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What Can (and Cannot) Be Learned about Systemic Racial Discrimination from Randomized Controlled Trials?

Dania V. Francis, Rob Gillezeau, Damon Jones, and Angelino C. G. Viceisza

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ABSTRACT

Randomized controlled trials (RCTs) have played a major role in detecting direct forms of racial discrimination. In this essay, we ask whether RCTs can (or cannot) play an equally important role in the case of systemic racial discrimination. We propose a conceptual model of systemic racial discrimination drawing from prior definitions of systemic racism. We then consider a range of possibilities and limitations for how RCTs can help understand systemic racial discrimination, including: (1) the feasibility of manipulating systemic racial discrimination on a large scale; (2) smaller scale approaches; (3) conducting RCTs across different structural settings; (4) the manipulation of the salience of systemic forces; (5) the role of information in reducing systemic racial discrimination; (6) the manipulation of the salience of racial identity; and, finally, (7) examination of strategic responses to systemic racial discrimination. In discussing limitations, we point to other approaches that may fill in the gaps left by RCTs in studying systemic racial discrimination.

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1 Introduction

A robust body of work, both within and outside the field of economics, aims to detect, document, and explain racial discrimination. In some cases, researchers additionally consider potential interventions or policies that may mitigate the resulting disparities. Within the field of economics, the bulk of the literature seeks to detect whether discrimination in fact exists, and whether it is driven by tastes or statistical decision-making considerations (Charles and Guryan, 2011; Lang and Lehmann, 2012). Randomized controlled trials (RCTs), particularly correspondence and audit studies, have played a significant role in this subfield as a method of identifying whether decision-makers (e.g., employers and landlords) directly discriminate on the basis of race (Bertrand and Mullainathan, 2004; Bertrand and Duflo, 2017; Neumark, 2018; Francis, de Oliveira and Dimmitt, 2019; Gorzig and Rho, 2022). The key advantage of RCTs in this setting is their potential to exogenously vary perceived race while assuring that all other factors observed by decision-makers can be held constant.

Another strand of research has elected to look beyond direct, discrete acts of racial discrimination, with an eye toward more systemic forms of racial hierarchy (Bonilla-Silva, 2021; Mason, 2023). Such frameworks include direct racial discrimination, as well as organizational-, institutional-, and structural racism, and unconscious racial bias. These approaches recognize the potential for past discrimination and other dynamics to generate racial disparities, even in the absence of ongoing direct discrimination or conscious, racially biased attitudes and beliefs (Darity and Mullen, 2022; Derenoncourt et al., 2024). This line of research is specifically interested in cases in which the point is that "all else" is not equal across racial groups. Economists are increasingly recognizing the importance of these concepts (e.g. Lang and Spitzer, 2020; Baron et al., 2024; Agan, 2024),[1] which raises a natural question: given the central role of RCTs in studying direct racial discrimination within economics, are RCTs similarly positioned to play a major role among the set of methods and tools used to learn about systemic racial discrimination, or are they inherently limited in their ability to address this more complex phenomenon?

In this essay, we argue that there is indeed a role for RCTs in understanding the nature of systemic racial discrimination and that RCTs involving race can broadly benefit from a more fulsome consideration of the role of systemic racism in shaping outcomes. As discussed below, most definitions of systemic racial discrimination require credible identification of an initial episode of direct discrimination, or "original sin," that gives rise to downstream disparities in other settings.

[1] Several economists have long contended with these concepts. See for example, Darity (1982), Darity, William A., Jr. and Samuel L. Myers, Jr. (1994, 1998), Alexander (2021), and Francis, Hardy and Jones (2022). For a more in depth discussion of this literature, we refer readers to Mason (2023).

RCTs are particularly well suited to studying systemic racial discrimination because they enable researchers to cleanly identify this initial causal mechanism. They also facilitate tracking units across time and settings and can be combined with subsequent experimental interventions, allowing researchers to examine how the consequences of an initial discriminatory act evolve under different conditions.

At the same time, however, the strengths of RCTs in testing theories of direct discrimination do not entirely translate to the study of systemic forces. These limitations mean that gaining a comprehensive understanding of systemic racial discrimination might require additional methods, perhaps with less "clean" forms of causal inference, to get at more gradually evolving, historically cumulative, and systemic dynamics. Importantly, this challenge is not unique to RCTs, but rather reflects a broader difficulty inherent to any empirical approach seeking to identify and measure systemic racial discrimination.

We begin with a review of several leading definitions of systemic racism, drawing upon these frameworks to propose a conceptual model of systemic racial discrimination. Henceforth, we use systemic discrimination synonymously with systemic racial discrimination and systemic racism. We also clarify a working definition of an RCT for the purposes of this discussion. Next, we examine how RCTs can contribute to our understanding of systemic discrimination, while also considering significant limitations. We explore a range of possibilities, including the feasibility considerations of manipulating systemic discrimination on a large or small scale, conducting RCTs across different structural settings, manipulating the salience of systemic forces, examining the role of information in reducing systemic discrimination, manipulating the salience of racial identity, and finally, examining strategic responses to systemic discrimination. We consider which areas of systemic discrimination have already been well examined through RCTs and which areas offer opportunities for further exploration. Finally, we discuss how scholars engaging in research on systemic discrimination can most effectively employ RCTs, including in combination with theory and other empirical approaches.

Our work speaks to both the study of systemic discrimination and the use of RCTs in studying discrimination. With respect to the former, we systematize several existing theories of systemic discrimination into a cohesive, conceptual model. With respect to the latter, we make three contributions. First, we expand the analysis of work on racial discrimination (Bertrand and Duflo, 2017) beyond the identification of whether discrimination exists to incorporate the systemic aspects of racial discrimination. Second, we incorporate studies from multiple arenas, including health disparities, housing and segregation, and disparities in involvement with the criminal legal system,

supplementing prior analysis focused on experimental evidence from the labor market (Quillian et al., 2017; Neumark, 2018). Third, we focus specifically on the potential contributions of RCTs in understanding systemic discrimination, while also highlighting key limitations of this approach. For tractability, we focus on studies of race in the United States and Canada. This scope is intended to delimit the research rather than diminish the applicability of its insights or the relevance of findings from other geographic settings.

2 Concepts

Within the field of economics, multiple theories of racial discrimination have been developed and refined over decades of research. These theories include, but are not limited to, taste-based discrimination (Becker, 1971), statistical discrimination (Arrow, 1972; Phelps, 1972), implicit bias (Bertrand, Chugh and Mullainathan, 2005; Glover, Pallais and Pariente, 2017), and more recently, inaccurate statistical discrimination (Bohren et al., 2025). Systemic discrimination, however, is a concept that differs from theories of more direct forms of racial discrimination in that it addresses forms of racial discrimination that can exist even in the absence of direct racially discriminatory actions or actors (Mason, 2023). Sometimes referred to as structural discrimination, systemic racism, institutional racism, or structural racism, there are multiple theories and definitions of systemic discrimination. In the remainder of this section, we first discuss prior definitions of systemic discrimination. We then present our working definition of systemic discrimination for the purposes of this essay, introduce a conceptual model to guide the discussion, and apply the model to two examples. We conclude by defining RCTs.

2.1 Systemic Discrimination in Prior Work

A key distinction in this setting is between more direct forms of discrimination and discrimination that arises via systemic forces. Bohren, Hull and Imas (2025) use "direct discrimination" to describe how an individual's identity may affect the treatment they receive, holding all other relevant factors fixed. For example, Robertson, Baughman and Wright (2019) attempt to measure direct discrimination by estimating the causal effect of a prosecutor's perceptions of a defendant's race on prosecutorial decisions, while holding other details of a police report fixed. By contrast, systemic discrimination captures how direct discrimination can lead to differences in the relevant attributes for a given decision at a subsequent juncture, which in turn can result in disparities in outcomes.

Continuing with the example of the legal system, Rehavi and Starr (2014) show that, compared to White defendants, prosecutors are more likely to charge Black defendants with offenses that carry mandatory minimums. This initial disparity in the presence of a mandatory minimum can lead to longer sentencing at the trial stage for Black defendants, even if judges treat Black and White defendants the same conditional on charge. In this way, direct discrimination leads to disparities in downstream outcomes for racially marginalized individuals, even if direct discrimination is no longer present at this later stage. This is the part of discrimination that is defined as systemic (see, e.g., Agan, 2024). McMillon (2024) refers to this particular type of systemic discrimination as an intersectoral spillover—bias in one decision can feed into the next decision.

In addition to intersectoral spillovers, McMillon (2024) categorizes two additional mechanisms through which discrimination becomes systemic: social multipliers and intersectoral synergies. Social multipliers occur when benefits or harms are spread through networks, and peer effects can magnify differences in access. For example, Okafor (2025) shows that if hiring in labor markets in part relies on referrals via social networks, but social networks are segregated by race, the segregated system can increase racial disparities in employment and wages without direct discrimination by individual employers. Intersectoral synergies occur when advantages or disadvantages, established in an early period as a result of discrimination, amplify the effects of subsequent shocks on racial inequality. Having access to a greater wealth endowment can afford households self-insurance against the ebbs of flows of the business cycle, while having less wealth can leave individuals vulnerable to homelessness in the face of job loss. Direct discrimination in the past may have led to racially marginalized groups having lower wealth endowments on average, which is then compounded by the systemic benefits of having wealth compared to the systemic costs of not having wealth. What social multipliers, intersectoral spillovers, and intersectoral synergies have in common is a reinforcement process that amplifies initial differences in racial outcomes in a feedback loop that no longer requires direct racial discrimination.

Sociological and psychological theories of systemic discrimination often point to broad, pervasive societal norms as the source of the reinforcing processes that differentiate direct discrimination from systemic discrimination. Bonilla-Silva (2021), for example, argues that systemic racism is the racialized context that we all operate within and participate in as racialized actors. By this, he means that we live in a society where social, political, economic, cultural, and even psychological rewards are partially allocated along racial lines, and our decisions are influenced by norms that reinforce racial hierarchies. Systemic racism is systemic because there are not simply individual

acts of discrimination by "racists," but rather actions by all racialized actors that can reinforce the racial order.

Similarly, a psychological treatment of unconscious bias (Banaji and Greenwald, 2013) relies on the idea that racial stereotypes become ubiquitous within a society and permeate people's subconscious minds. Since these stereotypes are subconscious, neutral or even anti-racist individuals can exhibit unconscious racial biases that can influence their decision-making without them realizing it. Banaji, Fiske and Massey (2021) build on the concept of unconscious bias to define systemic racism as racism that is inbuilt into the institutions, norms, and behaviors of a society and its individuals. By inbuilt they mean racism permeates practices, policies, laws, and norms in the same way unconscious bias permeates psyches.

Related to the definitions from sociology and psychology, Mason (2023) defines structural racism as "the result of an interconnected collection of social norms, policies, institutions, identity strategies, and ideologies designed to preserve White supremacy." This definition is derived from the theory of stratification economics, which posits that inequality between different identity groups results from the collective self-interest of group members in improving (or maintaining) their group's relative position in the social hierarchy (Chelwa, Hamilton and Stewart, 2022; Darity, 2022). With this conceptualization, structural racism arises because dominant racial groups have an incentive to craft laws, policies, and practices that reinforce their group's position at the top of the social hierarchy. These laws, policies, and practices can be explicitly racially discriminatory or facially race-neutral. Either way, they have the effect of reinforcing racial disparities in life outcomes.

