Meritocracy and Representation

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Abstract

A standard conception of meritocracy, reflected in state referenda and the many legal filings against university admissions policies, is that selection rules should be blind to group identity and monotonic in measures of past accomplishment. We present theoretical arguments and survey empirical evidence challenging this view. Past accomplishment is often a garbled signal of multiple traits, some of which matter more for future performance than others. In such cases, group identity can be informative as a predictor of success and the increased representation of resource-disadvantaged groups could improve organizational performance. This perspective helps explain some recent empirical findings regarding the efficiency effects of group-contingent selection, and moves us towards a conception of meritocracy more closely tied to organizational mission.

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The idea of meritocracy may have many virtues, but clarity is not one of them.

Amartya Sen (2000)

1   Introduction

The under-representation of disadvantaged groups in elite universities and occupations is commonly perceived as an inevitable feature of a meritocratic society. It is argued that if scarce positions are to go to the most capable applicants, selection cannot be based on markers that are not intrinsically related to performance. Those with higher values of performance-related attributes, such as test scores or course grades, should have precedence over those with lower values, irrespective of their group membership. In other words, selection rules should have two properties: they should be *group-blind*, and the probability of being selected into sought-after positions should be *monotonic* in observable measures that are correlated with performance.

Within the United States, this reasoning has influenced multiple state referenda and court rulings that limit the use of group-conscious selection policies. For instance, California's Proposition 209 amended the state constitution in 1996 to prohibit preferential treatment to "any individual or group on the basis of race, sex, color, ethnicity, or national origin in the operation of public employment, public education, or public contracting."[1] In parallel, direct challenges to admissions policies have occurred at major universities, including the landmark *Bakke* case against the University of California in 1978, and the *Grutter* judgment related to law school admissions at the University of Michigan in 2003. In those cases, the Supreme Court permitted the use of race as one of many criteria for admission only when such considerations were narrowly tailored to promote diversity goals that improve the learning environment for all students.[2]

The legal position on meritocratic selection is at odds with the behavior of several public and private organizations. Candidates from constrained social or financial environments are often sought out for their untapped potential, for talent that does not make an appearance in the form of test scores or other credentials. Since school and home environments are hard to observe for individual applicants, group membership can be a useful proxy, and screening procedures often vary across identifiable groups. For example, in the 1980s, researchers at MIT found that standardized test scores systematically under-predicted the academic performance of women, even controlling for the courses taken (Behnke, 1987). The data called for a group-contingent interpre-

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[1]California Constitution, Article 1, Section 31. Other states have passed similar initiatives, including Michigan in 2006. An attempt to repeal Proposition 209 was defeated by fourteen points in November 2020.

[2]See *Regents of University of California v. Bakke*, 438 U.S. 265 (1978) and *Grutter v. Bollinger*, 539 U.S. 306 (2003). The opinion in the former case was described by Bollinger (2003, p. 1591) as a "fragile reed" from which the constitutionality of affirmative action had been hanging. The reed was strengthened by *Grutter*, but may snap when the Court considers the constitutionality of admissions practices at Harvard in a pending case (Liptak, 2022).

tation of scores.

Prohibitions and constraints on group-contingent interpretations of prior performance have led to the adoption of admissions criteria that move away from a single quantitative threshold applied to all applicants. Top percent plans in Florida, California, and Texas guarantee admission to flagship public universities to the top students in each high school class (Daugherty et al., 2014). Several colleges and universities have also been moving away from the use of standardized test scores, a trend that accelerated dramatically, and perhaps irreversibly, in the wake of the coronavirus pandemic (Furuta, 2017; Anderson, 2020).

This paper explores the relationship between meritocratic selection and group representation in organizations. We begin in Section 2 with a brief history of the term *meritocracy*. We also clarify our own use of the term, defining it as expected performance maximization within an organization. In Section 3, we present a simple model in which an organization selects a fraction of applicants to maximize expected performance. We show that the optimal selection policy will not be monotonic or group-blind in general, and that increasing the representation of a resource-disadvantaged group can also increase expected performance under certain conditions. The value of the model lies in illustrating that the goals of improved performance and balanced representation are not always in tension with each other.

In Section 4, we survey empirical evidence on the effects of exogenous changes in selection rules. If performance-maximizing policies were indeed monotonic and group-blind, then legal or political rulings that force selection to conform to these rules by prohibiting the use of race or gender in selection decisions ought to increase performance along conventional metrics. Conversely, departures from monotonicity ought to lower performance. Several recent studies that estimate the effects of these types of changes suggest that this conventional view of meritocracy is inconsistent with the evidence. Our model helps explain why.

In Section 5, we consider situations in which performance is associated with groups or teams rather than individuals, and show how the insights from our model apply to these settings. In Section 6 we discuss current controversies regarding the relation of meritocracy to broader societal objectives. We conclude in Section 7 with some thoughts on how to reorient our conception of meritocracy to better align it with social goals and organizational mission.

2   The Meaning of Meritocracy

The term meritocracy was coined in the 1950s, with the earliest known uses in Fox (1956) and Young (1958). While the word was new, the idea itself was not. It appears in the writings of Plato and in the practices of Confucian China (Lemann, 1999). Thomas Jefferson and John Adams

debated it in 1813, with Jefferson arguing that the offices of government should be occupied by a "natural aristocracy" based on "virtue and talents" rather than "an artificial aristocracy founded on wealth and birth" (Cappon, 1959, pp. 388–390). Adams responded that any elite, once formed, would entrench itself indefinitely. Echoes of this debate continue to reverberate today.

It is easy to understand why the term arose when it did, and why it caught the public imagination. This was a time of major social changes in Britain, where competitive entry and promotion were becoming the norm in many elite professions such as the civil service and the army. The new recruitment rules were driven in part by the example of other countries and the fear of falling behind. The U.S. Army started intelligence testing during the First World War and used it to segregate men with "superior intelligence" from others. Britain followed suit in the Second World War. Education Acts followed each of the two wars, with the goal of schooling children according to their "age, ability, and aptitude" (Young, 1958, p. 27). A national exam was established called the eleven-plus, the age at which IQ was thought to stabilize. Based on their scores, students were tracked into either grammar schools leading to white-collar jobs, or vocational training (Lemann, 1999, pp. 115-116).

