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ABSTRACT

Do Employers Discriminate Less If Vacancies Are Difficult to Fill? Evidence from a Field Experiment[*]

We empirically test the relationship between hiring discrimination and labour market tightness at the level of the occupation. To this end, we conduct a correspondence test in the youth labour market. In line with theoretical expectations, we find that, compared to natives, candidates with a foreign sounding name are equally often invited to a job interview if they apply for occupations for which vacancies are difficult to fill, but they have to send twice as many applications for occupations for which labour market tightness is low. Our findings are robust against various sensitivity checks.

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1 Introduction

It is well known that discrimination is not sustainable in a perfectly competitive product market (Becker, 1957). Similarly, discrimination is not possible in a perfectly competitive labour market (see, e.g., Cahuc and Zylberberg, 2004). Employers paying discriminated workers a lower wage than marginal productivity are driven out of the market by free entry, since employers without a preference for discrimination are willing to offer to these workers wages that do equal marginal productivity. However, recent contributions to the literature (see, e.g., Manning, 2003) have shown that employers, even if they operate in labour markets composed of many competing firms, can exercise a certain degree of monopsony power and can therefore discriminate against certain groups of workers without being driven out of the market. Monopsony power raises with search costs of employees and falls with search costs of employers. On the one hand, search costs incurred by employees limit their capacity to change employer and hence confer some power to employers to discriminate. On the other hand search costs at the employer side increase foregone output during the period that vacancies remain unfilled if a minority candidate is turned away. The primary objective of this paper is to verify whether this second prediction holds: Do employers discriminate less if they have difficulties in filling their vacancies?

Contrary to the relationship between competition on the product market and discrimination,[1] the relationship between labor market tightness and discrimination has received little attention in the economic literature. Biddle and Hamermesh (2012) refer to Ashenfelter (1970) and Freeman (1973) arguing that "the perceived costs to employers of discriminating was higher in tight labor markets", but add that "neither found empirical evidence of cyclical movements in pure wage discrimination in the aggregate data." Apart from these authors, hardly any discussion of this relationship can be found in the literature. Biddle and Hamermesh (2012) are a rare exception in investigating this relationship, albeit *indirectly*, by studying how wage discrimination evolves over the business cycle. Building on the works

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[1]See, e.g., Ashenfelter and Hannan (1986), Peoples and Saunders (1993), Black and Strahan (2001), Hellerstein et al. (2002), Black and Brainerd (2004) and, more recently, based on correspondence testing, Berson (2012).

of Black (1995) and Rosén (2003), they develop a theoretical equilibrium search model to get a better understanding of the underlying mechanisms of the cyclical variation in wage discrimination. At the same time this model forms the theoretical basis for our empirical analysis, since it confirms the aforementioned intuition that employers discriminate less if they face a tight labour market.[2]

In this paper we are, to the best of our knowledge, the first to *directly* assess the relationship between labour market tightness and ethnic discrimination in the hiring process. To this end we conducted a correspondence test in Flanders, the Northern and economically most prosperous region of Belgium.[3] We sent out 752 fictitious job applications of school-leavers, randomly assigned to individuals with a Flemish and a Turkish sounding name, to 376 vacancies for jobs requiring no work experience. Classifying these jobs on two measures of labour market tightness, we verify to what extent our measure of discrimination, the differential callback rate, differs between types of jobs. We perform sensitivity analysis to rule out that the found relationship just reflects correlation with other determinants of discrimination related to labour market tightness.

Our results confirm the negative relationship between labour market discrimination and labour market tightness. We find no significantly unequal treatment between the Flemish and Turkish job candidates in our experimental dataset when they apply for bottleneck occupations, i.e. occupations for which vacancies take long to fill. In contrast, Turkish job seekers applying for non-bottleneck occupations have to send out twice as many job applications in order to get the same number of job interviews as their Flemish

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[2]Biddle and Hamermesh (2012) state this result only in words, but it can be formally found by differentiating their Equation (9) with respect to φ: $\frac{\partial c^*}{\partial \varphi} = \frac{(1-\beta)\lambda}{r+s+(1-\beta)\varphi\lambda}[rU_A - c^* - rU_B] < 0$, where the negative sign follows from the fact that the term between braces on the right hand-side of (9) is a weighted average of $k+x$ and rU_A and from the fact that $k+x > rU_A$, so that $c^* > rU_A - rU_B$ or, equivalently, $rU_A - c^* - rU_B < 0$. Since φ is the rate at which workers arrive at employers, this rate decreases with labour market tightness and, hence, c^* increases with tightness and, since c^* is inversely related to discrimination, discrimination falls. Note that in this differentiation we hold U_A and U_B constant. This is because in the field experiment that we consider in our empirical analysis the labour market tightness for job seekers is given. They can apply for vacancies irrespectively of whether these are difficult to fill or not.

[3]Belgium is a federal state divided in three regions: Flanders, Wallonia and Brussels. In Flanders the official language is Dutch, in Wallonia French and in Brussels both languages.

counterparts.

Readers may take an interest in this paper for a number of additional reasons. First, we focus on ethnic discrimination of school-leavers. Discrimination of this group is particularly relevant since discrimination at the first stage of the career may cause, through scarring (Arulampalam, 2001; Gregg, 2001; Gregg and Tominey, 2005), long-term adverse labour market outcomes even if discrimination does not play a role at later stages of the career.

Second, we provide evidence on hiring discrimination in the Flemish labour market. Flanders, and by extension Belgium, is an interesting case for a couple of reasons. In the 1990's the International Labour Office (ILO) conducted a series of ethnic discrimination studies in the three Belgian regions on the basis of audit and correspondence tests. Discrimination was found to be a significant and, compared with other OECD countries, more pronounced impediment to the employment of foreigners in Belgium (Arrijn et al., 1998). However, OECD (2008) argues that the results of the ILO studies probably had a stronger policy impact in Belgium than elsewhere. Affirmative action in combination with a stricter anti-discrimination legislation introduced in 2007 should have diminished labour market discrimination. Together with the very recent studies of Capéau et al. (2012a) and Capéau et al. (2012b)[4] our findings raise doubts on this conjecture.

Finally, in a sensitivity analysis we adopt the econometric framework recently proposed by Neumark (2012) to correct for the potential bias introduced by (ethnic) group differences in the variance of unobservable job-relevant characteristics. Although the difference is not significant, we find that the variance of unobservables for Turkish candidates is larger than that of natives, so that the benchmark model ignoring this yields conservative estimates of discrimination.