2.2 Our Definition of Systemic Discrimination

For the purposes of this essay, we rely on the most commonly overlapping elements among the above definitions. We define systemic discrimination as the process through which past acts of direct discrimination—by creating differences in endowments, institutions, and norms—entrench racially disparate outcomes even in the absence of current direct discrimination. This does not preclude ongoing direct discrimination, which can amplify and reinforce systemic discrimination, and also be enabled or concealed by systemic discrimination.

Systemic discrimination can be facilitated by the construction or salience of racialized identities. It does not require conscious, intentional racist actors. And the ongoing process may be largely driven by non-intentional actors who help reproduce racial hierarchy through unconscious bias, and through facially race-neutral institutional practices or public policies that can differentially affect

racial groups due to prior discrimination.

Figure 1 depicts a conceptual model of systemic discrimination as just defined, illustrating by arrows various systemic inputs and outputs between different junctures. At the top of the figure (Box 1), past direct discrimination, such as slavery, Jim Crow laws, or racially motivated immigration restrictions, can lead to racial differences in important economic endowments such as wealth accumulation and educational attainment, in addition to norms and institutions that facilitate differential treatment by race (Box 2).[2] We include in our definition of "endowments" relevant state variables that inform subsequent treatment, as in our earlier example of the differential charges faced by Black and White defendants (Rehavi and Starr, 2014). And while many systemic forces develop over long periods of time, the concept may be applied to events in closer proximity, such as the time between when charges are filed and sentencing happens.

Over time, racial hierarchies become ingrained in the social fabric, creating benefits or costs to identifying with or being ascribed to particular racial groups. These racial hierarchies can serve as inputs into further discrimination, whether through conscious racially discriminatory actions that favor in-group members (Box 3.1) or through unconscious racial bias (Box 3.2). For example, groups higher in the social hierarchy can include in-group members when making decisions about hiring or school admissions, while excluding out-group members. These direct discriminatory actions can lead to further racial disparities in outcomes (Box 4).

Even without conscious or unconscious racial discrimination, race-neutral policies, practices, or norms that favor individuals with greater endowments of wealth, education, or other economic assets will disadvantage the racial groups that, as a consequence of upstream systemic inputs, have lower endowments (Box 3.3). Similarly, seemingly race-neutral preferences, such as the desire to live in a "nice" neighborhood or send one's children to a "nice" school, can have the effect of reinforcing racial hierarchies in the presence of unconscious bias or commonly held beliefs and values that have racialized origins (Box 3.3). Note that such policies or actions need not be pursued *because of* prior direct discrimination (Box 1), but nonetheless can interact with unequal positioning of different racial groups (Box 2) leading to racial disparities in outcomes (Box 4). Today's racially disparate

[2]Some researchers minimize the significance of systemic discrimination as an explanation for racially disparate economic and social outcomes focusing instead on biological or cultural differences between racial groups (Austen-Smith and Fryer, 2005; Loury, 2019; Saini, 2019). Importantly, the initial stages of discrimination may involve the construction of racial groups themselves, which facilitate downstream hierarchy and may be strategically redefined overtime in the service of maintaining social stratification.

Even among those who find these types of arguments compelling, the weight of evidence demonstrating the existence of historic discrimination should be sufficient enough to motivate discussion of the link between past discrimination and present disparities (Mason, 2023).

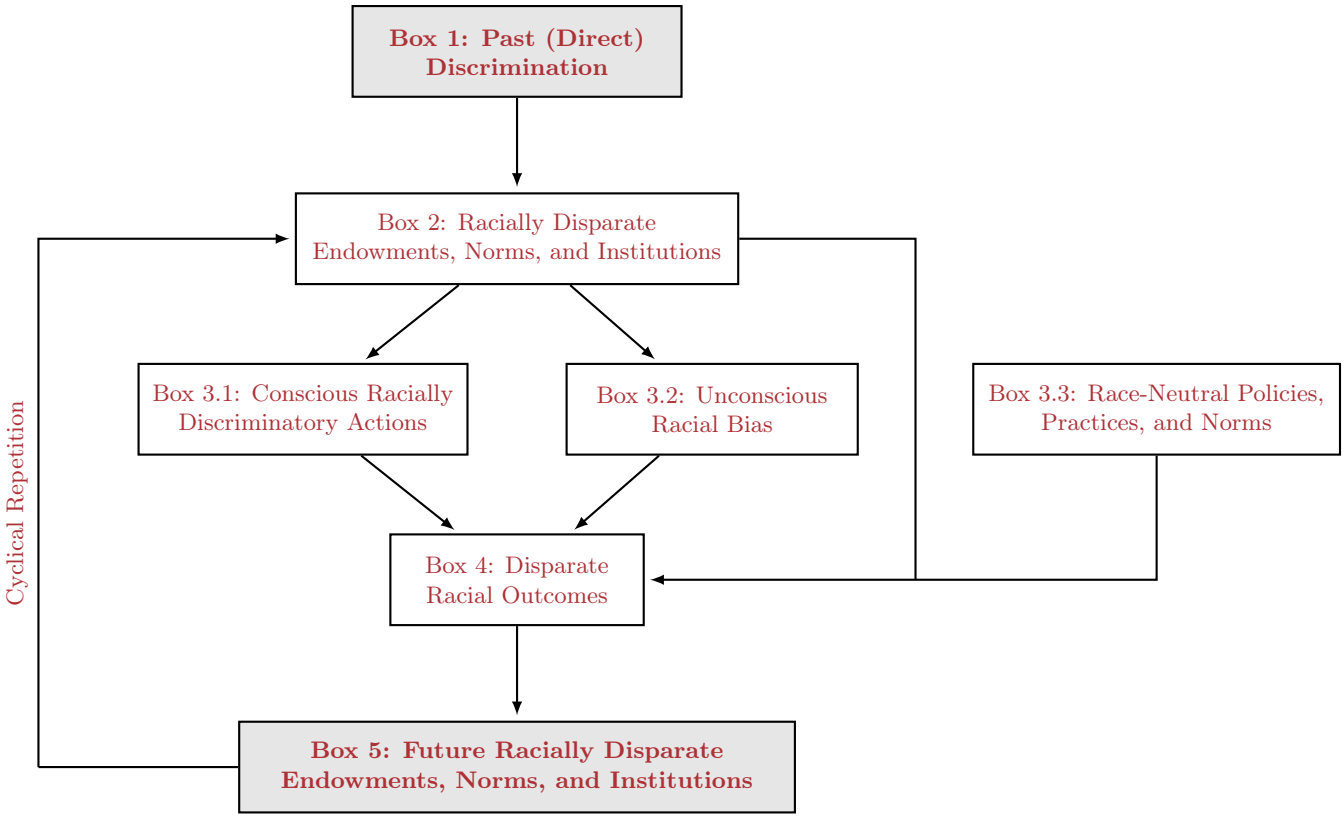


Figure 1: Systemic Discrimination: A Conceptual Model

outcomes become tomorrow's racially disparate inputs (Box 5), generating the feedback loops that are the essence of systemic discrimination. However, because of these feedback loops, race-neutral policies can also be useful tools for closing racial disparities.

2.3 Two Applications: Redlining in the United States and the Indian Act in Canada

To clarify our model of systemic discrimination, we offer two concrete examples. In our first example, we consider the discriminatory set of interventions in early 20th-century American housing markets, known as "redlining," which is a range of policies that undermined Black homebuyers and those in Black neighborhoods from accessing credit on reasonable terms (Aaronson, Hartley and Mazumder, 2021; Ali, 2026). In this case, the "original" act of past discrimination (Box 1) was the United States government's decision to intervene in access to housing credit. In the 1930s, the Home Owners' Loan Corporation (HOLC) provided emergency financing to over one million troubled mortgages. After most of these mortgages were dispersed, the HOLC retrospectively rated neighborhoods in over 200 cities using a system of maps that rated neighborhoods from "best" (shaded in green on the

maps) to "hazardous" (shaded in red on the maps). While these maps were not directly used in lending decisions, they were informed by and later influenced the practices of the savings-and-loans industry that made mortgage decisions (Fishback et al., 2023; Michney, 2022). Additionally, there is an emerging literature arguing that the Federal Housing Administration (FHA) directly and independently discriminated in providing insured mortgages to Black households, driving many of these effects (Ali et al., 2026). These interventions undermined the ability of Black individuals to purchase homes in a neighborhood of their choosing and shifted the market conditions of predominantly Black neighborhoods (Aaronson, Hartley and Mazumder, 2021).

How does redlining then map into racially disparate outcomes (Box 2)? First, it contributed to the spatial segregation of Black Americans into a subset of predominantly urban neighborhoods. Further, it lowered wealth levels over time by both undermining Black Americans' ability to purchase housing and accumulate wealth via housing assets and by reducing the value of these very homes relative to other neighborhoods (Aaronson, Hartley and Mazumder, 2021).

How do these lower levels of wealth, home ownership, and spatial segregation map into the three boxes in the middle of our figure? For Box 3.1, "Conscious Racially Discriminatory Actions," the segregation of Black Americans in relatively small spatial pockets enabled the state to engage in policing in those communities differently (Hinton, 2021). In Box 3.2, "Unconscious Racial Bias," the spatial removal of Black Americans from other communities and the association of predominantly Black areas with lower income and wealth levels allowed for a range of unconscious biases to develop about Black communities. Racial segregation can result in some Americans having little or no contact with members of other racial groups, which encourages stereotyping and othering (Allport, 1954). In Box 3.3, "Race-Neutral Policies, Practices, and Norms," the introduction of potentially race-neutral policies, such as the financing of education by local property taxes then maps into a preponderance of lower-resourced public schools in Black communities.

Each of these channels maps into disparate racial outcomes today (Box 4). The first channel results in disproportionate policing of Black communities and a greater share of Black individuals impacted by the correctional system, having criminal records, and managing the resulting negative impacts of incarceration. The second channel is reflected in American society in a number of ways. Unconscious bias derived from lack of contact can lead Americans of all racial backgrounds to attribute economic depression in Black neighborhoods to personal failings and shortcomings of Black individuals, leaving people less likely to support policy interventions that would aid those communities (Billings, Chyn and Haggag, 2021). Finally, the third channel results in Black children

receiving meaningfully lower quality education, impacting their access to higher education and better labor market outcomes. Together, these factors then shape a range of disparate racial outcomes in the future.

In our second example, we consider the implementation of the Indian Act to First Nations peoples in Canada from the late 19th century through to the present. It should come as no surprise to readers that Indigenous peoples in both the United States and Canada face meaningful systemic discrimination. While there are a range of scenarios we could consider, one of the most impactful starting points (Box 1) is the passage of the Indian Act in 1876, which transformed Indigenous peoples into effective wards of the state, micromanaging every element of their lives, and restricting their rights relative to other people living within Canada. For example, the Act forced Indigenous peoples onto reservations and banned religious practices, among other restrictions (Feir, Gillezeau and Jones, 2023).

How does this instance of past discrimination map into racially disparate outcomes (Box 2) in the 20th century? It shifted the land arrangements of First Nations, forcing people onto communally held reservations in relatively remote locations and displacing them from their previously held lands. As a result of these dual shocks, First Nations individuals experienced lower levels of both wealth and income.

Next, we consider how these endowments in the form of lower levels of wealth and income are perpetuated over time via the three boxes in the middle of Figure 1. For Box 3.1, the physical displacement from their lands and weakened economic power created space for additional direct discrimination via the state.[3] For example, after the initial passage of the Indian Act, the state moved to limit mobility on and off of reserves via the Pass System (Barron, 1988) and restricted the ability of First Nations to hire lawyers. In Box 3.2, the collapse in wealth, income, and general well-being that accompanied the displacement and wardship model of the Indian Act led to a belief amongst some Canadians that Indigenous peoples are destitute or dependent on the state. In Box 3.3, the introduction of potentially race-neutral policies like mandatory school attendance has dramatic and negative impacts on Indigenous students who, because of their spatial remoteness and differential treatment, are funneled into assimilatory, low-quality, and high-mortality residential schools (Ayesh et al., 2025).

