Ethnic background and the value of self-employment

experience: Evidence from a randomized field experiment*

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Accepted for publication in Oxford Bulletin of Economics and Statistics

July 8, 2021

Abstract:

We use a randomized field experiment in Sweden to investigate how self-employment experience is valued in the labor market. Our results show that self-employment experience negatively impacts the likelihood of receiving a positive response from employers. For male applicants, this holds regardless of ethnic background, and independently of whether we consider applicants with experience solely from selfemployment, or applicants with combined experience from wage employment and self-employment. For female applicants, results are less clear-cut. Our findings provide input into the discussion about the impact of self-employment on the chances

for individuals with different ethnic background to obtain wage employment.

Kevwords: Self-employment, wage employment, randomized experiment,

discrimination, labor market outcomes.

JEL codes: J15, J24, J71, L26

* We are grateful to the editor, James Fenske, and two anonymous referees for helpful comments. Towe Nilsson provided outstanding research assistance. Financial support from the Kamprad Foundation is gratefully acknowledged. Ethical approval was obtained from the Swedish Ethics Review Board, application number

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1. Introduction

Studies from several countries have documented ethnic differences in self-employment rates, and much attention in research has been devoted to increasing the understanding of why different ethnic groups have different incentives to become self-employed (see e.g. Borjas 1986; Yuengert 1995; Fairle and Meyer 1996; Fairlie 1999; Clark and Drinkwater 2000; Hout and Rosen 2000; Fairlie and Robb 2007; Robb and Fairlie 2009). Since certain ethnic groups have difficulties in entering the labor market in many OECD countries, self-employment has been put forward as a way for such groups to improve their economic situation in the regular labor market; by entering self-employment, individuals can escape poverty, avoid unemployment and discrimination, and gain relevant human capital.

It is well known that individuals who opt for self-employment typically leave self-employment after a number of years (see e.g., Blanchflower and Oswald 1998; Taylor 1999). This raises the question about their employability when they decide to re-enter the regular labor market, i.e., how do employers reward experience from self-employment?

For those seeking wage employment, self-employment experience is most likely more valuable than an extended period of unemployment. However, the value of self-employment experience in relation to wage employment experience is theoretically ambiguous. The reason for this is at least two-fold. First, it is a priori unclear whether human capital obtained through a spell of self-employment is worth more or less than human capital obtained through a spell of wage employment when seeking wage employment. Second, wage-employed and self-employed individuals differ in terms of unobservable characteristics (such as innate abilities and psychological traits) that affect worker productivity and how potential employers perceive these differences is difficult to predict. Thus, how a spell of self-employment is rewarded in relation to a spell of wage employment when looking for a job is an empirical question.

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¹ It is also not clear how a combination of wage employment and self-employment compares to a consecutive spell of wage employment or self-employment.

² According to Lazear (2005), entrepreneurs are jack-of-all-trades, i.e., their unobservable talents are more equally distributed than the unobservable talents of wage-employed individuals. However, what this means for the employability of previously self-employed individuals in the wage employment sector is not obvious. For example, self-employed individuals might have traits that are desirable in wage employment, such as self-confidence and a willingness to take on risks, but also traits that are undesirable in wage employment, such as difficulties to work with others or follow the instructions of managers. Moreover, we focus on workers who exit self-employment at a relatively young age to seek wage employment and this group might be perceived to have different unobservable characteristics than those who exit at later ages.

A number of studies have used survey data or administrative data to analyze the impact of self-employment experience on subsequent wage earnings and employment prospects. Some of these studies indicate that, compared to continued wage-employment, a period of self-employment has no impact on subsequent earnings in wage-employment (Evans and Leighton 1989; Ferber and Waldfogel 1998). Other studies find that self-employment experience is negatively rewarded by employers both in terms of earnings and employment prospects, especially for women (Williams 2000; Bruce and Schuetze 2004; Hyytinen and Rouvinen 2008; Kaiser and Malchow-Möller 2011; Andersson 2011; Baptista et al 2012).

In this paper, we add knowledge to the research area regarding self-employment and its labor market consequences by conducting a field experiment where we let fictitious job applicants with different ethnic background and different lengths of self-employment experience apply for job openings in the Swedish labor market. Our experimental design is a so-called correspondence test, where we submitted a large number of job applications to different employers with random assignment. The outcome is measured in terms of call-backs, either in the form of a request for more information or an invitation to a job interview. Ethnic background is signaled by the fact the applicants in our experiment have either typically Swedish or typically Arabic/Muslim names. We vary self-employment experience by considering applicants with experience purely from wage employment, purely from self-employment, or a combination of the two. In this way, we provide causal evidence on the labour market value of self-employment experience in relation to experience in wage employment.

To the best of our knowledge, there is only one previous study in economics that has used correspondence testing to study how self-employment experience is rewarded in the labor market.³ Koellinger et al. (2015) emailed pairs of fictitious resumes to job advertisements in the field of human resource management in the UK in 2011–2012 and found that self-employment experience is negatively rewarded in the labor market due to a lower probability of receiving a positive response from employers. Although the study provided the first causal evidence on this important question, it did not cover all aspects that may be of importance for the outcome of the job application, for example, the length of the self-employment spell, and the ethnic background of the job applicant.

³ Studies in the fields of management and business (Bothelo and Chang 2020) as well as organizational science (Kacperczyk and Younkin 2021) have paid attention to how experience from entrepreneurship is rewarded by employers. However, while both studies found that such experience were negatively rewarded by employers, these studies did not study the role of the ethnic background of the job seekers.

Our study contributes with new knowledge to this research area in different ways. First, we examine whether the results from previous research extend to other labor market settings by considering the Swedish labour market. Second, in relation to the existing literature, we consider a different experimental setting where we focus on relatively young job seekers and analyze how the labor market effects of self-employment experience depend on the ethnic background of the applicant. Third, we explore how gender and ethnic background interact as regards self-employment experience and employability.

Our motivation for focusing on younger workers is that public policy initiatives stimulating self-employment and entrepreneurial activity often target young individuals who have an incentive to experiment with new ideas and become self-employed in order to learn about their entrepreneurial ability. The focus on young workers implies that our results are not necessarily generalizable to older job-seekers with longer spells of self-employment experience. For example, Manso (2016) and Hincapié (2020) analyze the value of self-employment using longitudinal survey data from the United States and their results suggest that low amounts of self-employment experience can be harmful, whereas higher levels of self-employment experience may not be. 5

Studying both male and female applications is motivated given that there are differences in entrepreneurial activity between men and women (see, for example, Koellinger et al. 2013). The interaction between gender and ethnic background is also important to study given that gender differences in labor market outcomes vary across ethnic groups in several countries (see, for example, OECD 2020).⁶ Another reason for considering gender is that self-employment experience might signal unobserved psychological attributes that affect worker productivity in

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⁴ Self-employment experience among young workers is relatively common in Sweden. Based on our own calculations using register data from Statistics Sweden for the year 2018, around 35 percent of all self-employed in the age group 20-64 were between 20 and 30 years old. The share of age 30 individuals in 2018 who were full-time self-employed at some point between age 20 and age 30 was 6.3 percent, whereas 8.4 percent received some form of business income during these ages.