This article is structured in the following way. In the next section we

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[4]Capéau et al. (2012a) and Capéau et al. (2012b) tested for the presence of discrimination in several dimensions in the three regions of Belgium: sex, age, ethnicity and nationality, pregnancy, and physical handicap. Their findings are, however, somewhat difficult to compare with the existing literature, since, in contrast to this literature, they compare callbacks between individuals who differ in more than one dimension at a time. We refer to their papers for further discussion.

outline our experimental design. Subsequently we present a statistical analysis of the resulting dataset. A final section concludes and provides a brief discussion.

2   Experimental Design

2.1   Detecting Ethnic Discrimination by a Correspondence Test

Correspondence experiments to test for discrimination in the labour market have been extensively used (and refined) during the last decade. These experiments consist of sending carefully matched pairs of fictitious written job applications, randomly assigned to individuals revealing their minority status by their name or another individual characteristic, to real job openings and monitoring the subsequent callback. Concerning the identification of ethnic discrimination the extensive correspondence test conducted by Bertrand and Mullainathan (2004) is seminal. These authors show that, in the US labour market at the start of the former decade, applications with white-sounding names received 50% more positive callback on their job applications than those with African-American-sounding names. In Europe, pervasive levels of ethnic labour market discrimination are found in Greece, Ireland, Sweden and the UK (Drydakis and Vlassis, 2010; McGinnity et al., 2009; Bursell, 2007; Carlsson and Rooth, 2007; Wood et al., 2009). Besides, recent correspondence studies conclude that there is evidence of varying degrees of hiring discrimination based upon, for example, (i) gender in Austria, France and Spain, (ii) beauty in Sweden and (iii) sexual orientation in Austria, Greece and Sweden (Weichselbaumer, 2004; Petit, 2007; Albert et al., 2011; Rooth, 2007; Weichselbaumer, 2003; Drydakis, 2009; Achmed at al., 2011). Furthermore, the correspondence methodology has also been applied to identify discrimination in other markets (e.g., Carlsson and Eriksson (2012), in the Swedish housing market).

These field experiments have been widely viewed as providing the most convincing evidence on discrimination (Pager, 2007; Riach and Rich, 2002). Researchers using non-experimental data possess far less information than

employers do. Native and foreign employees who according to these data appear similar to researchers may therefore be very different from the employers' perspective. By conducting a correspondence test, selection on individual unobservable characteristics is not an issue since all the employers' decision making information is controlled for by the researcher. Thereby strict equivalence between candidates is ensured. Moreover, this approach allows disentangling employer discrimination from alternative explanations of differential hiring rates between migrants and natives, such as differential employee preferences and network effects.

2.2 Construction of Applications and Matching with Vacancies

We generated template CVs and cover letters for eight profiles of school-leavers. These different profiles allow us to apply for vacancies with different requirements both in terms of schooling level and specialisation. First, three middle educated profiles with a secondary education diploma (ISCED[5] 3) in commerce, metallurgy and organisation help. Second, five high educated profiles holding a professional bachelor in business administration (ISCED 5) with a different specialisation (accounting and tax, finance and insurance, logistics, marketing and legal practice).[6]

All profiles were single males with the Belgian nationality graduated in June 2012. Depending on the region of the announced workplace in the vacancy, their residence was located in one of the suburbs of Antwerp or Ghent, the two largest cities of Flanders. Middle educated school-leavers were 18 years old and high educated school-leavers were 21 years old. So, none of the candidates experienced a grade retention in the past. In addition we added to each application the following features: Dutch mother tongue,[7] adequate French and English language skills, driving license, computer skills and student employment experience. Moreover, the cover letters signalled

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[5]ISCED stands for International Standard Classification of Education.

[6]This degree is among the highest that migrants obtain in Flanders (Duquet et al., 2006).

[7]Thereby, we isolate the effect of ethnicity from potential language effects. Baert and Cockx (2012) report that Dutch is spoken at parental home among three quarters of the pupils whose grandmother on mother's side has a non-Western nationality.

a motivated, structured and capable person. For the high educated school-leavers also sport club membership and student leadership were added. Last, we added a fictitious postal address (based on real streets in middle-class neighbourhoods) and date of birth to the applications. The CV and cover letters are available on request.

During five months, from November 2011 until March 2012, we randomly selected vacancies from the database of the Flemish Public Employment Service (PES or "VDAB" in Dutch), the major job search channel in Flanders, for which (at least) one of our eight profiles was adequately educated. We restricted ourselves to vacancies for which no work experience was required and which were posted less than a fortnight before the start of the experiment.[8]

The ethnicity of the candidate was only signalled by the name. Turkish names were used because the Turkish community forms the most significant ethnic minority in Ghent and the second most important in Antwerp. In addition, the unemployment rate for residents of non-EU-15 countries (among which Turkey) is very high. In 2011 23% of the active non-EU-15 residents were unemployed in Belgium, compared to 6% of the active Belgians.[9] Finally, typical Flemish and Turkish names can be easily distinguished.[10]

For each of the eight aforementioned profiles of school-leavers we created two types of CVs and cover letters: "Type A" and "Type B". This allowed us to send two applications, one of each type and of each ethnic group, to the same vacancy. To maximise comparability, both application types were identical in all job-relevant characteristics, such as number of months of work experience in student work,[11] language skills and quality of extra-curricular

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[8]This choice was made in order to maximise the callback rate, since interviews with human resources managers revealed that filled vacancies are not always immediately removed from the PES database.

[9]Source: Eurostat.

[10]Based on frequency data on first names and surnames we chose "Thomas Mertens" and "Jonas Vermeulen" as Flemish sounding names and "Emre Sahin" and "Okan Demir" as Turkish sounding names. We checked that these names were no stereotypes. Assigning different pairs of names to the middle and high educated individuals allowed to let both categories of individuals apply for vacancies of the same employer without risking detection.

[11]Note that restricting the analysis to school-leavers has an advantage from a methodological point of view. Controlling for human capital is easier for them, since we need not take labour market experience (beyond student work) into account.

engagements (cf. supra). Type A and Type B candidates obtained education in the same type of school, with a comparable reputation. The applications just differed in inessential details, such as the name of the school, favourite sports and other particular engagements, and in fonts and lay-out.[12] In order to completely erase any dependence of call backs on the application type Flemish and a Turkish sounding name were alternately assigned to the Type A and Type B versions and, subsequently, sent in an alternating order to vacancies, each time with a one-day delay in between.

