Methods to Uncover Attitudes of Discrimination

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Abstract

This paper aims to study the methods used to uncover attitudes of discrimination. Two primary methodologies used in the field are distinguished: the audit and the correspondence approaches. By examining the available literature, the paper highlights the significance of field experiments in revealing pervasive discrimination against marginalized groups in various contexts, including employment, housing, and education. The correspondence approach, in particular, has produced a substantial body of evidence demonstrating persistent biases against minorities, prompting important discussions among researchers, policymakers, and in the media. However, while the findings underscore the need for continuous examination of discriminatory practices, the paper identifies a concerning stagnation in methodological innovation within the correspondence approach. Most studies still rely on fictitious CVs, limiting the complexity of real-world interactions captured in these experiments. The paper argues for the necessity of methodological diversity and collaboration across disciplines to enhance the understanding of discrimination mechanisms, ultimately informing public policy and fostering equitable treatment for all individuals.

Keywords: Discrimination, Field Experiments, Correspondence Studies, Methodological Innovation, Marginalized Groups, Audit Studies

Introduction

There is a fierce debate why there are few women in top positions in large companies, politics and science and among millionaires. Similar discussions are ongoing about the social status of whites and blacks (Bauer, 2015; Paxton, Kunovich, & Hughes, 2007). Within education, the disparities in test scores of black and white students in the USA, high and low-caste students in India and between children with migrant and non migrant backgrounds and those with wealthier and poorer parents in many other countries raise concern (Ferguson, 2001; Thorat & Newman, 2010; Bansak, Hainmueller, & Hangartner, 2016; Meer, 2010). Discrimination is a key explanation for these persistent differences (Klasen & Lamanna, 2009). In general, it is difficult to uncover mechanisms of discrimination. However, behavioral experiments conducted in hidden manners in labs and fields have provided evidence of discrimination in several spheres of life (Bertrand & Mullainathan, 2004). Discrimination appears to be widely present in diverse areas and groups, such as against older workers (AARP, 2017), ethnic minorities (Yinger, 1995), and men who apply for female-dominated professions (Acker, 1990). For instance, it has been found that homosexuals face discrimination in labor markets, with studies showing reduced hiring opportunities for

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openly gay applicants (Badgett, 1995). Additionally, minority applicants are often scrutinized more, and charged higher rents in housing markets (Yinger, 1995)

In examining mechanisms of discrimination, it is essential to acknowledge that disparities in representation, achievement, and opportunity exist related to gender, race, caste, and sexual orientation. Research has consistently shown that systemic biases contribute to these inequities.

While public debates often suggest that discrimination is a fundamental cause of these inequalities, uncovering the precise mechanisms can be complex. Traditional survey methods can be inadequate and lead to biased results, as respondents may not admit discriminatory behaviors, may give socially desirable answers or may be unaware of their implicit biases. Behavioral experiments—whether conducted in controlled laboratory environments or in the field—have provided more concrete evidence of discrimination in various life domains. For instance, correspondence testing in which resumes with identical qualifications but different names, suggestive of race or gender, are sent to employers, has revealed consistent biases in hiring practices (Bertrand & Duflo, 2017).

The objective of this paper is to examine two primary methodologies used to uncover discriminatory attitudes based on race, gender, religion, caste, and other social identities: the audit approach and the correspondence approach. The paper reviews several experiments employing these methods to uncover discriminatory attitudes, providing a foundation for further research. It concludes with a critical discussion, ethical considerations, and conclusion.

The audit approach measures discrimination by pairing individuals with similar qualifications but differing in a single characteristic, such as race or gender, and observing their treatment in real-world scenarios, such as job applications or housing inquiries. This method involves direct interaction with decision-makers, allowing researchers to detect differential treatment. In contrast, the correspondence approach uses fictitious profiles or resumes sent to employers or service providers, with the profiles being identical except for one distinguishing characteristic, such as a name indicating gender, caste, or ethnicity. Discrimination is then measured by comparing response rates. The primary differences between the two approaches lie in their execution: while the audit approach involves real individuals and face-to-face or verbal interactions, the correspondence approach relies on artificial profiles and avoids direct engagement, thereby minimizing ethical concerns. Additionally, the correspondence approach is less resource-intensive and more scalable compared to the audit approach.

Audit method

The audit method, also known as in-person testing, involves using real individuals as testers for research purposes. In this approach, carefully selected testers (actors or actual persons) are matched based on similar qualifications and characteristics, except for the trait being studied (e.g., race, gender). These testers then interact directly with decision-makers by applying in person for rental accommodations in the housing market, job openings in the labor market, or purchasing goods in the product market. In the audit approach, applicants are carefully matched to control for all characteristics that could influence productivity or perceptions, such as personal appearance, height, weight, and work experience. This ensures that the paired testers participating in market transactions are (almost) identical in every aspect except for the specific characteristic being studied as a potential basis for discrimination (Fix & Struyk, 1993).

