

# Systemic Discrimination: Theory and Measurement

Based on BFI Working Paper 2022-53, “[Systemic Discrimination: Theory and Measurement](#),”

by Aislinn Bohren, University of Pennsylvania; Peter Hull, Brown University; and Alex Imas, Chicago Booth

*This paper introduces new techniques through which economics can better measure discrimination, by incorporating systemic factors into the science’s conventional focus on direct discrimination by individuals.*

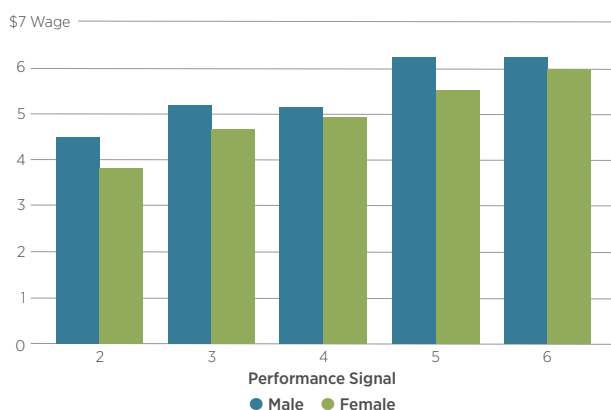
Economics typically views discrimination as a direct action by an individual. A recruiter, for example, may discriminate against women relative to men with similar resumes when searching for candidates to fill a position. Economic tools are then applied to study this phenomenon and to determine effects on labor, firms, and the broader economy, among many other issues.

However, that is likely not the whole story. Sociologists and computer scientists often look beyond direct discrimination to study systemic

factors driving group-based disparities. Systemic discrimination consists, for example, of attitudes, policies, or practices that are part of a social or administrative structure, as well as past or concurrent actions in other domains, that create or perpetuate a position of relative disadvantage for certain groups.

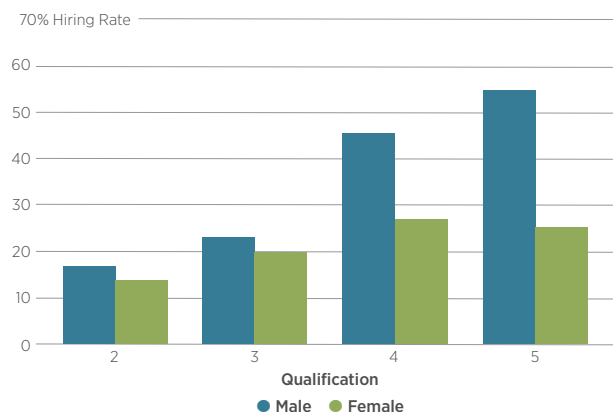
To illustrate the limits of solely focusing on direct discrimination, the authors consider an example based on our discriminating recruiter mentioned above. Imagine that this recruiter

**Figure 1 • Signal Inflation: Recruiter Wage Offers by Worker Gender and Signal**



Note: This Figure illustrates direct discrimination by Recruiters in the authors’ first experiment, plotting average wage offers by Worker gender and Task A performance. Recruiter discrimination is similar across different performance signals. While higher signals lead to higher wage offers, there is a persistent wage gap between male and female Workers. The direct discrimination represented in this Figure can be viewed as a measure of institutional discrimination among the “firm” of experimental Recruiters.

**Figure 2 • Screening: Manager Hiring Rates by Worker Gender and Qualification**



Note: This Figure shows hiring rates by Worker gender and their Task A performance in the authors’ second experiment. While the discrepancy in hiring rates is relatively small for low performance levels, it increases substantially at high performance: the gender gap in hiring rates increases from 5 to 27 percentage points from the lowest to the highest Task A performance levels.

gives female candidates lower wage offers than male candidates with identical qualifications; this is direct discrimination. After workers are hired, a manager makes promotion decisions based on performance and salary histories. Unless the manager considers and adjusts for the recruiter's discrimination, seemingly non-discriminatory (even gender-neutral) promotion rules will lead to worse outcomes for female workers. This is systemic discrimination. In other words, even if the manager does not directly discriminate against female workers conditional on their work histories, female workers will be systemically disadvantaged because they have systematically lower salaries due to past discrimination.

Other examples illustrate how systemic discrimination can emerge due to differences in the precision of information available about different candidates (for example, if Black candidates are hired for a summer internship at a lower rate than white candidates, then they have fewer opportunities to signal their skills for future employment), differences in the interpretability of information (for example, if women are excluded from a medical trial then diagnostic procedures will be optimized for men relative to women), and differences in the opportunity to build human capital (for example, if Black candidates typically attend lower quality schools than white applicants, then they have less opportunity to build skills for future employment).

Per these examples, measures of discrimination that do not include systemic factors are incomplete. To address this gap, this work formalizes a definition of total discrimination and decomposes this measure into direct and systemic components. This decomposition motivates the development of new econometric tools to identify each component. The authors apply these tools to hiring experiments, which show how conventional methods of studying direct discrimination can underestimate total discrimination and mask important heterogeneity in systemic discrimination across different performance levels in practice (see accompanying Figures).

Policymakers take note: The development of robust econometric methods for measuring systemic and total discrimination can be a powerful complement to existing regulatory tools. By enriching policymakers' understanding of dynamics and heterogeneity within and across different domains, such theoretical and empirical advancements can improve policy making and equity in labor markets, housing, criminal justice, education, healthcare, and other areas.

#### READ THE WORKING PAPER

NO. 2022-53 · APRIL 2022

### **Systemic Discrimination: Theory and Measurement**

[bfi.uchicago.edu/working-paper/202253](https://bfi.uchicago.edu/working-paper/202253)

#### ABOUT OUR SCHOLAR



#### **Alex Imas**

*Assistant Professor of Behavioral Science  
and Vasiliou Faculty Scholar, Chicago Booth*

[chicagobooth.edu/faculty/directory/i/alex-imas](https://chicagobooth.edu/faculty/directory/i/alex-imas)



The University of Chicago Booth School of Business