We matched to each assigned name an email address and a mobile phone number. These were registered with large commonly used internet and telecommunication providers. We logged for each application sent the number of announced (similar) job positions in the vacancy, the address of the workplace, the gender of the recruiter (if available), the date of the application, the application profile (one of the five high educated or one of the three middle educated profiles) and the application type (A or B).

2.3   Measurement of Callback

All applications were sent to the employer by email. Callbacks for interviews were received by telephone voice mail or by email. The content of the responses are available on request. Since we included postal addresses with a nonexistent street number in the applications, callback via regular mail could not be measured. However, several human resource managers confirmed that employers rarely, if ever, invite job candidates by regular mail for selection interviews. To minimise inconvenience to the employers, invitations were immediately declined. All callback later than 40 days after sending the application was neglected. This, however, turned out to be an artificial restriction since no response was received after 40 days.

In our analysis we distinguish between two definitions of positive callback. Positive callback sensu stricto means that the candidate is invited for an interview related to the job for which he applied. This definition is mostly used in the literature and therefore our benchmark definition. Positive callback sensu lato includes in addition to the sensu stricto definition

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[12]To be as realistic as possible, we adapted templates that the PES posts on its website as examples for job seekers.

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also the receipt of an alternative job proposal and the request to provide more information or to contact the recruiter.

2.4 Variation in Labour Market Tightness

We matched each vacancy one-to-one with an occupation in the classification list of the PES.[13] For each occupation the PES provided us with two measures of labour market tightness in 2011. First, the median duration to fill a vacancy in this occupation. This duration is right censored at vacancy withdrawal. Second, the so called "bottleneck" status of the occupation. Each year a list of bottleneck occupations is published by the PES. This list is obtained combining three statistical criteria and is then assessed by a number of labour market specialists. These three criteria are that (i) there must be at least 10 vacancies for the concerned occupation in the PES database, (ii) the vacancy filling rate must be lower than the median filling rate for all occupations together, and (iii) the median duration until a vacancy in this occupation is filled must be greater than the median for all occupations together. According to VDAB (2009), the bottleneck status is driven by the relative size of the pool of adequately skilled workers, the wage level and the working conditions in these occupations. In the benchmark empirical analysis we rely on this second measure. The first measure is used in a sensitivity analysis as a robustness check.

Table A.1 in the Appendix lists the classifications of the occupations, some variables characterising these occupations and the number of fictitious applications that were sent to each of these occupations. First, both PES measures of labour market tightness for these occupations in 2011 are reported. The occupations with the minimum and maximum median vacancy duration in our experimental dataset are consultant in recruitment and selection (13 days) and demonstrator (109 days). "Bottleneck" occupations are industrial cleaner, classic cleaner, private cleaner, customs declaration officer, executive expedition operator, planning and logistics clerk, shipping agent at the quay, bookkeeper, accountant, seller, representative, call center employee and tele-seller. Second, the table contains two indicators of

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[13]This occupation classification is a classification at 5-digit level. The PES classifies occupations in bottleneck and non-bottleneck occupations at this level.

customer contact in the occupations, which will be used in the sensitivity analysis. Third, it reports the number of observations (twice the number of vacancies) for each of the occupations by level of education. For three occupations (administrative clerk, commercial clerk and representative) applications were sent out for both middle and high educated profiles, depending on the particular requirements in the vacancy.

2.5 Research Limitations

In short we assess some research limitations inherent to our experimental design. For an in-depth discussion of the strengths and weaknesses of correspondents tests in general we refer to Riach and Rich (2002) and Pager (2007) and for an elaboration on the ethical aspects of this kind of tests to Riach and Rich (2004).

First, our experimental design can only demonstrate discrimination, if any, at the initial stage of the selection process. Since we simply measure callback rates for first interviews, we cannot make any statements about discrimination in the later stages of the selection process, let alone in wages. However, Bertrand and Mullainathan (2004) argue that reduced interview rates are expected to be reflected in reduced job offers and lower earnings. Moreover, since job interviews are costly, firms invite candidates for an interview only if they have a reasonably high chance of getting the job.

Second, we only investigate discrimination for a selection of occupations and for vacancies posted at the PES database. Possibly, discrimination is more or less pervasive in other sectors than those that are covered by the database and among employers who rely on other channels (e.g. social networks) for filling their vacancies. It is unclear whether these limitations, taken together, may lead to an overestimation or rather an underestimation of discrimination in the Flemish youth labour market. However, it is important to keep in mind that we are especially interested in the relationship between discrimination and labour market tightness. If, therefore, the limitations mentioned cause a similar shift in the discrimination measures for the bottleneck and for the non-bottleneck occupations, our main research conclusions remain valid.

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Last, as demonstrated by Heckman (1998), our design does not allow to distinguish between taste-based discrimination on the one hand and statistical discrimination on the other hand. Kaas and Manger (2012) and Carlsson and Rooth (2008) show how, to some extent, these forms of discrimination can be disentangled within the correspondence test framework. However, disentangling these forms of discrimination is outside the scope of this article.

3 Results

3.1 Descriptive Analysis

In this section we follow the international literature by reporting descriptive statistics on unequal treatment of Flemish and Turkish job candidates and on the relative callback probability of these groups.

Table 1 presents the aggregate experimental results adopting the sensu stricto definition of positive callback. Table A.2 (in the Appendix) displays the same statistics using the sensu lato definition. Since two applications were sent to each vacancy there are four possible outcomes: (i) positive callback for neither candidate, (ii) positive callback for both candidates, (iii) only positive callback for the Flemish candidate and (iv) only positive callback for the Turkish candidate. Overall, in 79 (139) of the 372 vacancies at least one candidate received positive callback sensu stricto (sensu lato). 29 (45) cases resulted in a positive callback for just the Flemish candidate and 7 (15) for the Turkish candidate only. The net discrimination rate is calculated as the ratio of the difference between the number of vacancies in which the Flemish and, respectively, Turkish candidate was treated favourably, and the total number of vacancies in which at least one candidate received a positive callback. Overall the net discrimination rate is 0.28 (0.22) adopting the sensu stricto (sensu lato) definition of positive callback. A standard χ^2 test of the hypothesis that the candidates of both ethnicities were equally often treated unfavourably is rejected at the 1% level. Based on this statistic we conclude that there is evidence of discrimination against Turkish school-leavers in the Flemish labour market.

