

## **Additive or multiplicative disadvantage?**

### **The scarring effects of unemployment for ethnic minorities<sup>1</sup>**

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## Abstract

Previous research has documented that unemployed job applicants have problems re-entering the labor market, commonly referred to as scarring effects of unemployment. Studies have also documented ethnic discrimination in the labor market. Yet we do not know how these categories jointly shape employers hiring decisions. Thus, we do not know if unemployed minorities face an additive or a multiplicative disadvantage in hiring processes. Building on experimental data from two waves of a randomized field-experiment, we test whether we find an ethnic scarring effect, which would imply that contemporary long-term unemployment is particularly harmful to native born ethnic minorities. As expected, our experiment documents scarring effects of contemporary long-term unemployment. We also found, as expected, systematically lower call-backs for applicants with Pakistani/Muslim names. Third, our results show that unemployed minorities face an additive disadvantage in the labor market. Thus, we find no evidence of an ethnic scarring effect of unemployment, which would imply different consequences of unemployment for minority and majority applicants.

**Keywords:** Discrimination, ethnic minorities, scarring effects, unemployment, field experiment, labor market

## Introduction

Getting a job is vital for individuals' earnings and future prospects, and holding a job gives access to social integration, recognition and respect. Yet employment opportunities vary by individual characteristics, such as ethnicity (Zschirnt and Ruedin 2016). Research has also documented that unemployment seems to produce a scar on individuals' future prospects: Unemployed individuals often strive to get back into the labor market (Eriksson & Rooth 2014; Eliason & Storrie 2006; Gregg 2001; Arulampalam et al. 2000). Unemployment spells are also associated with later-life income penalties (Gangl 2006; Ruhm 1991; Verho 2008).

Thus, there is clear evidence of scarring effects of unemployment and there is clear evidence of ethnic discrimination in the labor market. However, to our knowledge no previous studies have examined if the two categories are combined in an additive or multiplicative manner. An additive disadvantage would imply that the sum of ethnicity and unemployment matters, so that unemployed minorities have lower job chances than unemployed with a majority background. A multiplicative disadvantage would imply that unemployment is more damaging for the job chances of ethnic minorities than for natives. If this is the case, unemployed minorities face an ethnic scarring effect.

Theoretically, this topic involves understanding the mechanisms involved in employers' hiring decisions, in particular their reactions to unemployed majority versus unemployed minority applicants. At the outset, ethnic minorities are more likely to be unemployed, due to discrimination in the labor market. If employers particularly avoid unemployed minority job seekers, they will have a harder time getting back into the labor market. An ethnic scarring effect would therefore generate a cumulative process of disadvantage (Merton 1968; DiPrete and Eirich 2006), whereas an additive disadvantage effect implies that unemployment affects

majority and minority applicants in the same way. These outcomes are theoretically and substantially different, and it is surprising that our knowledge on this topic is so limited.

To address this limitation in existing research we will explore how employers evaluate job applications from unemployed ethnic minorities as compared to unemployed applicants from the majority population, and compare their outcomes with majority and minority applicants who are employed when they apply for jobs. Randomized field experiments provide unbiased causal estimates of the treatment effects, and we have conducted an experiment with two treatment variables: ethnicity (majority vs. second generation immigrants) and unemployment (employed vs unemployed) to measure the effect of ethnicity and unemployment on employers' hiring decisions. We sent 1188 fictitious job applications to advertised jobs in the Oslo area. Based on these original experimental data we explore if unemployed minority applicants face an additive or multiplicative disadvantage when they apply for a job.

The immigrant population comprises about 16 percent of the total Norwegian population (Statistics Norway 2016). The first non-Western immigrant group arriving in Norway came from Pakistan, and their grown-up children are now entering the labor market. The vast majority of Pakistanis are Muslims (Blom and Henriksen 2008). We decided to use typical Muslim/Pakistani names in our experiment. A Swedish study found contemporary unemployment more damaging than past unemployment (Eriksson and Rooth 2014). We decided to use a contemporary unemployment period of one and a half year as the other treatment variable in our experiment. We also include applications with typical native names, and applications from individuals who already are employed.

A number of studies have explored similar topics using experimental data. A recent US experimental study found scarring effects of non-standard unemployment histories, for male applicants only (Pedulla 2016), yet no significant interaction between gender and

unemployment.<sup>1</sup> Looking at racial discrimination against US College graduates, Gaddis (2015) found additive disadvantage effects of race and college quality on job offer wages, but no multiplicative effects on employment opportunities. Similarly, Bursell (2014) found evidence of ethnic discrimination against men and women in the Swedish labor market, but no multiplicative effects of ethnicity and gender. And, in a US study of the mark of a criminal record, Pager (2003) found additive effects, but no multiplicative effects of race and crime.

The paper is organized as follows: We first give a brief summary of previous research, our theoretical framework, and our methodological design. We then analyze data from the field experiment, to see if we find an ethnic scarring effect of contemporary long-term unemployment. The paper adds to the literature on ethnic discrimination in the labor market and to the literature on scarring effects of unemployment. Our main contribution is testing whether we find an additive or multiplicative effect of minority status and unemployment on employers' hiring decisions.

## Previous research

Summarizing findings from field experiments addressing the first phase of the hiring process across many countries, OECD documents the existence of *ethnic discrimination* in labor markets beyond any reasonable doubt (OECD 2013, Table 4.1; Booth et al. 2012; Duguet et al. 2010, Health et al. 2008, Riach and Rich 2002). Minority candidates are disadvantaged also in the Scandinavian countries (Arai, Bursell & Nekby 2015; Bursell 2014; Birkelund et al. 2014; Midtbøen & Rogstad 2012a, 2012b; Carlsson & Rooth 2007).