There was understandable concern about the new forms of stratification that accompanied these changes. Fox (1956) argued that if some people were deemed to be meritorious, it was inevitable that society would eventually be divided "into the blessed and the unblessed." While recognizing that some degree of differentiation may be necessary to facilitate rapid economic progress, he argued that it is "not self-evident that an aristocracy based on accidents of personal endowment and abilities is morally superior to an aristocracy based on the accident of birth."

Young's view of meritocracy is not easily inferred from his essay, an unusual blend of sociology and satire. Freely merging historical fact and futuristic fiction, he described the emergence, perfection, and eventual collapse under populist revolt of a society in which social position and compensation were based on ability and effort rather than birth. His key argument against meritocracy was this: "If the rich and powerful were encouraged by the general culture to believe that they fully deserved all they had, how arrogant they could become, and, if they were convinced it was all for the common good, how ruthless in pursuing their own advantage" (Young, 1994, p. xvi).

Even as Fox and Young were bringing into usage a term that would prove to be exceptionally fertile, Hannah Arendt was writing about the phenomenon itself, the emerging "establishment of an oligarchy, this time not of wealth or of birth but of talent" (Arendt, 1958, p. 499). In a revised and expanded version of her essay published just three years later, she would write: "Meritocracy contradicts the principle of equality... no less than any other oligarchy" (Arendt, 1961, p. 180).

Over the course of the second half of the twentieth century, these largely negative and often scathing assessments of meritocracy gave way to positive ones. As Littler (2018, p. 43) explains,

the term "gradually and dramatically shifted in its meaning and value... from a negative, disparaging criticism of an embryonic system of state organisation which was creating problematic new hierarchies... to a positive, celebratory term, one connecting competitive individualism and 'talent' with a belief in the desirability and possibility of social mobility." This view of meritocracy as a system to which societies should aspire finds powerful expression in Wooldridge (2021).[3]

These writings were valuable commentaries on the shifting sources of income and status inequality, but they did not address important questions related to the measurement of merit. Elite universities that set themselves the task of selecting the "deserving and exceptional" encountered the problem of how this pool of students should be identified.[4] Are people deserving or capable in some general sense, or only in relation to particular roles in society? Should deservingness be based on past achievements, or expectations about the future? And if a lack of opportunity has limited achievements in the past, can group-contingent assignment criteria better identify valuable candidates? Organizations asked themselves these questions as they framed selection policies.

The widespread use of intelligence and aptitude tests as a principal yardstick to measure ability since the middle of the twentieth century implicitly assumed that talent was attached to a person and indicative of their potential across a broad range of tasks. Many philosophers and social scientists have recently argued against this general conception of talent and put forward a case for a more contingent notion of merit that accounts for these differences in the content of work and the context in which it is performed.

Sen (2000) laments the "personification" of merit and argues that it should be a label attached, not to people, but to actions that are considered socially valuable. According to Roemer (2009, p. 84), the merit principle holds that individuals should be "recruited to positions... according to the attributes they have that are relevant to performing the tasks of the position in question." And Scanlon (2018, p. 45) emphasizes that ability is "institution-dependent"—it is contingent on organizational goals, but also on the particular positions for which selection is being made. Whether physical strength, language skills, or dexterity are a measure of ability depends on the activities of the organization in question.

Durlauf (2008) takes a similar position, translating these ideas into the language and logic of economic analysis. He argues that the meritocratic admission of students in a university system ought to maximize the human capital generated by the system as a whole. On employee selection, he points out that "firms do not hire workers as a reward for past achievement but rather on the

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[3]Michael Sandel (2020, Chapter 3) calls this the "rhetoric of rising" and traces the increased frequency with which the terms talent and merit were used in the speeches of U.S. presidents, starting with Reagan in the 1980s.

[4]This phrasing comes from a 1902 address by Jane Stanford, who maintained that the university she founded with her husband Leland was meant to provide "an avenue whereby the deserving and exceptional may rise through their own efforts from the lowest to the highest station in life" (Casper, 1995).

basis of prospective achievement, in the sense of making the firm more profitable." This requires a conceptual shift from "merit as reward to merit as effectiveness." It is this latter conception of merit that we adopt here.

If we accept this contingent notion of merit, we are faced with an inference problem. We are selecting among potential candidates before we know how they will perform at the task to which they may be assigned. Unless observable measures of their previous performance perfectly predict performance at the task on hand, selection must involve judgments based on other information that is available. This could include family background, ethnicity, or gender, among other things. Thus group characteristics can become informative and group-conscious admissions or hiring can be efficient.

Perhaps ironically, the need to condition test scores on other attributes was recognized by researchers within the U.S. Educational Testing Service (Lemann, 1999). In the late 1990s, the ETS coined the term "striver" for a student who scored well above above the average for students from similar economic and ethnic backgrounds (Weisskopf, 2009, p. 22). An alternative "Measure of Academic Talent" was also developed internally. It was shown to result in reduced test score gaps between ethnic groups but was never fully developed or adopted. Then, in 2019, the College Board introduced an "adversity index" meant to measure socioeconomic disadvantage, with the goal of facilitating better interpretation of scores. This initiative was also quickly abandoned (Hartocollis, 2019; Jaschik, 2019).

In the next section, we use a simple model to illustrate why meritocratic selection may be group conscious when observable performance proxies, such as test scores, are noisy predictors of future potential. We also show that *within* groups, selection motivated by performance-maximization may not be monotonic in measures of prior accomplishment. To make our arguments as clearly as possible, we assume that performance depends only on individual characteristics.[5] A discussion of teams and complementarities is deferred until Section 5.

3 A Simple Model

An organization seeking to select a fraction k of total applicants would like to identify those with the greatest likelihood of future success. We refer to k as *elite capacity*. Applicants differ along two observable dimensions, their group membership and their past *training*, which could be a combination of scores, grades, previous job experience or any other indicators of past performance. They also differ on two dimensions that are relevant for success but cannot be observed—their *ability*, and the *resources* to which they have had access in the past. Both ability and resources

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[5]The presentation here is relatively informal and focused on examples; for a general treatment see Sethi and Somanathan (2021).

contribute to training.