Table 1 and Table A.2 in the Appendix also show the same descriptive statistics after splitting up the data in vacancies for bottleneck and non-bottleneck occupations. For the remainder of this section, we will focus, unless stated otherwise, on the results for this split-up and for the sensu stricto definition of positive callback. Note, however, that the results based on the alternative definition go in the same direction across all presented statistics.

Table 1 indicates that the net discrimination rate varies with labour market tightness in the expected direction. It is hardly different from zero for bottleneck occupations. In sharp contrast, this statistic is 0.50 for non-bottleneck occupations: while for 22 of the 195 vacancies only the Flemish candidate received a positive callback, just one vacancy resulted in a positive response for the Turkish candidate only. The more competition employers face in attracting workers, the lower the discrimination rate, since discrimination is then too costly.

Table 1: Unequal Treatment of Flemish and Turkish Job Candidates (Positive Callback, Sensu Stricto).

Occupations	Jobs	Neither callback	Both callback	Only Flemish callback	Only Turkish callback	ND	χ^2
	(No.)	(No.)	(No.)	(No.)	(No.)		
All	376	297	43	29	7	0.28∗∗∗	13.44
Bottleneck	181	144	24	7	6	0.03	0.08
Non-bottleneck	195	153	19	22	1	0.50∗∗∗	19.17

Note. ND: net discrimination rate. The null hypothesis is that both individuals are equally often treated unfavourably. ***(**)((*)) indicates significance at the 1% (5%) ((10%)) level.

Table 2 presents callback rates by ethnicity. These confirm the findings based on the net discrimination rate. The callback rate is defined as the number of positive callbacks relative to the total number of sent applications. The callback ratio is obtained by dividing the Flemish callback rate by the Turkish callback rate. The callback ratio is only significantly different from 1 for the individuals who apply for a non-bottleneck occupation. Candidates with Turkish sounding names need to send out more than twice as many

Table 2: Positive Callback Rates (Sensu Stricto) for Flemish and Turkish Job Candidates.

Occupations	Callback rate Flemish	Callback rate Turkish	Callback ratio	t
All	0.19	0.13	1.43∗∗∗	2.04
Bottleneck	0.17	0.17	1.03	0.14
Non-bottleneck	0.21	0.10	2.05∗∗∗	2.60

Note. The null hypothesis is that the callback rate is equal for both ethnicities. ∗∗∗(∗∗)((∗)) indicates significance at the 1% (5%) ((10%)) level.

job applications to be invited to as many job interviews as the Flemish candidates.

3.2 Empirical Analysis

In this section ethnic differences in positive callback rates are estimated on the basis of various probit models with the callback indicator (following both the sensu stricto and sensu lato definitions) as the dependent variable. Since characteristics of applicants are by construction orthogonal to ethnicity, adding these characteristics or not to the probit model does not affect the estimates of our main coefficients of interest, i.e. interaction effects with ethnicity. We therefore choose to leave these characteristics out of the analysis.

The statistics in Table 3 (and Table A.4 in the Appendix) square with those reported in Table 2 and Table A.3. In our experimental dataset, overall, a Turkish sounding name lowers the probability of receiving an invitation for a job interview by 11 percentage points after applying for a non-bottleneck occupation, while for bottleneck occupations the callback rate is not significantly different between the Turks and the Flemish.

A counterintuitive result, both in Table 2 and Table 3 is that the callback rate for the Flemish candidates is lower when they apply for bottleneck occupations than when they apply for non-bottleneck occupations. This finding seems to be largely driven by the 170 observations (85 vacancies) with as an occupation industrial, classic and private cleaner. Callback rates for

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Table 3: Main Empirical Analysis. The Probability of Positive Callback: Probit Estimates, Average Partial Effects.

Variables	Positive callback			
	Sensu stricto		Sensu lato	
Turkish name * Bottleneck occupation	−0.01	(0.02)	−0.01	(0.03)
Turkish name * Non-bottleneck occupation	−0.11∗∗∗	(0.02)	−0.15∗∗∗	(0.03)
Bottleneck occupation	−0.03	(0.03)	−0.02	(0.05)
Log-likelihood	-328.93		-446.47	
Observations	752		752	

Note. Average partial effects are reported. Standard errors, corrected for clustering at the vacancy level and calculated using the delta method, are in parentheses. ***(**)((*)) indicates significance at the 1% (5%) ((10%)) level.

these cleaning occupations are both for Flemish and for Turkish candidates very low, namely 0.09. This may be a consequence of employers preferring female candidates for these jobs and of our candidates being to some extent overqualified for these jobs. If we drop these 170 observations from the dataset the callback rate sensu stricto (sensu lato) for bottleneck occupations increases for the Flemish from 0.17 (0.21) to 0.24 (0.40) and for the Turks from 0.17 (0.20) to 0.23 (0.42). As expected, the coefficient of the indicator of bottleneck occupations becomes, in this case, positive but is still not statistically significant.

We conducted an extensive number of robustness checks on the aforementioned results. In a first robustness check, we estimate the probit model with the alternative variable capturing labour market tightness, i.e. the median vacancy duration time for the occupation for which the individual candidates. We normalise this variable by subtracting the sample mean and dividing by the sample standard deviation. Table 4 shows that an increase of the median vacancy duration by one standard deviation, i.e. by about 17 days, lowers discrimination by four percentage points. This result confirms that labour market discrimination is lower for occupations with high labour market tightness.

A concern is that the coefficients of both measures of labour market tightness, the median vacancy duration and the bottleneck status, may be affected by a simultaneity bias. We cannot exclude that vacancy durations

Table 4: Sensitivity Analysis 1. The Probability of Positive Callback: Probit Estimates, Average Partial Effects.

Variables	Positive callback			
	Sensu stricto		**Sensu lato**	
Turkish name	$-0.06{***}$	(0.02)	$-0.08{***}$	(0.02)
Turkish name * Norm. median vacancy duration	$0.04{***}$	(0.01)	$0.04{***}$	(0.02)
Norm. median vacancy duration	0.01	(0.02)	0.03	(0.02)
Log-likelihood	-327.46		-444.23	
Observations	752		752	

Note. Average marginal effects are reported. Standard errors, corrected for clustering at the vacancy level and calculated using the delta method, are in parentheses. ***(**)((*)) indicates significance at the 1% (5%) ((10%)) level. The median vacancy duration time for the occupation is normalised by subtracting the sample mean and dividing by the sample standard deviation.

may be longer as consequence of discrimination. However, if this were the case, the finding of less discrimination for bottleneck occupations would be strengthened, since we find do not find a positive but a *negative* relationship between vacancy duration and discrimination.

