GENDER AND ETHNICITY-BASED EMPLOYMENT DISCRIMINATION

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Abstract. Discrimination leads equally productive workers to receive unequal treatment in the labor market. Our study examines gender and ethnicity-based employment discrimination in Ethiopia. We conducted a field experiment using résumés drawn from a pool of real job applicants balanced by gender and ethnicity, which were randomly assigned to evaluators for hiring decisions. The results reveal that women and ethnic minority candidates have lower employment opportunities compared to men and the ethnic majority candidates. Gender and ethnicity have additive effects on employment outcomes, rather than interacting to generate a compounding disadvantage. The findings provide valuable insights for policies aimed at closing gender and ethnic hiring gaps. In particular, our study emphasizes the importance of robust anti-discrimination policies in effectively addressing these inequalities.

1. Introduction

Employment discrimination based on gender, ethnicity, or other protected characteristics violates the principle of equal employment opportunity. Discrimination imposes costs on workers, employers, and the national economy in multiple ways (Ferrant and Kolev, 2016; Eurofound, 2020). It also limits employment opportunities, reduces income, and exacerbates income inequalities. By contrast, eliminating discrimination can enhance workers' motivation and productivity (Gramozi *et al*., 2023). Consequently, addressing employment discrimination is a crucial step toward achieving the Sustainable Development Goals (SDGs). For instance, Goal 16. B urges countries to ensure laws and policies that do not discriminate against persons based on gender, ethnicity, and other grounds, and actively enforce non-discriminatory laws and policies to achieve the SDGs. However, workplace discrimination based on race, ethnicity, and gender remains a persistent issue in many countries (Heymann *et al*., 2023).

Numerous studies have consistently demonstrated that applicants from ethnic minority backgrounds, such as Black individuals or immigrants, are less likely to receive positive responses or callbacks from employers than their non-minority counterparts, including white or native applicants (e.g., Carlsson and Rooth, 2007; Oreopoulos, 2011; Lippens *et al*., 2023; Zwysen et al., 2021; Stanila *et al*., 2020;

Lancee, 2021; Busetta *et al*., 2018, 2020). The evidence on gender discrimination in hiring is mixed: while some studies document clear instances of bias, others find that discrimination is minimal or absent, emphasizing instead the role of gender segregation across occupations and industries. An experimental study by Zhang *et al*. (2021) reveals that female applicants are generally less likely to be invited by hiring firms for an interview compared to their male counterparts, and specifically, discrimination in computer and mathematics, architecture and engineering, and sales fields is dominant. González *et al*. (2019) examined employment discrimination in the Spanish labor market and found evidence of bias against women, but it diminished when women possessed higher qualifications, and increased when they had children. In contrast, Benhabib and Adair (2017), in Algeria, found that women received higher callback rates than men when applying for positions in the accounting profession. Similarly, Alaref *et al*. (2020) reveal that women overall received higher callback rates than men for their job applications, though the patterns were sector-specific. That means in the Information Technology sector, women were less likely than men to receive a callback, whereas no gender difference was observed in engineering. By contrast, women were more likely to receive callbacks in marketing and finance. Moreover, Krafft (2023) finds that there are no differences in callback rates by gender and marital status; however, women, especially married women, are asked to provide additional information rather than being invited for an interview.

A growing concept in labor market discrimination research is intersectionality[1]. Intersectional discrimination arises when two or more sources of bias operate simultaneously, meaning individuals with multiple minority statuses experience compounded forms of discrimination (Harnois, 2015). Consequently, analyzing discrimination through an intersectional lens helps reveal how overlapping social identities create complex patterns of advantage and disadvantage that shape labor market outcomes (Browne and Misra, 2003). The intersection of gender and ethnic discrimination is particularly important, although empirical evidence in this area remains inconsistent. A study by Di Stasio and Larsen (2020) in five European countries (Norway, the UK, Spain, Germany, and the Netherlands) reveals that minority men bear the largest burden of ethnic and racial discrimination in hiring. In addition, employers prefer hiring white women over men for jobs that require women, but people of the same race have no special benefits over others. However, in male-dominated jobs, Middle Eastern and Black men have experienced the most significant racial discrimination in hiring. Dahl and Krog (2018) also examine gender and ethnicity intersectional discrimination in hiring by comparing Danish

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[1] Crenshaw (1989, 1991) introduced the concept of intersectionality, emphasizing that individuals who belong to multiple marginalized identities (e.g., race and gender) experience distinct and compounded disadvantages that go beyond the simple sum of racism and sexism.

individuals with those of Middle Eastern descent. The findings suggest that hiring discrimination is driven solely by ethnicity, with no evidence of gender-based discrimination. Besides, Bursell (2014) studied the intersection of gender and ethnic discrimination between Sweden and Arab and North African migrants. The results show evidence of ethnic discrimination against Arabs and North Africans; however, it is not based on gender. A study by Degrous and Pepermans (2019) in Belgium shows that a Maghreb (Arab) female applicant received a lower job offer compared to equally qualified native (Belgian) female and Maghreb (Arab) male applicants when applying for a high-cognitive-demanding job. No differences were found when applying for a low-cognitive-demanding job. This suggests that ethnic minority women face double jeopardy in hiring decisions for cognitively demanding roles.