The terms ability and resources should be interpreted broadly. Ability includes intelligence as well as other attributes, such as self-discipline and grit, that are known to be predictive of success when matched with opportunity (Duckworth and Seligman, 2005; Duckworth et al., 2007). Similarly, resources include not just material inputs, but also the density of human capital in neighborhoods and social networks (Loury, 1977; Bowles et al., 2014; Chetty et al., 2014).

There are two groups, labeled 1 and 2, two ability levels, a_l and a_h, and two resource levels r_l and r_h, with $r_l < r_h$ and $a_l < a_h$. Ability and resources are exogenously given, independently distributed, and neither can be directly observed. Selection can therefore only be based on training and group membership. Groups are identical in their distribution of ability, but have differential access to resources, such as good schools, neighborhoods, and social connections. That is, one group is *advantaged* in the sense that a larger share of its members have high resource access.

Since training is increasing in both ability and resources, those with low ability and low resources have the lowest achievable level of training and those with high ability and high resources have the highest. The two intermediate training levels cannot be unambiguously ranked. Using t_{ij} to denote the maximum attainable training level for someone with ability a_i and resources r_j, we therefore have

$$t_{ll} < \min\{t_{lh}, t_{hl}\} \leq \max\{t_{lh}, t_{hl}\} < t_{hh}.$$

Individual performance is increasing in both ability and training, given by the function $\phi(a, t)$. Ability therefore has both a direct and an indirect effect on performance, capturing the idea that past training might under-predict the capacity of resource-poor individuals to perform.[6] Selecting the best future performers relies, therefore, on making correct inferences about ability conditional on training. This is where information on group membership can be useful. Conditional on a level of training, disadvantaged groups may have higher expected ability. Therefore, even if the representation of different groups is not itself an independent consideration, it may be a consequence of a policy of meritocratic selection.

Our assumption that past achievement is not fully informative about future performance contrasts with some of the theoretical literature on affirmative action, which assumes that any departure from monotonic selection (for instance to meet representation targets) necessarily comes at a performance cost (Chan and Eyster, 2003; Ray and Sethi, 2010; Fryer and Loury, 2013). Departing from this deterministic relation between past and future accomplishment is central to our argument.[7]

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[6]The organization may care about performance both within its confines and in later life; universities, for example, are concerned with both classroom performance and subsequent accomplishment.

[7]Frankel and Kartik (2019) consider a model of muddled information that has some similar features to the one described here. Their interest is in a different set of questions, so they do not consider departures from monotonic-

A selection policy is defined by a pair of functions $\pi_i(t)$ that denote the probability of being selected conditional on exhibiting training t and belonging to group $i \in \{1, 2\}$. A policy is *monotonic* if, for each group i, the selection probabilities π_i are non-decreasing. A policy is *group-blind* if selection policies are independent of group membership: $\pi_1(t) = \pi_2(t)$ at all t. Common conceptions of meritocracy require selection to be monotonic and group-blind. In fact, they typically require that no rejected candidate should have better credentials than *any* accepted candidate, which is a stronger condition than monotonicity since it does not allow the screener to pool candidates with with different levels of training and select randomly from this group.

We consider three scenarios. First, a baseline case in which all individuals attain the highest feasible training level given their ability and resources, regardless of the selection policy in place. Second, a case in which training levels and the selection policy are simultaneously chosen in equilibrium. And third, a case in which the organization can commit to a selection policy before training levels are chosen.

As a baseline, suppose that all individuals attain the highest level of training that their ability and resources allow, regardless of the selection policy in place. If higher training levels signal higher future performance, then the screener can maximize performance using a monotonic and group-blind policy regardless of the value of elite capacity. This is done by simply starting at the highest training level and moving down as needed, until capacity is filled.

However, if ability is an important determinant of performance while resources are critical for training, then higher training levels need not signal higher future performance. Those with high ability and low resource access may have lower training but, despite this, may perform better than those with low ability and high resource access. This corresponds to the case:

$$t_{hl} \quad < \quad t_{lh} \tag{1}$$

$$\phi(a_h, t_{hl}) \quad > \quad \phi(a_l, t_{lh}). \tag{2}$$

If both these conditions hold, then those with training t_{hl} will be preferred by the organization to those with the higher training level t_{lh}. If elite capacity is small enough for all available positions to be filled by those with the highest level of training, then applicants with training levels t_{hl} and t_{lh} are not under consideration and again a monotonic and group-blind policy can maximize performance. The same is true if elite capacity is so large that it becomes necessary to accept those with the lowest level of training, t_{ll}. For intermediate levels of elite capacity the probability of selection will not be monotonic in training.

To illustrate, consider a numerical example. Suppose that the groups are of equal size, elite capacity is 10%, and both (1) and (2) are satisfied. In each group, 30% of the population has high
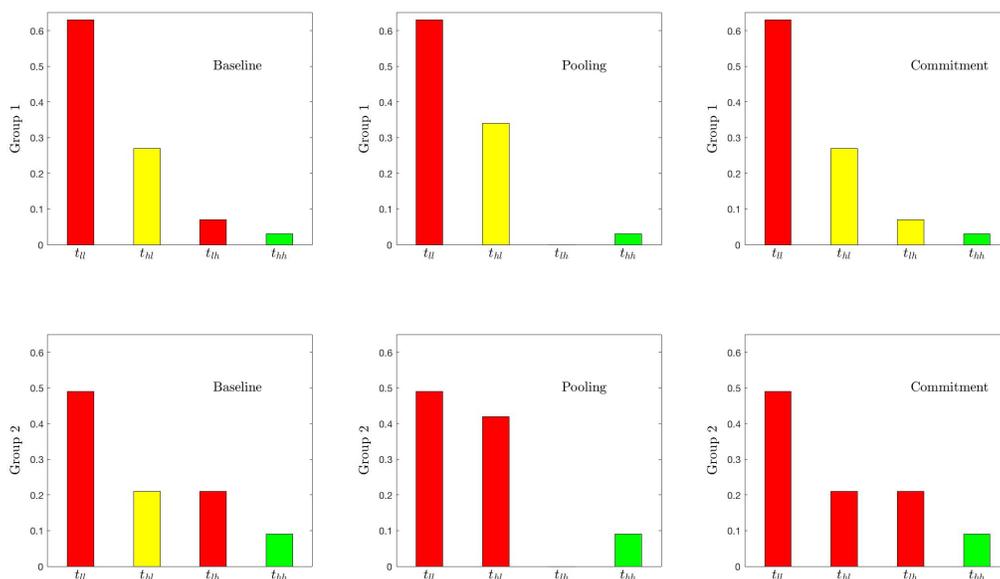
Figure 1: Optimal selection policies under alternative scenarios.

ability. Group 1 is disadvantaged, with 10% of the group having high resource access. Group 2 is advantaged, with 30% having high resource access. What does a performance-maximizing selection policy look like in this case?