⁵ Azulay et al. (2020) use administrative data from the United States Census Bureau and find that some of the most successful high-growth businesses are started by middle-aged individuals. Carlsson and Eriksson (2019) study the impact of age on call-back rates in the Swedish labour market and find that call-back rates begin to fall substantially for workers in their early 40s and then continue to fall up until retirement. They also find a steeper decrease for women. These authors did not however investigate the value of self-employment experience or the role of ethnic background.

⁶ Based on our own calculations using register data from Statistics Sweden for the year 2018, the self-employment rate among natives was 9.2% for men and 4.3% for women, whereas they were 6.4% and 3.5% for foreign-born men and women, respectively. The employment rate for immigrant women is particularly low in many countries (in Sweden it was only 60 percent among women aged 20–64 in 2018). Thus, it is especially important to uncover how women with foreign background and self-employment experience are perceived by employers since encouraging female self-employment could be one way to increase the labor market attachment of this group.

different ways for men and women. For example, there are studies suggesting that women on average are more risk averse than men.⁷ Self-employment experience could therefore be valued differently for men and women by employers who use self-employment experience as a signal of attitude towards risk.

The results of the paper can be summarized as follows. We find that self-employment experience, in comparison to wage-employment experience, is negatively rewarded in the labor market and that this holds true also when self-employment experience is combined with past experience from wage-employment. In the case of male applicants, these findings hold independently of ethnic background, whereas for female applicants, the results are less clear cut. In order to receive a positive call-back, a male with an Arabic/Muslim name and experience solely from self-employment has to apply for twice as many jobs as an applicant with the same ethnic background and experience solely from wage employment. For male applicants with a Swedish name, the corresponding factor is 1.2. In contrast, employers value experience from wage employment and self-employment more equally among female applicants with an Arabic/Muslim name. Finally, in line with a number of previous field experiments in the US as well as in several European countries (see e.g., Bertrand and Mullainathan, 2004; Carlsson and Rooth, 2007), we find that people with Arabic/Muslim names receive fewer responses in general when applying for job openings.

The paper is organized as follows. Section 2 provides a detailed description of the field experiment that we conducted. Section 3 presents the results, containing both an analysis of the raw data, as well as an analysis of several regression models. Finally, section 4 offers a concluding discussion.

2. The field experiment

The data used in the study was collected by conducting a correspondence test experiment with random assignment on the Swedish labor market from September 25 2019 to March 1 2020. Due to the outbreak of the Covid-19 pandemic, we chose to stop the experiment on March 1 to avoid that the demand and supply shocks induced by the pandemic would affect our results. For

⁷ The large literature on gender differences in psychological attributes is surveyed by Croson and Gneezy (2009) and also discussed more recently by Blau and Kahn (2017). One way these attributes can affect worker productivity is that they may affect effort on the job and therefore the human capital of the worker.

applications sent out on March 1, we recorded call-backs from employers up until March 15. During our experiment, we applied for a total of 1 302 vacancies in selected occupations posted on the website of the Swedish Public Employment Agency.⁸ We applied for all jobs, located all over Sweden, where it was possible to apply by e-mail. Applying by e-mail is possible for most private employers. In the public sector, many employers have a web-based recruitment system that requires job applicants to state their social security number. As a result, we mainly applied for private-sector jobs.⁹

To get a representative picture of how employers value self-employment experience relative to wage-employment, we needed occupations where it is relatively common to be both wage-employed and self-employed. To ensure the statistical power of the study we also required that the occupations had a relatively large number of vacancies posted the website of the Swedish Public Employment Agency. We chose the following two occupations that fulfilled these criteria: accountant and software developer.¹⁰

We constructed the job applications to appear realistic for a typical job seeker for the advertised position. In order to control for the applicant's job history, we designed applications for relatively young workers who search for a job six years after graduating from the university. In addition, all applicants were born and raised in Sweden, and studied at Stockholm University. The education was chosen to match the occupation. The applicants also obtained their work experience in Stockholm, and were currently residing in Stockholm when applying for the job.

The application consisted of a cover letter and a detailed CV. In the cover letter, the applicant stated and motivated their interest for the position. The cover letter also included some general information about age, marital status, personality, and personal interests (the structure of the letter and the CV is outlined in Appendix B). All applicants were of the same age, and the age (29 years old) was chosen to match the educational attainment and work history. The applicants were cohabiting and had no children.¹¹

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⁸ Estimates suggest that 30–40 percent of the all vacancies in Sweden are reported to the Employment Agency (Carlsson and Eriksson 2019).

⁹ Slightly below 90 percent of the vacancies we applied for were private-sector jobs.

¹⁰ Based on our own calculations using register data from Statistics Sweden for the year 2017 (the latest year for which we have access to occupational data), 29.7 percent of all workers in accounting were self-employed while the corresponding number for software developers was 13.4 percent.

¹¹ In comparison to Koellinger et al. (2015), we use shorter job histories. One implication of this could be that employers in our experiment are more likely to request more information. The implications of the length of the CV on call-back rates is a largely unexplored topic in the literature.

To each application, we randomly assigned a number of attributes: work history, ethnic background, and gender. More specifically, we randomly assigned three different work histories to the applications: 1) only self-employment experience (six years), 2) only wage-employment experience (six years), and 3) experience from wage-employment and self-employment (three plus three years). We submitted job applications following a random list of numbers and we checked that this list would imply that we would send out a roughly equal number of each type of application once we reached our target number of observations. We did not use any stratification in our sampling strategy, since we applied for all available jobs that matched our occupational criteria.

Our benchmark is the application with a consecutive period of wage-employment, which will be compared to applications with either a consecutive period of self-employment, or a spell of wage-employment followed by a spell of self-employment. Thus, for the applicants with self-employment experience, the most recent work experience is from self-employment. The length of the self-employment spell was chosen to provide both a realistic and strong signal of self-employment experience. The type of work history was stated both in the cover letter and in the CV. For wage-employed applicants, we stated the previous employer, using names of actual workplaces in Sweden with a large number of employees. We only sent out one application to each job, to avoid detection by recruiters and to avoid the unnatural situation where a single employer receives two identical job applications that only differ in terms of the randomized attributes. In addition, by sending out only one application to each employer we also minimize the extent to which we affect recruiter's decisions by affecting the composition of the applicant pool.

In order to signal ethnic background, applicants were assigned either a typical Swedish name or a typical Arabic/Middle Eastern name. The motivation for using this distinction is that, in several countries, high rates of unemployment have been documented among immigrants with Arabic/Middle Eastern background.¹⁴ Moreover, immigrants with Arabic/Middle Eastern background are often over-represented in self-employment, which makes it relevant to study to

¹² Based on our own calculations using register data from Statistics Sweden, 6.8 percent of wage-employed individuals who were 30 years old in 2018 had some form of past self-employment experience.

¹³ Given that our experiment was terminated prematurely due to the onset of the Covid-19 pandemic, a lower number of applications were sent out in the category women with Arabic/Muslim names and only paid-employment experience. We do not consider this a cause of concern given that it does not reflect a systematic drop-out and, as will be seen, our estimates change very little when we control for observable characteristics in the regressions, suggesting that the randomization has worked as intended.

¹⁴ See e.g., Aldén and Hammarstedt (2019) for Swedish evidence and Brell et al. (2020) for international evidence.

which extent self-employment serves as a stepping stone to regular employment for this group in particular.¹⁵ We chose the following male and female names: 1) Erik Johansson and Mohamed Hussein and 2) Anna Johansson and Amina Hussein. The name choices were guided by that they should be distinctly Swedish or Arabic/Middle Eastern names and distinctly male and female names. We chose common names to avoid that actual individuals could be mistaken for the applicants.