Each of these three channels then maps into disparate racial outcomes today (Box 4), which

[3]In some instances, these extreme types of discrimination by the state might be best articulated as state repression. For the purposes of our analysis, the direct discrimination box best captures this behavior.

can perpetuate these impacts across time. The first channel hampers Indigenous economic development, in particular, causing a delayed transition from agricultural work to services. Further, legal restrictions perpetuate differences in the extent to which property rights bind into the present. With respect to the second channel, unconscious (and conscious) racial bias shapes Canadian society and institutions in a variety of ways. One of the most glaring examples would be the differential treatment of Indigenous peoples by law enforcement best exemplified by the "Starlight Tours," in which law enforcement would drive Indigenous people out of town in the middle of winter to freeze to death. In the third channel, the legacy of residential schooling dramatically shaped generations of Indigenous people who faced the trauma of seeing friends die around them and the removal of access to both their culture and their families. Together, these all map into a range of disparate racial outcomes today and in the future with respect to income (Feir, 2016), education (Jones, 2024), and trust in institutions (Hwang, 2017).

2.4 How Do We Define RCTs?

Following Duflo, Glennerster and Kremer (2007), we define an RCT as a research study in which units—such as individuals—are randomly assigned to either a group that receives an intervention (the "treatment" group) or a group that does not (the "control" group).[4] In some cases, the control group may receive a placebo or a baseline version of the treatment, particularly when ethical concerns arise or when withholding the intervention from participants would be inappropriate. The latter is especially true for laboratory settings.

Contrary to the more traditional interpretation of the term "RCT," which is often associated with field contexts and outcomes, our definition requires only that randomization be conducted for research purposes. This allows for a wide range of settings that vary in scale and time horizon (Muralidharan and Niehaus, 2017), including laboratory and lab-in-the-field RCTs where participants know they are being studied, and outcomes are artefactual. The definition is also sufficiently flexible to cover the full taxonomy of experiments described by Harrison and List (2004), as well as studies that analyze data from prior RCTs.[5] This latter inclusion is important because, in some cases, one entity—such as a government agency, firm, or research team—conducts the randomization, while another subsequently analyzes the resulting data.[6] Our RCT definition excludes instances where

[4] An RCT can have more than one treatment group, and in some instances, more than one control group.

[5] Heckman et al. (2010) provide a cautionary tale regarding the ex post analysis of RCT data to answer questions that the original research design or randomization process did not intentionally address.

[6] One example is the use of data from the Tennessee STAR class-size experiment to study the impact of own-race teachers on student achievement (Dee, 2004).

randomization is done for operational purposes, as might be the case in school lotteries, because we view these studies as more similar to quasi-experiments given the randomization and treatment are not pre-designed by the researcher but rather conveniently happened upon.

3 Seven Considerations when Designing RCTs to Learn about Systemic Discrimination

We now turn to various approaches for using RCTs to better understand systemic discrimination, organizing them into seven groups based on similar research designs. Importantly, studying systemic discrimination with RCTs can involve studying topics that arise in any of the individual boxes or arrows in Figure 1, which represent particular mechanisms and pathways through which systemic discrimination is perpetuated. It can also involve studying topics that traverse or encompass the entire figure. We highlight which areas of systemic discrimination research have already been well examined through RCTs, and which areas offer opportunities for further exploration.

3.1 The Infeasibility of Manipulating Systemic Discrimination through Large-Scale Randomization: Forbidden Experiments

We begin by highlighting a key limitation of RCTs in this setting. The most direct way to use the tools of randomization to test for, describe, or quantify the relationships outlined in Figure 1 would be to experimentally vary the inciting incidents of direct discrimination illustrated at the top of the figure (Box 1). Such large-scale experimentation would alter population-level differences in endowments, norms, or institutions, in turn impacting outcomes at other points in the figure.

For several reasons, we find such randomization infeasible and ethically questionable, and thus refer to such an intervention as a "forbidden experiment." First, the primary historical antecedents of today's systemic racism are already established and are thus fixed.[7] Nonetheless, one might envision randomly varying similar conditions in the present, and tracking, over the long term, whether or how future systemic dynamics are affected. Yet even in that case, most entities lack the resources or authority to shift or alter racial discrimination at the scale at which we understand it to be meaningful within different theories of systemic discrimination. Although governments may occasionally implement large-scale policy reforms or social experiments, it is rarely feasible for them, particularly in collaboration with researchers, to implement trials that completely alter institutional

[7] This is akin to the field of macroeconomics, where for each country a single history of business cycles exists, and rerunning the historic time series without, say the Great Recession, is not possible.

structures, such as segregation, racially discriminatory laws, campaigns of racial violence, mass incarceration, or voter disenfranchisement, to name a few. In addition, some of the noted pillars of systemic racism have the flavor of an entrenched equilibrium formed gradually over a long period, including, for example, social norms, racialized language, or persistent subconscious stereotypes. In the extreme, coordinated efforts over decades or centuries may be necessary to install these phenomena; at best, they may be "swiftly" disrupted by widespread social movements over years or decades.

We thus find it useful to consider, but ultimately abandon, the hope of using such "forbidden experiments" as a tool to directly generate empirical evidence of systemic discrimination. Still, "forbidden experiments" can serve as meaningful "thought experiments" (Friedman et al., 1953; Kuhn, 1977), complementing theory, natural experiments, and historical evidence—particularly when informing the design of other RCTs that *are* feasible for studying systemic discrimination. The sections to follow discuss these types of RCTs, which can be implemented even in the absence of direct randomization of initial discrimination (Box 1).

3.2 Studying Systemic Discrimination through Small-Scale Randomization

Given the above-mentioned constraints on randomizing discrimination at the level of the "system," how can scholars employ RCTs to study the underlying nature of systemic discrimination? Here, we consider two approaches to learning about systemic discrimination from within a subset of the system described in Figure 1. First, RCTs can be designed to capture or demonstrate systemic spillovers across multiple domains, points in time, or key junctures, even when carried out at a smaller scale. In the context of our Figure 1, this involves studying discrimination or outcomes at multiple "boxes" in the figure and drawing conclusions regarding the flow of outputs and inputs between them. Second, RCTs may focus on one particular domain, point in time, or juncture, but nonetheless frame their questions and results in the context of systemic inputs from or outputs to other domains, points in time, or junctures. In the context of our Figure 1, this would involve studying at most one "box" and one "arrow" in our schematic, but explicitly placing the results in the context of the larger system.

3.2.1 Experimental Measurement of Systemic Spillovers across Multiple Domains

As an example of the first type of approach, we turn to work by Bohren, Hull and Imas (2025) on systemic racial and gender discrimination. To illustrate their method, consider a two-period

setting where in the first period, people, either Latino or Black, drive their personal car and face the possibility of being pulled over. In the second (focal) period drivers apply for an entry-level bus driver position, where one's history of traffic tickets is used to screen applicants. The authors define direct discrimination as a differential likelihood of obtaining a bus driver job between Latino and Black applicants, holding fixed one's traffic ticket history. Systemic discrimination captures, say, the difference in bus driver hiring between a Black applicant with a typical Black ticket profile and a counterfactual Black applicant with a typical Latino ticket profile. This difference arises when there is direct racial discrimination in ticketing in the first period, that is, a racial difference in ticketing outcomes holding driving patterns fixed. Finally, the authors define total discrimination in bus driver hiring as the average difference in bus driver hiring between a Latino and Black person with the same first-period driving pattern. The difference is a combination of the *average* direct discrimination in period two and systemic discrimination in period two.

A series of conventional RCTs can capture part of what is needed to measure systemic discrimination. In the first period, suppose drivers of different races are randomly placed in autonomously driven vehicles, which keeps driving patterns consistent between the two groups. Next, researchers record how often members of each race are involved in traffic stops, holding general driving patterns constant.[8] This generates a distribution of traffic stop outcomes for the Latino and Black drivers and captures direct discrimination in the first period. In a second period, researchers could implement a standard correspondence study by submitting fictitious applications for bus driver positions, experimentally varying applicants' race and traffic ticket history. Differences in bus driver hiring outcomes conditional on ticketing history identify direct discrimination in the second period.

In order to translate measures of direct discrimination in each period into a measure of total or systemic discrimination, one needs to additionally estimate what Bohren, Hull and Imas (2025) refer to as an interaction effect. That is, one needs to know how traffic stops translate into a ticketing history—which can depend on legal representation and leniency—and also, how hiring decisions vary with ticket history in the second period. Under the constructive Iterated Audit (IA) method, the former could be informed from institutional knowledge or other direct evidence, and the latter can also be estimated as a part of a correspondence study. Under the experimental IA method, one could generate Latino and Black ticket distributions by following outcomes in the first period through to the ticketing stage, and then using those distributions in combination with a

[8]For the purposes of illustration, we take the liberty of hypothesizing an Institutional Review Board open to exposing human subjects to the risk of being pulled over and/or receiving a traffic ticket. Whether or not this is feasible may speak to an additional limitation in using an RCT to study high-stakes outcomes.

second-period correspondence study to recover total and systemic discrimination.

As another demonstration of this type of approach, there are studies that examine how beliefs regarding discrimination in one domain spillover to other domains. In a proposed, but not yet implemented, RCT in the American Economic Association (AEA) RCT registry, Alsan, Jones and Yang (2021) present a research design that involves priming the salience of racial discrimination in one domain (officer-involved shootings) and measuring spillovers to behavior by racial minorities in other domains (the demand for health care). The study is designed to test for correlation in beliefs regarding discrimination across different domains. While Haaland and Roth (2023) do not use the term systemic discrimination, they too assess how information about discrimination in one domain (the labor market) affects beliefs about discrimination in another domain (the housing market). They embed correspondence studies within an online panel and find that while providing information can substantially reduce disagreement about the extent of racial discrimination, it is not sufficient to reduce disagreement about pro-Black policies (also see Section 3.4).

The three previous examples are all analogous to the path in Figure 1 from past discrimination in an initial period to differences in endowments across racial groups in a second period that may lead to racially disparate outcomes, even in the absence of direct racial discrimination. Moreover, in at least two of the cases, the authors explicitly frame their approaches in relation to systemic discrimination. The benefit of the approach illustrated by these examples is that researchers test for systemic spillovers from one juncture to another, as in Figure 1, which would not be detected in a traditional study of direct discrimination at any given decision point in isolation.

There are, however, some challenges and limitations of this approach as well. First, researchers must make assumptions about the set of associated events that may spill over to the primary outcome of interest and about the nature of the interaction between discrimination at these different junctures. In practice, the path from one period to the next may be quite rich. In our examples above, drivers of a particular racial group may drive more or less aggressively in anticipation of discrimination in traffic stops, or health care providers may try to send counter-signals to offset the impact of experiences with law enforcement on people's beliefs about discrimination in the health care sector.

Another limitation is that the kinds of discrimination at each node that are best suited for study by RCTs are ones that occur over a short period of time and hinge on a key decision-maker or gatekeeper, e.g., a hiring decision or a medical diagnosis. However, some systemic spillovers occur over a longer period of time and in a bundled fashion. In the example of segregation and redlining,

systemic spillovers involve differential exposure to neighborhood effects, networks, and resources across racial groups for a number of formative years. For this reason, the RCT approach here may be considered in concert with studies that use observed data on actual outcomes over longer horizons of interest. See, for example, Sorkin (2025), who attempts to disentangle racial discrimination in the labor market at earlier career stages and job searches from discrimination later in the job tenure, or Lanning (2013), who models how the types of disparities found in correspondence studies might translate over time into differences in employment and wages later in one's career.