The audit method, widely used to measure discrimination, has several advantages and disadvantages. One significant advantage is its ability to provide direct and realistic evidence of discriminatory behavior by

comparing how matched pairs of individuals with similar qualifications are treated, differing only in a characteristic like caste, race, or gender. This approach effectively isolates the discriminatory factor, ensuring controlled comparisons that reveal patterns of unfair treatment. The method captures real-world scenarios, making its findings highly relevant and practical for policymakers and legal actions. Additionally, it overcomes social desirability bias often found in self-reported data, as it measures actual behaviors rather than stated behavior, attitudes or perceptions. Its adaptability to various domains, such as employment, housing, and education, further enhances its utility in uncovering discrimination across different sectors (Pager, 2007).

However, the audit method has some limitations. The first limitation is that it is difficult to erase all the differences that exist between the auditors in a pair. Audit studies require auditors to be identical in all other characteristics, such as height, weight, appearance, hairdo etc. Only, the trait under investigation is manipulated. To achieve this, auditors are trained for several weeks in style, bargaining and interviews. Despite the training, certain differences between auditors remain and cannot be erased (Heckman, 1998; Heckman & Siegelman, 1993). For example, in study by Ahmed, Andersson, and Hammarstedt (2010) used the audit approach in the Swedish housing market, and explored discrimination against ethnic minorities. Matched pairs of testers or actual individuals applied for rental housing, with only their names indicating different ethnic backgrounds. In this study no matter how trained testers are it is difficult to make sure that they are similar in all conditions except the trait (names in this case) tested for discrimination.

The second limitation of audit studies is that auditors cannot be double blind. In training sessions, they are informed about employment discrimination, project design and methodology (Turner et al, 1991). Psychologists argue, that such information to auditors generates conscious or subconscious bias and is highly likely to lead to lead to inconsistent data. The audit study by Pager (2003), which examined the impact of having a criminal record on job callbacks conditional on race, is an example of the limitation that auditors cannot be double-blind. In this study, paired testers—one Black and one White—were given identical resumes, with one in each pair assigned a fictitious criminal record. Before participating, testers underwent training to understand the project's objectives, methodology, and the role of documenting employment discrimination. However, such training can generate conscious or subconscious biases in auditors, as argued by Turner et al. (1991).

Psychologists suggest that awareness of the study's goals might influence how testers present themselves during applications or interviews. For example, testers with a criminal record might subconsciously exhibit less confidence, knowing their disadvantage. Conversely, testers aware of the study's focus on racial bias could unintentionally overcompensate in their demeanor, potentially affecting the consistency and reliability of the data. These biases may introduce variability in how testers perform, complicating efforts to attribute observed differences in callbacks solely to race or criminal record status.

Third, field audit studies are often conducted in specific locations and sectors, which can limit the generalizability of their findings. The results from a study in a particular region or industry may not reflect broader societal trends or biases across different sectors or geographic areas (Pager, 2007). As such, findings from localized studies may not capture the full extent of discrimination or the variation in bias across different contexts.

Fourth, audit studies can raise ethical issues, particularly when involving deception. Testers may apply for jobs or housing that they have no intention of accepting, which can mislead employers or landlords. This form of deception is ethically contentious and may undermine the credibility of the research. Additionally,

there is the potential harm to the auditors themselves, who may experience negative emotions from encountering discrimination firsthand (Heckman, 1998).

Fifth, conducting audit studies can be resource-intensive. Recruiting, training, and coordinating auditors to ensure uniformity across test pairs involves significant time and costs. Moreover, the logistical challenges of ensuring that matched pairs are truly identical except for the discriminatory trait can be difficult to manage (Pager & Shepherd, 2008).

There are several examples of audit studies in the literature. For instance, Neumark et al, (1996) conducted an audit study in Philadelphia and found evidence of sex-based discrimination in hiring waiters and waitress in high, low and medium price restaurants. Ahmed, Andersson, and Hammarstedt (2010) used the audit approach in the Swedish housing market, and explored discrimination against ethnic minorities. The details of each of the studies are described below.

More specifically, Pager (2003) applied the audit method in Milwaukee, Wisconsin, to examine the impact of having a criminal record, conditional on race, in the labor market. The study employed two matched pairs of testers or actual individuals: one team consisted of two Black individuals, and the other team consisted of two White individuals. Within each team, one tester was randomly assigned a fictitious criminal record, while the other had a clean record. These individuals applied for entry-level jobs with identical resumes, apart from the criminal record marker. The results revealed significant racial discrimination: 17% of White applicants with a criminal record received callbacks, compared to only 5% of Black applicants with a similar record. This stark difference highlighted both the racial bias and the compounded disadvantage faced by Black individuals with criminal records.