First note that those with the highest training levels constitute 6% of the population (1.5% from the disadvantaged group and 4.5% from the advantaged). These individuals will be selected with certainty. The 4% required to fill the remaining capacity will be drawn from those having training t_{hl}. This can be done in a group-blind manner, but will involve skipping over those with training t_{lh} in each group. The resulting policy is shown in the leftmost column of Figure 1.

A non-monotonic policy of this kind is not sustainable in equilibrium, as long as individuals can under-invest in training. To accommodate this concern, suppose that applicants optimally choose their level of training (subject to their feasibility constraint) and this is recognized by the screener. We shall focus on the case where (1) and (2) are satisfied.

Continuing with our numerical example, those with the highest attainable training level are selected with certainty, leaving enough space for another 4% of the population. In both groups, candidates with low ability and high resources choose training level t_{hl}, pooling with those having high ability and low resources. Notice that this pool in the disadvantaged group has greater expected performance than that in the advantaged group, since it contains more high ability individuals and the training levels are the same. Specifically, the pool in the advantaged group is evenly divided between high and low ability types, while the share of high ability types in the

disadvantaged pool is 27/34 or about 79%. Furthermore, the share of total applicants in the disadvantaged pool is 17%, more than enough to fill the remaining capacity. The screener therefore selects candidates from this pool, but drawing only from the disadvantaged group. This is shown in the middle column of Figure 1.

For this to be an equilibrium, one further condition needs to be satisfied: the expected performance of the pool in the disadvantaged group should not fall below $\phi(a_l, t_{lh})$, which is the performance expected from low ability, high resource types should they choose not to under-invest in training.[8]

This equilibrium has a striking property—the disadvantaged group is over-represented. Despite being just half the population, members of this group come to occupy 55% of all positions. And this despite the fact that adequate representation is not an explicit goal of the policy.

The equilibrium allocation here is wasteful in the sense that non-monotonic selection induces under-investment in training, and training is productive. This loss in performance can be avoided if the screener can commit to taking all those with the highest level of training, regardless of group membership, and to fill remaining seats by selecting at random from those in the disadvantaged group at the two intermediate training levels. This outcome is shown in the right panel of Figure 1. Again, the disadvantaged group is favored. In fact, individuals face exactly the same probability of selection as in the equilibrium without commitment. The only difference is that all those at the two intermediate training levels are treated equally. Since there is no incentive to under-invest, the outcome is superior for the organization.

The example depicted in Figure 1 can be embedded in a family of examples by varying elite capacity. The resulting equilibrium allocations (with or without commitment) have the following structure. When elite capacity is small, only those at the highest training level are selected, and the disadvantaged group is underrepresented. Once elite capacity rises to a level such that those with intermediate training must be selected, the disadvantaged group starts to be favored. For some values of elite capacity, as we have seen, the disadvantaged group can even be over-represented. As elite capacity rises further, members of the advantaged group at intermediate training levels start to get chosen. Eventually elite capacity is so great that even those at the lowest training level are selected with positive probability, and here the under-representation of the disadvantaged group again asserts itself.

This pattern is shown in Figure 2, where the four distinct regimes can be identified. As is clear from the figure, representation can vary widely with elite capacity, even though diversity (by assumption) does not motivate selection. The message here is that group contingent selection practices, even if they lead to population mirroring or over-representation of disadvantaged groups, ought not to be seen as evidence that group identity is being valued in the selection pro-

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[8]If this condition fails, equilibrium has a different structure; see Sethi and Somanathan (2021) for details.
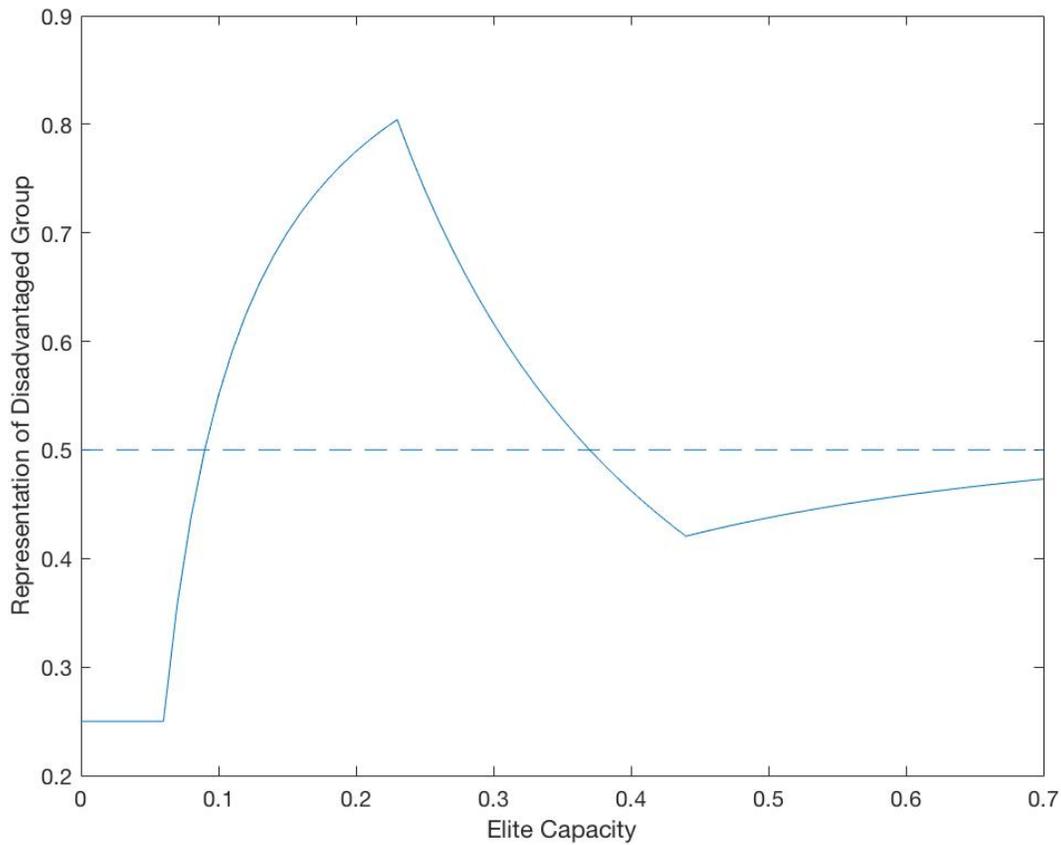
Figure 2: Elite capacity and group representation.

cess. Furthermore, legal or political restrictions that force assignment to be monotonic or group-blind could result in lowered performance. We next survey some evidence that is consistent with this theoretical argument.