3.2.2 Systemic Interpretation of Localized Experiments at One Domain

A second approach to learning about systemic forces involves studying outcomes primarily at one key decision point or outcome, but placing this in the context of potential systemic links to discrimination from other points in time or across domains. As an example, Cotton, Hickman and Price (2022) explore the effects of affirmative action (AA) policies on human capital investment leading up to college. They discuss AA as a policy meant to counterbalance the disadvantages faced by students who are affected by past institutionalized racial discrimination, thus grounding their analysis in a broader framework of systemic discrimination. Using a field experiment with middle school students participating in an academic competition, they test predictions from a model of how students with historically disadvantaged backgrounds may adjust their preparation and effort in response to AA-like reward structures. As such, the study focuses on an intervention designed to improve a point-in-time educational outcome, but is informed by systemic inequality among students of different races.[9]

While some studies explicitly link their design and results to the presence of systemic discrimination, we note that many existing studies that focus on racial equity or discrimination at a point in time *could be* recast to be more explicitly linked with systemic discrimination. For example, Alsan, Garrick and Graziani (2019) randomized doctor race, White or Black, among a pool of Black patients and found that racial concordance increases demand for preventive health services. Two links to prior racial discrimination arise in this case. First, as the authors mention, prior exposure to mistreatment by medical professionals, e.g., in the case of the Tuskegee Experiment (Alsan and Wanamaker, 2017), may lead to mistrust among Black patients that is mitigated by a Black doctor. Second, the authors conclude that more Black doctors might improve health outcomes for Black

[9]The experiment itself uses students of different grade cohorts as their measure of historically disadvantaged backgrounds, but the lessons are meant to inform actual AA policies that treat students of different racial groups as differentially advantaged, due to past discrimination.

patients, and this additional insight could be made alongside the possibility that discrimination in the medical profession has constricted the pipeline of Black doctors.

In general, in cases where RCTs on discrimination find that differential treatment by race is primarily explained by differences in the distribution of observables, such as educational attainment, an additional layer of analysis could consider whether systemic discrimination is in part responsible for the differences in observables. Likewise, some RCTs involve cases where there exists a disparate impact of race-neutral policies on specific racial groups, potentially due to systemic forces. In such cases, where theory and historical and empirical evidence point to treatment or behavior that is not race-based, but is highly correlated with race, some race-neutral interventions may have the potential to significantly impact racial equity. For example, Cullen, Dobbie and Hoffman (2023) conduct a field experiment in partnership with a large online staffing platform that shows only 39% of employers in this sample are willing to hire a worker with a criminal record. However, offering crime and safety insurance, a performance review, and limited background checks are effective at increasing demand to over 50%. Because of the disproportionate rate of incarceration among Black workers, this policy is also likely to reduce racial disparities in hiring.[10]

3.3 Conducting RCTs across Different Structural Settings

In the absence of the ability to implement a "forbidden experiment," a natural alternative is to leverage observed variation in histories, institutions, and other systemic inputs identified in Box 1 of Figure 1. We propose two types of analyses in this vein. First, one may stratify people by their exposure to systemic discrimination and then conduct randomized studies in which heterogeneity is expected to vary in predictable ways across these strata.[11] In many cases, this type of cluster-based stratification will involve interacting RCTs with geographic variation. A second approach is to design RCTs intended to incentivize relocation across settings with varying levels of exposure to systemic discrimination, in an effort to capture the impact of the place-based accumulation of prior discrimination.

As an example of the first approach, consider a scholar seeking to better understand the nature of systemic discrimination in access to credit among Indigenous peoples. A natural place to start could be to consider variation in underlying property rights structures across Indigenous nations and communities related to either Aboriginal rights and title (Feir, Gillezeau and Jones, 2023),

[10] See Bettinger and Evans (2019) for a similar example in an educational setting.

[11] For early and differing perspectives on what can be learned from RCTs—especially with respect to heterogeneous treatment effects and the value of theory-guided experimental design—see Banerjee and Duflo (2009), Deaton (2010), Imbens (2010, 2014), and List (2011).

land tenure arrangements (Leonard, Parker and Anderson, 2020), or variation in how different Indigenous communities were forced onto reservations and the quality of those lands (Dippel, 2014; Chan, Essaji and Gillezeau, 2025). It is well documented that some property rights structures, such as the fractionation of reserve lands via the Dawes Act, were detrimental to income growth and the growth of cohesive communities for Indigenous peoples, but were nonetheless imposed to benefit non-Indigenous counterparties, including the government itself, settlers, speculators, and agricultural competitors (Carlson, 1981; Anderson and Lueck, 1992; Leonard, Parker and Anderson, 2020; Miller, Shane and Snipp, 2025).

Suppose, for the sake of argument, that researchers suspect that present-day lenders use Indigenous identity as a proxy for creditworthiness, in a form of statistical discrimination. A correspondence study could be designed in the spirit of Ewens, Tomlin and Wang (2014), which randomizes perceived identity of fictitious applicants, along with observables, in a way meant to detect statistical discrimination. We might, then, predict different outcomes for this design depending on the extent to which unfavorable property rights systems had been in place in a given Indigenous community. The link between prior institutions and disadvantage via statistical discrimination might then constitute systemic discrimination. One could similarly investigate a range of other potential RCTs across communities with or without fractionated land or other land tenure arrangements, considering differential treatment effects grounded in these colonially imposed property rights structures.

Another example could be a correspondence study in the spirit of Christensen, Sarmiento-Barbieri and Timmins (2021), but that seeks to causally connect historical segregation to present-day discrimination. In its current form, their study finds that Hispanic/LatinX and, to a greater extent, African American renters face discrimination in the majority of U.S. cities and that anti-Black discrimination is stronger in places with higher levels of current residential segregation. If instead one were to design the study to connect current discrimination to some exogenous source of historical variation in racial, residential segregation, this would start to approximate the aforementioned "forbidden experiment" (Section 3.1).

The success of this type of research design hinges on the extent to which exposure to different prior discrimination is exogenous. Consider, for example, variation across different Indigenous communities. If different property regimes were imposed with little regard for the initial economic conditions of different Indigenous communities, and if mobility in and out of these communities, which tends to introduce selection, were somewhat constrained, the case for this research design may be more compelling.

Contrast this with other groups, such as Black people in the U.S., who may have divergent histories of exposure to slavery, redlining and spatial segregation, or voting rights suppression across different communities. One could envision an attempt to link exposure to slavery with credit access in a similar research design as above in the Indigenous context, but featuring Black people living in states with different historic timings of emancipation. An obvious challenge is that Black people have a well-documented history of mass interstate migration across such places, confounding such analysis. In general, a research design that combines a correspondence study with geographical variation in historic patterns of discrimination in a market would be using randomization to identify the effect of perceived race on outcomes, e.g. credit access, and then interpreting heterogeneity in that treatment effect across different markets in light of theories of systemic discrimination. That is to say, the study would not be using randomization to identify the causal effect of systemic discrimination on outcomes, per se.

A second type of research design may instead introduce experimental variation in a subject's current geographic location, potentially altering their exposure to the systemic effects of past discrimination. To the extent that systemic forces arise through, say, neighborhood effects, such a design could potentially identify such effects. Several existing works in housing have relied upon this style of geographical variation. The most notable example is the family of projects analyzing Moving To Opportunity (MTO) (Kling, Liebman and Katz, 2007; Katz et al., 2011; Chetty, Hendren and Katz, 2016; Bergman et al., 2024), which can be viewed as a permutation of this model in which individuals living in poverty can move across structural settings (strata), that is, from high-poverty neighborhoods to lower-poverty neighborhoods.

A complication that arises in this deployment of RCT methodology is that there is a set of characteristics affected by systemic inputs that attach to the individual or household, regardless of geography (such as intergenerational wealth), and another set of systemic forces that accumulate in place-based or neighborhood-like effects. For example, suppose that past discrimination affects current outcomes and endowments, as previously described in Figure 1, through two possible channels: parental wealth and local school quality. An intervention that facilitates a family's relocation to a new neighborhood may directly interrupt the local school channel but leave the family wealth channel largely intact. Researchers may leverage this distinction to yield novel predictions. For example, we may predict larger impacts on economic and social outcomes for families that are relocated from contexts where place-based systemic endowments are more relevant than household-specific factors, and smaller impacts when the opposite is true. At the same time, this highlights a

potential limitation of using RCTs: place-based systemic forces that "travel" with the household as they are experimentally nudged to different neighborhoods or environments would not be captured by this research design.

Another challenge with this approach is the issue of statistical power. In order to detect meaningful heterogeneity in treatment effects across different settings, one needs a large enough sample to precisely estimate interactions between treatment status and strata. The sample size requirements for such analysis can be demanding. A common rule of thumb is that the estimation of interaction effects requires between 4 and 16 times as large a sample as a simple treatment/control comparison (Gelman, Hill and Vehtari, 2020). As is the case with any RCT, a careful power analysis is an essential part of the planning stage, and even more so when attempting to explore treatment effect heterogeneity.

3.4 Manipulating the Salience of Systemic Forces

In many cases, theories and discussions of systemic racism highlight the role played by unconscious bias and/or a somewhat willful ignorance of systemic dynamics. Agents make decisions based on race-neutral justifications that can nonetheless reinforce racial hierarchy. For example, wealthy and affluent parents may elect to send their children to more resourced school districts in ways that increase racial segregation. Alternatively, agents may partake in direct discrimination without being fully aware of it. Prior studies find that in simulated exercises, law enforcement officers are more likely to associate Black suspects with guilt or potential threat, in ways consistent with unconscious bias (Correll et al., 2007). Relatedly, some race-neutral policies can have predictably disparate effects across racial groups, but actors may fail to acknowledge these predictable effects when implementing them.[12] Finally, people may form beliefs, carry out rules, and support policies based on a potentially misspecified model of why differences in endowments exist, attributing them to poor choices on the part of individual actors, for example, instead of recognizing that those actors may be experiencing differential constraints on their choices due to systemic discrimination (Mason, 2023).

In light of this, scholars of systemic discrimination have argued that increasing people's awareness of the system within which they operate may alter their behavior and potentially counter some of the reinforcing nature of the system (Banaji, Fiske and Massey, 2021). Although RCTs are unlikely to shift people's understanding enough to generate systemic impact, they may be able to demonstrate

[12]See, for example, the school closings covered in Ewing (2020), where a school closing policy based on under-enrollment disproportionately affected Black neighborhoods due to prior, race-based housing policy.

evidence on the first steps in this process, that is, awareness leading to different beliefs or behaviors. RCTs may therefore be used to study unconscious bias (Box 3.2 in Figure 1) and its connections to the past (Box 2) and future (Boxes 4 and 5). For example, Alesina, Ferroni and Stantcheva (2021) show that when people are made aware of systemic origins of racial disparities, they are more likely to support race-specific policies aimed at ameliorating prior inequities. In a similar RCT, Thompson and Trejo (2024) demonstrate that parents typically underestimate the level of segregation in their school district, but also find that providing more accurate information regarding segregation does little to increase parents' support for policies that reduce segregation. One can imagine similar interventions in other domains, including the legal system, housing markets, and labor markets.