Studies relying on observational data document robust statistical associations between *unemployment* and future labor market outcomes (Verho 2008; Gangl 2006; Eliason & Storrie

2006; Gregg 2001; Arulampalam et al. 2000; Ruhm 1991). This pattern is also found in the Norwegian labor market (Raaum & Røed 2006; Nilsen & Reiso 2011). A number of randomized field experiments have attempted to identify the causal effect of unemployment on job applicants' employment opportunities: In Switzerland job applicants with two and a half year of unemployment have a 51 percent lower probability of receiving a call-back from employers than job applicants without unemployment experience (Oberholzer-Gee 2008). In US, two studies indicate scarring effects also during the first six to eight months of an unemployment period (Ghayad 2014; Kroft, Lange & Notowidigdo 2013). Ghayad (2014) also tested whether 'boosting' the CVs of the job applicants with more relevant work experience ameliorated the scarring effect of unemployment. Apparently, this did not matter. In Sweden, Eriksson & Rooth (2014) found evidence of scarring effects of unemployment spells lasting at least nine months in low and medium skilled jobs.

Previous studies have also addressed discrimination against men and women with minority background. There are in particular two arguments why gender would matter: First, female minority applicants are probably perceived as less threatening to society than male minority applicants; second, female minority applicants are at the bottom of the status hierarchy (an additive argument, where female counts less than male, minority status less than majority status). Together, these expectations counter each other, and a summary of previous studies found no systematic gender differences in ethnic discrimination (Zschirnt & Ruedin 20016).

### **Why should we expect to find ethnic scarring effects of unemployment?**

Most of the labor market discrimination in hiring processes occurs in the initial stage of the recruitment process (Petersen, Saporta & Seidel 2000). There are huge variations across firms and sub-markets, but a Swedish study found that on average, employers received more than

20 applications per job (Eriksson and Rooth 2014, note 8).<sup>2</sup> Since it is too costly to interview all applicants, easily observed characteristics, such as ethnicity and (un)employment history, might matter in the screening process when employers reduce the list of applicants to a more limited number, which will then be scrutinized more carefully (Eriksson and Rooth 2014:1016).<sup>3</sup>

### *Unemployment*

A range of explanations might explain why employers are reluctant to hire contemporary unemployed job applicants, we mention only two here: First, unemployment corrodes human capital (Becker, 1993); thus employers may regard unemployed as *less productive* than comparable others. Second, employers may perceive unemployment as a *signal* of negative unobserved characteristics, such as lack of worker quality and motivation (Lockwood 1991; Gambetta 2009).<sup>4</sup> Thus, unemployed job applicants may face systematically lower call-backs, even though they are otherwise identical to the other applicants with regard to characteristics that are observable to the employer (Nilsen and Reiso 2011). In line with previous empirical studies we expect to find a *scarring effect of unemployment*:

Hypothesis 1: Unemployed job applicants will receive lower call-backs than employed job applicants.

### *Ethnicity*

Employers may discriminate against ethnic minorities. A range of theories are offered to explain why, and we only include two perspectives here, statistical discrimination and discrimination due to stereotypes. According to the theory of statistical discrimination employers are concerned about job applicant's potential productivity.<sup>5</sup> A foreign name might

cause uncertainty about the applicant's language proficiency.<sup>6</sup> Lack of information and/or risk averseness might be reasons why employers hesitate to contact job applicants whose *productivity they are uncertain* about. In this study we have issued all our applicants with domestic education. Thus, uncertainty about language skills might be due to *stereotypes* and prejudices (see Fiske 2000). Typical stereotypes against Muslims are that they are not fully integrated and cannot be trusted if they say they embrace western values such as freedom of speak and women's liberation. Therefore, they lack domestic culture competence and are thus unlikely to fit into a work place dominated by natives.<sup>7</sup> Other stereotypes would be they lack good work ethics and live on welfare. We will not be able to test these perspectives, but in line with previous empirical findings we expect to find *ethnic discrimination*:

Hypothesis 2: Ethnic minorities receive lower call-back than majority job applicants.

#### *Additive and multiplicative effects*

Our main question is how employers perceive unemployed minority applicants. We have a two-by-two table, comprising majority and minority applicants, who are employed or unemployed. At the outset we would assume employers on average prefer majority over minority applicants and applicants already in a job over unemployed applicants. Thus, we would expect highest call-back for majority applicants who are not unemployed and lowest call-backs for unemployed minority applicants. But how much lower? If employers regard unemployment and ethnicity as unrelated individual characteristics, unemployed minorities face an additive disadvantage. If employers find unemployment particularly negative for minorities, they face a multiplicative disadvantage. Why should we expect multiplicative effects? If minority status is associated with *productivity uncertainty* (as in statistical discrimination) and unemployment is associated with a) human capital deterioration, and/or b)

other negative unobserved characteristics, such as lack of work motivation, we would expect employers to be particularly worried about lack of productivity of unemployed minorities. Unemployment then sends a stronger negative signal about the qualifications and skills of ethnic minorities than majority applicants, and the disadvantages associated with minority status and unemployment is multiplicative. Second, if employers hold *stereotypes* against minority applicants (about their reliability, work ethics, degree of integration) and associate unemployment with a) human capital deterioration, and/or b) other negative unobserved characteristics, such as lack of work motivation, we would expect employers to be particularly worried about unemployed minority applicants' lack of productivity and also their ability to fit into the work organization. Again, employers may find that the two pieces of information, minority status and unemployment, strengthen each other in terms of his/her assumptions about negative unobserved characteristics of the applicant. When unemployment is substantially more damaging for the job chances of minorities, we can talk of an *ethnic scarring effect of unemployment*:

Hypothesis 3: The call-backs to unemployed minority applicants will be significantly lower than the combined effect of ethnicity (for the employed) and unemployment (for the majority).