4   Empirical Evidence

Some striking evidence on the implications of monotonic and group-blind selection practices comes from Finland, which has highly competitive five-year teacher education programs (Schaede and Mankki, 2021). These programs institute a two-stage selection process, with the first stage being based largely on scores on a high school matriculation exam, and the second involving more qualitative assessments, including the observation of live teaching. These programs once had a quota ensuring that 40 percent of those passing the first stage were men; the quota was removed in 1989 and the first cohort of teachers admitted without it graduated in 1994. Demand for new teachers exhibits quasi-random variation across municipalities due to mandatory retirement at age

60, and the authors used this to identify the effects of the quota on student outcomes. They found, remarkably, that primary school students exposed to a higher fraction of male quota teachers had higher educational attainment and labor force participation in their mid-twenties.

How might one interpret this finding? One possibility is that it reflects an own-gender role model effect, with boys benefiting differentially from exposure to male teachers. The authors rule this out on the grounds that girls and boys appeared to lose about equally from abandonment of the quota policy. They argue that the effect arose in part because, conditional on scores, the two groups of applicants had different distributions of valuable non-score characteristics and the quota led to a better allocation of talent. Male applicants were more likely to be from rural areas, for instance, or to be residing in their district of birth. To the extent that these features are connected to resource access, it ought to affect the interpretation of their scores. By blocking any prospect of such interpretation, the removal of the quota may have lowered measured performance.

Next consider a policy that forced a departure from monotonic selection, the Texas Top Ten Percent (TTP) rule. This guaranteed acceptance to any Texas public university to students graduating in the top decile of their class, regardless of their standardized test scores, advanced placement courses and grades, fields of study, or any other indicator of prior accomplishment. The rule was implemented in 1998, and had a significant effect on the composition of the student body at the flagship University of Texas at Austin.

Black et al. (2020) examined the effects of the policy on college enrollment, graduation rates, and subsequent earnings for two pools of students—those who were "pulled in" by the policy, and those who were "pushed out". They find that the policy improved outcomes for students that gained access without corresponding declines for who were pushed out. Paradoxically, a rule that was "introduced for equity reasons... also seems to have improved efficiency." They speculate that the effect may arise through heterogeneity in the benefits of attending an elite college, with disadvantaged students pulled in by the policy having more to gain from college inputs than the students they replaced.

California's Proposition 209 was an initiative that shifted selection practices in the opposite direction. By prohibiting the use of race, ethnicity, or gender in admissions, it forced state universities to rely more heavily on prior accomplishment, such as standardized test scores. Bleemer (2021) finds that the transition resulted in significant wage losses for some applicants without compensating gains for the marginal beneficiaries of the ban. This is consistent with the findings of Black et al. (2020) for Texas, but with efficiency losses in the wake of a shift away from equity considerations. This, too, could be interpreted in terms of heterogeneous treatment effects—the students gaining access after the ban already had support systems that allowed them to thrive, and so gained little, while those losing access stood to benefit from elite college inputs to a greater degree.

This interpretation is entirely plausible, but it is also worth considering the possibility that conditional on measures of prior accomplishment such as standardized test scores, disadvantaged students have unobserved attributes that predict greater performance in later life, conditional on being selected to attend. That is, the meaning of prior accomplishment depends on student background in a systematic and predictable manner.

Cestau et al. (2017) express this idea as follows, in the context of the selection into a program for gifted schoolchildren:

> A student who has, in some way, experienced hardship may underperform on achievement tests relative to his or her capability. By taking account of such empirically grounded differences across demographic groups, a district may be better able to determine which students are most suited to admission to the gifted program... While this profiling based on differences in distributions across racial groups is beneficial to minority students, it is not preferential treatment.

Note that profiling in the service of improved performance goals is nonstigmatizing in the sense of Anderson (2010, p. 141), who argues that an "adequate, nonstigmatizing conception of the beneficiaries of affirmative action would represent them as meritorious, as contributing to the missions of participating institutions through the roles they occupy."

Bans on the use of group membership in the process of admission—such as California's Proposition 209 or Michigan's Proposal 2—are prohibitions on all forms of targeted selection, including performance profiling. Contrary to the rhetoric surrounding such initiatives, such mandates can therefore prevent optimization for future success. This is one of the key points emerging from the model in the previous section.

Finally, consider qualitative evidence against the view that conventional measures of past performance such as grades and test scores result in optimized selection for performance. Guinier (2015, pp. 30–32) describes a case study in which an entirely different selection process—neither monotonic nor group-blind—was used to identify diamonds in the rough:

> In the spring of 1968, after the assassination of Martin Luther King Jr., the Reverend John Brooks... drove up and down the eastern seaboard to hand select a number of African American men for admission to the College of the Holy Cross... men who had ambition, leadership potential, and strong character rather than the right family pedigree or the right test scores... Brooks's students eventually graduated from Holy Cross and went off to storied careers... Clarence Thomas, associate justice of the US Supreme Court; Edward P. Jones, Pulitzer Prize winner; Theodore Wells, renowned defense attorney; and Stanley Grayson, former deputy mayor of New York and president of M.

R. Beal & Company, one of the country's oldest black-owned investment banks... with Brooks's unwavering mentorship, each man's democratic merit was forged.

This example illustrates both the possibility that conventional measures of merit may miss many individuals with enormous potential, and that the identification and cultivation of this potential requires considerable investment and commitment.