Several interventions directly aimed at reducing unconscious bias have demonstrated that it is difficult to design effective interventions. Some interventions produce no changes in unconscious bias, while others produce a short-term change that eventually fades as participants return to baseline levels of bias (Worden et al., 2024; Murchie, Pang and Schwegman, 2021; Lai and Lisnek, 2023). A randomized intervention by Dube, MacArthur and Shah (2025) shows that training aimed at improving police officers' decision-making skills in snap-judgment situations leads to a reduction in racial disparities in use of force and arrests. Importantly, the training did not explicitly mention race or focus on making implicit bias more salient; rather it asked officers to broaden how they interpret the everyday situations they may face, giving them a wider array of possible responses to fall back on. In this case, making systemic discrimination *less* salient while still focusing on developing the underlying tools that can impact that discrimination may prove more effective.

RCTs may also be helpful in identifying moments where decisions appear to be influenced by (unconscious) bias in a systemic way. For example, Carpenter et al. (2025*a*,*b*) use the RCT methodology to explore the willingness of individuals to support two different social safety net programs—Temporary Assistance for Needy Families (TANF) and unemployment insurance. After randomizing the program that participants are questioned about, they ask individuals for their perceptions of the percentage of beneficiaries in these programs who are Black. Then, after sharing the actual percentage of Black beneficiaries with the participants, they find that individuals who learn that there are fewer (more) Black beneficiaries of TANF than they originally perceived support this program more (less). Correcting misperceptions about recipients' racial identity alters people's support for the policy. The same is not the case for the less racially stigmatized unemployment insurance program. Inaccurate beliefs about the racial makeup of recipients of unemployment insurance do not impact people's support for unemployment insurance, potentially pointing to notions of desert.

Recipients of unemployment insurance may be seen as more deserving of aid, regardless of their racial identity, because they have a demonstrated work history.

While RCTs may be limited in their ability to generate widespread changes in underlying beliefs and implicit biases, they can be useful in understanding the impacts of timely information on priming individuals to consider systemic causes for observed racial disparities in a way that overrides their subconscious biases at key decision-making moments. Even so, fully addressing unconscious bias is unlikely to be sufficient to completely unravel the dynamics of systemic discrimination. Agan (2024), for example, reviews work on the presence of racially-biased stereotypes throughout the legal system and notes that in order to combat systemic sources of inequality, a multi-pronged approach going beyond stereotypes is needed.

3.5 Examining the Role of Information in Reducing Systemic Discrimination

It's possible that having access to more information can lessen the biases of decision-makers, and thereby, reduce potential pathways in the feedback loops of systemic discrimination. For example, while discrimination may take on a systemic nature when it is unconscious, there are beliefs and actions that lie on the boundary of unconscious and semi-conscious. Banaji, Fiske and Massey (2021) use the term "unexamined" bias to refer to behaviors that operate as second nature but that are potentially controllable. In this case, there is an interplay between the systemic factors shaping beliefs and the instinct toward direct discrimination, with one creating a pathway for the other. In an RCT that uses the Incentivized Resume Rating (IRR) method, Chan (2024) finds evidence of exactly this "deniable prejudice": taste-based discrimination that is only present in highly ambiguous situations, where one need not admit, to oneself or others, that biased behavior is at play [13] In this study, patients show bias against Black and Asian doctors. This bias is much larger than the difference in preferences between high- and low-quality doctors, suggesting it may reflect inaccurate statistical discrimination. But when a quality rating is shown on the profiles being evaluated, the discrimination collapses to close to zero. Chan theorizes that a *potential* difference in quality served as a cover for one's instinct to avoid minority doctors. In this example, providing more information on doctor quality is a policy-solution that could lead to less bias.

An interesting example that underscores the importance of the flow of information comes from

[13]Incentivized Resume Rating (IRR) is a form of field experiment where characteristics are randomly assigned to resumes, but employers are told they are evaluating hypothetical resumes, in service of getting real matches from a pool of candidates (Kessler, Low and Sullivan, 2019). Because it offers more data on decision-makers and a greater ability to manipulate the resume rating environment (e.g., the order and amount of information) than traditional audit studies, the methodology can be used to better understand implicit bias.

a randomized audit study by Agan and Starr (2017) who find that employers in the New York and New Jersey area engaged in *more* anti-Black bias in their callback decisions for prospective employees when they had less information about applicants' criminal background because of the implementation of a "ban the box" law. In the absence of direct information on criminal records, employers appear to fall back on possibly exaggerated and incorrect assumptions of Black applicant criminality. These two studies support the idea that providing decision-makers with more information can help reduce racial biases in outcomes.

It is also possible that decision-makers who are aware of systemic discrimination use their subjective decision-making powers to correct for past discrimination in a way that is social-justice oriented. Francis, de Oliveira and Dimmitt (2019) use a correspondence audit study methodology to examine whether school counselors exhibit bias in recommending students for advanced placement (AP) calculus courses. In their main results, they find that transcripts with a Black-female-signifying name were significantly less likely than identical transcripts with male- or White-signifying names to be recommended for AP Calculus. Interestingly, however, they hypothesize that the transcript with a Black-male-signifying name, which was also perceived by study participants as signifying a student with lower socioeconomic status than the other names, was being rated higher by school counselors as a way of compensatory justice. School counselors may actively engage in breaking the cycle of systemic discrimination by bestowing advantage in the place of systemic disadvantage.

This brings into question the value of subjectivity and objectivity among decision-makers. Injecting objectivity into decision-making processes may limit the damaging impacts of conscious or unconscious prejudices, but it may also limit the ability of decision-makers to use subjectivity to correct for past discrimination. In a follow-up to their 2019 study, Francis, de Oliveira and Dimmitt (2024) examine whether a policy of requiring school counselors to make blinded recommendations (evaluate the transcripts without knowing the names of the students to whom they belong) would reduce racial or gender bias in recommendations. They find that the blinded reviews make no group better off (i.e., significantly more likely to be recommended for AP calculus) and make White male students worse off (7 percentage points less likely to be recommended). In this circumstance, limiting information by requiring counselors to make blinded decisions did not necessarily benefit any students and may have made some students worse off.

3.6 Manipulating the Salience of Racial Identity

Many biological scientists and geneticists agree with social scientists that race is a social construct and not a biological one (Lala and Feldman, 2024; Yudell et al., 2016). That is, racial identities are ways of grouping people that can differ across geographies, change over time, and result from historical and political processes—not biological realities. An implication is that individual racial identity is not fixed. Individuals can self-identify differently over time, but societal definitions of racial identity can also change over time in ways that implicitly or explicitly reclassify individual members. This can include a change in the norms and definitions surrounding racial identity. For example, the question of who is "White" in the United States was historically enshrined in law by state and federal legislative bodies and adjudicated in courts up to and including the Supreme Court (Harris, 1993; Wilkerson, 2020). Over time, many ethnic groups who were once excluded from the White racial category in the United States have been eventually included through assimilation (Roediger, 2005).

These dynamics demonstrate the potential to manipulate a person's perceived racial identity, as well as the salience of that racial identity as a part of someone's total identity. A question relevant to the disruption or perpetuation of systemic racism is whether a person is more likely to exhibit racial affinity towards in-group members or bias against out-group members (whether unconsciously or deliberately) when race is a more salient part of their personal identity. Indeed, this is posited by Bonilla-Silva (2021) as a key ingredient in a self-perpetuating cycle of systemic racism. Goff, Steele and Davies (2008) show that when the sensitive topic of racial profiling is raised, White study subjects make an effort to distance themselves and avoid discussion with Black subjects, perhaps in an attempt to not be viewed as prejudiced in the ensuing discussion, a twist on the classic stereotype threat result.[14]

Maeder, Yamamoto and McManus (2015) conduct a variant of a correspondence study, presenting study participants with details of a fictional murder case, and asking whether they would decide not guilty by reason of insanity as a verdict. They randomly vary the race of the defendant between Black and White and the mental health status between schizophrenia and depression. They find a higher likelihood of deciding guilty for cases where the defendant was Black and the mental health status was schizophrenia, and the authors attribute this to stereotypes associated with the particular

[14]Stereotype threat is a phenomenon whereby raising the salience of a negative minority stereotype, say about test taking ability, may be psychologically disruptive enough to impair actual task performance. See Steele and Aronson (1995) for the seminal study, but also countervailing evidence from Alston et al. (2022) in the setting of a historically Black college and university (HBCU).

combination. While the study mirrors traditional approaches to identifying direct discrimination, as in Boxes 3.1 and 3.2 of Figure 1, such studies could be extended to measure the impact of racial salience of *jurors'* race, including directly measuring the salience of one's own race among jurors or experimentally manipulating this salience via primes or framing (White, 2007; Hutchings and Jardina, 2009). Such an extension might be informative about systemic links between racially disparate norms and direct (conscious or subconscious) discrimination (i.e., between Box 2 and Boxes 3.1 and 3.2 of Figure 1).

If the salience of racial identity is a significant contributing factor to racial bias in decision-making, it would also be of interest to know what factors contribute to race becoming a more salient part of a person's identity. RCTs that vary conditions that make people more aware of their (or others') racial identities may also shed light on ways to disrupt the links between racial identity and disparate racial outcomes. Myers and Levy (2018), for example, compare how different ways of framing demographic change—e.g., as a declining White population share or an increasing non-White population share—can lead to increased levels of anxiety and anger among White study participants. Such estimation of the relationship between information shocks and racial perceptions is related to the idea of a "racial instrument," proposed in Rose (2023).[15] While Rose posits factors that may affect how a potential discriminator categorizes the race of another party, we have in mind factors that affect how much weight is placed on the race not only of others, but also of one's self. This may, then, allow the researcher to explore how one's racial identity affects their treatment of others.

There are limitations to this approach of experimentally varying the salience of racial identity. Are the effects of this kind of manipulation persistent, or more short-lived? Priming effects in the social psychology literature are known to decay (e.g. Arendt, 2013). Moreover, there is a difference between changing salience at the individual level and changing shared beliefs or equilibria regarding racial groupings. We may be interested in the individual-level change in perception of one's own race, but systemic discrimination in our model operates through a set of norms and racial ascription that are established at a more macro level, and thus may operate outside of one's self-determined racial status. Finally, drawing on theories of stratification economics, interested groups or coalitions may be particularly invested in status quo racial groupings (Chelwa, Hamilton and Stewart, 2022;

[15] Rose (2023) presents a model where one's perceived race, R_i, can vary depending on one's attributes, X_i, creating econometric challenges to identifying discrimination. Racial instruments, then, are factors that might satisfy an exclusion restriction: they create variation in perceived race, R_i, while not affecting the X_i attributes, restoring identification of racal discrimination.

Darity, 2022). This may make it hard to manipulate the salience of racial groupings in the face of sustained investment.

3.7 Strategic Responses and Resistance to Systemic Discrimination

The discussion so far, as well as many existing RCT studies of discrimination in economics, focuses either on detecting discrimination through the actions of an advantaged party or racial group, or on external interventions that mitigate its effects. Indeed, Kohler-Hausmann (2019) argues that because race is socially constructed over an extended historic period and bundled with several decision-relevant attributes, the most feasible path in the case of many RCTs is to vary the *perception* of race, which generally entails studying the decisions of an advantaged decision-maker.

A potentially underexplored aspect within the systemic framework of analysis is the set of strategic decisions made by those who are disadvantaged within a racial hierarchy. For example, while an extensive body of correspondence studies examines how employers react to so-called Black-sounding names (Neumark, 2018), much less attention has been paid to the strategic choices job applicants make about the presentation of their names in light of anticipated employer discrimination, such as the use of middle names, initials, or nicknames. In fact, this might even start at birth with how parents choose to name their child. Experimental studies, such as Rödin and Özcan (2011), vary the accent of hypothetical job candidates and measure the effect on beliefs about potential test performance. Potential candidates with thick foreign accents were perceived to have lower test scores. Of equal interest, in the U.S. context, is the ability of some—and not others— to "code switch" and speak with diction more or less identifiable with a racial minority depending on context (Anderson, 2022; Poplack, 1980). In the context of Figure 1, these types of RCTs can be thought of as manipulating the signal sent by Box 2 in anticipation of potential discrimination (Boxes 3.1 and 3.2).