There is, however another possible outcome. In a tight labor market (with unemployment figures between 2-4 percent), employers might interpret information on unemployment as a stronger signal about negative unobserved qualifications of majority applicants than others. Aware of the fact that discrimination of minorities occurs, employers may find unemployment less stigmatizing for minority applicants. This leads us to expect a *majority scarring effect*:

Hypothesis 4: The call-backs to unemployed minority applicants will be significantly higher than the combined effect of ethnicity (for the employed) and unemployment (for the majority).

Empirical support for hypothesis 3 or 4 implies that we find multiplicative effects, either an ethnic or a majority scarring effect. If we do not find statistical support for these hypotheses, this implies that the null hypothesis, of no multiplicative effects, is supported. The additive disadvantage effect therefore amounts to no multiplicative disadvantages.

In our experimental data, we have two treatments. Our model is therefore very simple:

$$Y = b_0 + b_1 \textit{ethnicity} + b_2 \textit{unemployment} + b_3 \textit{ethnicity} * \textit{unemployment}$$

Where Y is call-back,  $b_0$  measures call-backs for majority applicants,  $b_1$  and  $b_2$  are coefficients associated with, respectively, Pakistani/Muslim names and unemployment, and finally,  $b_3$  is the coefficient associated with the interaction term. The ethnic scarring effect, hypothesis 3, would be supported if the interaction term is significant and negative. The majority scarring effect, hypothesis 4, would be supported if the interaction term is significant and positive. If the interaction term is not significant, this implies that on average, employers combine the two categories in an additive way.

Labor market tightness might matter to employers' decisions, and our field experiments cover six sub-markets with varying levels of employer responses.

### **Is there less discrimination in occupations where recruitment is difficult?**

Our field experiment was conducted in a tight labor market with approximately 2.5–3.5 percent unemployment during the observational period. When the demand for labor is high, employers are unable to cream the market for the best applicants, and may therefore hire workers, such as minorities or unemployed, they otherwise would not prefer. Baert et al. (2015) show that discrimination of minorities only occurs in occupations without recruitment difficulties; whereas Kroft et al. (2013) found an opposite pattern: The negative effect of

unemployment was more pronounced when the local labor market was tight. The interpretation being that unemployment sends a particularly negative signal when ‘everyone else’ has a job. This logic should in principle be similar for majority applicants and minorities, but as noted above, employers in a tight market might be particularly skeptical to unemployed majority applicants. A meta-analysis of previous field experiments found no significant association between the economic situation and ethnic discrimination (Zschirnt & Ruedin 2016). We would however, expect to find variation in response rates across the occupational categories we included in our experiment, due to sub-market mismatch between supply and demand, and we will explore if there is less discrimination in sub-markets with high demand for labor.

### **Randomized field experiments**

Analysis of observational data, such as survey or register data, provide solid estimates of the effects of ethnicity and unemployment on hiring probabilities, but it is difficult for researchers to know what other information the employers have of the job applicants, information that might be relevant for employers hiring decisions, but unobserved to researchers (Eriksson and Rooth 2014:1015). Experimental data are therefore better, and *randomized field experiments* are acknowledged as the best way to measure discrimination in the labor market (OECD 2013). In these experiments we, as researchers, set up the job applications, which imply that for our fictitious applicants, we have exactly the same information as the employers.

The ideal design for the research question asked in this paper would be testing the impact of ethnicity and unemployment simultaneously, by submitting four applications<sup>8</sup> to the same job openings, or – preferably - randomizing four applications across a large number of vacant jobs. There are mainly two reasons why we did not do this. First, sending four identical fictitious

applications to the same advertised job might cause employer suspicion and bias our data. Second, we did not have funding for collecting experimental data across thousands of jobs. We therefore decided to design a field experiment with *two experimental waves*. In the first wave, ( $T_E$ ), we measured ethnic discrimination by sending identical pairs of fictitious applications with typical majority and typical Muslim/Pakistani names to each job. The second experimental wave, ( $T_U$ ), is identical to the first, but this time, for both applicants we included an unemployment spell of one and a half year. Comparing outcomes of the two waves, we can test if unemployment is particularly harmful to ethnic minorities.

To avoid problems of unobserved heterogeneity, related to immigrants' language, knowledge of the culture in the host country, etc. (see Heath et al. 2008), we include *only second generation* Muslim/Pakistanis, which comprise 45 percent of the total Pakistani population (a figure that was stable during our experimental waves) and consists of roughly 16 000 people (0.36 percent of the total population).<sup>9</sup> Having successfully graduated from domestic schools and universities, many second generation Norwegian-Pakistanis are now entering the labor market, making this group particularly relevant for experimental research of the hiring process.