5   Complementarities

The model of Section 3 illustrates that when merit at the individual level is well-defined, and performance is the only criterion for selection, optimal selection policies need not be group-blind. This basic message is further amplified if one allows for complementarities across individuals in performance.

Durlauf (2008) considers both complementarities across individuals, as well as multiple institutions all operating under the banner of a single system such as a state university system with many campuses of varying prestige and quality. Leading examples are the systems in California and Texas. In his model, people benefit from the presence of high-performing peers, as well as from the general quality of the institution. One can now consider performance maximization from the perspective of each individual campus viewed in isolation, or from the perspective of the system as a whole. Durlauf argues that the two goals may be in tension with each other—for instance, the leading institution may prefer to admit the best performers, while the system may wish to allocate people to campuses differently. This would be the case, for instance, if high performers provide few benefits to each other through interaction, but provide significant benefits to those with somewhat lower initial performance.

More generally, in Durlauf's framework, the pursuit of performance at the level of the system may be facilitated by targeting representation directly. This can happen if isolation felt by members of a group affects their performance, if diversity has direct benefits for all parties (as has been argued in legal briefs by several state university systems), or if people tend to provide services disproportionately to members of their own communities later in life. That is, "meritocracy (as conventionally understood) does not deserve a presumption to be an admissions criterion for colleges" (Durlauf, 2008, p. 141). This is consistent with the message from our model, though the effect arises through different channels.[9]

There are few areas of productive endeavor in which performance can be attributed to a single

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[9]Durlauf is skeptical of the claim that ethnic diversity *per se* has significant and broad educational benefits: "Given the frequency with which the claim is made, it is remarkable how poor the evidentiary support is for the proposition" (Durlauf, 2008, p.143). Note that our model and argument do not rely on the presence of such benefits.

individual. From scientific research to product design, outputs are produced through collaborative efforts and the performance of teams cannot be meaningfully decomposed in a manner that assigns contributions to individuals. Even something as simple as a Wikipedia page involves the efforts of multiple individuals (some of whom may even make contributions with negative value that others later reverse). Performance maximization in this case involves the assembly of productive groups or cohorts. As Guinier (2015, p. 107) puts it, "it makes little sense to focus so much on the intelligence level of the individual when most knowledge building and problem solving today happens within teams." And the value that a person brings to a team depends not only on their own characteristics, but on those of others with whom they are matched.

Woolley et al. (2015) define *collective intelligence* as "the general ability of a particular group to perform well across a wide range of different tasks," and argue that meaningful measures of collective intelligence can be assigned to groups. Page (2007) argues that "diverse perspectives, heuristics, interpretations, and mental models improve our collective ability to solve problems and make accurate predictions." In fact, under certain conditions, "diversity trumps ability" in the sense that "random collections of intelligent problem solvers can outperform collections of the best problem solvers." But productive diversity of this kind lies in the space of "cognitive toolboxes" rather than markers of identity such as race, ethnicity, or gender. The various dimensions of diversity are connected, but not in any obvious manner—there is considerable cognitive diversity within identity groups just as there can be cognitive homogeneity in groups embodying diverse identities. As Guinier (2015) puts it, "cosmetic diversity... does not go far enough."

The nature of collective intelligence and the value of cognitive diversity have important implications for how we think about merit. First, individual traits that facilitate collaboration—including social intelligence, self-control, and curiosity—start to matter. Second, merit becomes properly conceived as a property of groups rather than individuals. The possession of a particular cognitive toolbox can be far more valuable if it is rare in a group than if it is common. And third, selection policies that focus on identifying "well-rounded" individuals may be misguided. What one needs is well-rounded groups, to which quite narrowly focused individuals can make valuable contributions, provided that they have the interpersonal skills to do so.

6   Meritocratic Pathologies

In an influential essay, Daniel Bell (1972) addressed both the promise and the perils of meritocratic selection, which he understood to be "the displacement of one principle of stratification by another, of ascription by achievement." He argued that "the principles of merit, achievement, and universalism are the necessary foundations for a productive—and cultivated—society," and that the granting of authority "based upon skill, learning, talent, artistry, or some similar attribute" in-

evitably "leads to distinctions between those who are superior and those who are not" (p. 66). To Bell, a meritocracy at its best "is made up of those who have earned their authority." The problem arises when "those at the top can convert their authority positions into large, discrepant, material and social advantages over others," in a system that makes "distinctions invidious and demeans those below."

This contempt, and the resulting populist backlash, were foreshadowed by Young, and have been the topic of recent scholarship. "The tenets of high-stakes admissions testing," according to Lani Guinier, "have become so widely shared that they form the building blocks of a secular religion among college-bound elites: if you test well, you deserve to enter a top college. In some ways you have earned the right not just to succeed but to preen" (Guinier, 2015). Michael Sandel argues that "among the winners," the meritocratic ethic "generates hubris; among the losers, humiliation and resentment" (Sandel, 2020, p. 29).

Hubris and contempt arise among the winners because they see their gains as having arisen through superior talent and effort. Frank (2016) attributes this to a failure to appreciate the role of chance, which can have enormous effects in winner-take-all settings that attract a large number of similarly talented competitors. Those who succeed in the face of such rigorous competition are indeed exceptional, but so are a large number of those who fail.

Markovits (2019) argues that meritocratic structures place a burden not only on those who are excluded from elite positions, but also on those who succeed. He writes: "Elites increasingly monopolize not just income, wealth, and power, but also industry, public honor, and private esteem. Meritocracy comprehensively excludes the middle class from social and economic advantage, and at the same time conscripts its elite into a ruinous contest to preserve caste." He calls this a trap, because the incentive structure that gives rise to these pathologies is reinforced and reconstituted with each cohort. It is an equilibrium phenomenon, difficult to dislodge despite giving rise to significant inefficiencies.

A reorientation of selection practices along lines proposed here could help in mitigating such pathologies. When merit attaches to people rather than actions, some people come to be seen, by themselves and by others, as *entitled* to reward. This is at the root of the pathologies identified by Sandel, Guinier, and others. These could be avoided if, following Sen (2000), merit is associated with *actions* rather than with *people*. Some honors in society do attach to actions or achievements rather than persons. This is true of the Nobel prizes, for instance—John Bardeen won it twice in Physics, Frederick Sanger twice in Chemistry, and Marie Curie once each in these two fields. Katherine Hepburn won the Best Actress Academy Award on four separate occasions, and Audra McDonald has won Tony Awards for Excellence in Broadway Theatre in all four performance categories over the course of her career. These individuals may or may not be meritorious along other dimensions; the awards recognize only particular accomplishments.