Accounting for strategic responses among marginalized populations suggests several avenues for future research. First, would having knowledge about contexts in which one is more likely to be discriminated against alter one's behavior? For example, consider a labor context: Kline, Rose and Walters (2022) conduct a nationwide correspondence audit study involving over 100 top U.S. employers, sending more than 83,000 resumes. This volume allows them to not only identify whether racial or gender bias in job callbacks exists, but also to construct a typology of the companies and industries that exhibit the most discrimination. Would knowing which companies are more likely to discriminate alter the job-search behavior of those potentially discriminated against by

these employers? Kofoed and mcGovney (2019) find that West Point cadets who identify as female and/or as a racial minority group member and are randomly assigned to a same-race or same-gender mentor are more likely to choose that mentor's branch of service among occupational preferences. This suggests that people who identify with groups that have historically been discriminated against strategically choose a branch where they believe there is less discrimination because a similar person (their same-race or same-gender mentor) has gone before them and succeeded, a hypothesis well-suited for an RCT.[16]

Second, if studies can identify whether other observable traits mitigate racial discrimination, would this information alter human capital investments by those discriminated against? A related question is whether actors are more likely to take steps to combat or overcome discrimination or to become discouraged or defeatist, depending on whether the type of discrimination highlighted is direct, and therefore isolated in specific events or interactions, or systemic, and therefore diffuse and potentially more ubiquitous or robust to individual avoidance. For example, Ma et al. (2026) conduct an information-provision RCT to investigate the relationship between perceived discrimination and job search among first- and second-generation immigrants in the United States. Their results suggest that when immigrant workers perceive they are being discriminated against, for example, with lower pay, they intensify their job search activities, suggesting a strategic response to leave the discriminatory employer in search of a better opportunity. That is, immigrants do not seem to take on a defeatist attitude.

Lastly, how might exposure to discrimination affect one's beliefs about discrimination and the extent to which it is systemic in nature? Does exposure to discrimination increase one's own preference for in-group members? Are those who are subject to discrimination on a regular basis as effective in detecting biased actors as correspondence or audit studies? As a demonstration of the potential of this line of inquiry, the previously discussed RCT proposal by Alsan, Jones and Yang (2021) involves priming the salience of racial discrimination in one domain (law enforcement) and measuring spillovers to behavior by racial minorities in other domains (health care). Importantly, the study focuses on the beliefs and strategic behaviors of those being discriminated against, and on whether correlations in beliefs about discrimination across different domains are informative about perceptions of the systemic nature of that discrimination.

These examples, however, could be framed as a response to direct discrimination, rather than

[16]This study is not an RCT in our strict sense of the definition because the randomization was incidental and not done as a part of a planned study methodology, but could inform design of future RCTs.

documenting how agents respond to what we have referred to as systemic discrimination. Responses to systemic discrimination could also consider the norms that emerge over time that can link past discrimination to present disparities (recall Figure 1). In response to these systemic forces, people may take actions to produce counter-narratives that combat negative stereotypes (Steele, 2011). Such examples include political campaigns or media initiatives aimed at shifting social norms or perceptions of a particular group. Here, again, we may find RCTs at a disadvantage in simulating or implementing variation in information or messaging on the scale of an actual political or media campaign.

4 Addressing Methodological Limitations

Throughout this paper, we have touched on several potential limitations of RCTs for studying systemic discrimination. In light of these limitations, we ultimately believe that while RCTs do have much to offer in learning about systemic discrimination, a complete understanding of these dynamics will also require a broader methodological approach, including theory, less-clean forms of identification, methods from other fields, and different ways of thinking more generally. We offer some examples below.

First, we have in mind lessons from work on stratification economics. Mason (2023), in his book-length analysis of racial inequality in the U.S., argues that historical context and analysis are an integral part of understanding long-standing and persistent racial differences. This is echoed in Lefebvre's (2025) review of Mason's work and overview of the field of stratification economics. In that essay, he points out a number of ways that deviation from disciplinary norms within economics might aid in the study of racial inequality. In the stratification economics approach, a key unit of observation is at the racial group level, where strategic interactions result in unequal distribution of group-level advantages and disadvantages. This stands in contrast to the common approach in economics to base analysis at the individual decision-making level. Lefebvre (2025) also advocates for a form of disciplinary robustness. This involves being generally open to importing lessons on racial inequality from other fields and, by extension, to methods less common in economics.

Second, as is the case generally, theory has an important role to play in the study of systemic discrimination.[17] For example, Charles and Guryan (2008) were motivated by the theoretical prediction from the taste-based discrimination framework that discrimination is determined by prejudice

[17]The importance of theory for the design of RCTs and experiments more broadly has been argued extensively before (e.g., Smith, 1976, 1989; Duflo, Glennerster and Kremer, 2007).

of the marginal employer. They find that one-quarter of the racial wage gap is due to prejudice, with nontrivial consequences for Black lifetime earnings. A second example is the work of Kearney and Levine (2026), who in a different setting—that of widespread declines in fertility—argue that theory and careful inspection of demographic trends may be as important, if not more effective, in learning about the mechanisms that may be at play. Like their setting, key features of our model of systemic discrimination—for example, norms and institutions—are likely to evolve over time and be better analyzed as changes across cohorts than as average behavior at a point-in-time. So, careful techniques of observational data analysis guided by theory are likely necessary to complement RCTs to study systemic discrimination.

Thirdly, we point to various scholars who have underscored the fact that race is an endogenously determined social construct, not naturally derived from biology or phenotype (e.g. Spriggs, 2020). Under this well-supported, constructivist view, much of economics research, which implicitly treats race as exogenous, may overlook important historical contexts in the formation and evolution of racial groupings that precede the analysis of current racial inequality. This often overlooked context also plays a role in determining the perception of any one individual's race for a given set of racial groupings. Rose (2023) amends common approaches to studying direct discrimination to allow for the fact that perceived race, say R_i, may be endogenously affected by other attributes, say X_i.[18] However, there remains the issue of causality in the other direction, that one's socially ascribed, not just perceived, race affects other attributes X_i, or more simply that they are jointly determined.

Kohler-Hausmann (2019) draws out these implications to further argue that defining discrimination as a counterfactual outcome for someone if they were a member of a different racial group, but otherwise identical, is fundamentally incompatible with a constructivist view of race. Her critiques complicate all uses of counterfactual comparisons to study discrimination, including RCTs of direct discrimination and even the case of our "forbidden" RCT mentioned above. To see this, note that among the animating forces that kick off our model of systemic racism in Figure 1 is the construction of racial groups themselves. In the counterfactual case of no systemic racism, those racial categories would cease to exist as they are now constituted, and, as such, comparisons across these racial groups are no longer well-defined.[19] Kohler-Hausmann (2019) instead frames racial

[18] Rose (2023) presents a model where one's perceived race, R_i, can vary depending on one's attributes, X_i, creating econometric challenges to identifying discrimination. A solution involves employing instruments that create variation in perceived race, R_i, while not affecting the X_i attributes, restoring identification of racial discrimination.

[19] In the model of Bohren, Hull and Imas (2025) of total and systemic discrimination, imagine two individuals, who are members of different racial groups, say R_0, but who have the same baseline qualifications, X_0. Both the racial group and attribute are set at the onset of the "subsystem" that is studied, and, after passing through a number of nodes, differences may emerge between these groups. However, if racial groups, R, are assigned at some node *within*

discrimination as a "thick" ethical concept, requiring not just an account of differential treatment or outcomes across racial groups, but contention with the complex social, cultural, and institutional origins of the very racial groups themselves and the constituent parts of the system in which they exist. This involves tools beyond that of an RCT, including moral reasoning regarding why differential treatment of particular characteristics might be wrong.

A key example offered by Kohler-Hausmann (2019) is particularly relevant to correspondence studies of racial discrimination. The goal of correspondence studies is to present two cases that are, but for their race R_i, identical in all other attributes, X_i, and then measure how they are treated. A key challenge emerges when the attribute X_i is allocated along racial lines or is itself racialized. Consider two resumes with different names to signal race, but similar levels of high school educational attainment. Would an employer interpret the quality of high school differently for members of different racial groups, given extant patterns of racial segregation or beliefs about the quality of predominately black high schools? Suppose instead, to overcome this type of issue, the resumes feature a college degree from the same exact prestigious institution, one more commonly attended by White students than by Black students. If an employer understands that it takes much more effort for a Black candidate to have graduated from that institution, given the segregated nature of high schools, might they draw more positive inference regarding that candidate's unobservable attributes? In both cases, the null hypothesis of equal callback rates for such resumes may be inappropriate in complex and nuanced ways. In general, Kohler-Hausmann's (2019) essay raises important tensions between a constructivist view of race and common approaches to studying discrimination using randomization.

5 Concluding Thoughts

RCTs have played a major role in the study of direct racial discrimination. A natural question, then, is whether RCTs also have an important and underutilized capacity to advance both our understanding of systemic discrimination and the effectiveness of policy interventions designed to mitigate the resulting intergenerational harms. While scale or ethical considerations limit the ability of RCTs to speak to some circumstances, we believe there is an important role for RCTs in informing the existing, much broader literature on discrimination both within and outside economics (Small and Pager, 2020). Complementing this point, it is also clear that the existing literature on racial disparities

the system itself, there is no longer an obvious, ex-ante racial grouping to be used in measuring discrimination. In this case, race has been allowed to be endogenous, or socially constructed.

using RCTs can benefit from a more fulsome consideration of the role of systemic discrimination.

We believe this work makes three central contributions to the literature. First, we combine several existing theories of systemic discrimination into a functional model (Figure 1) that can easily be applied in both RCTs and quasi-experimental empirical papers. Second, we aim to capture the relatively small set of RCTs that address systemic discrimination, either directly or indirectly. These papers, in part, form the basis of our third contribution, which is to articulate considerations for designing RCTs to advance our understanding of systemic discrimination. That is, we discuss the feasibility, strengths, and weaknesses of different RCT approaches.

Ultimately, the very features that make RCTs powerful—such as their controlled scope, relatively short time horizons, and focus on marginal variation—also limit their ability to capture phenomena defined by historical accumulation, systemic spillovers, and equilibrium-level social structures. Systemic discrimination is not a single treatment to be turned on or off, but a dynamic process embedded in institutions, norms, and feedback loops that unfold over generations. As such, the most productive path forward is not to stretch RCTs beyond their natural domain, but to embed them within a broader methodological toolkit that includes theory, quasi and natural experiments, historical analysis, observational data, and interdisciplinary insight.

References

Aaronson, Daniel, Daniel Hartley, and Bhashkar Mazumder. 2021. "The Effects of the 1930s HOLC "Redlining" Maps." *American Economic Journal: Economic Policy*, 13(4): 355–392.

Agan, Amanda, and Sonja Starr. 2017. "The Effect of Criminal Records on Access to Employment." *American Economic Review*, 107(5): 560–564.

Agan, Amanda Y. 2024. "Racial disparities in the criminal legal system: Shadows of Doubt and beyond." *Journal of Economic Literature*, 62(2): 761–806.

Alesina, Alberto, Matteo F. Ferroni, and Stefanie Stantcheva. 2021. "Perceptions of Racial Gaps, their Causes, and Ways to Reduce Them."