Another concern is that the bottleneck status of a job may correlate with other determinants of discrimination, so that the observed correlation is not causal. In a second robustness check we therefore include additional interactions between Turkish origin and three potential determinants of discrimination that may be correlated with the bottleneck status of an occupation. First, one could expect that labour market tightness is higher for jobs that require more education. Moreover, both theoretical[14] and empirical evidence[15] show that discrimination decreases with the level of education, so that our findings on labour market tightness could just reflect this relationship. Therefore, we include an indicator that identifies the high educated candidates, in casu those holding a professional bachelor in business administration. Second, since customer induced discrimination (Becker, 1957) is expected to be higher in occupations with intensive customer contact, we

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[14]Taubman and Wales (1974) argue that higher education can act as a prejudices reducing screening device. In addition, if the level of education is reflected in the value of the production, i.e. in "x", one can use the model of Biddle and Hamermesh (2012) to show that discrimination decreases with the level of education: It is clear from their equation (9) that c^* increases, and hence discrimination decreases, with x. The reason is that the opportunity cost of an unfilled vacancy increases with x.

[15]See Bursell (2007), Carlsson and Rooth (2007) and Wood et al. (2009).

include an indicator of intensive customer contact (cf. supra). Third, according to the social distance theory (Akerlof, 1997) hiring discrimination should fall with the fraction of foreign workers in the firm (sector). Even if there is only weak empirical evidence for this theoretical prediction (Carlsson and Rooth, 2007; Bursell, 2007; Wood et al., 2009), we try to capture this relationship by including a variable measuring the fraction of workers with a non-Western nationality in the sector of the firm as a proxy of the fraction of foreign workers in the firm itself.[16] This variable was constructed by first identifying the sector of the employer that posted the vacancy[17] and then by merging this information to the fraction of workers with a non-Western nationality in the corresponding sector (2-digit level) in Flanders on December 31, 2009.[18]

Table 5 reports the results for this second robustness check. The coefficients for the interactions between Turkish origin and the two last mentioned variables have the expected sign but are not significant. In contrast, the regression results provide, as expected, evidence of significantly less discrimination against the high educated subsample of Turkish candidates. However, the inclusion of these additional interaction variables does not affect our main conclusion. On the contrary, the differential discrimination against Turkish candidates between bottleneck and non-bottleneck occupations becomes even slightly more pronounced.

We also tried[19] a number of alternative specifications in which Turkish origin is interacted with (i) the indicators both of moderate and of intensive customer contact; (ii) the fraction of Turkish (instead of non-Western) workers in the sector; (iii) other employer (or vacancy) characteristics (which we did not expect to be correlated with the bottleneck status of the occupation), such as the number of announced (similar) job positions by the vacancy, the province of the workplace or the gender of the recruiter.[20] None of these al-

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[16]To our knowledge, these data are not available at the firm level in Belgium. Note that this proxy is also imperfect in the sense that all candidates in our empirical setting have the Belgian nationality.

[17]We did this by linking, on the basis of the online database of the Flemish business periodical "Trends", the name of the employer to the sector.

[18]Source: Datawarehouse of the Belgian federal public service of social security.

[19]These findings are available upon request.

[20]We were not able to include an interaction with a dummy indicating recruiters from

Table 5: Sensitivity Analysis 2. The Probability of Positive Callback: Probit Estimates, Average Partial Effects.

Variables	Positive callback			
	Sensu stricto		Sensu lato	
Turkish name * Bottleneck occupation	−0.04	(0.03)	−0.06∗	(0.03)
Turkish name * Non-bottleneck occupation	−0.16∗∗∗	(0.04)	−0.24∗∗∗	(0.05)
Turkish name * High educated	0.10∗∗	(0.04)	0.14∗∗∗	(0.05)
Turkish name * Customer contact	−0.02	(0.05)	−0.01	(0.05)
Turkish name * Norm. % foreign workers in sector	0.01	(0.02)	0.00	(0.02)
Bottleneck occupation	−0.01	(0.04)	0.01	(0.05)
High educated	0.03	(0.04)	0.09∗	(0.05)
Customer contact	0.00	(0.05)	0.08	(0.03)
Norm. % foreign workers in sector	−0.02	(0.02)	−0.02	(0.03)
Log-likelihood	-315.92		-423.62	
Observations	736		736	

Note. Average partial effects are reported. Standard errors, corrected for clustering at the vacancy level and calculated using the delta method, are in parentheses. ***(**)((*)) indicates significance at the 1% (5%) ((10%)) level. The percentage of foreign workers in the sector of the employer is normalised by subtracting the sample mean and dividing by the sample standard deviation. 16 observations are dropped since neither the name of the firm nor its sector is given in 8 vacancies posted by labour market intermediaries.

ternatives modifies our main conclusions in any way. The same holds true if we differentiate the interaction between Turkish origin and bottleneck status by level of education.

Heckman and Siegelman (1993) show that not controlling for group differences in the variance of unobservable job-relevant characteristics (and thereby of unobservable determinants of positive callback) can lead to spurious evidence of discrimination. To see this more clearly, assume that both the average observed and unobserved determinants of productivity are the same for Flemish and Turkish candidates for an unfilled vacancy, but that the variance of unobservable job-relevant characteristics is higher for Flemish than for Turkish youth. In addition, suppose that the employer considers the observed determinants of productivity, as inferred from the CV and the motivation letter, are relatively low compared to the job requirement. In that case it is rational for the employer to invite the Flemish and not the Turkish candidate, since, as the variance of unobservable job relevant char-

an ethnic minority since hardly any recruiter had a foreign sounding name.

acteristics is higher for the Flemish than for the Turkish candidates, it is more likely that the sum of observed and unobserved productivity is higher for the Flemish candidates. A correspondence test that detects discrimination against Turks could therefore overestimate the extent of discrimination. However, with other assumptions the bias may be in the opposite direction.