The study by Pager (2003) on the impact of a criminal record, conditional on race, in the labor market has significant strengths and some limitations. One major strength of the study is its ability to provide direct and concrete evidence of racial and criminal record-based discrimination. By employing matched pairs of testers with identical qualifications, apart from the controlled variables of race and criminal record status, the study effectively isolates these factors to demonstrate their impact on employment outcomes. This rigorous design ensures a high degree of internal validity, making the findings reliable and difficult to dismiss. Moreover, the study's focus on real-world job applications enhances its external validity, as it examines discrimination as it naturally occurs in the labor market. The stark findings, such as White applicants with a criminal record receiving more callbacks than Black applicants without one, underscore the compounded disadvantages faced by Black individuals, highlighting both systemic racial bias and the exacerbating role of a criminal record.

However, the study also has some limitations. The ethical considerations of using fictitious applications raise questions about the deception involved, as employers were not aware they were part of an experiment. While necessary to reveal discriminatory practices, this approach could lead to potential backlash or legal challenges. Another limitation is the resource-intensive nature of the audit method, as recruiting and training matched pairs of testers and applying to a large number of jobs requires significant time and effort. Additionally, the study's generalizability may be constrained by its specific context—Milwaukee, Wisconsin—and its focus on entry-level jobs, which may not fully represent hiring practices in other locations or industries. Furthermore, the study measures observed discriminatory behavior but does not delve into the underlying causes, such as implicit biases, structural inequalities, or explicit prejudice. It also cannot account for differences in employer behavior beyond the callback stage, leaving questions about how discrimination might manifest in later hiring phases. Finally, while the study demonstrates the interaction between race and criminal records, it does not explore the broader

intersectionality of other characteristics, such as gender or socioeconomic status, which could further compound disadvantages.

Neumark et al, (1996) conducted an audit study in Philadelphia and found evidence of sex-based discrimination in hiring waiters and waitress in high, low and medium price restaurants. The study design included female and male pairs who were identical in most other observed characteristics and applied for a job at each high price/low price restaurant. The study found discrimination against women, in high-price restaurants and discrimination in favor of women in low-price restaurants.

This study has some strengths and some limitations as well. A key advantage is the study's ability to isolate and identify discrimination patterns by using matched pairs of male and female applicants with identical qualifications, ensuring that any observed differences in hiring decisions were attributable to gender. This approach enhances the study's internal validity, making the results reliable and robust. The finding that women faced discrimination in high-priced restaurants but were favored in low-priced establishments highlights the nuanced nature of gender bias in hiring practices, offering a deeper understanding of how workplace roles and perceptions intersect with societal expectations. This distinction has practical implications for addressing gender equity in different segments of the service industry. The study also broadens the scope of audit methodologies by exploring hiring decisions across varying economic contexts (high- versus low-priced establishments), demonstrating the flexibility and applicability of this approach to complex real-world scenarios.

However, the study has limitations that warrant consideration. First, while the audit method is effective in revealing discriminatory outcomes, it cannot uncover the underlying motivations or mechanisms driving these biases. For example, it remains unclear whether discrimination in high-priced restaurants is driven by employer stereotypes, customer preferences, or other systemic factors. Similarly, the preference for women in low-priced restaurants could stem from gendered assumptions about service roles, but the study does not explore this in detail. Another drawback is the potential lack of generalizability, as the findings are specific to Philadelphia and may not reflect hiring practices in other cities or industries. The exclusive focus on the restaurant sector also limits the study's applicability to broader labor market contexts. Moreover, the ethical concerns associated with audit studies remain relevant, as employers were unaware they were part of an experiment, raising questions about transparency and the potential for backlash.

Resource intensity is another challenge; recruiting and training matched pairs of testers, ensuring consistency in their applications, and coordinating job interviews across multiple establishments demand significant time and effort. Additionally, the study only examines hiring decisions and does not track subsequent workplace dynamics, such as treatment after hiring or career advancement opportunities, which are crucial for a comprehensive understanding of gender discrimination.

Doleac and Stein (2013) conducted an audit study in the online marketplace to examine racial discrimination in consumer transactions. The researchers posted ads for iPods with either White, Black, or Hispanic-sounding names of sellers and monitored buyer responses. The study found that Black sellers received fewer and lower-priced offers compared to White sellers, showing how racial bias extends beyond employment into everyday transactions.