We constructed two pairs (two men, two women) that were identical, except for their names; one had a typical Norwegian name, the other a typical Muslim/Pakistani name. Their CVs show they had attended Norwegian schools, and had identical work experiences. In the first wave, the applicants were 25 years old. In order to maintain the same human capital assets and include one and a half year of unemployment, we increased the applicants' age to 26 years in the second wave. All CVs were given qualifications that matched the requirements of the advertised jobs. In both waves, we sent applications to advertised jobs within six occupational categories, within public and private sector. Due to the sex segregation of the labor market, we sent female applications to jobs in education and in health/social work, and

male applications to jobs as warehouse workers and truck drivers. For jobs in finance, administration, and info/communication, we sent both male and female applications (though for each advertised job we only sent one pair).<sup>10</sup>

-- Table 1 here --

We sent applications to jobs that required upper secondary education or a bachelor degree. We also applied to jobs with lower educational qualifications, such as transportation and warehouse work, and a handful of jobs in health/social work (e.g. assistant nurse) and educational work (e.g. kindergarten assistant). The application process was almost exclusively electronic. To avoid employer suspicion, we randomly varied the style of the applications (translated versions of two applications are available on request).

In the first wave, we sent 578 applications to 289 advertised jobs; in the second wave, 610 applications to 305 advertised jobs. In real life, unemployed applicants might want to hide the fact that they are out of work. However, we would violate our treatment variable if unemployment were disguised, so we decided to be explicit about the unemployment experience. We formulated the letters of application in a positive manner where the applicants argued that they, due to their long period out of work, were highly motivated for a new job. This way, we are fairly confident that we measure employers' reactions to applicants with contemporary long-term unemployment.

In order to avoid employer suspicion, we collected the experimental data over a time period of one and a half year. The first wave took place September 2011 - January 2012; the second October 2012 - April 2013. Our design rests on two important assumptions. First; contextual variation: Changes in the overall demand for labor between these periods might affect our findings. The largest change was an increase 0.5 percent in the male unemployment rate from

the first to the second wave - a minor difference (available on request). Second, employers in might differ on observable and unobservable characteristics important for their hiring decisions. As Table 2 shows (see below), we do find some differences between the two waves in observable employer characteristics, and we control for these variables in our analysis. For the other variables, table 2 shows large similarities across the two experimental waves. We assume that employers treat information about unemployment and ethnicity in the same way in the two waves. Given the stability over time in the unemployment rates we find this assumption reasonable, yet we are not able to test this assumption directly.

The use of experimental methods violates the research ethical rule of informed consent. To avoid situations where employers spend much time on our fictitious applicants, we terminated the test immediately after the employers contacted one or both of our candidates. If only one of the applicants were contacted, we waited at least one full workday before we withdrew the other applicant's application.<sup>11</sup>

### **Call-back**

We registered employers' call-back by e-mail or telephone. A contact implies a job interview offer, a (lost) telephone call, and/or a message to the applicant that he/she should get in touch with the employer.<sup>12</sup> We coded applicants who were contacted 1, and applicants receiving no response from the employer 0.

### **Descriptive statistics**

Descriptive statistics are reported in Table 2 for the first ( $T_E$ ) and the second ( $T_U$ ) experimental wave. Our main explanatory variables, ethnicity and unemployment, are by design identically distributed in the two waves. The control variables differ, however, due to variations in the number of advertised jobs when we were in the field. In our case, there are

significant differences in 4 characteristics. Fewer applications were sent to private sector jobs in the first compared to the second wave (69 % vs. 79 %). Jobs announced through recruitment agencies were more common in the second wave (32 % vs. 22 %). Job advertisements having a contact person with a non-Norwegian name were rare, but more common in the first than the second (7 % vs. 3 %) wave. And jobs asking for Bachelor degrees were more common in the first wave (70 % vs. 82%), whereas jobs asking for upper secondary education were more frequent in the second wave (10 % vs. 0 %). In both waves, about 51 percent were female, 23 percent of the jobs were advertised in firms with less than 50 employees, job advertisements encouraging minority candidates to apply were rare, and three quarters of the jobs were full-time jobs. As these are randomized experimental data, we do not expect these control variables to matter for our outcomes, and will later test if this is the case.

-- Table 2 here --

When we conducted our first experimental wave, the results from another Norwegian field experiment (Midtbøen & Rogstad 2012) were published.<sup>13</sup> In the public debate that followed, representatives of the National Confederation of Employers argued that the information provided in this experiment was unclear about whether the applicants were first or second generation immigrants. In order to avoid this uncertainty we included information about country of birth (using a Norwegian city) for both the minority and majority applicants in the second wave. If this information matters, we would expect to find less ethnic discrimination in the second wave.

## Findings

In the first wave, we received high call-back rates, reflecting a tight labor market: 45 percent of our applications received a call-back, compared to 27 percent of the unemployed applicants

in the second wave. This difference is significant.<sup>14</sup> Thus, the scarring effect of unemployment ( $H_1$ ) is documented.

-- Figure 1 here --

Call-backs for majority and minority applicants with and without unemployment gaps are presented in Figure 1. Nearly 51 percent majority and 39 percent minority applicants without an unemployment gap received call-backs, compared with 33 percent unemployed majority and 21 percent unemployed minority applicants. These differences are significant; thus, there is clear evidence of ethnic discrimination in both waves, confirming  $H_2$ .<sup>15</sup> The level of ethnic discrimination is higher in the second experiment<sup>16</sup> which might lead us to think that long-lasting unemployment is particularly problematic for ethnic minorities. To test the ethnic scarring hypothesis more formally, we performed a linear probability regression including ethnicity, employment status and controls (see Table 3).