Alexander, Sadie T. M. 2021. *Democracy, Race, and Justice: The Speeches and Writings of Sadie T. M. Alexander.* Yale University Press.

Ali, Omer. 2026. "The Impact of Federal Housing Policies on Racial Inequality: the case of the Federal Housing Administration."

Ali, Omer, Nicholas Datto, Pei Yi Zhuo, Clinton Boyd, and William A. Darity. 2026. "Race and home values in Durham, North Carolina: 1940–2020." *Regional Science and Urban Economics*, 118: 104205.

Allport, G.W. 1954. *The Nature of Prejudice.* Addison-Wesley Publishing Company.

Alsan, Marcella, and Marianne Wanamaker. 2017. "Tuskegee and the Health of Black Men." *The Quarterly Journal of Economics*, 133(1): 407–455.

Alsan, Marcella, Damon Jones, and Crystal Yang. 2021. "Identifying and Addressing Structural Racism." American Economic Association, RCT Registry.

Alsan, Marcella, Owen Garrick, and Grant Graziani. 2019. "Does Diversity Matter for Health? Experimental Evidence from Oakland." *American Economic Review*, 109(12): 4071–4111.

Alston, Mackenzie, William A Darity, Catherine C Eckel, Lawrence McNeil, and Rhonda Sharpe. 2022. "The effect of stereotypes on black college test scores at a historically black university." *Journal of Economic Behavior & Organization*, 194: 408–424.

Anderson, Elijah. 2022. *Black in White Space: The Enduring Impact of Color in Everyday Life.* Chicago, IL:University of Chicago Press.

Anderson, Terry, and Dean Lueck. 1992. "Land Tenure and Agricultural Productivity on Indian Reservations." *Journal of Law and Economics*, 35(2).

Arendt, Florian. 2013. "News Stereotypes, Time, and Fading Priming Effects." *Journalism & Mass Communication Quarterly*, 90(2): 347–362.

Arrow, Kenneth. J. 1972. *Models of job discrimination.* Lexington Books, MA: D.C. Health:Racial discrimination in economic life edited by Anthony Pascal.

Austen-Smith, David, and Roland G. Fryer. 2005. "An Economic Analysis of "Acting White"." *The Quarterly Journal of Economics*, 120(2): 551–583.

Ayesh, Abubakr, Donn Feir, Rob Gillezeau, Maggie Jones, and Sam Shipley. 2025. "Assimilative Education Policy and Indigenous Peoples in Canada, 1900-1939."

Banaji, Mahzarin R., and Anthony G. Greenwald. 2013. "Implicit stereotyping and prejudice." In *The psychology of prejudice*. 55–76. Psychology Press.

Banaji, Mahzarin R., Susan T. Fiske, and Douglas S. Massey. 2021. "Systemic racism: individuals and interactions, institutions and society." *Cognitive Research: Principles and Implications*, 6(1): 82.

Banerjee, Abhijit V., and Esther Duflo. 2009. "The Experimental Approach to Development Economics." *Annual Review of Economics*, 1(Volume 1, 2009): 151–178.

Baron, E Jason, Joseph J Doyle, Jr, Natalia Emanuel, Peter Hull, and Joseph Ryan. 2024. "Discrimination in Multiphase Systems: Evidence from Child Protection." *The Quarterly Journal of Economics*, 139(3): 1611–1664.

Barron, F Laurie. 1988. "The Indian pass system in the Canadian west, 1882-1935." Vol. 13, 25–42.

Becker, Gary S. 1971. *The Economics of Discrimination.* . 2 ed., Chicago:University of Chicago Press.

Bergman, Peter, Raj Chetty, Stefanie DeLuca, Nathaniel Hendren, Lawrence F. Katz, and Christopher Palmer. 2024. "Creating Moves to Opportunity: Experimental Evidence on Barriers to Neighborhood Choice." *American Economic Review*, 114(5): 1281–1337.

Bertrand, Marianne, and Esther Duflo. 2017. "Field experiments on discrimination." *Handbook of economic field experiments*, 1: 309–393.

Bertrand, Marianne, and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *American Economic Review*, 94(4): 991–1013.

Bertrand, Marianne, Dolly Chugh, and Sendhil Mullainathan. 2005. "Implicit Discrimination." *American Economic Review*, 95(2): 94–98.

Bettinger, Eric P., and Brent J. Evans. 2019. "College Guidance for All: A Randomized Experiment in Pre-College Advising." *Journal of Policy Analysis and Management*, 38(3): 579–599. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/pam.22133.

Billings, Stephen B., Eric Chyn, and Kareem Haggag. 2021. "The Long-Run Effects of School Racial Diversity on Political Identity." *American Economic Review: Insights*, 3(3): 267–284.

Bohren, J. Aislinn, Kareem Haggag, Alex Imas, and Devin G. Pope. 2025. "Inaccurate Statistical Discrimination: An Identification Problem." *Review of Economics and Statistics*, 107(3): 605–620.

Bohren, J Aislinn, Peter Hull, and Alex Imas. 2025. "Systemic Discrimination: Theory and Measurement." *The Quarterly Journal of Economics*, 140(3): 1743–1799.

Bonilla-Silva, Eduardo. 2021. "What Makes Systemic Racism Systemic?" *Sociological Inquiry*, 91(3): 513–533.

Carlson, Leonard A. 1981. *Indians, bureaucrats, and land: the Dawes act and the decline of Indian farming.* Greenwood Press.

Carpenter, Jeffrey, Jakina Debnam Guzman, Peter Hans Matthews, and Erin L. Wolcott. 2025*a*. "Can Incorrect Beliefs about the Racial Composition of Welfare and Unemployment Insurance Beneficiaries Be Changed?" *AEA Papers and Proceedings*, 115: 445–450.

Carpenter, Jeffrey, Jakina Debnam Guzman, Peter Hans Matthews, and Erin L. Wolcott. 2025*b*. "Does racial animus undermine support for the US Social Safety Net?"

Chan, Alex. 2024. "Discrimination Against Doctors: A Field Experiment."

Chan, Jeff, Azim Essaji, and Rob Gillezeau. 2025. "Railroads, Market Access, and Indigenous Land Dispossession." *Available at SSRN 5421538*.

Charles, Kerwin Kofi, and Jonathan Guryan. 2008. "Prejudice and Wages: An Empirical Assessment of Becker's The Economics of Discrimination." *Journal of Political Economy*, 116(5): 773–809.

Charles, Kerwin Kofi, and Jonathan Guryan. 2011. "Studying Discrimination: Fundamental Challenges and Recent Progress." *Annual Review of Economics*, 3(Volume 3, 2011): 479–511.

Chelwa, Grieve, Darrick Hamilton, and James Stewart. 2022. "Stratification economics: Core constructs and policy implications." *Journal of Economic Literature*, 60(2): 377–399.

Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz. 2016. "The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment." *American Economic Review*, 106(4): 855–902.

Christensen, Peter, Ignacio Sarmiento-Barbieri, and Christopher Timmins. 2021. "Racial discrimination and housing outcomes in the United States rental market." National Bureau of Economic Research.

Correll, Joshua, Bernadette Park, Charles M. Judd, Bernd Wittenbrink, Melody S. Sadler, and Tracie Keesee. 2007. "Across the thin blue line: police officers and racial bias in the decision to shoot." *Journal of Personality and Social Psychology*, 92(6): 1006–1023.

Cotton, Christopher S., Brent R. Hickman, and Joseph P. Price. 2022. "Affirmative Action and Human Capital Investment: Evidence from a Randomized Field Experiment." *Journal of Labor Economics*, 40(1): 157–185.

Cullen, Zoë, Will Dobbie, and Mitchell Hoffman. 2023. "Increasing the Demand for Workers with a Criminal Record." *The Quarterly Journal of Economics*, 138(1): 103–150.

Darity, William A. 1982. "The Human Capital Approach to Black-White Earnings Inequality: Some Unsettled Questions." *The Journal of Human Resources*, 17(1): 72–93.

Darity, William A. 2022. "Position and Possessions: Stratification Economics and Intergroup Inequality." *Journal of Economic Literature*, 60(2): 400–426.

Darity, William A., and A. Kirsten Mullen. 2022. *From Here to Equality: Reparations for Black Americans in the Twenty-First Century.* . 2nd ed., Chapel Hill:University of North Carolina Press.

Darity, William A., Jr., and Samuel L. Myers, Jr. 1994. *The black underclass : critical essays on race and unwantedness. Critical studies on black life and culture*, New York [u.a.] : Garland.

Darity, William A., Jr., and Samuel L. Myers, Jr. 1998. *Persistent Disparity: Race and Economic Inequality in the United States since 1945.* Cheltenham, England:Edward Elgar Publishing.

Deaton, Angus. 2010. "Instruments, Randomization, and Learning about Development." *Journal of Economic Literature*, 48(2): 424–455.

Dee, Thomas S. 2004. "Teachers, race, and student achievement in a randomized experiment." *Review of economics and statistics*, 86(1): 195–210.

Derenoncourt, Ellora, Chi Hyun Kim, Moritz Kuhn, and Moritz Schularick. 2024. "Wealth of Two Nations: The U.S. Racial Wealth Gap, 1860–2020." *The Quarterly Journal of Economics*, 139(2): 693–750.

Dippel, Christian. 2014. "Forced Coexistence and Economic Development: Evidence From Native American Reservations: Forced Coexistence and Economic Development." *Econometrica*, 82(6): 2131–2165.

Dube, Oeindrila, Sandy Jo MacArthur, and Anuj K. Shah. 2025. "A cognitive view of policing." *The Quarterly Journal of Economics*, 140(1): 745–791.

Duflo, Esther, Rachel Glennerster, and Michael Kremer. 2007. "Using randomization in development economics research: A toolkit." *Handbook of development economics*, 4: 3895–3962.

Ewens, Michael, Bryan Tomlin, and Liang Choon Wang. 2014. "Statistical discrimination or prejudice? A large sample field experiment." *Review of Economics and Statistics*, 96(1): 119–134.

Ewing, Eve L. 2020. *Ghosts in the Schoolyard: Racism and School Closings on Chicago's South Side.* Chicago, IL:University of Chicago Press.

Feir, Donna L. 2016. "The long-term effects of forcible assimilation policy: The case of Indian boarding schools." *Canadian Journal of Economics/Revue canadienne d'économique*, 49(2): 433–480.

Feir, Donn L., Rob Gillezeau, and Maggie EC Jones. 2023. "Institutional drift, property rights, and economic development: Evidence from historical treaties." National Bureau of Economic Research.

Fishback, Price V., Jessica LaVoice, Allison Shertzer, and Randall P. Walsh. 2023. "The HOLC Maps: How Race and Poverty Influenced Real Estate Professionals' Evaluation of Lending Risk in the 1930s." *The Journal of Economic History*, 83(4): 1019–1056.

Francis, Dania V., Angela CM de Oliveira, and Carey Dimmitt. 2019. "Do School Counselors Exhibit Bias in Recommending Students for Advanced Coursework?" *The B.E. Journal of Economic Analysis & Policy*, 19(4): 1–17.

Francis, Dania V., Angela C. M. de Oliveira, and Carey Dimmitt. 2024. "What's in a Name? Can Name-Blind Evaluation Reduce Bias in AP Course Recommendation?" *AEA Papers and Proceedings*, 114: 205–209.

Francis, Dania V., Bradley L. Hardy, and Damon Jones. 2022. "Black Economists on Race and Policy: Contributions to Education, Poverty and Mobility, and Public Finance." *Journal of Economic Literature*, 60(2): 454–493.