One major strength of this study is its innovative application of the audit method to a digital context, expanding the scope of discrimination research beyond traditional employment and housing sectors. By using fictitious ads with White, Black, and Hispanic-sounding seller names, the study effectively isolates the impact of perceived race on buyer behavior, ensuring high internal validity. This methodology reveals implicit racial biases in everyday economic interactions, demonstrating how discrimination affects

opportunities and outcomes for marginalized groups, even in seemingly neutral online platforms. The finding that Black sellers received fewer and lower-priced offers than White sellers underscores the persistence of racial bias in consumer markets and highlights its economic consequences. Furthermore, the study's use of an online marketplace enhances its external validity, as it reflects real-world buyer behavior in an increasingly digital economy.

However, the study also has notable limitations. While it effectively demonstrates discriminatory outcomes, it does not delve into the underlying reasons behind buyer behavior, such as whether biases are driven by conscious prejudice, implicit stereotypes, or concerns about seller reliability based on racial cues. This lack of insight into the mechanisms of discrimination limits the study's ability to inform targeted solutions. Additionally, the study's reliance on name-based signals to indicate race may not fully capture the complexities of racial identity, as other factors like accents, photographs, or written communication styles could influence buyer decisions in real-life scenarios. Another limitation is the potential lack of generalizability, as the findings are specific to the online marketplace used in the study and may not extend to all digital or in-person economic transactions. The study also focuses exclusively on the behavior of buyers, without examining the experiences of sellers or how discrimination might influence their participation in online markets.

Ethical considerations are another challenge. Although the use of fictitious ads is common in audit studies, it raises questions about the honesty of the research approach and its potential to disrupt actual marketplace dynamics. Moreover, the study's design does not account for intersectionality, such as how gender, age, or socioeconomic status might interact with race to affect outcomes.

Ahmed, Andersson, and Hammarstedt (2010) used the audit approach in the Swedish housing market, and explored discrimination against ethnic minorities. Matched pairs of testers or actual individuals applied for rental housing, with only their names indicating different ethnic backgrounds. The study found that individuals with Arabic-sounding names received fewer positive responses from landlords compared to those with Swedish-sounding names, revealing ethnic discrimination in the housing sector (Ahmed, Andersson, & Hammarstedt, 2010).

One major advantage of the study is its ability to isolate the impact of ethnicity on housing opportunities by using matched pairs of applicants who were identical in qualifications except for their names, which signaled different ethnic backgrounds. This design ensures high internal validity, as any differences in landlords 'responses can be confidently attributed to perceived ethnicity rather than other factors. By focusing on a real-world setting—the rental housing market—the study also enhances its external validity, offering insights into how discrimination operates in everyday life. The finding that individuals with Arabic-sounding names received fewer positive responses highlights systemic bias in housing access, providing empirical evidence that supports the need for anti-discrimination policies in the housing sector. Moreover, this study contributes to the broader literature on ethnic discrimination in Europe, demonstrating how biases against minority groups persist even in countries like Sweden, which are often seen as champions of equality and social welfare.

However, the study has some limitations. While the audit method effectively demonstrates discriminatory outcomes, it does not explore the underlying mechanisms driving these biases. For example, it remains unclear whether landlords 'behavior is influenced by explicit prejudice, implicit stereotypes, or economic considerations such as perceived reliability of tenants based on ethnic background. This lack of insight into causality limits the study's ability to inform targeted interventions. Additionally, the reliance on names to signal ethnicity, while practical, may not fully capture the complexity of racial and ethnic

identity. Names alone might not account for other markers of ethnicity, such as accents, appearance, or cultural behaviors, which could influence discrimination in face-to-face interactions. Furthermore, the study focuses solely on the initial stage of the rental process—responses to inquiries—and does not examine discrimination that may occur later, such as during lease negotiations, rental pricing, or housing quality allocation.

Another limitation is the potential lack of generalizability. The study's findings are specific to Sweden and may not reflect housing market dynamics in other countries or regions with different cultural or legal contexts. Ethical concerns also arise, as landlords were unaware that they were part of an experiment, which could lead to questions about the honesty of the research approach and its potential impact on real tenants.

Correspondence Approach

The correspondence approach uses written tests or correspondence in assessing discrimination in the labor market. Experimental resumes (CVs) are constructed for specific socio-economic characteristics, qualifications, work experience etc. The CVs are completely identical except for the basis of discrimination, under investigation. A computer program can be used to randomly generate CVs by using stored information on matched characteristics. Bertrand and Mullainathan (2004; Banerjee, Bertrand, Datta and Mullainthan (2009; Lahey (2008; and Oreopoulos (2011) have used such techniques. In studies on the housing market, a written enquiry is sent by email for a house, advertised for sale. Applications provide identical information on socio-economic characteristics, except the basis of discrimination under research. Responses from owner and landlords are then recorded .