-- Table 3 about here --

Model 1 shows an average call-back to majority applicants ( $b_0$ ) of 51 percent. About 39 percent of applicants with Pakistani/Muslim names received call-backs ( $0.509 - 0.114$ ) and about 33 percent of the unemployed majority applicants received a call-back ( $0.509 - 0.178$ ). Thus, interestingly, the scarring effect of unemployment seems slightly stronger than employers' discrimination of ethnic minorities.

Model 1 also includes the interaction term (Pakistani x Unemployment), which is small and insignificant. We add controls for gender, private sector and educational qualifications (see models 2, 3 and 4), causing changes in the intercept ( $b_0$ ) due to different reference categories across these models, yet the main finding remains robust (as expected with randomized experimental data). In Model 5, we introduce occupational fixed effects, and in Model 6 we

also include the other covariates, but the overall picture remains the same, the interaction term between unemployment and minority status is not significant. This means that we do not find an ethnic scarring effect (H3), nor do we find a majority scarring effect (H4). Tables A1 and A2 in Appendix show the same results for men and women, separately.

Thus, unemployed ethnic minorities with Pakistani/Muslim names face an additive disadvantage in the labor market. They receive the lowest call-backs of the four groups we have tested. Yet there are no multiplicative disadvantage effects. Let us move on to address heterogeneity within and across the six sub-markets.

#### **Scarring effects of unemployment for ethnic minorities in six occupational groups**

We find evidence of unemployment scarring in five out of six occupational groups (see Figure 2, and Table 4 for Chi-square tests, column 1). Particularly in educational jobs, such as accredited kinder garden teachers, where the demand for qualified workers is high, we see a clear reduction in employers' response to unemployed applicants. Interestingly, for info/communication jobs employers' call-backs were not significantly affected by unemployment, which might be due to a traditional high level of free-lancers and precarious workers in this labor market segment.

When we split the sample by ethnicity, we get lower numbers and hence problems with statistical power. Yet for majority applicants we find significant scarring effects in education, transportation/warehouse-work and health/social jobs. For minority applicants we find significant scarring effects in education, finance, health/social jobs and administration (see Columns 2 and 3 in Table 4). Consistently across all occupations, minority applicants received lower call-backs than majority candidates (see Figure 2). In most occupational

groups, however, these differences are not significant, again because of low numbers when the data is structured in this manner (see Table 4).

-- Figure 2 and Table 4 about here --

The overall level of demand varies across our occupational groups. To test whether the effect of unemployment experience and minority status differs in high demand versus low demand occupations, we have split the sample in two sub-markets, with education and health/social occupations as high demand occupations and the others as low demand occupations. As shown in Table A3 in Appendix, the effect of ethnicity is -0.13 in high demand occupations and -0.11 in low demand occupations. Thus, there is no evidence of less ethnic discrimination in occupations where recruitment is difficult. The effect of unemployment experience however does seem to be slightly stronger in high demand occupations (-0.26 versus -0.15).<sup>17</sup> This finding might be due to employers in a tight market being more skeptical to applicants with a long-lasting unemployment history; or it might be due to differences across these sub-markets in employers' perceptions of the unobservable characteristics of the applicants. Finally, the interaction term (minority\*unemployment) is not significant in either sub-market. Thus, we find no evidence of multiplicative disadvantage effects of unemployment and minority status in either high demand or low demand occupations.

## **Discussion and summary**

Field experiments inform us about employers' revealed preferences. We have tested employers' responses to majority and minority job applicants with and without contemporary long-term unemployment in their CVs. There are three main findings in the current study. First, we document a scarring effect of unemployment (H1): Employers are significantly less likely to contact job applicants who are contemporary long-term unemployed. We also

document ethnic discrimination (H2): Employers are significantly less likely to give call-backs to job applicants with a Muslim/Pakistani name. Hence, our results correspond well with previous research.<sup>18</sup>

The third, and novel, finding in our study is related to how employers combine information about minority status and unemployment. We found that employers react to ethnicity and unemployment in an *additive* manner, resulting in highest call-back for majority applicants without an unemployment gap in their CVs, and lowest call-back for unemployed minorities. This finding implies that we found no evidence of multiplicative disadvantage effects; thus H3 and H4, on ethnic or majority scarring effects of unemployment are not supported.

We would argue that the additive effects of contemporary long-term unemployment and ethnicity documented here are of a causal nature. We sketched two perspectives associated with employers' perceptions of job applicants' unobserved characteristics. Unemployment corrodes skills. In addition, unemployment signals low worker quality and motivation. Minority status might cause employers to be uncertain about the applicant's productivity, due to lack of information. In addition, employers may hold stereotypes against minorities, and regard them as not integrated and motivated. Some employers in this study might think unemployed minorities are lacking in worker quality, motivation and ability to fit into the work place. These employers would not respond to unemployed minority applicants. Other employers might find unemployment worse for majority applicants, thinking they had been discriminated, and therefore were not to be blamed for their situation. The fact that we did not find evidence of multiplicative disadvantages for unemployed minorities implies on average, employers did not find unemployment particularly harmful for minorities. This finding has important policy implications, since it implies that general economic policy to prevent

unemployment (in particular long-lasting unemployment) would benefit both groups, majority and minority applicants.

The fact that we highlighted the unemployment experience implies that employers most likely noticed this information. In real-world life, unemployed applicants might try to hide this information, and/or emphasize they were not to be blamed for the fact that they are unemployed. If so, call-backs for unemployed job applicants might be higher. Our results are based on the premise that the two waves of our randomized field experiment can be compared. This is only true if employers' decision making – related to unemployment, ethnic discrimination and the combination of the two – has not changed systematically between the two waves. We have no reason not to believe this, but our findings should be validated in future studies.

