3)	(4)
<i>SAME_i</i>	0.180*** (0.022)	0.235*** (0.058)	0.183*** (0.050)	0.121* (0.050)
<i>DIFF_i</i>	0.112*** (0.022)	0.0959** (0.038)	0.126** (0.042)	0.115** (0.042)
<i>LTsame_i</i>	-0.0798** (0.030)	-0.131* (0.057)	0.0112 (0.060)	-0.104* (0.041)
<i>LTdifferent_i</i>	-0.010 (0.019)	0.0302 (0.045)	0.0171 (0.021)	-0.0744* (0.030)
<i>TREND_0_6_SAME_i</i>	-0.0113* (0.006)	-0.0116 (0.015)	-0.0205 (0.012)	-0.00115 (0.013)
<i>TREND_7_12_SAME_i</i>	-0.005 (0.004)	0.001 (0.009)	-0.0148 (0.011)	-0.00101 (0.001)
<i>TREND_0_6_DIFF_i</i>	-0.0141** (0.005)	-0.0143 (0.009)	-0.0216* (0.009)	-0.00679 (0.010)
<i>TREND_7_12_DIFF_i</i>	-0.003 (0.003)	-0.00881 (0.009)	-0.00145 (0.002)	-2.71e-17*** (0.000)
Average response rate	0.072	0.086	0.058	0.071
N	2160	720	720	720
adj. R-sq	0.113	0.153	0.093	0.1044

Standard errors in parentheses

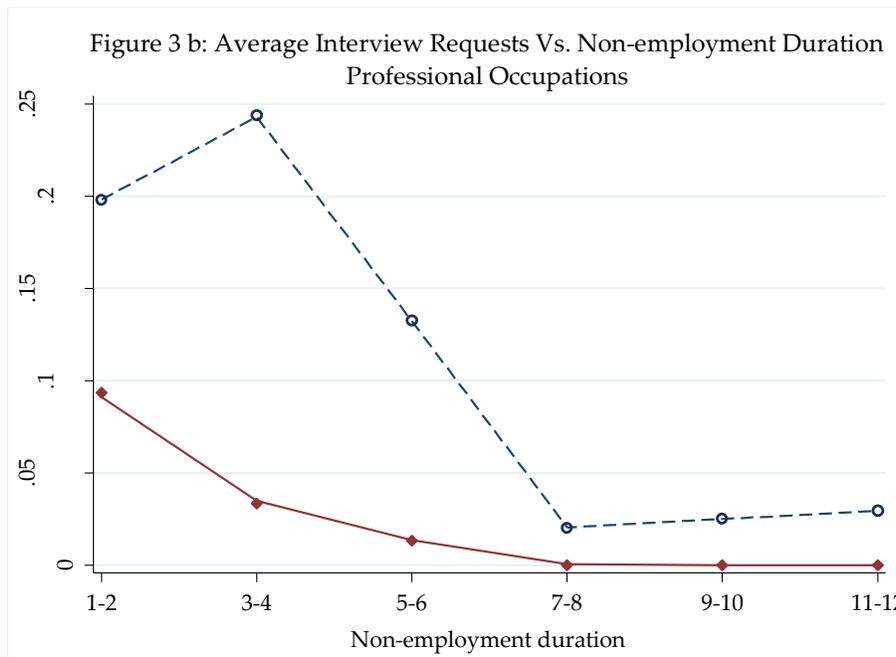
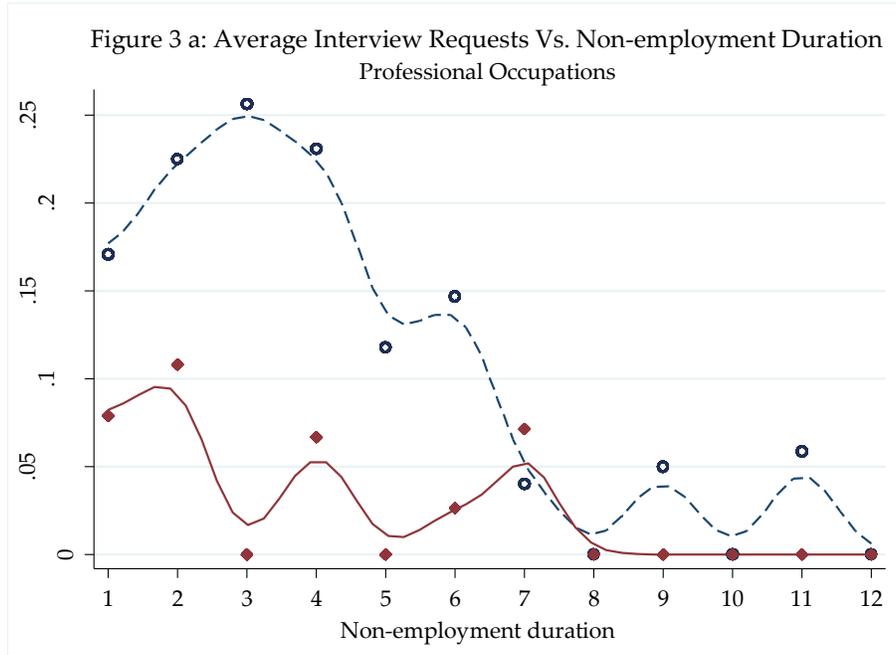
* p<0.05, **p<0.01, *** p<0.001