We measured responses from employers in the form of call-backs. We recorded if the applicant received any reply, if the applicant was asked to provide more information, if the applicant was invited for an interview, or if the applicant was offered a job. To minimize the inconvenience to the employers, we promptly and politely declined positive responses, i.e., invitations to provide more information, to an interview or a job offer. We also recorded job characteristics, such as if the job was full-time job or not and if the employer offered a permanent contract.

Several remarks are in order. First, since all fictitious applicants were stated to be born and raised in Sweden, the applicants with Arabic/Middle Eastern names should be referred to as second-generation immigrants, i.e., they are born in Sweden and raised by foreign-born parents. This is an important feature of our research design, as it allows us to consider applicants that are similar in terms of their background characteristics, such as age, education and work experience. Moreover, it allows us to focus on the role of ethnic background, while removing uncertainty regarding language skills and the quality of qualifications, aspects that are difficult to vary in a convincing way in a correspondence test experiment. The several removal of the several removal of the several removal of the several removal removal of the several removal remova

Second, the fact that we chose relatively high-skilled occupations is also important for our research design, since in relatively high-skilled occupations, formal qualifications (e.g., having an appropriate education) tend to be more important than informal ones (such as writing a convincing cover letter), and it is primarily formal qualifications that can be conveyed in a controlled manner in a correspondence test experiment.

¹⁵ Regarding the over-representation in self-employment among immigrants with Arabic/Middle Eastern background, see e.g., Andersson and Hammarstedt (2015) for Swedish evidence and Clark and Drinkwater (2010) for international evidence.

¹⁶ Studies of self-employment among second-generation immigrants in Sweden have been conducted by Andersson and Hammarstedt (2010, 2011).

¹⁷ The call-back rates we document for second-generation immigrants in our study are therefore likely larger than the rates that would materialize had we focused on first-generation immigrants with education or work experience obtained outside Sweden.

Finally, it should be noted that we compare the value of a period of self-employment experience to a period of wage-employment experience. For individuals who chose to become self-employed in order to escape unemployment, the relevant comparison state would not be wage-employment, but rather unemployment. Since self-employment experience is likely to be positively perceived relative to unemployment, whereas the value of self-employment relative to wage-employment is theoretically ambiguous, we have chosen to compare self-employment experience with wage-employment experience in our paper. The relevance of our approach is further supported by the fact that those who move from unemployment to self-employment, typically leave self-employment after a few years to seek wage-employment. Thus, for many individuals, self-employment is only a short-term solution to the unemployment problem.

3. Results

3.1 An analysis of the raw data

Table 1 presents absolute and relative call-back rates for applicants with Swedish and Arabic/Muslim names with various experience from self- and wage-employment. We focus on two call-back rates: 1) positive response and 2) invitation to an interview. We define a response as positive if the applicant has been asked to submit more information about him-/herself, or has been invited to an interview. Panel A shows call-back rates for men and panel B shows call-back rates for women. Each panel is then divided into three categories, depending on the type of labor market experience: only self-employment experience, some self-employment experience (together with some wage-employment experience), and wage-employment experience (referring to applicants with only wage-employment experience). Taken together, these permutations allow us to investigate how the effect of self-employment experience differs depending on the gender and ethnicity of the applicant.

Among males, applicants with an Arabic/Muslim name are less likely to receive a positive reply to their job application, and this holds true independently of applicants' type of labor market experience. The difference in call-back rate is largest among male applicants with only self-

¹⁸ Note that since the experiment was halted prematurely due to the outbreak of the Covid-19 pandemic, the analysis may be slightly underpowered.

¹⁹ In Table A1 in Appendix A, we present absolute call-back rates by applicant name and type of experience for a larger set of responses – 1) receiving no reply, 2) receiving a negative reply, 3) being asked for more information about him-/herself, and 4) being invited to an interview – along with tests of statistically significant differences in absolute call-back rates.

employment experience, where 18.6 percent of the applicants with an Arabic/Muslim name received a positive response, whereas the corresponding share for applicants with a Swedish name was 40.7 percent. This difference implies that applicants with an Arabic/Muslim name with only self-employment experience must apply for more than twice as many jobs to obtain the same call-back rate as the applicant with a Swedish name. Regarding the likelihood of being called to interview, which is a strong signal of employer interest, we find that there are also large, and in some cases even larger, ethnic differences among male applicants. For example, among male applicants with some self-employment experience, the applicant with an Arabic/Muslim name must apply for more than four times as many jobs to reach the same propensity of being called to an interview as the male applicant with a Swedish name.

Table 1: Across group absolute and relative call-back rates within experience type and by applicant name

| <u>-</u> | Positive response | | | Invitation to an interview | | | |
|------------------|-------------------|---------------|----------|----------------------------|---------------|----------|--|
| | Swedish | Arabic/Muslim | Ratio | Swedish | Arabic/Muslim | Ratio | |
| Panel A: Males | | | | | | | |
| Only S.E. | 0.407 | 0.186 | 2.185*** | 0.120 | 0.059 | 2.029 | |
| Some S.E. | 0.419 | 0.246 | 1.704*** | 0.171 | 0.033 | 5.229*** | |
| Only W.E. | 0.487 | 0.341 | 1.425** | 0.239 | 0.106 | 2.261*** | |
| Panel B: Females | | | | | | | |
| Only S.E. | 0.398 | 0.351 | 1.136 | 0.136 | 0.113 | 1.196 | |
| Some S.E. | 0.505 | 0.341 | 1.479** | 0.207 | 0.148 | 1.404 | |
| Only W.E. | 0.577 | 0.361 | 1.599*** | 0.146 | 0.146 | 0.995 | |

Note: We define a response as positive if the applicant has been asked to submit more information about him-/herself, or has been called to an interview. The call-back ratio is calculated by dividing the call-back rate of the applicants with a Swedish name with that of the applicants with an Arabic/Muslim name. The test of statistical significance of differences in call-back rates is based on a double-sided chi-squared test. ***, **, * denote statistical significance at the 1, 5, and 10 percent level, respectively.

Turning to women in Panel B, as for men, female applicants with a Swedish name tend to have a higher call-back rate than applicants with an Arabic/Muslim name. However, compared to men the differences in call-back rates tend to be smaller. Further, when it comes to receiving a positive call-back, the ethnic difference is small and statistically insignificant among applicants with experience from only self-employment. Among women, we instead observe the largest ethnic difference, amounting to about 60 percent, among applicants with consecutive wage-employment experience.