We believe our findings would be relevant in other national contexts as well. Minorities face ethnic discrimination in the labor market, and we have seen employers also discriminate against second generation immigrants with domestic schooling and work experience. We have seen that unemployed second generation minorities received the lowest call-backs of the four groups we investigated. The good news is that this disadvantage is additive, not multiplicative.

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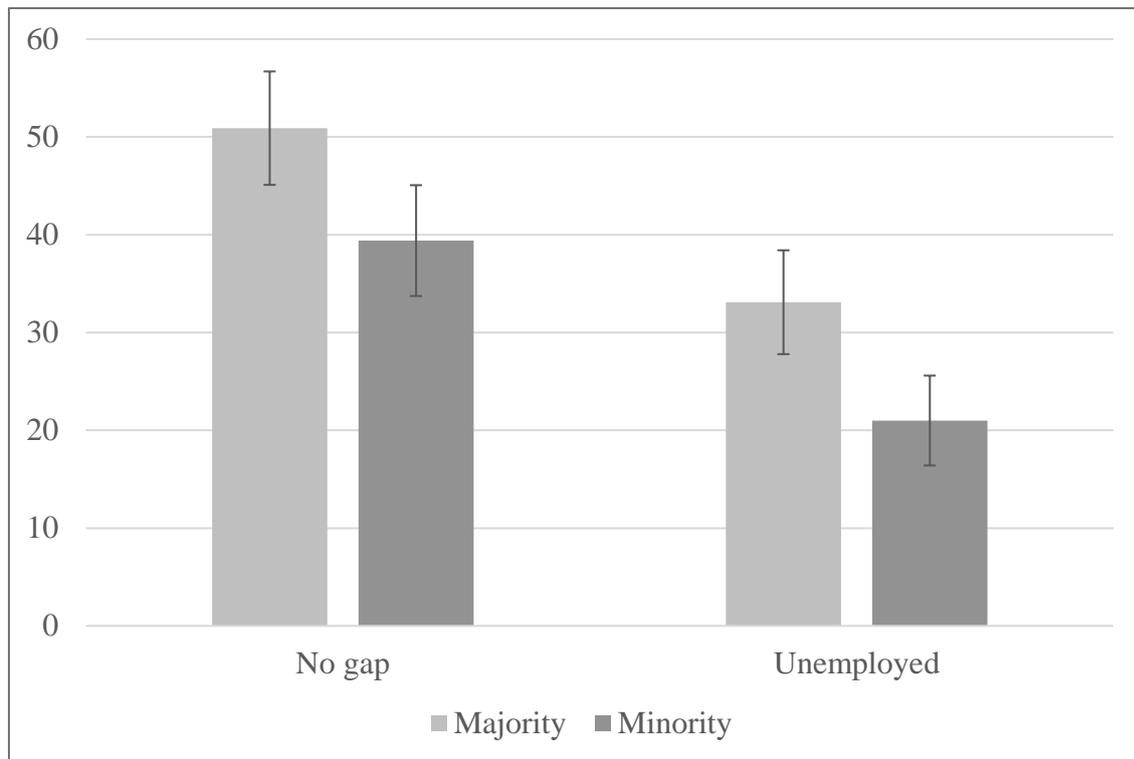
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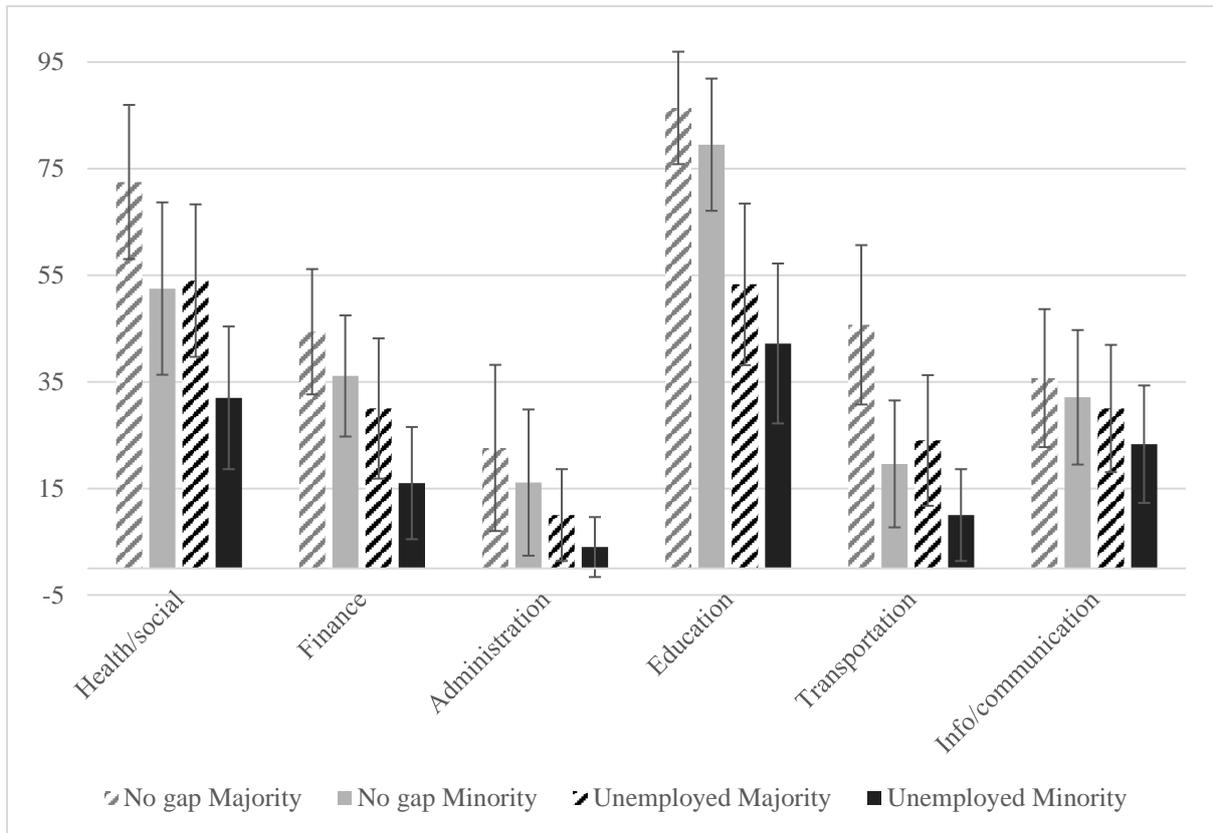
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**Figure 1 Call-back by unemployment and ethnicity. Results from two experimental waves**