According to Lippens *et al*. (2023), the bulk of hiring discrimination studies were conducted in advanced countries, which have robust institutions and good anti-discrimination legislation. In contrast, it is not explored in developing countries in general and in Ethiopia in particular, although these countries have weak institutions to limit discrimination. Thus, the primary objective of this study is to assess the magnitude of employment discrimination in Ethiopia, with particular attention to gender, ethnic status, and their intersection, using a field experiment design. Our study differs from previous studies in numerous ways. First, unlike studies that look at hiring discrimination between immigrants and natives, or blacks, Hispanics, and whites, our study focuses on hiring discrimination among ethnic groups with the same nationality and educational background. Second, instead of fictitious résumés, our study used applicants' real education, abilities, and personal characteristics, which may reflect natural variation rather than the false construction of résumés. By analyzing the extent of discrimination, our study provides valuable insights for reducing discriminatory practices.

2. Experimental Design

Evaluators and job applicants served as the two primary data sources for this study. Although size, status, and power are utilized to classify as ethnic majority and minority, in most experimental studies, size is typically used to distinguish ethnic majorities from minorities (Seyranian *et al*., 2008). We follow a similar approach and classify the majority and the minority groups based on their population size. Since Ethiopia has more than 80 ethnic groups, we designed the study by selecting samples from both ethnic groups. The Oromo and Amhara ethnic groups alone accounted for about 60% of the country's population (Central Statistical Authority, 2007). Thus, the two ethnicities constitute the ethnic majority group. Two ethnic minority groups with a smaller share of the population were also selected. Due to the

difficulty in acquiring sufficient data, ethnic groups with a population size of fewer than 100,000 were eliminated, as were those with a population size of more than 1,000,000, which may not reflect the minority. Using random assignments, the Bench and Berta ethnicities were selected from minority groups.

2.1 Applicant Selection and the Résumés Design

This part has two main activities: the selection of four job applicants for the temporary research assistant role, and the design of résumés[2].

The job applicants' selection: We hired four research assistants on contract who assist us in data collection. We advertised a vacancy and kept it open from August 10 to August 30, 2024. The requirement for the role was indicated on the vacancy, such as a background in statistics, social sciences, business-related fields, and data management and statistical software skills. In addition, it specified that applicants must be fluent in local languages where the data was collected, which we believe serves as a proxy for ethnicity, in addition to inquiries about their ethnicity. Applicants who did not meet the above requirements were not considered further. We received 346 applications, but 76 were rejected because they did not meet the eligibility criteria.[3]

Design of résumés: The data collected during the actual recruitment process were later used to construct the experimental materials. Specifically, information provided by the 234 eligible applicants concerning their educational background, statistical skills, demographic attributes, and other traits was used to create résumés to be presented to evaluators in the hiring process. The goal was to build credible profiles reflecting real job-seeking behavior while allowing experimental control over gender and ethnicity. We removed names, emails, phone numbers, and any personalized information that could identify an applicant. Moreover, we limited the use of the

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[2] This study was reviewed and approved by Wolkite University Institutional Review Board (IRB). All participants provided informed consent before participation in the study.

[3] A week later, we invited 270 qualified candidates to take the exam, but only 234 applicants took the exam. The exam was administered online and took 25 minutes. The exam aimed to select the best applicants who qualify for an interview. In the first section of the exam, applicants were asked to answer questions regarding their gender, age, ethnicity, educational qualifications, statistical software skills, and placebos. We informed applicants that this information is not used for the selection decisions. The exam consists of 50 questions, with 25 quantitative and 25 language questions; each correct answer is worth two points, bringing the total to 100. Upon the exam being concluded, the results were ranked out of 100 to select the top 8 candidates for interviews, 2 from each ethnic group. We computed the average of interview and exam scores, and then the top four candidates, one from each ethnic group, were hired for the research assistant position. In this paper, we do not use the data from exams, but we are planning to use them in a further stage of the research, as we discuss in the conclusion.

applicants' data solely for this experimental study and do not use it for actual job advertisements. To maintain gender and ethnic balance, we randomly removed 34 applicants, and it became 200. We then design résumés, including gender, ethnicity, age, educational qualifications, statistical skills, and a placebo.