The correspondence approach, widely used in studies of discrimination, has distinct strengths and limitations. One major advantage is its ability to isolate discriminatory behavior by controlling all factors except the variable of interest, such as race, gender, or ethnicity. Researchers achieve this by sending out fictitious applications, resumes, or inquiries for housing or employment with only the targeted characteristic, like a name suggesting a specific racial background, being varied. This design ensures high internal validity by attributing differential responses solely to the characteristic under investigation, offering robust evidence of bias (Bertrand and Mullainathan, 2004). The approach is also less resource-intensive compared to audit studies involving human testers, as it eliminates the need for recruiting and training individuals. Its scalability allows for large sample sizes across diverse geographic regions or industries, providing more generalizable findings. Furthermore, the anonymity of correspondence studies minimizes ethical concerns around direct interactions, as no real applicants or landlords are involved, reducing risks of psychological harm or deception.

Despite these strengths, the correspondence approach has notable limitations. First, it is confined to analyzing initial stages of decision-making, such as callback rates or email responses, without examining subsequent interactions or outcomes, like interviews, promotions, or treatment after hiring. This narrow scope restricts understanding of the broader, longitudinal impacts of discrimination (Neumark, 2018). Additionally, while it controls for explicit factors, it cannot fully capture the complexity of real-world interactions where non-verbal cues, appearance, or other attributes influence decision-making. For example, in employment contexts, an employer might consider accents, confidence levels, or perceived personality traits during interviews which correspondence studies cannot simulate.

Ethical challenges also arise, particularly around deception, as the individuals responding to fictitious applications are unaware of their participation in a study. While this is less intrusive than direct interaction

in audit studies, some argue it breaches ethical standards of informed consent. Furthermore, correspondence studies often simplify identity markers, such as using names to signal race or gender, which may not fully encapsulate the multifaceted nature of identity. For instance, names might not convey intersectional factors like socioeconomic background or religion, potentially oversimplifying the mechanisms of discrimination.

This is also evidenced in the empirical application of the method such as reserach conducted by Bertrand and Mullainathan (2004) which uses hypothetical CVs to uncover discrimination based on race. They varied the quality of CVs, by putting more work experience, email address and complete information on some CVs and left some CVs incomplete or did not provide sufficient information. They randomly assigned an African-American name to one high-quality CV and one lower quality CV and sent the CVs in response to advertisements. whites who had a high quality resume, were 30% more likely to be called back relative to whites having a poor quality CV, while call back was lower and insignificant for African Americans(Bertrand and Mullainathan, 2004).

The correspondence approach in Bertrand and Mullainathan's (2004) study effectively isolates racial discrimination in hiring by using fictitious CVs with controlled variations. It minimizes ethical concerns, allows large-scale testing, and uses random assignment of racial identifiers to strengthen causal inference. The method also reveals how employers respond to combinations of race and qualifications. However, it only measures biases at the callback stage and may not reflect real-world hiring processes. Additionally, its reliance on names to signal race assumes employers consistently interpret these cues accurately, which may not always hold true.

These findings are replicated by Oreopoulos, (2011) in a study conducted in Canada. He compared fictitious applicants who had a foreign name, but attended a Canadian university(foreign university). The call back rate was 1.39 for Canadian names relative to foreigners if they studied at a Canadian University and 1.43 if they had studied at a foreign university. In Oreopoulos' (2011) study in Canada, the correspondence approach allowed for a controlled comparison of fictitious applicants with Canadian versus foreign names, revealing discrimination based on name origin and university attended. The method's advantages include its ability to systematically test for discrimination using large-scale data, its ethical safety by using hypothetical applicants, and its ability to isolate the impact of name and educational background on callback rates. However, its limitations include the inability to measure biases beyond the callback stage, such as in interviews or hiring decisions. Additionally, relying on names to signal ethnicity or nationality assumes employers' biases are solely based on names, which may not account for more complex forms of discrimination. Furthermore, it doesn't capture how applicants' real-world experiences and qualifications might influence employers' perceptions.

Wright et al, (2013) provides evidence of discrimination against muslim applicants in the job market in the USA. The treatment CV, signaled religious activities whereas the control CV did not mention religious activities. Muslim applicants received 33% less call backs relative to control group. In Wright et al. (2013), the correspondence approach effectively measured discrimination against Muslim applicants by comparing fictitious CVs that either signaled religious activities or did not. The advantages of this method include its ability to isolate the impact of religion on hiring decisions, its ethical safety by using hypothetical applicants, and its scalability for testing across a wide range of job advertisements. The study provides clear evidence of discrimination based on religious identity and allows for controlled experimentation on a specific characteristic. However, the method has limitations, as it only captures discrimination at the initial hiring stage (callback rates), not during interviews or hiring decisions.