*Note: 95 % confidence intervals presented*

**Figure 2 Call-back by unemployment, ethnicity and occupational category. Results from two experimental waves**



*Note: 95 % confidence intervals presented*

*Table 1 Occupational categories, typical jobs and gender*

Occupational categories	Typical jobs	Gender
Health/ social	Nurse, activity therapist, social educator	Female
Finance	Accountant assistant, accountant, economic assistant	Male and female
Administration	Consultant, counselor, executive officer	Male and female
Education	Educational supervisor, teacher, pre-school teacher, kindergarten assistant	Female
Transportation	Warehouse operative, chauffeur, truck driver	Male
Information/ communication	Communication advisor, web developer, support assistant	Mostly male

**Table 2 Descriptive statistics on job characteristics by experimental wave**

	Wave 1	Wave 2
<i>Variables</i>		
Woman (0=man)	51.9	50.8
Private sector (0=public sector)	69.2	79.0***
Corporation-size (1=<50 employed)	22.8	23.9
Recruitment agency (yes/no)	21.5	31.8***
Encouragement (yes/no)	6.2	4.6
Non-Norwegian contact-person (yes/no)	6.9	3.0***
Full time job (yes/no)	71.8	75.1
Informal application (yes/no)	50.0	50.0
<i>Educational qualifications</i>		
Bachelor's degree	82.0	69.8***
1-2 years of higher education	0.4	-
Vocational training	7.3	8.5
Completed general studies	-	10.2***
Drop-out from College	10.4	11.5
Total	100	100
Age	25	26
Informed about birthplace	No	Yes
N	289	305
Significance levels (T-tests): *** = 0.01 ** = 0.05 * = 0.1		

**Table 3 Call-back by Muslim/Pakistani name, employment status and covariate Linear probability regression models**

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.509*** (0.029)	0.418*** (0.033)	0.536*** (0.044)	0.531*** (0.030)	0.797*** (0.045)	0.767*** (0.069)
Pakistani	-0.114*** (0.025)	-0.114*** (0.025)	-0.114*** (0.025)	-0.114*** (0.025)	-0.114*** (0.025)	-0.114*** (0.025)
Unemployed	-0.178*** (0.041)	-0.176*** (0.041)	-0.174*** (0.041)	-0.171*** (0.043)	-0.171*** (0.039)	-0.169*** (0.040)
Pakistani X Unemployed	-0.007 (0.033)	-0.007 (0.033)	-0.007 (0.033)	-0.007 (0.033)	-0.007 (0.033)	-0.007 (0.033)
<b>Covariates</b>	None					
Woman		Yes				Yes
Private sector			Yes			Yes
Education (ref.: higher educ.)				Yes		Yes
Occupation (ref.: education)					Yes	Yes
N	1188	1188	1188	1188	1188	1188
Adjusted R <sup>2</sup>	0.048	0.081	0.049	0.056	0.161	0.163
Sig. level	*** = 0.01 ** = 0.05 * = 0.1					
	<i>Standard errors (in parentheses) clustered by employer.</i>					

**Table 4 Pearson Chi Square tests of call-backs**

	<b>(1) No gap vs. unemployed</b>	<b>(2) No gap vs. unemployed - Majority</b>	<b>(3) No gap vs. unemployed - Minority</b>	<b>(4) Majority vs. minority - No gap</b>	<b>(5) Majority vs. minority - Unemployment</b>
Overall	42.304 (0.000)	19.225 (0.000)	24.103 (0.000)	7.608 (0.006)	11.373 (0.001)
<i>Occupational category</i>					
Health/social	6.768 (0.009)	3.236 (0.072)	3.858 (0.050)	3.413 (0.065)	4.937 (0.026)
Finance	7.944 (0.005)	2.600 (0.107)	5.937 (0.015)	1.039 (0.308)	2.767 (0.096)
Administration	5.643 (0.018)	2.400 (0.121)	3.566 (0.059)	0.413 (0.520)	1.383 (0.240)
Education	24.255 (0.000)	11.485 (0.001)	12.988 (0.000)	0.723 (0.395)	1.113 (0.291)
Transportation	6.315 (0.012)	4.979 (0.026)	1.760 (0.185)	7.123 (0.008)	3.473 (0.062)
Info./communication	1.450 (0.229)	0.429 (0.512)	1.125 (0.289)	0.159 (0.690)	0.682 (0.409)
<b>Note</b>	<i>P-values presented in parentheses.</i>				