2.2 Evaluators Selection and the Hiring Process

Public sector officials were recruited as evaluators in the experimental part of our study. Each evaluator was asked to assume the role of a human resource officer and to make hiring decisions based on a set of résumés. While their decisions did not affect actual employment outcomes, they were framed as part of a realistic selection task to elicit behavior comparable to that of real-world hiring. In Ethiopia, a field experiment with a fake résumé is difficult because most applications require educational credentials and in-person applications. However, our experimental strategy overcomes the challenges of the false résumé studies. Evaluators were chosen from the public sector, assuming it is the major employer in the country, and that they can make realistic decisions based on current labor market conditions. The decisions they made may have external validity since they could be guided by practical experience, making the conclusion applicable to real-world labor market situations.

Considering the geographic distribution of ethnic groups and access to enough participants, we chose evaluators from four zonal administrative towns, one for each ethnic group. Assosa and Mizan Teferi served as study spots to represent ethnic minorities, respectively, for the Berta and Bench ethnicities. Randomly, Woliso administrative town was chosen to represent the ethnic Oromo, while Debrebirhan Metropolitan was chosen to represent the ethnic Amhara. Evaluators were notified that after completing the hiring task, they would be awarded based on the completion of tasks. Out of the 640 evaluators, 434 completed the hiring assignment. We sent the evaluators an email about the hiring process, incentives, and consent information. After data cleansing, 376 evaluators reviewed 8 résumés balanced by gender and ethnicity, resulting in 3008 observations[4]. First, we provide evaluators with detailed

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[4]Although evaluators were instructed to act as human resource personnel, making real hiring decisions, their choices had no direct consequence on actual hiring outcomes. This could introduce a potential source of behavioral noise. Some evaluators may have engaged with the task differently depending on their understanding of its purpose, motivation level, or interpretation of the résumé content. While several measures were taken to mitigate this risk, including framing of the instructions, attention checks, and randomization of résumé presentation, the possibility of inconsistent or strategic behavior among evaluators should be acknowledged. This limitation does not invalidate the results, but must be kept in mind when interpreting patterns of bias or responsiveness across groups.

guidelines on the hiring process, and then, we randomly distribute eight résumés. Evaluators were notified to select four applicants whom they considered suitable for the roles.

2.3 Analytical Strategies

The employment gap is measured using a proportion and interpreted using percentage points. The model specification of the hiring outcome is expressed as:

$$Y_i = \beta_0 + \emptyset G_i + \delta X_i + \varepsilon_i \tag{1}$$

Yi denotes the hiring outcome of candidate i, denoted by 1 if evaluators hired candidates, and 0 if not hired. G_i denotes the treatment variables, gender, or ethnicity group of applicant i. Gender is denoted by 1 if the candidate is male and 0 if female. Ethnicity is denoted by 1 if the candidate is an ethnic majority and 0 if an ethnic minority. X_i includes control variables such as education qualifications, statistical software skills, age, and placebo. ε_i is a normally distributed error term. All job candidates have a bachelor's degree from a domestic university. We split universities where job applicants learn into three clusters based on the Ministry of Education's (MOE) university grouping: research, applied, and comprehensive universities. Applicants applied for the job from 18 fields; however, we allocated them into three groups: business, social sciences, and statistics. Age is a continuous variable that ranges between 22 and 28 years. Statistical software skills are a dummy variable: 1 if the candidate has SPSS skills, 0 if they have Stata skills. The Linear Probability Model (LPM) is used to estimate the causal impact of treatment on the treated. While estimating the LPM, the robust standard error was used to address the heteroscedasticity problem.

3. Results

Table 1 presents the regression results of the LPM. Male applicants are 8.51 percentage points (pp) more likely to be hired than female applicants (Model 1). Ethnic majority applicants are 9.71 pp more likely to be hired than ethnic minority applicants (Model 2). Ethnic-majority female candidates have an 8.11 pp lower employment outcome than ethnic-majority male applicants. Similarly, ethnic-minority male candidates have a 9.31 pp lower employment outcome than ethnic-majority male applicants. Finally, ethnic-minority female applicants have an 18.2 percentage point lower employment outcome than ethnic-majority male applicants.