Additionally, relying on CVs with religious indicators assumes that employers will make judgments solely based on this information, which might not account for more nuanced forms of discrimination or other factors influencing hiring decisions.

Riach & Rich (2006) used the correspondence method to investigate gender discrimination in the UK labor market. By sending out CVs with identical qualifications but varying the gender of the applicant, the researchers discovered that male candidates received more positive responses than female candidates, indicating persistent gender bias in hiring (Riach & Rich, 2006). In Riach & Rich (2006), the correspondence approach effectively investigated gender discrimination in the UK labor market by sending out CVs with identical qualifications but differing only in the gender of the applicant. The strength of this approach include its ability to control for all other factors that might influence hiring decisions, isolating the impact of gender bias. It is ethically sound since no real individuals are involved, and it allows for large-scale, systematic testing of discrimination in hiring practices. However, its limitations include only capturing bias at the callback stage, without insight into discrimination during interviews or final hiring decisions. Additionally, it assumes that employers base their judgments solely on the gender presented in the CV, which may not account for other subtle or implicit factors that influence hiring.

Deshpande and Tiwari (2021) utilized the correspondence method to explore caste discrimination in the Indian job market. By sending out job applications that varied only in the caste affiliation indicated by the applicants' names, the authors found that applicants from lower castes experienced lower callback rates compared to those from higher castes. The results highlighted the persistence of caste-based discrimination in hiring practices in India, illustrating how caste identity continues to affect labor market outcomes (Deshpande & Tiwari, 2021). In this study, the correspondence approach effectively measured caste discrimination in the Indian job market by sending job applications that differed only in the caste affiliation indicated by the applicants' names. The advantages of this method include its ability to isolate the effect of caste on hiring decisions while controlling for other variables, ensuring that the findings are directly attributable to caste identity. It is also ethically sound, as no real individuals are involved, and it allows for large-scale testing across a variety of job advertisements. However, its limitations include focusing only on the initial stage of hiring (callback rates), without capturing discrimination in later stages like interviews or final hiring decisions.

Discussion

In the above section we discussed about audit and correspondence approach. The audit approach involves pairing individuals with similar qualifications but differing in a key characteristic, such as race or gender, to observe discrimination in real-world interactions, such as job applications or housing inquiries. Both individuals are sent to the same market transaction, ensuring that the only difference is the characteristic being studied. This approach allows for direct observation of discriminatory behavior. The audit approach has the advantage of providing real-world insights into discrimination by observing direct interactions in settings like job applications or housing inquiries. It ensures controlled comparisons by matching testers/actual individuals on all characteristics except the one being studied, allowing for reliable results. However, it raises ethical concerns since real individuals are involved, especially if they are unaware of the experiment or face negative outcomes. It can also be resource-intensive, requiring trained actors and significant logistical planning, and may be difficult to scale across large populations or settings. Additionally, it mainly captures discrimination in specific scenarios, without providing a broader view of systemic biases.

The correspondence approach uses fictitious profiles or resumes that are identical except for one characteristic, such as race, gender, or caste. These profiles are sent in response to job advertisements or other market opportunities, and the discrimination is measured by comparing the response rates (e.g., callbacks). This approach is less costly, scalable, and ethically more appropriate, but it only captures discrimination at the initial stage and the entire spectrum of discrimination cannot be easily captured. The correspondence method offers several key advantages over the audit approach. First, it ensures strict comparability between treatment and control groups, as the only difference between applicants is the characteristic being studied, such as race, gender, or caste. For example, in Bertrand and Mullainathan's (2004) study, the only variation between CVs was the racial cue (African-American vs. White names), ensuring any differences in callback rates could be attributed solely to race.

Second, by using hypothetical applications instead of real individuals, the correspondence method eliminates potential subconscious bias from auditors. In audit studies, auditors may unintentionally introduce their own biases during interactions, which could affect outcomes. The correspondence method removes this human element, leading to more standardized comparisons.

Third, sending paper applications is less costly compared to the audit method, which requires hiring, training, and deploying real individuals. This lower cost makes the correspondence method more accessible and scalable.

Fourth, the correspondence method allows for large sample sizes, increasing statistical power and research efficiency. A larger sample size means more robust findings. For instance, in Pager's (2003) study on discrimination based on criminal records, sending a high volume of CVs allowed for significant insights into discriminatory hiring practices.