## Appendix

**Table A1 Call-back by Muslim/Pakistani name and employment status. Linear probability models. Men**

	Model A		Model B		Model C	
	B	SE	B	SE	B	SE
Constant	0.329***	0.028	0.391***	0.038	0.388***	0.042
Pakistani	-0.121***	0.025	-0.121***	0.025	-0.115**	0.040
Unemployment			-0.121**	0.045	-0.115**	0.055
Pakistani*Unemployment					-0.012	0.051
Adjusted R <sub>2</sub>	0.017		0.034		0.032	
N	578					
Significance level	*** = 0.01 ** = 0.05 * = 0.1					
<i>Standard errors are clustered on employers</i>						

*Table A2 Call-back by Muslim/Pakistani name and employment status. Linear probability models.*

*Women*

	Model A		Model B		Model C	
	B	SE	B	SE	B	SE
Constant	0.502***	0,029	0.621***	0,038	0.620***	0.040
Pakistani	-0.115***	0,021	-0.115***	0,021	-0.113***	0.031
Unemployment			-0.234***	0,051	-0.233***	0.056
Pakistani x Unemployment					-0.003	0.042
Adjusted R <sub>2</sub>	0.012		0.066		0.064	
N	610					
Significance level	*** = 0.01 ** = 0.05 * = 0.1					
<i>Standard errors are clustered on employers</i>						

Table A3. Call-back by Muslim/Pakistani name and employment status, separately for high demand (1) and low demand (2) occupations, linear probability models.

	(1)	(2)
	High demand	Low demand
Constant	0.798*** (0.044)	0.390*** (0.034)
Pakistani	-0.131*** (0.041)	-0.107*** (0.031)
Unemployed	-0.261*** (0.067)	-0.152*** (0.046)
Pakistani X Unemployed	-0.037 (0.059)	0.007 (0.040)
N	358	830
Adjusted R <sup>2</sup>	0.104	0.043
Significance levels	*** = 0.01 ** = 0.05 * = 0.1	
	Standard errors (in parentheses) clustered by employer.	
	High demand = health/social and education.	
	Low demand = finance, administration, transportation and info./communication.	

## Notes

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<sup>1</sup> Addressing several forms of non-standard employment histories, this study documents a significant interaction of gender and part-time work (Pedulla 2016, Table B1) on the probability of receiving a call-back.

<sup>2</sup> In the US, 10-30 applications per job opening were normal (see Eriksson and Rooth 2014, note 8).

<sup>3</sup> In the screening process, employers might also act on implicit biases (Bertrand et al. 2005; Blommaert et al. 2014; Birkelund 2016).

<sup>4</sup> Unemployment status might also signal that workers are engaged in active search-behavior, and unwilling to take the first available offer.

<sup>5</sup> Related perspectives include on error discrimination and stereotype-based discrimination.

<sup>6</sup> See Birkelund and Ryndzak (2014) for a study of name recognition (this study uses students as respondents).

<sup>7</sup> Bye et al. (2014:414) have documented that native Norwegians tend to cluster immigrants and Muslims together with other typical out-groups such as poor people, unemployed, and welfare recipients, which is a long distance from the majority population. These data are based on students' replies.

<sup>8</sup> Employed majority applicants; employed minority applicants; unemployed majority applicants; and unemployed minority applicants.

<sup>9</sup> See <https://www.ssb.no/en/innvandring-og-innvandrerer>

<sup>10</sup> This design implies that we did not randomize gender, and are therefore unable to test gender discrimination in the labor market in a stringent way.

<sup>11</sup> This procedure was due to requirements from The National Committee for Research Ethics in the Social Sciences and the Humanities (NESH), who was worried employers, not informed

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about the experiment, might waste time investigating our fictitious candidates. We are, naturally, unable to measure the impact of this restriction.

<sup>12</sup> Employers in the second experiment were more likely to call for more information for *both* the majority and the Muslim/Pakistani job applicants.

<sup>13</sup> We have tested if the publication of this report affected our results, but found no indication of this (test analysis available on request).

<sup>14</sup> Chi-square = 42.3, p-value 0.0000

<sup>15</sup> The *relative call-back rate* – a commonly used measure of discrimination – is 1.29 in the first wave and 1.58 in the second wave. Only relying on this measure would give lead to a conclusion that there was more ethnic discrimination among the unemployed than the others.

<sup>16</sup> Thus, there is no indication that information on city of birth in the second wave affected employers' decisions.

<sup>17</sup> To test this more formally we pooled the data from the two waves, and constructed a variable called 'high demand' (1 = education + health; 0 = the other occupations). The interaction term 'unemployment\*high demand' gets a  $b = -0.131$ , with a  $SE = 0.072$ , and a p-value of 0.069. In this analysis we use the same information twice, both as a treatment variable (classifying occupations by high versus low call-back), and as the outcome variable (a dummy measuring call-back), whereas in Table A3 we divide the sample by the same variable we use as outcome variable. Future research should address these topics using a better research design.

<sup>18</sup> Interestingly, contemporary long-term unemployment seems to send a slightly stronger negative signal to employers than minority status; yet this difference is small and not significant: a T-test of the difference in call-back between unemployed majority (39.44 percent) and employed minority (33.11 percent) applicants yields a t-value of 1.606 (p-value = 0.109).