Table 1- *Employment disparity in hiring (by applicants' characteristics).*

	Model 1	Model 2	Model 3	Model 4	Model 5
Gender (male)	0.0851***			0.0877***	0.0810***
	(0.0181)			(0.0264)	(0.0270)
Ethnicity (majority)		0.0971***		0.103***	0.100***
		(0.0180)		(0.0267)	(0.0272)
Male*Majority				-0.00741	0.00408
				(0.0379)	(0.0384)
Age				0.00111	0.00164
				(0.0063)	(0.0067)
Statistical skills (SPSS)				0.0055	0.0129
				0.0042	-0.0072
Placebo (Prefer coffee)				(0.0175)	(0.0186)
Field of study (reference: Business stream)					
Social Science-stream				(0.0198)	(0.0216)
				0.0209	0.0269
				(0.0194)	(0.0205)
Statistics-stream				0.0415	0.0410
				(0.0311)	(0.0339)
University (reference: Research University)					
Applied University				-0.0207	-0.0176
				(0.0199)	(0.0213)
Comprehensive University				0.0207	0.0358
				(0.0257)	(0.0276)
Gender and ethnicity Interaction (reference: Male*majority)					
Female*majority			-0.0811***		
			(0.026)		
Male*minority			-0.0931***		
			(0.0257)		
Female*minority			-0.182***		
			(0.0248)		
Observations	3,008	3,008	3,008	3,008	3,008
R-squared	0.007	0.009	0.017	0.018	0.143
Evaluators fixed effect	No	No	No	No	Yes

*Note: Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.* Models 1 and 2 show the hiring disparity for gender and ethnicity, respectively. Moreover, Model 3 estimates the interaction of gender and ethnicity. Model 4 includes control variables without evaluator fixed effects, whereas Model 5 includes control variables and evaluator fixed effects.

This finding implies that gender and ethnicity have an additive effect on the hiring process for applicants. Moreover, when the gender-ethnicity interaction is estimated (Model 3), the results show an additive impact on employment discrimination, rather than an intersectional impact. When all control and treatment variables, as well as evaluator fixed effects, are included, the interaction is statistically insignificant. This could be due to the explanatory power of the individual effect, which may mask any extra impact from their interaction. When considering the control variables and the evaluators' fixed effects, the hiring outcome only slightly shifts from the main effects

of the treatment variables. In Model 4, when control variables are included, the gender and ethnic-based hiring disparity increases slightly from the base level; this could be due to the variation in signals of job applicants. However, when evaluators' fixed effect is assumed, gender-based discrimination declines, but ethnic-based discrimination does not change that much. This could be due to evaluators' heterogeneity in the evaluation. In general, the results show that employment disparity is primarily driven by the variation in the treatment variables rather than the variations in the educational qualifications and skills of applicants.

4. Conclusions

The findings show evidence of gender-based discrimination in employment against women applicants. This implies that women applicants with qualifications comparable to those of men applicants are treated unequally in employment opportunities. Employment discrimination against women could arise from traditional gender stereotypes, gender role expectations, motherhood penalties, employer bias, and limited supportive policies, all of which restrict their job opportunities. For example, women are often viewed primarily as family caregivers, and roles involving fieldwork, travel, such as research assistant positions, are typically male-dominated, leading to lower recruitment of women. Our results are in line with the findings of Zhang *et al*. (2021) and González *et al*. (2019), who revealed evidence of employment discrimination against women. Our results also indicate that ethnic minorities have fewer employment opportunities than ethnic majority applicants. Even with comparable qualifications, minority applicants face employment discrimination, which could be due to employer stereotypes and biases, and weak enforcement of anti-discrimination regulations. Our result aligns with the findings of Lippens *et al*. (2023), Zwysen *et al*. (2021), and Busetta *et al*. (2018, 2020a), showing the evidence of hiring discrimination against minority applicants. Our findings also show that gender and ethnicity have an additive effect on hiring outcomes, i.e., women from minority groups experienced cumulative disadvantages. Inclusion and diversity training, inclusive labor market policies, rigorous anti-discrimination rules, and a legal framework are required to combat employment discrimination. Closing the gender and ethnic employment gap is not only a matter of fairness; it is also a key step toward achieving several Sustainable Development Goals (SDGs), including gender equality, no poverty, decreased inequality, better education, decent work, and economic growth.

While this study demonstrates the extent of discrimination, more research is needed to distinguish between sources of discrimination, such as taste-based and

statistical discrimination, which is vital for suggesting intervention strategies[5]. Therefore, this study presents the baseline evidence from an ongoing experimental project. A second step is currently being developed to investigate whether observed discrimination stems from inaccurate or accurate statistical beliefs or from intrinsic preferences (taste-based discrimination). In addition, although Ethiopia has over 80 ethnic groups with diverse sociocultural dynamics, our study focused on four (two majority and two minority) to examine hiring outcomes. We did not explicitly account for interethnic tensions, but recognize this as an important direction for future research to explore how political or social dynamics may shape ethnic-based hiring discrimination.

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[5] The taste-based discrimination of Becker (1957) describes that labor market discrimination stems from employers' preferences for specific groups of workers, even when productivity is equal. In contrast, the statistical discrimination theory of Arrow (1971) and Phelps (1972) asserts that discrimination arises from employers' incomplete information about workers' productivity. Employers rely on the observable traits of workers as a proxy for productivity, basing their decisions on expected beliefs of productivity.

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