Note: Data are resume submissions matched to employer responses.

The baseline controls are indicators for the three job categories (administrative, sales, and professional).

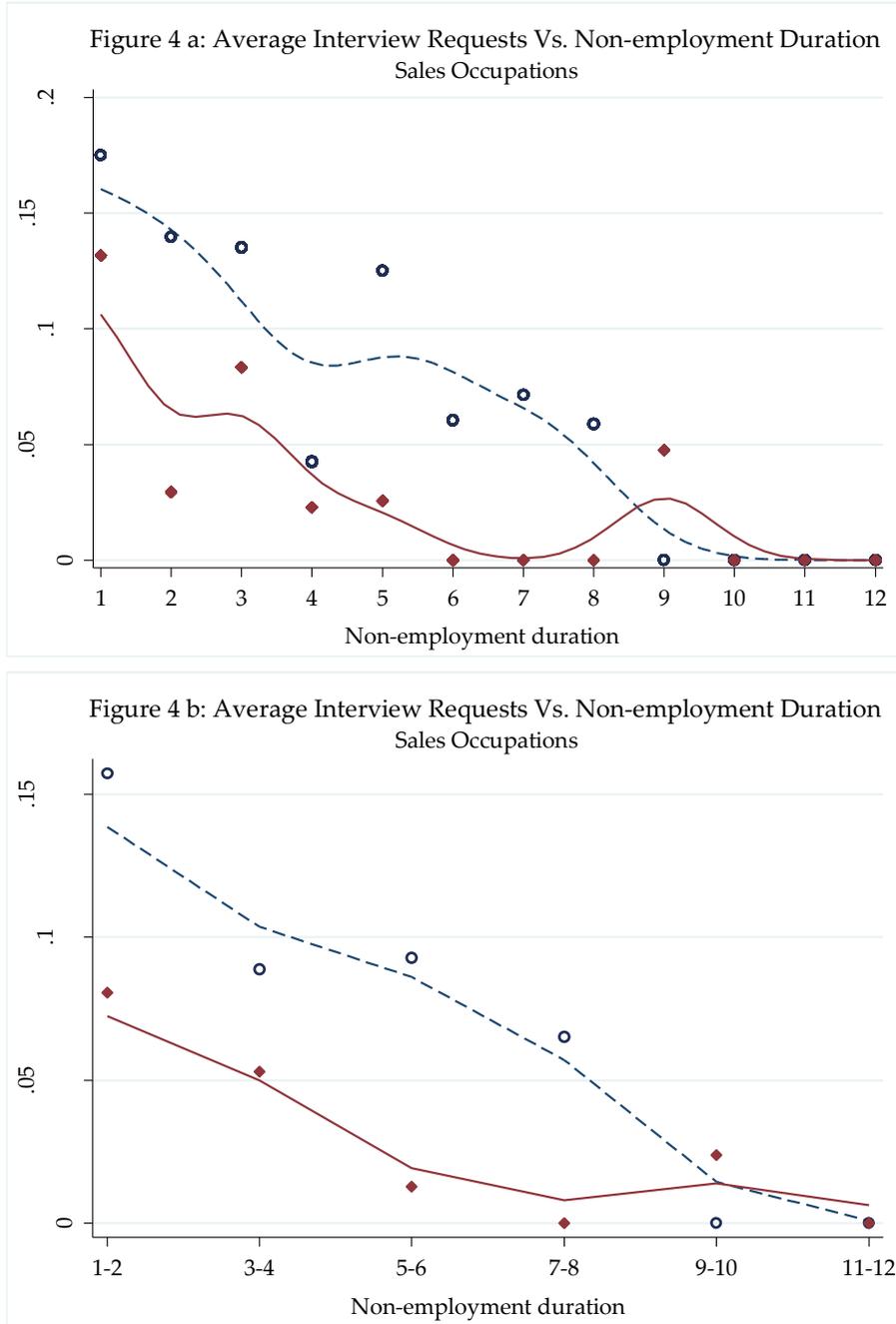
Standard errors (in parentheses) are clustered at the firm level to address the non-independence of errors within firms