Neumark (2012) explicitly addresses this critique and provides a statistical procedure in order to recover unbiased estimates of discrimination. In what follows, we succinctly describe Neumark's approach. Subsequently, in a third robustness analysis, we apply this method to check to what extent our conclusions are sensitive to this critique. To the best of our knowledge, we are the first to follow Neumark in applying this methodology.

It is well known that in a standard probit model only the ratio of the coefficients to the standard deviation of the unobserved residual is identified. In estimations the standard deviation is usually arbitrary set to one. In our case this means that the variance of unobservable job-relevant characteristics is implicitly assumed to be equal (to one) for both ethnic groups, which, for reasons stated above, may therefore bias the intensity of discrimination. Neumark (2012) shows, however, that if the researcher observes job-relevant characteristics that affect the native and migrant populations' propensities of call back in the same way, one can identify the ratio of the standard deviation of the unobserved productivity components of these groups. The intuition is that if in a standard probit the estimated coefficients of these job-relevant characteristics differ by ethnicity, then this must be a consequence of a differential standard deviation, since by assumption the coefficient of these characteristics should be the same across ethnic groups (and since, as mentioned before, in a probit model only the ratio of the coefficients to the standard deviation are identified). To implement this idea, this just boils down to the estimation of a heteroskedastic probit model in which the variance of the error term is allowed to vary with ethnicity.

To identify the heteroskedastic probit model we assume that (i) the distance between the living place of the candidate and the announced working place and (ii) the particular application profiles, *beyond* their education level (high or middle educated), influence the callback rates in a similar way for

Flemish and Turkish candidates.[21] The hypothesis of equality of the coefficients concerning these variables for both ethnic groups cannot rejected on the basis of a likelihood ratio test (p-value 0.88 or 0.87 following the sensu stricto or sensu lato definition of positive callback). Table 6 reports the es-

Table 6: Sensitivity Analysis 3. The Probability of Positive Callback: Heteroskedastic Probit Estimates, Partial Effects.

Variables	Positive callback			
	Sensu stricto		Sensu lato	
Overall average partial effect				
Turkish name * Bottleneck occupation	−0.01	(0.02)	−0.01	(0.03)
Turkish name * Non-bottleneck occupation	−0.11∗∗∗	(0.03)	−0.14∗∗∗	(0.03)
Average partial effect through level				
Turkish name * Bottleneck occupation	−0.06	(0.07)	−0.04	(0.06)
Turkish name * Non-bottleneck occupation	−0.16∗∗∗	(0.06)	−0.16∗∗∗	(0.05)
Average partial effect through variance				
Turkish name * Bottleneck occupation	0.05	(0.05)	0.03	(0.04)
Turkish name * Non-bottleneck occupation	0.05	(0.04)	0.03	(0.06)
$\ln(\sigma_T/\sigma_F)$	0.25	(0.30)	0.17	(0.34)
Log-likelihood	-304.73		-419.68	
Observations	752		752	

Note. Standard errors, corrected for clustering at the vacancy level and calculated using 500 bootstrap replications, are in parentheses. ∗∗∗(∗∗)((∗)) indicates significance at the 1% (5%) ((10%)) level. Other controls: indicator of high educational attainment interacted with indicator of Turkish name, indicator of bottleneck occupation, indicator of high educational attainment, normalised variable capturing the distance (in minutes by car) between the announced work place and the living place of the candidate and six indicators for the eight application profiles except one reference profile for both high and middle level of education. $\ln(\sigma_T/\sigma_F)$ stands for the natural logarithm of the ratio between the standard deviation of unobservables for the Turkish and the Flemish subpopulation.

timation results. In line with Neumark (2012), we get a (non-significantly) higher estimated variance of the error term for the foreign candidates. The overall marginal effects of the interaction variables at interest are closely comparable to the effects outlined in Table 3. They, however, can be decomposed in two parts. First, the partial effect of the variables at interest, holding the variance constant. Second, the effect of the variables at interest via their impact on the variances of the unobservables. By disentangling

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[21]Note that candidates apply for job vacancies that require a level of education that matches the attained level. Moreover, as mentioned, the extent of discrimination is expected to decline with the level of education, so that the level of education cannot be used to identify the differential variance in the heteroskedastic probit model.

these components we obtain that the effects on the level of the latent variable are larger in magnitude than the partial effects in Table 3.[22] The effect on the callback chance sensu stricto (sensu lato) of a Turkish sounding name applying to a non-bottleneck occupation increases in absolute value changes from minus 11 (15) to minus 16 (16) percentage points. The corresponding discrimination in case of application to a bottleneck occupation changes from minus 1 (1) to minus 6 (4) percentage points, but remains insignificant. Clearly, discrimination is more severe (although not significantly so) than in the analysis that ignores the role of ethnic group differences in the variance of the error term. However, the differential discrimination rate between bottleneck and non-bottleneck occupations is hardly affected.

As a fourth robustness check, available upon request, we extend the benchmark model by including an interaction between Turkish origin and a monthly proxy for the labour market tightness at a macro level, i.e. the number of vacancies divided with the number of unemployed in Flanders in the month the job application was sent out. The estimated coefficient for this interaction variable has the expected positive sign, implying that discrimination is lower in times of more labour market tightness at the macro level. However, probably because of the limited variation in this macro variable, this effect is not significant.

4 Conclusion and Discussion

To the best of our knowledge, this study is the first to test the theoretical relationship between labour market discrimination and labour market tightness directly. If employers have difficulties in filling a vacancy, turning a minority worker away is extra costly in terms of forgone output, since the vacancy then risks to remain vacant for a long time. In the correspondence test that we conducted, applicants with a Turkish sounding name were no longer discriminated against if they applied for occupations for which labour market tightness was high. In contrast, if they applied for occupations for

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[22]In contrast to Neumark (2012) who approximates the effect of a discrete change in the variables of interest by a partial derivative, we explicitly take the discrete nature of these variables into account and measure these effects on the basis of discrete changes in the callback probability.

which there are plenty of candidates, they had to send twice as many applications than candidates of native origin to be invited to a job interview. These results were found to be robust to a number of sensitivity analyses.