7 Discussion

Etched into the facade of Columbia University's iconic Low Library is the following statement of purpose: "for the Advancement of the Public Good and the Glory of Almighty God." While religious references have generally faded from mission statements at most institutions, the commitment to public service remains. Stanford University, according to Jane Stanford herself, was "designed for the betterment of mankind morally, spiritually, intellectually, physically, and materially. The public at large, and not alone the comparatively few students who can attend the University, are the chief and ultimate beneficiaries of the foundation" (Casper, 1995). More generally, Bowen and Bok (2000, p. 24) note that highly selective academic institutions actively seek to "attract students who seem especially likely to utilize their education to make valuable or distinctive contributions to their professions and to the welfare of society." Public education systems are no different: The University of Texas states that its core purpose is "to transform lives for the benefit of society."[10]

Exactly how such missions are to be pursued, and the role of quantitative measures of past performance in building the community of students, involve some of the most contentious issues of our time. While it is important to measure and quantify performance in relation to institutional mission, this is especially difficult to do for accomplishments made long after graduation—the development of vaccines, the invention of products, the founding of companies, the winning of awards and honors, the leadership of foundations, election to high office, contributions to human rights, and so on. Relatively quiet activities such as the provision of medical services in underserved communities must be weighed against highly visible ones, such as appointment to the Supreme Court. As if this problem were not challenging enough, one then needs to identify the kinds of traits in the applicant pool that are predictive of mission-aligned success.

By way of comparison, consider the case of bail decisions, where judges are called upon to release defendants who are sufficiently likely to appear on their court-appointed dates and avoid arrest in the interim. Recent results using machine learning and methods for dealing with truncated samples (since hypothetical outcomes for those not released are unobserved) suggest that there is considerable scope for improvement in the making of these decisions (Kleinberg et al., 2018). Perhaps the same is also true of admissions practices. But this can only be known through a serious examination of long-term outcomes.[11]

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[10]See the statement of mission and values at utexas.edu/about/mission-and-values (Accessed February 10, 2020).

[11]As Bowen and Bok (2000, pp. xliii–xlvi) note, "the freedom to exercise judgement in choosing candidates on the basis of criteria beyond the usual measures of earlier academic achievement carries with it an obligation to monitor the results of the admissions process," including "graduation rates, academic performance, and subsequent contributions to society." Such an examination might uncover some uncomfortable truths, such as the high success rate in later life of legacy students, who may be able to leverage networks and connections in ways that John Adams anticipated two centuries ago. How this should be judged in meritocratic terms is a thorny question that ultimately needs to be

The coronavirus pandemic disrupted higher education in all manner of ways, not least of which was to accelerate a trend towards test-optional admissions. From the perspective of this paper, that is a healthy development, subject to one important caveat. Admissions based on a quantitative measure of past performance have the virtue of transparency, and there are limits to which these systems can be legally gamed. Introducing greater subjectivity into the process can open the door to nepotism, influence-peddling, and the disguised use of prohibited criteria. There are historical instances of this, such as Harvard's attempt to restrict the population of Jewish students in the 1920s (Karabel, 2005). Given these risks, simple and transparent rules such as top percent plans have some appeal. This is especially the case since recent empirical findings suggest that they do not result in performance losses even at campuses with very demanding curricula.

The degree to which top percent plans result in broad access and ethnic diversity depends on the extent of segregation in residential and schooling patterns. As Bollinger (2003, p. 1589) puts it, such plans succeed "only in uniquely situated institutions that might draw their students from an underlying de facto segregated system of high schools." In fact, there is evidence that such plans themselves reduce school segregation, through strategic sorting to qualify for automatic admission (Cullen et al., 2013). But segregation is a persistent phenomenon, even in the face of declining group inequality (Sethi and Somanathan, 2004; Card et al., 2008; Bayer et al., 2014), and percent plans will likely continue to have first-order effects for the foreseeable future.

Meritocracy has been the subject of intense scholarly effort in recent years, with objections raised on a number of grounds. It has been described as a myth, used to disguise and rationalize a system that favors those with resources or good fortune. Or a tyranny, with a contemptuous elite vulnerable to a populist backlash. Or a trap, with neither winners nor losers able to escape a dysfunctional system. What we hope to have added here is the idea that meritocracy is poorly defined, and that when one pushes the idea of merit as effectiveness to its logical limits, its association with monotonicity and group-blindness dissolves. Within limits, merit and representation can be jointly pursued.

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addressed.

References

Elizabeth Anderson. The Imperative of Integration. Princeton University Press, 2010.

Nick Anderson. Colleges are ditching required admission tests over covid-19. Will they ever go back? Washington Post, June 15, 2020.

Hannah Arendt. The crisis in education. Partisan Review, 25(4), 1958.

Hannah Arendt. The crisis in education (revised and enlarged). In Between Past and Future: Six Exercises in Political Thought. Viking Press, 1961.

Kenneth J. Arrow. The theory of discrimination. In Orley Ashenfelter and Albert Rees, editors, Discrimination in Labor Markets. Princeton, NJ: Princeton University Press, 1973.

Patrick Bayer, Hanming Fang, and Robert McMillan. Separate when equal? racial inequality and residential segregation. Journal of Urban Economics, 82:32–48, 2014.

Michael C. Behnke. Testimony Presented to the Subcommittee on Civil and Constitutional Rights of the Committee on the Judiciary, United States House of Representatives. April 23, 1987.

Daniel Bell. Meritocracy and equality. The Public Interest, 29:29–68, 1972.

Sandra E Black, Jeffrey T Denning, and Jesse Rothstein. Winners and losers? the effect of gaining and losing access to selective colleges on education and labor market outcomes. National Bureau of Economic Research Working Paper 26821, 2020.

Zachary Bleemer. Affirmative action, mismatch, and economic mobility after California's Proposition 209. Quarterly Journal of Economics, 2021.