Friedman, Milton, et al. 1953. "Essays in positive economics." Chapter The methodology of positive economics, 145–178. University of Chicago Press.

Gelman, Andrew, Jennifer Hill, and Aki Vehtari. 2020. *Regression and Other Stories. Analytical Methods for Social Research*, Cambridge University Press.

Glover, Dylan, Amanda Pallais, and William Pariente. 2017. "Discrimination as a Self-Fulfilling Prophecy: Evidence from French Grocery Stores." *The Quarterly Journal of Economics*, 132(3): 1219–1260.

Goff, Phillip Atiba, Claude M Steele, and Paul G Davies. 2008. "The space between us: stereotype threat and distance in interracial contexts." *Journal of personality and social psychology*, 94(1): 91.

Gorzig, Marina Mileo, and Deborah Rho. 2022. "The effect of the 2016 United States presidential election on employment discrimination." *Journal of Population Economics*, 35(1): 45–88.

Haaland, Ingar, and Christopher Roth. 2023. "Beliefs about Racial Discrimination and Support for Pro-Black Policies." *Review of Economics and Statistics*, 105(1): 40–53.

Harris, Cheryl I. 1993. "Whiteness as Property." *Harvard Law Review*, 106(8): 1707–1791.

Harrison, Glenn W., and John A. List. 2004. "Field experiments." *Journal of Economic literature*, 42(4): 1009–1055.

Heckman, James, Seong Hyeok Moon, Rodrigo Pinto, and Adam Yavitz. 2010. "Analyzing social experiments as implemented: A reexamination of the evidence from the HighScope Perry Preschool Program." *Quantitative Economics*, 1(1): 1–46.

Hinton, Elizabeth. 2021. "Policing social unrest and collective violence." *Science*, 374(6565): 272–274.

Hutchings, Vincent L., and Ashley E. Jardina. 2009. "Experiments on Racial Priming in Political Campaigns." *Annual Review of Political Science*, 12(Volume 12, 2009): 397–402.

Hwang, Monica. 2017. "Ethnicity and Political Trust in Canada." *The Canadian Journal of Sociology / Cahiers canadiens de sociologie*, 42(1): 23–54.

Imbens, Guido W. 2010. "Better LATE Than Nothing: Some Comments on Deaton (2009) and Heckman and Urzua (2009)." *Journal of Economic Literature*, 48(2): 399–423.

Imbens, Guido W. 2014. "Instrumental Variables: An Econometrician's Perspective." *Statistical Science*, 29(3): 323–358.

Jones, Maggie EC. 2024. "The intergenerational legacy of Indian residential schools." *Demography*, 61(6): 1871–1895.

Katz, Lawrence F., Lisa Sanbonmatsu, Jens Ludwig, Lisa A. Gennetian, Greg J. Duncan, Ronald C. Kessler, Emma K. Adam, Thomas McDade, and Stacy T. Lindau. 2011. "Moving to opportunity for fair housing demonstration program: Final impacts evaluation." *US Dept of Housing and Urban Development*.

Kearney, Melissa S., and Phillip B. Levine. 2026. "Why Is Fertility So Low in High-Income Countries?" *Journal of Economic Literature*.

Kessler, Judd B., Corinne Low, and Colin D. Sullivan. 2019. "Incentivized Resume Rating: Eliciting Employer Preferences without Deception." *American Economic Review*, 109(11): 3713–3744.

Kline, Patrick, Evan K. Rose, and Christopher R. Walters. 2022. "Systemic discrimination among large US employers." *The Quarterly Journal of Economics*, 137(4): 1963–2036.

Kling, Jeffrey R., Jeffrey B. Liebman, and Lawrence F. Katz. 2007. "Experimental Analysis of Neighborhood Effects." *Econometrica*, 75(1): 83–119.

Kofoed, Michael S., and Elizabeth mcGovney. 2019. "The Effect of Same-Gender or Same-Race Role Models on Occupation Choice: Evidence from Randomly Assigned Mentors at West Point." *Journal of Human Resources*, 54(2): 430–467.

Kohler-Hausmann, Issa. 2019. "Eddie Murphy and the dangers of counterfactual causal thinking about detecting racial discrimination." *Nw. UL Rev.*, 113: 1163.

Kuhn, Thomas S. 1977. "A Function for Thought Experiments." In *The essential tension : selected studies in scientific tradition and change*. 240–265. Chicago, IL:Chicago : University of Chicago Press.

Lai, Calvin K., and Jaclyn A. Lisnek. 2023. "The Impact of Implicit-Bias-Oriented Diversity Training on Police Officers' Beliefs, Motivations, and Actions." *Psychological Science*, 34(4): 424–434.

Lala, Kevin N., and Marcus W. Feldman. 2024. "Genes, culture, and scientific racism." *Proceedings of the National Academy of Sciences*, 121(48): e2322874121.

Lang, Kevin, and Ariella Kahn-Lang Spitzer. 2020. "Race discrimination: An economic perspective." *Journal of Economic Perspectives*, 34(2): 68–89.

Lang, Kevin, and Jee-Yeon K. Lehmann. 2012. "Racial Discrimination in the Labor Market: Theory and Empirics." *Journal of Economic Literature*, 50(4): 959–1006.

Lanning, Jonathan A. 2013. "Opportunities Denied, Wages Diminished: Using Search Theory to Translate Audit-Pair Study Findings into Wage Differentials." *The B.E. Journal of Economic Analysis & Policy*, 13(2): 921–958.

Lefebvre, Stephan. 2025. "A Review Essay of The Economics of Structural Racism by Patrick Mason." *Journal of Economic Literature*, 63(3): 1011–1037.

Leonard, Bryan, Dominic P. Parker, and Terry L. Anderson. 2020. "Land quality, land rights, and indigenous poverty." *Journal of Development Economics*, 143: 102435.

List, John A. 2011. "Why Economists Should Conduct Field Experiments and 14 Tips for Pulling One Off." *Journal of Economic Perspectives*, 25(3): 3–16.

Loury, Glenn C. 2019. "Why does racial inequality persist? Culture, causation, and responsibility." *Manhattan Institute Essay*, 1–16.

Maeder, Evelyn M., Susan Yamamoto, and Laura A. McManus. 2015. "Race salience in Canada: Testing multiple manipulations and target races." *Psychology, Public Policy, and Law*, 21(4): 442–451.

Mason, Patrick L. 2023. *The economics of structural racism: Stratification economics and US labor markets.* Cambridge University Press.

Ma, Zhangchi, Arnaud Maurel, Angelino Viceisza, and Daniel Xu. 2026. "Perceived Labor Market Discrimination and Job Search among U.S. First- and Second-Generation Immigrants." In Progress.

McMillon, David B. 2024. "What Makes Systemic Discrimination, "Systemic?" Exposing the Amplifiers of Inequity." *Papers*.

Michney, Todd M. 2022. "How the City Survey's Redlining Maps Were Made: A Closer Look at HOLC's Mortgagee Rehabilitation Division." *Journal of Planning History*, 21(4): 316–344.

Miller, Grant, Jack Shane, and C. Matthew Snipp. 2025. "The impact of US assimilation and allotment policy on American Indian mortality." *Proceedings of the National Academy of Sciences of the United States of America*, 122(28): e2418836122.

Muralidharan, Karthik, and Paul Niehaus. 2017. "Experimentation at scale." *Journal of Economic Perspectives*, 31(4): 103–124.

Murchie, Judson, Jindong Pang, and David J. Schwegman. 2021. "Can information help Lakisha and Jamal find housing? Evidence from a low-cost online experiment of landlords." *Regional Science and Urban Economics*, 90: 103712.

Myers, Dowell, and Morris Levy. 2018. "Racial Population Projections and Reactions to Alternative News Accounts of Growing Diversity." *The ANNALS of the American Academy of Political and Social Science*, 677(1): 215–228.

Neumark, David. 2018. "Experimental research on labor market discrimination." *Journal of Economic Literature*, 56(3): 799–866.

Okafor, Chika O. 2025. "Seeing Through Color Blindness: Social Networks as a Mechanism for Discrimination." *The Journal of Law and Economics*, 68(3): 519–560.

Phelps, Edmund S. 1972. "The Statistical Theory of Racism and Sexism." *The American Economic Review*, 62(4): 659–661.

Poplack, Shana. 1980. "Sometimes I'll start a sentence in Spanish y termino en español: toward a typology of code-switching." *Linguistics*, 18: 581–618.

Quillian, Lincoln, Devah Pager, Ole Hexel, and Arnfinn H Midtbøen. 2017. "Meta-analysis of field experiments shows no change in racial discrimination in hiring over time." *Proceedings of the National Academy of Sciences*, 114(41): 10870–10875.

Rehavi, M Marit, and Sonja B Starr. 2014. "Racial disparity in federal criminal sentences." *Journal of Political Economy*, 122(6): 1320–1354.

Robertson, Christopher, Shima Baradaran Baughman, and Megan S Wright. 2019. "Race and class: A randomized experiment with prosecutors." *Journal of Empirical Legal Studies*, 16(4): 807–847.

Rödin, Magnus, and Gulay Özcan. 2011. "Is It How You Look or Speak That Matters? "An Experimental Study Exploring the Mechanisms of Ethnic Discrimination"." *Working Papers*. Number: 009.

Roediger, David R. 2005. *Working Toward Whiteness: How America's Immigrants Became White: The Strange Journey from Ellis Island to the Suburbs.* Basic Books.

Rose, Evan K. 2023. "A Constructivist Perspective on Empirical Discrimination Research." *Journal of Economic Literature*, 61(3): 906–923.

Saini, Angela. 2019. *The return of race science.* Boston:Beacon Press.

Small, Mario L., and Devah Pager. 2020. "Sociological perspectives on racial discrimination." *Journal of Economic Perspectives*, 34(2): 49–67.

Smith, Vernon L. 1976. "Experimental Economics: Induced Value Theory." *American Economic Review*, 66(2): 274–279.

Smith, Vernon L. 1989. "Theory, Experiment and Economics." *Journal of Economic Perspectives*, 3(1): 151–169.

Sorkin, Isaac. 2025. "Quantifying Racial Disparities Using Consecutive Employment Spells."

Spriggs, William. 2020. "Is now a teachable moment for economists." *Federal Reserve Bank of Minneapolis, Minnesota*.

Steele, Claude. 2011. *Whistling Vivaldi: How Stereotypes Affect Us and What We Can Do.* WW Norton & Company.

Steele, Claude M, and Joshua Aronson. 1995. "Stereotype threat and the intellectual test performance of African Americans." *Journal of personality and social psychology*, 69(5): 797.

Thompson, Marissa E., and Sam Trejo. 2024. "My School District Isn't Segregated: Experimental Evidence on the Effect of Information on Parental Preferences Regarding School Segregation." *Sociology of Education*, 97(2): 97–119.

White, Ismail K. 2007. "When Race Matters and When It Doesn't: Racial Group Differences in Response to Racial Cues." *American Political Science Review*, 101(2): 339–354.

Wilkerson, Isabel. 2020. *Caste: the origins of our discontents.* New York:Random House.

Worden, Robert E., Cynthia J. Najdowski, Sarah J. McLean, Kenan M. Worden, Nicholas Corsaro, Hannah Cochran, and Robin S. Engel. 2024. "Implicit bias training for police: Evaluating impacts on enforcement disparities." *Law and Human Behavior*, 48(5-6): 338–355.

Yudell, Michael, Dorothy Roberts, Rob DeSalle, and Sarah Tishkoff. 2016. "Taking race out of human genetics." *Science*, 351(6273): 564–565.