From a policy point of view, these findings suggest that labour market discrimination can be reduced by appropriate economic incentives, i.e. by increasing its cost. If thereby monopsony power is reduced, intuitively, such policies need not come at an efficiency cost, but whether this is the case clearly depends on the source of monopsony power and the precise nature of the policy. Further theoretical analysis is required before we can formulate any clear policy advice on this point. Our results also suggest to advise minorities to apply for jobs that are difficult to fill. However, such a policy advice may only work to the extent the competencies of minorities match the requirements for these jobs and that the tightness on the labour market is partly a consequence of minorities not being informed about for which occupations employers have difficulties in filling vacancies.

A well known limitation of correspondence tests is that they can only detect discrimination in the first stage of the hiring process. It is not because we detect no discrimination for bottleneck occupations at this first stage, that employers do not discriminate at a further stage. For instance, a possible reason that employers find too few candidates for particular occupations is that they do not pay enough relative to the job requirements. If this would be the main reason why bottleneck occupations exist, wage discrimination could remain an issue, even if employers do not discriminate in the hiring process, since, if as a consequence, disproportionately more minority workers are hired in these occupations, they will earn on average less than equivalent non-minority workers. Further research is therefore required to investigate the importance of this issue.

References

Achmed, A., L. Andersson and M. Hammarstedt (2011). Are gays and lesbians discriminated against in the hiring situation? *Institute for Labour Market Policy Evaluation Working Paper Series*, 21.

Akerlof, G.A. (1997). Social Distance and Social Decisions. *Econometrica*, 65, 5, 1005–1027.

Albert, R., L. Escot and J.A. Fernandez-Cornejo (2011). A field experiment to study sex and age discrimination in the Madrid labour market. *International Journal of Human Resource Management*, 22, 2, 351–375.

Arrijn, P., S. Feld and A. Nayer (1998). *Discrimination in access to employment on grounds of foreign origin: the case of Belgium*. Geneva: International Labour Office.

Arulampalam, W. (2001). Is Unemployment Really Scarring? Effects of Unemployment Experiences on Wages. *Economic Journal*, 111, 585–606.

Ashenfelter, O. (1970). Changes in Labor Market Discrimination Over Time. *Journal of Human Resources*, 5, 4, 403–430.

Ashenfelter, O. and T. Hannan (1986). Sex Discrimination and Product Market Competition: The Case of the Banking Industry. *Quarterly Journal of Economics*, 101, 1, 149–173.

Baert, S. and B. Cockx (2012). School results, school decisions and the transition from school to work: the role of ethnicity and language. *Mimeo*.

Becker, G.S. (1957). *The economics of discrimination*. Chicago: University of Chicago Press.

Berson, C. (2012). Does Competition Induce Hiring Equity? *Documents de travail du Centre d'Economie de la Sorbonne*, 12019.

Bertrand, M. and S. Mullainathan (2004). Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American Economic Review*, 94, 991–1013.

Biddle, J.E. and D.S. Hamermesh (2012). Wage Discrimination over the Business Cycle. *IZA Discussion Paper Series*, 6445.

Black, D.A. (1995). Discrimination in an Equilibrium Search Model. *Journal of Labor Economics*, 13, 309–334.

Black, S.E. and E. Brainerd (2004). Importing equality? The impact of globalization on gender discrimination. *Industrial and Labor Relations*

Review, 57, 4, 540–559.

Black, S.E. and P.E. Strahan (2001). The Division of Spoils: Rent-Sharing and Discrimination in a Regulated Industry. *American Economic Review*, 91, 4, 814–831.

Bursell, M. (2007). What's in a name? A field experiment test for the existence of ethnic discrimination in the hiring process. *Stockholm University Linnaeus Center for Integration Studies Working Paper Series*, 2007, 7.

Cahuc, P. and A. Zylberberg (2004). *Labor Economics*. Massachusetts: MIT Press.

Capéau, B., L. Eeman, S. Groenez and M. Lamberts (2012a). Two Concepts of Discrimination: Inequality of Opportunity versus Unequal Treatment of Equals. *Ecore Discussion Papers*, 2012, 58.

Capéau, B., L. Eeman, S. Groenez and M. Lamberts (2012b). Standardised Scores as a Way to Measure and Compare Discrimination Across Dimensions. *Ecore Discussion Papers*, 2012, 59.

Carlsson, M. and S. Eriksson (2012). Do Reported Attitudes towards Immigrants Predict Ethnic Discrimination? *Uppsala University Department of Economics Working Paper Series*, 2012, 6.

Carlsson, M. and D.-O. Rooth (2007). Evidence of ethnic discrimination in the Swedish labor market using experimental data. *Labour Economics*, 14, 716–729.

Carlsson, M. and D.-O. Rooth (2008). Is It Your Foreign Name or Foreign Qualifications? An Experimental Study of Ethnic Discrimination in Hiring. *IZA Discussion Paper Series*, 3810.

Drydakis, N. (2009). Sexual orientation discrimination in the labour market. *Labour Economics*, 16, 4, 364–372.

Drydakis, N. and M. Vlassis (2010). Ethnic discrimination in the Greek labour market: occupational access, insurance coverage and wage offers. *Manchester School*, 78, 201–218.

Duquet, N., I. Glorieux, I. Laurijssen and Y. Van Dorsselaer (2006). *Wit*

krijt schrijft beter. Antwerpen: Garant.

Freeman, R. (1973). Changes in the Labor Market for Black Americans, 1948–72. *Brookings Papers on Economic Activity*, 1973, 67–131.

Gregg, P. (2001). The impact of youth unemployment on adult unemployment in the NCDS. *Economic Journal*, 111, 626–653.

Gregg, P. and E. Tominey (2005). The wage scar from male youth unemployment. *Labour Economics*, 12, 487–509.

Heckman, J.J. and P. Siegelman (1993). *The Urban Institute Audit Studies: Their Methods and Findings*. Washington DC: Urban Institute.

Heckman, J.J. (1998). Detecting discrimination. *Journal of Economic Perspectives*, 12, 2, 101–116.

Hellerstein, J.K., D. Neumark, and K.R. Troske (2002). Market Forces and Sex Discrimination. *Journal of Human Resources*, 37, 353–380.

Kaas, L. and C. Manger (2012). Ethnic discrimination in Germany's labour market: a field experiment. *German Economic Review*, 13, 1–20.

Manning, A. (2003). The real thin theory: Monopsony in modern labour markets. *Labour Economics*, 10, 2, 105–131.

McGinnity, F., J. Nelson, P. Lunn and E. Quinn (2009). *Discrimination in Recruitment: Evidence from a Field Experiment*. Dublin: The Equality Authority.