Figure III



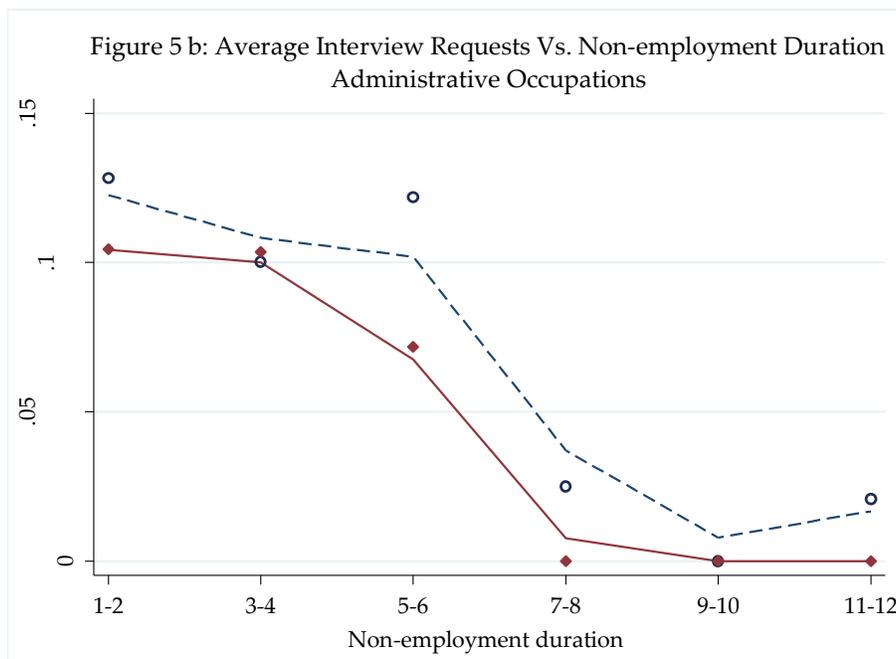
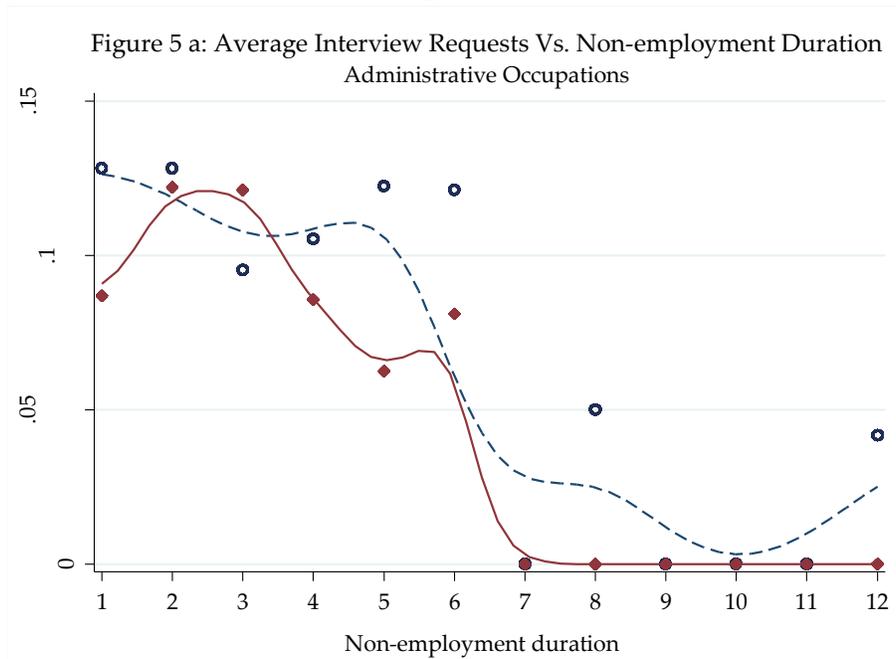
Notes: The top figure reports average interview requests by length of nonemployment spell (months) for applicants with experience in the same type of firm (blue dots) and others with no relevant industry experience (red dots) using the sample of professional résumés. In the bottom figure, the data are grouped into 1-2 month bins before computing the average callback. In both figures, the curves connecting the data points are (smoothed) local means generated using a Gaussian kernel and a bandwidth of 0.5.