Lee C Bollinger. A comment on Grutter and Gratz v. Bollinger. Columbia Law Review, 103(6): 1588–1595, 2003.

William G Bowen and Derek Bok. The Shape of the River. Long-Term Consequences of Considering Race in College and University Admissions. Princeton University Press, 2000.

Samuel Bowles, Glenn C. Loury, and Rajiv Sethi. Group inequality. Journal of the European Economic Association, 12(1):129–152, 2014.

Lester J Cappon, editor. The Adams-Jefferson Letters: The Complete Correspondence Between Thomas Jefferson and Abigail and John Adams. University of North Carolina Press, 1959.

David Card, Alexandre Mas, and Jesse Rothstein. Tipping and the dynamics of segregation. The Quarterly Journal of Economics, 123(1):177–218, 2008.

Gerhard Casper. Statement on Affirmative Action at Stanford University. Office of the President, Stanford University, 1995.

Dario Cestau, Dennis Epple, and Holger Sieg. Admitting students to selective education programs: Merit, profiling, and affirmative action. Journal of Political Economy, 125(3):761–797, 2017.

Jimmy Chan and Erik Eyster. Does banning affirmative action lower college student quality? American Economic Review, 93(3):858–872, 2003.

Raj Chetty, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. Where is the land of opportunity? the geography of intergenerational mobility in the united states. The Quarterly Journal of Economics, 129(4):1553–1623, 2014.

Stephen Coate and Glenn C. Loury. Will affirmative-action policies eliminate negative stereotypes? American Economic Review, 83(5):1220–1240, 1993.

Julie Berry Cullen, Mark C Long, and Randall Reback. Jockeying for position: Strategic high school choice under Texas' top ten percent plan. Journal of Public Economics, 97:32–48, 2013.

Lindsay Daugherty, Paco Martorell, and Isaac McFarlin. Percent plans, automatic admissions, and college outcomes. IZA Journal of Labor Economics, 3(1):1–29, 2014.

Angela L Duckworth and Martin EP Seligman. Self-discipline outdoes iq in predicting academic performance of adolescents. Psychological Science, 16(12):939–944, 2005.

Angela L Duckworth, Christopher Peterson, Michael D Matthews, and Dennis R Kelly. Grit: perseverance and passion for long-term goals. Journal of Personality and Social Psychology, 92(6): 1087, 2007.

Steven N. Durlauf. Affirmative action, meritocracy, and efficiency. Politics, Philosophy & Economics, 7(2):131–158, 2008.

Alan Fox. Class and equality. Socialist Commentary, 1113, 1956.

Robert H Frank. Success and Luck: Good Fortune and the Myth of Meritocracy. Princeton University Press, 2016.

Alex Frankel and Navin Kartik. Muddled information. Journal of Political Economy, 127(4):1739–1776, 2019.

Roland G. Fryer and Glenn C. Loury. Valuing diversity. Journal of Political Economy, 121(4): 747–774, 2013.

Jared Furuta. Rationalization and student/school personhood in U.S. college admissions: The rise of test-optional policies, 1987 to 2015. Sociology of Education, 90(3):236–254, 2017.

Lani Guinier. The Tyranny of the Meritocracy: Democratizing Higher Education in America. Beacon Press, 2015.

Anemona Hartocollis. SAT 'Adversity Score' Is Abandoned in Wake of Criticism. New York Times, August 27, 2019.

Scott Jaschik. New SAT Score: Adversity. Inside Higher ED, May 20, 2019.

Jerome Karabel. The Chosen: The Hidden History of Admission and Exclusion at Harvard, Yale, and Princeton. Houghton Mifflin, 2005.

Jon Kleinberg, Himabindu Lakkaraju, Jure Leskovec, Jens Ludwig, and Sendhil Mullainathan. Human decisions and machine predictions. The quarterly journal of economics, 133(1):237–293, 2018.

Nicholas Lemann. The Big Test: The Secret History of the American Meritocracy. Macmillan, 1999.

Adam Liptak. Supreme Court will hear challenge to affirmative action at Harvard and U.N.C. New York Times, January 24, 2022.

Jo Littler. Against Meritocracy: Culture, power and myths of mobility. Routledge, 2018.

Glenn C. Loury. A dynamic theory of racial income differences. In Phyllis A. Wallace and Annette M. LaMond, editors, Women, Minorities, and Employment Discrimination. Lexington Books, 1977.

Daniel Markovits. The Meritocracy Trap: How America's Foundational Myth Feeds Inequality, Dismantles the Middle Class, and Devours the Elite. Penguin Press, 2019.

Scott E. Page. The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies. Princeton University Press, 2007.

Debraj Ray and Rajiv Sethi. A remark on color-blind affirmative action. Journal of Public Economic Theory, 12(3):399–406, 2010.

John E Roemer. Equality of Opportunity. Harvard University Press, 2009.

Michael J Sandel. The Tyranny of Merit: What's Become of the Common Good? Farrar, Straus and Giroux, 2020.

TM Scanlon. Why Does Inequality Matter? Oxford University Press, 2018.

Ursina Schaede and Ville Mankki. Quota vs. quality? Long run impacts of a gender quota. University of Zürich, 2021.

Amartya Sen. Merit and justice. In Kenneth Arrow, Samuel Bowles, and Steven N Durlauf, editors, Meritocracy and Economic Inequality, pages 5–16. Princeton University Press, 2000.

Rajiv Sethi and Rohini Somanathan. Inequality and segregation. Journal of Political Economy, 112 (6):1296–1321, 2004.

Rajiv Sethi and Rohini Somanathan. Meritocracy in the face of group inequality. Available at SSRN 3269025, 2021.

Thomas E Weisskopf. Rethinking affirmative action in admissions to higher educational institutions. University of Michigan, 2009.

Adrian Wooldridge. The Aristocracy of Talent: How Meritocracy Made the Modern World. Penguin UK, 2021.

Anita Williams Woolley, Ishani Aggarwal, and Thomas W Malone. Collective intelligence and group performance. Current Directions in Psychological Science, 24(6):420–424, 2015.

Michael Young. The Rise of the Meritocracy, 1870-2033: An Essay on Education and Inequality. Thames and Hudson, 1958.

Michael Young. The Rise of the Meritocracy. Transaction Publishers, 1994.