Neumark, D. (2012). Detecting Discrimination in Audit and Correspondence Studies. *Journal of Human Resources*, 47, 4, 1128–1157.

OECD (2008). *Jobs for Immigrants. Labour Market Integration in France, Belgium, the Netherlands and Portugal*. Paris: OECD.

Pager, D. (2007). The use of field experiments for studies of employment discrimination: contributions, critiques, and directions for the future. *Annals of the American Academy of Political and Social Science*, 609, 104–133.

Peoples, J.Jr. and L. Saunders (1993). Trucking Deregulation and the Black/White Wage Gap. *Industrial and Labor Relations Review*, 47, 23–35.

Petit, P. (2007). The effects of age and family constraints on gender hiring discrimination: A field experiment in the French financial sector. *Labour Economics*, 14, 371–391.

Riach, P.A. and J. Rich (2002). Field Experiments of Discrimination in the Market Place. *Economic Journal*, 112, 483, 480–518.

Riach, P.A. and J. Rich (2004). Deceptive Field Experiments of Discrimination: Are They Ethical? *Kyklos*, 57, 457–470.

Rooth, D.-O. (2007). Evidence of Unequal Treatment in Hiring against Obese Applicants: A Field Experiment. *IZA Discussion Paper Series*, 2775.

Rosén, Å. (2003). Search, Bargaining, and Employer Discrimination. *Journal of Labor Economics*, 21, 4, 807–829.

Taubman, P.J. and T. Wales (1974). *Higher Education and Earnings: College as an Investment and Screening Device.* Massachusetts: NBER Books.

VDAB (2009). *Analyse Vacatures 2009. Knelpuntberoepen.* Brussel: VDAB Studiedienst.

Weichselbaumer, D. (2003). Sexual orientation discrimination in hiring. *Labour Economics*, 10, 6, 629–642.

Weichselbaumer, D. (2004). Is it Sex or Personality. The Impact of Sex Stereotypes on Discrimination in Applicant Selection. *Eastern Economic Journal*, 30, 2, 159–186.

Wood, M., J. Hales, S. Purdon, T. Sejersen and O. Hayllar (2009). A test for racial discrimination in recruitment practice in British cities. *DWP Research Reports*, 607.

Appendix: Additional Tables

Table A.1: Occupations in Experimental Dataset: Descriptive Statistics.

Occupation	Median vacancy duration in days (in 2011)	Bottleneck occupation (in 2011)	Moderate customer contact	Intensive customer contact	Middle educated obs.	High educated obs.
Consultant in recruitment and selection	13	No	Yes	No	0	2
Executive clerk	28	No	No	No	2	0
Administrative clerk	28	No	No	No	36	26
Tutor	29	No	Yes	No	0	2
Window cleaner	30	No	Yes	No	2	0
Industrial cleaner	32	Yes	No	No	2	0
Consultant in marketing and publicity	35	No	Yes	No	0	12
Accountancy clerk	35	No	No	No	0	44
Executive assistant human resources	38	No	No	No	0	4
Warehouseworker components and parts	40	No	No	No	2	0
Assistant bookkeeper	41	No	No	No	0	20
Notary clerk	41	No	No	No	0	10
Teller financial institutions	41	No	No	Yes	0	8
Customs declaration officer	41	Yes	No	No	0	2
Executive assistant general directorate	42	No	No	No	0	4
Classic cleaner	42	Yes	No	No	94	0
Seller	44	Yes	No	Yes	6	0
Adjuster of a packaging machine	46	No	No	No	10	0
Legal service clerk	47	No	No	No	0	26
Bank clerk	47	No	Yes	No	0	8
Production worker	47	No	No	No	62	0
Bookkeeper	50	Yes	Yes	No	0	56
Room attendant	52	No	Yes	No	2	0
Executive expedition operator	55	Yes	No	No	0	10
Car cleaner	55	No	Yes	No	12	0
Executive assistant sales, marketing and publicity	56	No	No	No	0	8
Commercial clerk	56	No	No	Yes	18	28
Planning and logistics clerk	56	Yes	No	No	0	26
Private cleaner	65	Yes	No	Yes	74	0
Accountant	68	Yes	Yes	No	0	18
Shipping agent at the quay	69	Yes	No	No	0	6
Investigator	70	No	Yes	No	2	0
Insurance clerk	73	No	Yes	No	0	30
Representative	80	Yes	No	Yes	30	6
Call center employee	84	Yes	Yes	No	22	0
Consultant in finance	106	No	Yes	No	0	6
Tele-seller	106	Yes	No	Yes	10	0
Demonstrator	109	No	No	Yes	4	0

Table A.2: Unequal Treatment of Flemish and Turkish Job Candidates (Positive Callback, Sensu Lato).

Occupations	Jobs	Neither callback	Both callback	Only Flemish callback	Only Turkish callback	ND	χ^2
	(No.)	(No.)	(No.)	(No.)	(No.)		
All	376	237	79	45	15	0.22∗∗∗	15.00
Bottleneck	181	111	44	14	12	0.03	0.15
Non-bottleneck	195	126	35	31	3	0.41∗∗∗	23.06

Note. ND: net discrimination rate. The null hypothesis is that both individuals are treated unfavourable equally often. ***(**)((*)) indicates significance at the 1% (5%) ((10%)) level.

Table A.3: Positive Callback Rates (Sensu Lato) for Flemish and Turkish Job Candidates.

Occupations	Callback rate Flemish	Callback rate Turkish	Callback ratio	t
All	0.23	0.15	1.52∗∗∗	2.52
Bottleneck	0.21	0.20	1.06	0.23
Non-bottleneck	0.26	0.11	2.27∗∗∗	3.57

Note. The null hypothesis is that the callback rate is equal for both ethnicities. ***(**)((*)) indicates significance at the 1% (5%) ((10%)) level.

Table A.4: The Probability of Positive Callback for an Interview: Probit Estimates, Average Partial Effects.

Variables	Positive callback			
	Sensu stricto		Sensu lato	
Turkish name	−0.06∗∗∗	(0.03)	−0.08∗∗∗	(0.03)
Log-likelihood	-331.02		-449.83	
Observations	752		752	

Note. Average partial effects are reported. Standard errors, corrected for clustering at the vacancy level and calculated using the delta method, are in parentheses. ***(**)((*)) indicates significance at the 1% (5%) ((10%)) level.