Correspondence approach also suffers from several limitations. Since the correspondence tests are conducted in a controlled environment, they may not reflect real-world dynamics. Employers may behave differently when they know they are part of a study, leading to a potential Hawthorne effect where the presence of researchers alters the behavior of participants (Riach & Rich, 2006). This can result in an underestimation or overestimation of discrimination. Overestimation bias occurs when individuals or researchers inaccurately assess the magnitude or likelihood of an event, tendency, or outcome, typically by overestimating its significance or frequency. This bias can distort findings and lead to incorrect conclusions, especially in areas such as risk assessment, decision-making, or predicting behavior. The method relies on responses from employers, which can be affected by non-response bias. Employers who do not respond to the applications may hold different biases than those who do respond, skewing the data (Doleac & Stein, 2013). This non-response can mask the extent of discrimination and lead to incomplete findings. Further, the correspondence approach assumes that differences in response rates are solely due to the manipulated characteristics. However, this overlooks potential differences in perceived productivity or employability based on characteristics not tested (Fix & Struyk, 1993). As a result, the findings may misrepresent the complexity of labor market dynamics.

The choice between the correspondence approach and the audit approach for studying discrimination depends largely on the research objectives, ethical considerations, and practical constraints. Both methods have distinct strengths and weaknesses, and their appropriateness varies depending on the research context.

For example, Pager's (2003) study on racial discrimination in the labor market used real individuals to apply for jobs, revealing stark differences in callback rates based on race. This allows the study to observe subtle forms of discrimination that might not be apparent in more controlled environments. However, the

audit approach is resource-intensive. It requires the recruitment, training, and compensation of real testers, which can be costly and logistically challenging, particularly when scaling up the study or examining multiple settings. Furthermore, there are ethical concerns, as real individuals may face negative outcomes or discrimination in the process. Additionally, the audit method is time-consuming, often limited to specific interactions (such as job applications or housing inquiries), making it less efficient for larger-scale studies.

In contrast, the correspondence approach that uses fictitious CVs or applications that vary only in the characteristic of interest has several advantages over the audit approach, particularly in terms of cost-effectiveness and scalability. Since it involves hypothetical applications, it eliminates the need for real auditors, reducing both the marginal costs and logistical complexities associated with conducting a study. Researchers can send out large numbers of applications, which allows for larger sample sizes and more robust statistical analysis. For example, Bertrand and Mullainathan (2004) used fictitious resumes to study racial discrimination in the labor market, sending identical applications with only the racial cue varying. The correspondence approach also ensures identical comparability between treatment and control groups, as the only difference between applicants is the characteristic being tested. This strict control helps isolate the variable of interest and provides reliable, clear results.

Moreover, because no human testers are involved, it eliminates the risk of subconscious bias from auditors, ensuring that the measurement of discrimination is not influenced by individual perceptions or behaviors. However, the correspondence approach also has limitations. It primarily captures discrimination at the initial stage of the process, such as callback rates, and does not provide insights into later stages like interviews or final hiring decisions. Furthermore, the correspondence method assumes that employers rely solely on the information provided in the CVs, which may not reflect reality, as hiring decisions often involve more complex factors such as personal interactions and non-verbal cues.

Thus, neither method is inherently superior. The audit approach is valuable when studying real-world discrimination and capturing subtle biases during face-to-face interactions, while the correspondence approach is less costly and more cost-effective, scalable, and useful for analyzing large datasets. The choice depends on the research context, goals, and ethical considerations. Often, a combination of both approaches may be the most effective, allowing researchers to benefit from the strengths of each method while mitigating their respective weaknesses.

Ethical Concerns

Both the audit approach and the correspondence approach have unique strengths and limitations, and their effectiveness depends on the specific context and research objectives. The audit approach is particularly valuable for studying real-world, face-to-face discrimination and capturing subtle biases during live interactions. However, it is resource-intensive, limited to specific contexts, and raises ethical concerns. In contrast, the correspondence approach offers a more cost-effective and scalable way to measure discrimination at the initial stage of selection, particularly in hiring or housing markets. However, it may miss important dynamics that occur later in the decision-making process and lacks the real-world context provided by the audit approach.

Ultimately, the choice between these methods should be based on the research questions, the scope of the study, and the available resources.

Both correspondence and audit studies, raise ethical concerns. Sending, hypothetical CVs or auditors, waste huge amount of scarce time that employers have. Such studies also raise the concern of informed

consent, since the employer is completely in dark about the research (List, 2009). There are experiments, which compensate auditors for their time, but employers are not compensated.