Table 2 allows us to assess if there are differences in call-back rates by type of experience within applicant names. In this case, Panel A shows the call-back rate for a positive response

and Panel B the call-back rate for invitations to an interview, by gender. It is interesting to note that for almost all groups, self-employment experience tends to be negatively associated with the likelihood of being called to an interview, and being only self-employed is typically worse than having a mix of self-employment and wage-employment experience. An exception is female applicants with an Arabic/Muslim name where having (some or) only self-employment experience and consecutive wage-employment appear to be more equally valued by employers.²⁰

Table 2: Absolute and relative call-back rate within applicant name and by type of experience

| | (1) | (2) | (3) | (4) | (5) |
|-------------------------------------|-----------|-----------|-----------|---------------|---------------|
| | Only S.E. | Some S.E. | Only W.E. | Ratio (3)/(1) | Ratio (3)/(2) |
| Panel A: Positive response | | | | | |
| Males | | | | | |
| Arabic/Muslim | 0.186 | 0.246 | 0.341 | 1.831*** | 1.389 |
| Swedish | 0.407 | 0.419 | 0.487 | 1.195 | 1.162 |
| Females | | | | | |
| Arabic/Muslim | 0.351 | 0.341 | 0.361 | 1.029 | 1.056 |
| Swedish | 0.398 | 0.505 | 0.577 | 1.448*** | 1.142 |
| Panel B: Invitation to an interview | | | | | |
| Males | | | | | |
| Arabic/Muslim | 0.059 | 0.033 | 0.106 | 1.782 | 3.224** |
| Swedish | 0.120 | 0.171 | 0.239 | 1.985** | 1.394 |
| Females | | | | | |
| Arabic/Muslim | 0.113 | 0.146 | 0.148 | 1.014 | 1.310 |
| Swedish | 0.136 | 0.146 | 0.207 | 1.152 | 1.522 |

Note: We define a response as positive if the applicant has been asked to submit more information about him-/herself, or has been called to an interview. The call-back ratio is calculated by dividing the call-back rate of the applicants with a Swedish name with that of the applicants with an Arabic/Muslim name. The test of statistical significance of differences in call-back rates is based on a double-sided chi-squared test. ***, **, * denote statistical significance at the 1, 5, and 10 percent level, respectively.

Figure 1 shows the expected probabilities for a positive response and invitation to an interview and allows a visually clearer comparison of call-back rates of all applicant types. Although the patterns described above are visible here as well, a striking result is that male applicants with

²⁰ An important issue is of course the a priori beliefs employers might have about the ethnic and gender composition of different applicant categories. Since self-employment is much more common among immigrant men than among immigrant women, observing a female applicant with an Arabic/Muslim name with self-employment experience might represent a positive signal for the employer, or at least something that might trigger the firm to ask for more information.

an Arabic/Muslim name, and in particular with any self-employment experience, have the lowest call-back rates, irrespective of type of response and experience. This indicates that there might be a substantial number of firms that discard male applicants with an Arabic/Muslim name with self-employment experience at an early stage of the recruitment process.

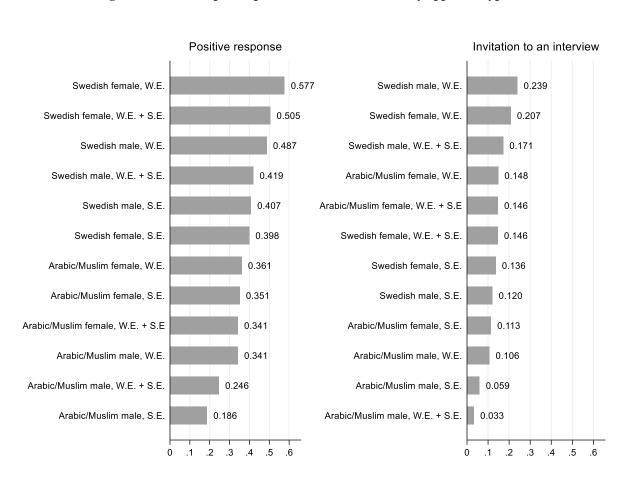


Figure 1: Ranked expected probabilities for call-backs by applicant type

3.2 Regression analysis

We now proceed to use a set of linear probability models to analyze differences in call-back rates between the different types of applicants, offering a slightly different perspective on our results. Notice that since we conducted a randomized field experiment, regression analysis should not be needed. However, it may be seen as a robustness check of the random assignment procedure – the differences in call-back rates should not change substantially once control

variables are added – and the inclusion of control variables may also increase efficiency.²¹ We focus on the two types of call-backs presented in Section 3.1: 1) the probability of getting a positive response and 2) the probability of being invited to an interview.

Table 3 presents the results for the probability of getting a positive response where, as before, the top panel refers to male applicants and the bottom panel refers to female applicants.²² In columns (2) and (4), we focus on the role of self-employment experience and ethnicity. The results confirm the previous findings in Table 2, that applicants with only or some self-employment experience are less likely to receive a positive response from employers than individuals with only experience from wage-employment (who represent the baseline group). This holds true for both men and women, although the effects are more pronounced among men. Focusing on the specifications with controls in column 4, we see that males with only self-employment experience are 14.3 percent less likely, and males with mixed experience 8.6 percentage less likely, to receive a positive response relative to applicants with only wage employment. For women, the corresponding numbers are 11.7 and 7.4 percent. The table also reveals that applicants with an Arabic/Muslim name are in general much less likely to receive a positive response. Among men applicants with an Arabic/Muslim name are 17.5 percentage points less likely to receive a positive reply in relation to applicants with a Swedish name, whereas the corresponding figure for women is 11.1 percent.

In columns (3) and (5), we analyze whether the impact of self-employment experience on the probability of receiving a positive response is different for applicants with a Swedish and an Arabic/Muslim name. The estimates suggest that among males the negative effects of self-employment experience are larger for applicants with an Arabic/Muslim name than for applicants with a Swedish name. In contrast, while only self-employment experience is negatively rewarded by employers relative to consecutive wage employment among female applicants with a Swedish name, there is no such difference by experience type among female applicants with an Arabic/Muslim name. However, only the interaction effect for women is statistically significant.

²¹ Indeed, an inspection of the standard errors of the main coefficients of interest in the specification with and without controls reveals that the estimates are more efficiently estimated once controls are included. We therefore proceed with the regression analysis.

²² An extended regression table that includes the effects of the included covariates is presented in the Appendix, Table A2.

Table 3: Linear probability estimates of the probability of getting a positive response, by gender

| | (1) | (2) | (3) | (4) | (5) |
|---------------------------|-----------|-----------|-----------|-----------|-----------|
| VARIABLES | Positive | Positive | Positive | Positive | Positive |
| | response | response | response | response | response |
| Panel A: Males | | | | | |
| Only S.E. | -0.119*** | -0.138*** | -0.091 | -0.143*** | -0.095 |
| | (0.043) | (0.044) | (0.068) | (0.043) | (0.066) |
| Some S.E. | -0.082* | -0.078* | -0.049 | -0.086* | -0.057 |
| | (0.044) | (0.045) | (0.069) | (0.044) | (0.067) |
| Arabic/Muslim | -0.179*** | -0.180*** | -0.132** | -0.175*** | -0.127** |
| | (0.036) | (0.036) | (0.064) | (0.035) | (0.063) |
| Arabic/Muslim x Only S.E. | | | -0.088 | | -0.092 |
| | | | (0.088) | | (0.086) |
| Arabic/Muslim x Some S.E. | | | -0.057 | | -0.056 |
| | | | (0.090) | | (0.088) |
| Observations | 689 | 689 | 689 | 689 | 689 |
| R-squared | 0.047 | 0.101 | 0.102 | 0.154 | 0.155 |
| Panel B: Females | | | | | |
| Only S.E. | -0.110** | -0.117** | -0.200*** | -0.117** | -0.194*** |
| | (0.050) | (0.051) | (0.067) | (0.049) | (0.065) |
| Some S.E. | -0.058 | -0.066 | -0.085 | -0.074 | -0.089 |
| | (0.050) | (0.051) | (0.071) | (0.050) | (0.069) |
| Arabic/Muslim | -0.136*** | -0.119*** | -0.220*** | -0.111*** | -0.203** |
| | (0.040) | (0.041) | (0.078) | (0.039) | (0.079) |
| Arabic/Muslim x Only S.E. | | | 0.207** | | 0.192* |
| • | | | (0.103) | | (0.101) |
| Arabic/Muslim x Some S.E. | | | 0.068 | | 0.058 |
| | | | (0.102) | | (0.102) |
| Observations | 613 | 613 | 613 | 613 | 613 |
| R-squared | 0.028 | 0.091 | 0.098 | 0.168 | 0.174 |
| Month fixed effects | No | Yes | Yes | Yes | Yes |
| Area fixed effects | No | Yes | Yes | Yes | Yes |
| Control variables | No | No | No | Yes | Yes |