Figure IV



Notes: The top figure reports average interview requests by length of nonemployment spell (months) for applicants with experience in the same type of firm (blue dots) and others with no relevant industry experience (red dots) using the sample of sales résumés. In the bottom figure, the data are grouped into 1-2 month bins before computing the average callback. In both figures, the curves connecting the data points are (smoothed) local means generated using a Gaussian kernel and a bandwidth of 0.5.

Figure V



Notes: The top figure reports average interview requests by length of nonemployment spell (months) for applicants with experience in the same type of firm (blue dots) and others with no relevant industry experience (red dots) using the sample of administrative résumés. In the bottom figure, the data are grouped into 1-2 month bins before computing the average callback. In both figures, the curves connecting the data points are (smoothed) local means generated using a Gaussian kernel and a bandwidth of 0.5.

SAMPLE 1

Jake Courtney

100 Warren St

Jersey City, NJ 07302-6406

jakecourtney2013@gmail.com

Employment History:

January 2012- January 2009

Administrative Assistant,

Bank of America, Pennington, NJ

- ❖ Processed loan applications and other administrative duties
- ❖ Processed check requests/invoices; prepared travel/expense reports
- ❖ Supported the recruiting process by performing all administrative aspects of the new hire and onboarding life cycle, including background checks, new hire paperwork, and onboarding.
- ❖ Input and retrieved data utilizing knowledge of various computer software packages

December 2008- December 2005

Administrative Assistant,

First Commerce Bank, Lakewood, NJ

- ❖ Provided general lending information to clients; prepared loan applications for credit approval; disbursed approved loans; provided client services related to the lender's consumer, commercial and real estate loan clients and potential clients.
- ❖ Processed and filed loan documentation within bank standards.
- ❖ Collected and analyzed data to produce weekly and monthly specialized reports.

Education:

- Monmouth University, West Long Branch, NJ
B.S. in Business Administration, 2005
- James J Ferris High School, 2002, Jersey City, NJ

Victor Manove
787 Ocean Ave
Jersey City, NJ 07304-2753
Vmanove13@gmail.com

SAMPLE 2

Employment History:

June 2012-June 2009
Administrative Assistant

Rutgers University, New Brunswick, NJ

- Maintained and updated databases, spreadsheets, and official records, and implements administrative policies.
- Provided support to Dean's staff (scheduled meetings, managed calendars, and researched and prepared documents).
- Performed administrative duties, such as answering telephone calls, filing, faxing, copying, sorting incoming mail, and preparing correspondence.
- Drafted correspondence, memoranda, speeches, position papers, program/grant proposals and other written documentation.

May 2009- May 2006
Administrative Assistant

Trinitas Regional Medical Center, Elizabeth, NJ

- Provided routine administrative support such as: typing memos and letters, answering telephones, and taking and distributing messages.
- Performed general office duties, including mailings, photocopies, and filing.
- Proofread and edited manuscripts, performed library and literature searches, and helped create and edit presentation materials.
- analyzed data into reports and presentations; coordinated and monitored budget preparation;

Education:

2006 BS in Business Administration
Bloomfield College, Bloomfield, NJ
2001 *St Mary High School*, Jersey City, NJ