Furthermore, the primary ethical issue in audit studies is deception. These studies often involve scenarios where participants are unaware that they are being tested for discriminatory behaviors. This raises questions about informed consent and whether it is ethical to mislead individuals for research purposes. As noted by Bertrand and Mullainathan (2004), the use of deception can be problematic, particularly if the research could cause harm to participants. Moreover, the presence of auditors can alter the behavior of those being tested, leading to stress or anxiety for individuals who may be evaluated, as highlighted by Pager (2007). This emotional impact can be particularly sensitive when involving marginalized groups, prompting researchers to consider the potential psychological ramifications of their studies.

Additionally, audit studies may inadvertently reinforce negative stereotypes by focusing on discriminatory behaviors. If the findings suggest a high level of discrimination against a particular group, it might perpetuate the belief that such discrimination is both prevalent and acceptable. This concern is supported by Fix and Struyk (1993), who argue that research highlighting discrimination can have broader societal implications.

Correspondence studies also present ethical challenges. Doleac and Stein (2013) emphasize the ethical dilemmas inherent in this approach, particularly regarding authenticity in interactions. Like audit studies, correspondence studies often do not provide informed consent to participants, which poses ethical dilemmas regarding their rights and whether they should be made aware of the study's objectives, as discussed by Pager and Shepherd (2008).

Furthermore, the long-term implications of findings from correspondence studies can have substantial consequences. For instance, if a company is found to exhibit discriminatory hiring practices, the public disclosure of such studies could adversely affect its reputation and the employment prospects of individuals within that organization. This potential fallout raises important ethical questions about the impact of research on both participants and the organizations involved, as noted by Bertrand, Duflo, and Mullainathan (2004).

In conclusion, while both audit and correspondence studies are essential for uncovering discrimination across various contexts, researchers must weigh the ethical implications of their methodologies. Balancing the pursuit of knowledge with respect for participants' rights and dignity is crucial in conducting ethical research.

Conclusion

This paper has critically examined two primary methodologies employed to measure discrimination—audit studies and the correspondence approach—supported by numerous field experiments documented in the literature. These methodologies offer valuable insights into the mechanisms of discrimination against marginalized groups, revealing that discriminatory practices are pervasive across various contexts, including employment, housing, and education. The literature, particularly through the correspondence approach, illustrates a consistent pattern of bias against minorities, reaffirming the importance of continued investigation into these inequities.

The audit approach is ideal for studying discrimination during real-world interactions, such as job interviews, housing applications, or direct market transactions, where biases may emerge in face-to-face settings. It captures subtle discrimination and dynamics beyond initial selection. However, it is resource-intensive and ethically complex. The correspondence approach, on the other hand, is more suitable for

analyzing discrimination at the initial stage, such as hiring or housing decisions based on CVs or applications. It is less costly and more scalable, making it ideal for large datasets but limited to early-stage discrimination, without capturing biases that arise later in the process.

The replication of correspondence studies across diverse cultural and geographical contexts highlights the global nature of discrimination, encouraging ongoing dialogue among researchers, media, and policymakers. Despite the wealth of findings, it is concerning that the methodological innovations within the field have stagnated, especially in the correspondence approach. Most studies continue to rely on fictitious CVs, which, while effective, do not fully capture the complexity of real-world interactions and discrimination mechanisms. To advance our understanding and measurement of discrimination, researchers must innovate (employ qualitative methodologies and ethonographic reserach) and diversify their methodologies such as conducting mixed method research, exploring new avenues that encompass the nuances of social identity and context.

Future research should aim to integrate qualitative insights with quantitative methods, allowing for a more comprehensive examination of discriminatory practices. Qualitative insights add depth to quantitative findings by exploring the underlying motivations and contextual factors behind discriminatory behaviors. They allow researchers to understand the experiences of those affected, uncover subtle biases, and identify nuances that numbers alone cannot capture, leading to a more holistic understanding of discrimination. Furthermore, increasing collaboration across disciplines, such as sociology, psychology, and economics, can enrich the understanding of discrimination's multifaceted nature. Collaborating across disciplines like sociology, psychology, and economics can provide a more holistic understanding of discrimination by integrating diverse perspectives. Sociology offers insights into societal structures and group dynamics, while psychology can help explain the cognitive and emotional processes that drive discriminatory behavior. Economics contributes by examining how discrimination affects labor markets, resource allocation, and inequalities. Combining these disciplines allows researchers to explore not only the economic impacts of discrimination but also its psychological roots and social implications, leading to more comprehensive solutions and interventions. Such interdisciplinary approaches enhance the depth and applicability of findings in tackling discrimination. Ultimately, the continued exploration and enhancement of methodologies will be essential in shedding light on discrimination, informing public policy, and leading societal change to ensure equitable treatment for all individuals, regardless of their background.

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