Note: We define a response as positive if the applicant has been asked to submit more information about him/herself or been invited to an interview. The control variables include indicators for type of occupation, full-time position, and permanent contract. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4 presents the results for the probability of being invited to an interview, which is a narrower, but sharper, measure of employer interest as compared to the positive response measure used in Table 3.²³ The results show the same pattern as above. Applicants with only, or some, self-employment experience consistently have a lower probability of being called to

²³ An extended regression table that includes the effects of the included covariates is presented in the Appendix, Table A3.

an interview. Moreover, applicants with an Arabic/Muslim name receive fewer interview invitations as compared to applicants with a Swedish name. These results hold for both men and women. The interaction effects between ethnicity and self-employment experience are less clear-cut. In line with Table 3, the estimates suggest that self-employment and wage-employment experience are equally valued by employers for female applicants with an Arabic/Muslim name, while female applicants with a Swedish name are less likely to be called to an interview if they have some or only self-employment experience. However, for men, the interaction effects go in opposite directions, depending on the duration of self-employment experience. In either case, the interactions are not statistically significant.

Table 4: Linear probability estimates of the probability of being invited to an interview, by gender

| Table 4: Linear probability estimates of the probability of being invited to an interview, by gender | | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|--|--|--|
| | (1) | (2) | (3) | (4) | (5) | | | |
| VARIABLES | Interview | Interview | Interview | Interview | Interview | | | |
| Panel A: Males | | | | | | | | |
| Only S.E. | -0.081*** | -0.085*** | -0.127** | -0.089*** | -0.129** | | | |
| | (0.031) | (0.031) | (0.052) | (0.031) | (0.051) | | | |
| Some S.E. | -0.071** | -0.056* | -0.042 | -0.061* | -0.046 | | | |
| | (0.031) | (0.032) | (0.055) | (0.031) | (0.054) | | | |
| Arabic/Muslim | -0.111*** | -0.112*** | -0.132*** | -0.111*** | -0.127*** | | | |
| | (0.025) | (0.025) | (0.049) | (0.025) | (0.049) | | | |
| Arabic/Muslim x Only S.E. | | | 0.081 | | 0.077 | | | |
| | | | (0.062) | | (0.062) | | | |
| Arabic/Muslim x Some S.E. | | | -0.023 | | -0.028 | | | |
| | | | (0.063) | | (0.063) | | | |
| Observations | 689 | 689 | 689 | 689 | 689 | | | |
| R-squared | 0.042 | 0.100 | 0.104 | 0.117 | 0.122 | | | |
| | | | | | | | | |
| Panel B: Females | | | | | | | | |
| Only S.E. | -0.058 | -0.069* | -0.102** | -0.067* | -0.099** | | | |
| | (0.037) | (0.036) | (0.049) | (0.036) | (0.049) | | | |
| Some S.E. | -0.036 | -0.055 | -0.100* | -0.057 | -0.102* | | | |
| | (0.038) | (0.037) | (0.052) | (0.037) | (0.052) | | | |
| Arabic/Muslim | -0.023 | -0.028 | -0.102* | -0.027 | -0.100* | | | |
| | (0.029) | (0.029) | (0.056) | (0.028) | (0.056) | | | |
| Arabic/Muslim x Only S.E. | | | 0.090 | | 0.087 | | | |
| | | | (0.073) | | (0.073) | | | |
| Arabic/Muslim x Some S.E. | | | 0.107 | | 0.108 | | | |
| | | | (0.075) | | (0.076) | | | |
| Observations | 613 | 613 | 613 | 613 | 613 | | | |
| R-squared | 0.006 | 0.105 | 0.109 | 0.113 | 0.116 | | | |
| 26 1 6 1 6 | | • • | • • | ** | ** | | | |
| Month fixed effects | No | Yes | Yes | Yes | Yes | | | |
| Area fixed effects | No | Yes | Yes | Yes | Yes | | | |
| Control variables | No | No | No | Yes | Yes | | | |

Note: The control variables include indicators for type of occupation, full-time position, and permanent contract. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In the results above, we have treated non-responses as rejections. However, non-responses may not necessarily be rejections, as they could simply reflect inattention on behalf of the employer.

As a robustness check, we have therefore estimated the regressions where we have excluded non-responses. The results are very similar to those presented in Tables 3 and 4 (see appendix tables A4 and A5). We have also estimated regressions where we use number of days until callback as the dependent variable (see appendix table A6). The results are generally in line with the results observed in Table 3 and 4; applicants with self-employment experience or Arabic/Muslim names must typically wait longer for a call-back than applicants with wage-employment experience or a Swedish name.

4. Concluding discussion

We have conducted a field experiment with the purpose of providing causal evidence on how self-employment experience is rewarded in the labor market. In particular, we have studied how self-employment experience influences the likelihood of receiving a positive response from employers when applying for a job opening. We have also examined how employers' perceptions of self-employment experience differ depending on the ethnic background and gender of the applicant. Finally, we have examined the perceived value of having a combination of self-employment and wage-employment experience. In this way, we have contributed to the literature on entrepreneurship, the literature on labor market integration, as well as to the labor economics literature that studies how different forms of human capital are rewarded.

Our results show that self-employment experience is negatively perceived by employers. We thereby confirm the field-experimental results of Koellinger et al. (2015) and demonstrate that their results extend to other labor market settings. We have also introduced new perspectives by showing that self-employment experience is negatively perceived by employers, even when combined with experience from wage employment. Moreover, we have shown that the negative effects of self-employment experience hold independently of the ethnic background of the applicant in the case of male applications, whereas for female applications, the results are less clear cut. Finally, we have found, in line with earlier studies, that people with Arabic/Muslim names receive fewer responses in general when applying for job openings (see e.g., Bertrand and Mullainathan, 2004; Carlsson and Rooth, 2007).

When conducting a field experiment, practical considerations (such as time and resource considerations) constrain the set of potential questions that can be explored. Our study therefore has limitations, but at the same time opens up for several interesting avenues for future research.

First, the applicants in our study had experience from self-employment and wage employment pertaining to relatively high-skilled occupations. We therefore do not know how the applications would have been perceived by employers if either the self-employment experience or the wage-employment experience had been obtained in a low-skill occupation. A related aspect is that we have considered relatively young individuals searching for jobs in accounting and software development with either a consecutive period of wage employment, a consecutive period of self-employment, or a spell of wage employment followed by a spell of self-employment. The relative attractiveness of these occupational histories as perceived by potential employers is likely to depend on the considered occupation. For example, employers might expect high-skill accountants and software-developers to work in an established well-known firm before turning to self-employment. Interestingly, we find that self-employment experience is negatively rewarded both on its own and when combined with a spell of wage employment in an established firm, but we do not know whether the same result would have been obtained if we had considered different occupations.

Second, we have only compared self-employment with wage employment, whereas for many individuals, the alternative to self-employment is unemployment. While a short period of unemployment is not likely to be too adversely perceived by employers (see e.g., Eriksson and Rooth 2014) a relevant question is whether an individual who is struggling in the labor market should continue to seek wage employment, thereby risking to be unemployed during an extended period of time, or whether the individual should opt for self-employment, knowing (as our results show) that such experience will be negatively valued when returning to the regular labor market to seek wage employment. It seems likely that an extended period of self-employment should be more highly valued than an extended period of unemployment. However, more research is needed to understand the trade-offs involved in the decision between engaging self-employment, and seeking wage employment, with the purpose of escaping long-term unemployment.

Another, related aspect, is that we have focused on individuals born in Sweden with Arabic/Muslim names, and it is likely that the value of self-employment experience would be different for individuals born abroad. The fact that we observe that self-employment (relative

²⁴ The reason for choosing these occupations was that we wished to select occupations where it is common to be both wage employed and self-employed and to ensure the statistical power of the study we also required that the occupations had a relatively large number of vacancies posted on the website of the Swedish Public Employment Agency.

to wage employment) among individuals with foreign names born in Sweden is negatively perceived by employers, most likely implies that self-employment experience also would be negatively perceived if accumulated by individuals born abroad. Finally, our experiment was terminated prematurely due to the outbreak of the Covid-19 pandemic, implying that the number of observations is relatively small.

In spite of the limitations described above, we have obtained several interesting results that provide useful input into the discussion about how experience in self-employment influences the possibilities to obtain subsequent wage employment.

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Appendix A

Table A1: Call-back rates by gender, type of labor market experience, and applicant name

| | • | Т | ype of labor mark | et experienc | ce | | | | | est of statis | stical signif | icance | | | |
|----------------|---------------|---------|-------------------|--------------|---------------|---------|----------|--------------|----------|---------------|---------------|---------|---------|------------|---------|
| | Only S.l | Ε. | Some S. | E. | Wage employme | ent | Betwe | een applican | t name | Within | applicants | with an | Within | applicants | with a |
| | | | | | | | | | | Arab | ic/Muslim 1 | name | Sv | wedish nan | ne |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| | Arabic/Muslim | Swedish | Arabic/Muslim | Swedish | Arabic/Muslim | Swedish | (1)=(2) | (3)=(4) | (5)=(6) | (1)=(5) | (3)=(5) | (1)=(3) | (2)=(6) | (4)=(6) | (2)=(4) |
| Panel A: Males | 1 | | | | | | | | | | | | | | |
| No reply | 0.525 | 0.259 | 0.484 | 0.343 | 0.407 | 0.310 | 0.000*** | 0.032** | 0.123 | 0.065* | 0.226 | 0.519 | 0.408 | 0.604 | 0.185 |
| | (62) | (28) | (59) | (36) | (50) | (35) | | | | | | | | | |
| Neg. reply | 0.288 | 0.333 | 0.270 | 0.238 | 0.252 | 0.204 | 0.465 | 0.579 | 0.378 | 0.530 | 0.744 | 0.762 | 0.029** | 0.541 | 0.125 |
| | (34) | (36) | (33) | (25) | (31) | (23) | | | | | | | | | |
| More info | 0.127 | 0.287 | 0.213 | 0.248 | 0.236 | 0.248 | 0.003*** | 0.539 | 0.803 | 0.029** | 0.672 | 0.077* | 0.512 | 0.998 | 0.518 |
| | (15) | (31) | (26) | (26) | (29) | (28) | | | | | | | | | |
| Interview | 0.0593 | 0.120 | 0.0328 | 0.171 | 0.106 | 0.239 | 0.107 | 0.004*** | 0.006*** | 0.194 | 0.025** | 0.328 | 0.022** | 0.220 | 0.293 |
| | (7) | (13) | (4) | (18) | (13) | (27) | | | | | | | | | |
| Observations | 118 | 108 | 122 | 105 | 123 | 113 | | | | | | | | | |
| Panel B: Fema | les | | | | | | | | | | | | | | |
| No reply | 0.392 | 0.339 | 0.350 | 0.272 | 0.377 | 0.216 | 0.426 | 0.212 | 0.024** | 0.855 | 0.717 | 0.522 | 0.039** | 0.345 | 0.283 |
| | (38) | (40) | (43) | (28) | (23) | (24) | | | | | | | | | |
| Neg. reply | 0.258 | 0.263 | 0.309 | 0.223 | 0.262 | 0.207 | 0.934 | 0.150 | 0.412 | 0.950 | 0.516 | 0.407 | 0.325 | 0.776 | 0.499 |
| | (25) | (31) | (38) | (23) | (16) | (23) | | | | | | | | | |
| More info | 0.237 | 0.263 | 0.195 | 0.359 | 0.213 | 0.369 | 0.669 | 0.010*** | 0.035** | 0.728 | 0.776 | 0.453 | 0.083* | 0.878 | 0.122 |
| | (23) | (31) | (24) | (37) | (13) | (41) | | | | | | | | | |
| Interview | 0.113 | 0.136 | 0.146 | 0.146 | 0.148 | 0.207 | 0.627 | 0.988 | 0.339 | 0.533 | 0.982 | 0.476 | 0.151 | 0.241 | 0.831 |
| | (11) | (16) | (18) | (15) | (9) | (23) | | | | | | | | | |
| Observations | 97 | 118 | 123 | 103 | 61 | 111 | | | | | | | | | |

Note: The test of statistical significance of differences in call-back rates is based on a chi-squared test. The p-value from the double-sided test is reported in columns (7) to (15). Number of observations in parentheses. ***, ***, * denote statistical significance at the 1, 5, and 10 percent level, respectively.

Table A2: Linear probability estimates of the probability of getting a positive response including control

variables, by gender

| variables, by gender | (1) | (2) | (3) | (4) | (5) |
|----------------------------|-----------|-----------|-----------|-------------------|-----------|
| VARIABLES | Positive | Positive | Positive | Positive | Positive |
| | response | response | response | response | response |
| Panel A: Males | | | | | |
| Only S.E. | -0.119*** | -0.138*** | -0.091 | -0.143*** | -0.095 |
| | (0.043) | (0.044) | (0.068) | (0.043) | (0.066) |
| Some S.E. | -0.082* | -0.078* | -0.049 | -0.086* | -0.057 |
| | (0.044) | (0.045) | (0.069) | (0.044) | (0.067) |
| Arabic/Muslim | -0.179*** | -0.180*** | -0.132** | -0.175*** | -0.127** |
| | (0.036) | (0.036) | (0.064) | (0.035) | (0.063) |
| Arabic/Muslim x Only S.E. | | | -0.088 | | -0.092 |
| | | | (0.088) | | (0.086) |
| Arabic/Muslim x Some S.E. | | | -0.057 | | -0.056 |
| | | | (0.090) | | (0.088) |
| Accounting | | | | -0.190*** | -0.191*** |
| | | | | (0.037) | (0.037) |
| Full-time position | | | | 0.157*** | 0.156*** |
| _ | | | | (0.049) | (0.049) |
| Permanent contract | | | | -0.010 | -0.013 |
| | | | | (0.051) | (0.051) |
| Observations | 689 | 689 | 689 | 689 | 689 |
| R-squared | 0.047 | 0.101 | 0.102 | 0.154 | 0.155 |
| Panel B: Females | | | | | |
| Only S.E. | -0.110** | -0.117** | -0.200*** | -0.117** | -0.194*** |
| omj 2.2. | (0.050) | (0.051) | (0.067) | (0.049) | (0.065) |
| Some S.E. | -0.058 | -0.066 | -0.085 | -0.074 | -0.089 |
| some S.E. | (0.050) | (0.051) | (0.071) | (0.050) | (0.069) |
| Arabic/Muslim | -0.136*** | -0.119*** | -0.220*** | -0.111*** | -0.203** |
| Hubic/Wushin | (0.040) | (0.041) | (0.078) | (0.039) | (0.079) |
| Arabic/Muslim x Only S.E. | (0.040) | (0.041) | 0.207** | (0.037) | 0.192* |
| Anabie/Mushin A Only S.L. | | | (0.103) | | (0.101) |
| Arabic/Muslim x Some S.E. | | | 0.068 | | 0.058 |
| Arabic/Musilin & Some S.E. | | | (0.102) | | (0.102) |
| Accounting | | | (0.102) | -0.237*** | -0.238*** |
| Accounting | | | | (0.039) | (0.039) |
| Full time position | | | | -0.006 | -0.008 |
| Full-time position | | | | -0.006 (0.072) | (0.073) |
| Darmanant contract | | | | 0.072) | 0.166*** |
| Permanent contract | | | | | |
| Observations | 612 | 612 | 612 | (0.055) | (0.055) |
| Observations P. squared | 613 | 613 | 613 | 613 | 613 |
| R-squared | 0.028 | 0.091 | 0.098 | 0.168 | 0.174 |
| SMonth fixed effects | No | Yes | Yes | Yes | Yes |
| Area fixed effects | No | Yes | Yes | Yes | Yes |
| Control variables | No | No | No | Yes | Yes |

Note: We define a response as positive if the applicant has been asked to submit more information about him/herself or been invited to an interview. The control variables include indicators for type of occupation, full-time position, and permanent contract. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A3: Linear probability estimates of the probability of being invited to an interview including control variables, by gender

| | (1) | (2) | (3) | (4) | (5) |
|---------------------------|-----------|-----------|-----------|-----------|-----------|
| VARIABLES | Interview | Interview | Interview | Interview | Interview |
| Panel A: Males | | | | | |
| Only S.E. | -0.081*** | -0.085*** | -0.127** | -0.089*** | -0.127** |
| | (0.031) | (0.031) | (0.052) | (0.031) | (0.052) |
| Some S.E. | -0.071** | -0.056* | -0.042 | -0.061* | -0.042 |
| | (0.031) | (0.032) | (0.055) | (0.031) | (0.055) |
| Arabic/Muslim | -0.111*** | -0.112*** | -0.132*** | -0.111*** | -0.132*** |
| | (0.025) | (0.025) | (0.049) | (0.025) | (0.049) |
| Arabic/Muslim x Only S.E. | | | 0.081 | | 0.081 |
| | | | (0.062) | | (0.062) |
| Arabic/Muslim x Some S.E. | | | -0.023 | | -0.023 |
| | | | (0.063) | | (0.063) |
| Accounting | | | | -0.072*** | -0.071*** |
| | | | | (0.026) | (0.026) |
| Full-time position | | | | 0.071** | 0.073*** |
| | | | | (0.028) | (0.028) |
| Permanent contract | | | | -0.047 | -0.048 |
| | | | | (0.037) | (0.037) |
| Observations | 689 | 689 | 689 | 689 | 689 |
| R-squared | 0.042 | 0.100 | 0.104 | 0.117 | 0.104 |
| | | | | | |
| Panel B: Females | | | | | |
| Only S.E. | -0.058 | -0.069* | -0.102** | -0.067* | -0.102** |
| | (0.037) | (0.036) | (0.049) | (0.036) | (0.049) |
| Some S.E. | -0.036 | -0.055 | -0.100* | -0.057 | -0.100* |
| | (0.038) | (0.037) | (0.052) | (0.037) | (0.052) |
| Arabic/Muslim | -0.023 | -0.028 | -0.102* | -0.027 | -0.102* |
| | (0.029) | (0.029) | (0.056) | (0.028) | (0.056) |
| Arabic/Muslim x Only S.E. | | | 0.090 | | 0.090 |
| | | | (0.073) | | (0.073) |
| Arabic/Muslim x Some S.E. | | | 0.107 | | 0.107 |
| | | | (0.075) | | (0.075) |
| Accounting | | | | -0.046 | -0.046 |
| | | | | (0.029) | (0.029) |
| Full-time position | | | | -0.029 | -0.035 |
| | | | | (0.050) | (0.050) |
| Permanent contract | | | | 0.057 | 0.056 |
| | | | | (0.035) | (0.035) |
| Observations | 613 | 613 | 613 | 613 | 613 |
| R-squared | 0.006 | 0.105 | 0.109 | 0.113 | 0.109 |
| Month fixed effects | No | Yes | Yes | Yes | Yes |
| Area fixed effects | No | Yes | Yes | Yes | Yes |
| Control variables | No | No | No | Yes | Yes |

Note: The control variables include indicators for type of occupation, full-time position, and permanent contract. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A4: Linear probability estimates of the probability of getting a positive response by gender, non-

responses excluded

| responses excluded | (1) | (2) | (3) | (4) | (5) |
|---------------------------|-----------|-----------|-------------------|-----------|----------|
| VARIABLES | Positive | Positive | Positive | Positive | Positive |
| | response | response | response | response | response |
| Panel A: Males | | | | | |
| Only S.E. | -0.168*** | -0.182*** | -0.155** | -0.190*** | -0.169** |
| | (0.058) | (0.058) | (0.077) | (0.055) | (0.074) |
| Some S.E. | -0.083 | -0.064 | -0.025 | -0.080 | -0.050 |
| | (0.058) | (0.059) | (0.081) | (0.056) | (0.077) |
| Arabic/Muslim | -0.149*** | -0.169*** | -0.124 | -0.167*** | -0.134* |
| | (0.048) | (0.049) | (0.080) | (0.046) | (0.077) |
| Arabic/Muslim x Only S.E. | | | -0.058 | | -0.044 |
| • | | | (0.118) | | (0.115) |
| Arabic/Muslim x Some S.E. | | | -0.083 | | -0.063 |
| | | | (0.123) | | (0.114) |
| Observations | | | , , | | , , |
| R-squared | 419 | 419 | 419 | 419 | 419 |
| • | 0.039 | 0.111 | 0.113 | 0.215 | 0.215 |
| Panel B: Females | | | | | |
| Only S.E. | -0.082 | -0.085 | -0.149** | -0.082 | -0.135* |
| • | (0.060) | (0.060) | (0.075) | (0.057) | (0.071) |
| Some S.E. | -0.057 | -0.067 | -0.067 | -0.052 | -0.035 |
| | (0.058) | (0.057) | (0.076) | (0.055) | (0.073) |
| Arabic/Muslim | -0.117** | -0.125** | -0.197** | -0.132*** | -0.175* |
| | (0.049) | (0.049) | (0.090) | (0.045) | (0.094) |
| Arabic/Muslim x Only S.E. | | | 0.171 | | 0.139 |
| • | | | (0.124) | | (0.121) |
| Arabic/Muslim x Some S.E. | | | 0.030 | | -0.015 |
| | | | (0.121) | | (0.120) |
| | 417 | 417 | `417 [′] | 417 | 417 |
| Observations | 0.021 | 0.145 | 0.150 | 0.273 | 0.277 |
| R-squared | | | | | |
| Month fixed effects | No | Yes | Yes | Yes | Yes |
| Area fixed effects | No | Yes | Yes | Yes | Yes |
| Control variables | No | No | No | Yes | Yes |

Note: We define a response as positive if the applicant has been asked to submit more information about him/herself or been invited to an interview. The control variables include indicators for type of occupation, full-time position, and permanent contract. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Linear probability estimate of the probability of being invited to an interview by gender, non-

responses excluded

| | (1) | (2) | (3) | (4) | (5) |
|---------------------------|-----------|-----------|-----------|-----------|-----------|
| VARIABLES | Interview | Interview | Interview | Interview | Interview |
| Panel A: Males | | | | | |
| Only S.E. | -0.128*** | -0.141*** | -0.192*** | -0.144*** | -0.196*** |
| | (0.047) | (0.049) | (0.068) | (0.048) | (0.068) |
| Some S.E. | -0.099** | -0.074 | -0.050 | -0.083* | -0.062 |
| | (0.047) | (0.048) | (0.074) | (0.047) | (0.073) |
| Arabic/Muslim | -0.136*** | -0.147*** | -0.169** | -0.145*** | -0.170** |
| | (0.038) | (0.038) | (0.070) | (0.038) | (0.069) |
| Arabic/Muslim x Only S.E. | | | 0.118 | | 0.122 |
| | | | (0.094) | | (0.093) |
| Arabic/Muslim x Some S.E. | | | -0.051 | | -0.046 |
| | | | (0.095) | | (0.093) |
| Observations | 419 | 419 | 419 | 419 | 419 |
| R-squared | 0.047 | 0.152 | 0.159 | 0.178 | 0.185 |
| Panel B: Females | | | | | |
| Self-employed | -0.058 | -0.064 | -0.090 | -0.058 | -0.084 |
| | (0.052) | (0.049) | (0.063) | (0.049) | (0.064) |
| Some S.E. | -0.042 | -0.069 | -0.120* | -0.063 | -0.111 |
| | (0.052) | (0.050) | (0.067) | (0.051) | (0.068) |
| Arabic/Muslim | -0.004 | -0.029 | -0.112 | -0.033 | -0.115 |
| | (0.041) | (0.041) | (0.077) | (0.040) | (0.078) |
| Arabic/Muslim x Only S.E. | | | 0.088 | | 0.087 |
| | | | (0.104) | | (0.103) |
| Arabic/Muslim x Some S.E. | | | 0.132 | | 0.129 |
| | | | (0.106) | | (0.107) |
| Observations | 417 | 417 | 417 | 417 | 417 |
| R-squared | 0.003 | 0.151 | 0.155 | 0.162 | 0.165 |
| Month fixed effects | No | Yes | Yes | Yes | Yes |
| Area fixed effects | No | Yes | Yes | Yes | Yes |
| Control variables | No | No | No | Yes | Yes |

Note: The control variables include indicators for type of occupation, full-time position, and permanent contract. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A6: Number of days until call-back

| | (1) | (2) | (3) | (4) | (5) |
|----------------------|------------|------------|------------|------------|------------|
| VARIABLES | Days until |
| | call-back | call-back | call-back | call-back | call-back |
| Panel A: Males | | | | | |
| S.E. | 1.456 | 1.243 | 0.076 | 1.691 | 0.458 |
| | (1.950) | (1.927) | (2.587) | (1.930) | (2.522) |
| Arabic/Muslim | 2.649 | 3.389* | 1.827 | 3.495* | 1.850 |
| | (1.948) | (1.879) | (3.021) | (1.844) | (3.059) |
| Arabic/Muslim x S.E. | | | 2.463 | | 2.602 |
| | | | (3.782) | | (3.748) |
| Observations | 418 | 418 | 418 | 418 | 418 |
| R-squared | 0.006 | 0.147 | 0.148 | 0.196 | 0.197 |
| Panel B: Females | | | | | |
| S.E. | 1.777 | 1.853 | 1.605 | 1.612 | 1.071 |
| | (1.990) | (1.957) | (2.541) | (1.911) | (2.533) |
| Arabic/Muslim | 2.570 | 4.328** | 3.786 | 4.551** | 3.362 |
| | (1.904) | (1.895) | (3.305) | (1.877) | (3.320) |
| Arabic/Muslim x S.E. | | | 0.727 | | 1.591 |
| | | | (3.993) | | (3.954) |
| Observations | 414 | 414 | 414 | 414 | 414 |
| R-squared | 0.007 | 0.173 | 0.173 | 0.215 | 0.215 |
| Month fixed effects | No | Yes | Yes | Yes | Yes |
| Area fixed effects | No | Yes | Yes | Yes | Yes |
| Control variables | No | No | No | Yes | Yes |

Note: The control variables include indicators for type of occupation, full-time position, and permanent contract. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The groups "Only S.E." and "Some S.E." has been pooled in the above results due to sample size considerations when using the more demanding variable "days until-call back" as the outcome variable.

Appendix B

In this appendix we describe the structure of the resumes we submitted in our experiment. Text

in brackets refers to randomized information pertaining to the different employee categories

and the applicants' background characteristics. As the original letter and CV were in Swedish,

the text has been translated in a way to convey the language style of the original applications.

Template personal letter

[FirstName] [LastName]

January 21, 1990

<Street Address>, 116 44 Stockholm

Email: [FirstName].[LastName][RandomNumber]@outlook.com

Phone number: [PhoneNumber]

Dear Sir/Madam,

I saw your job advertisement for an [accountant/software developer]. Since I graduated from

Stockholm University, I have been [running a company/employed at a company] offering

[accounting/software] services for six years. Over the years, I have gained extensive experience

of qualified [accounting/software development]. I am used to working with customer contact,

always providing excellent service. I believe that I can contribute to your firm while at the same

time further develop my professional competence with you.

I am 29 years old and was born and raised in Stockholm, where I still live with my partner. In

my spare time, I enjoy various forms of physical activity. As a person, I am outgoing and find

it easy to work with others as well as on my own. At work, I am curious, ambitious and

organized.

I hope that this letter has raised your interest to learn more about me and what I can contribute

to the success of your organization.

Best regards,

[FirstName] [LastName]

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Template CV

[FirstName] [LastName]

January 21, 1990

<Street Address>, 116 44 Stockholm

Email: [FirstName].[LastName] [RandomNumber]@outlook.com

Phone number: [PhoneNumber]

Work experience:

[Work History 1, 2 or 3]

Work History 1

2013– Self-employed offering [accounting/software developer] services, Stockholm

Work History 2

2013– Employed at [Firm Name], Stockholm

Work History 3

2016— Self-employed offering [accounting/software developer] services, Stockholm

2013–2016 Employed at [Firm Name], Stockholm

Education:

2009–2013 [College degree], specializing in [Specialization], Stockholm University

2006–2009 [High school diploma], specialization [Specialization], Bromma High School

Language skills:

- Swedish, mother tongue
- English, fluent

Other skills and qualifications:

[Bullet-point list with relevant qualifications in accounting/software development]