Teaching Discrimination in Introductory Economics: An Approach Incorporating Stratification Economics*

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Abstract

We describe how instructors can incorporate Stratification Economics into coverage of discrimination in introductory economics. Stratification Economics is a subfield of economics that provides a framework for understanding how collective action to maintain relative group position can create and sustain economic inequality. We illustrate how Becker's employer discrimination model can be modified to incorporate collective action by identity groups and we demonstrate how game theory can be used to help students understand the formation and maintenance of group identity. Finally, we show how instructors can use discussion of the racial wealth gap as an opportunity for students to apply elements of the SE framework. Introducing a more relatable and relevant discussion of discrimination and inequality can deepen students' appreciation for and understanding of economic theory.

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1. Introduction

Discussion of labor market discrimination in introductory economics textbooks is rooted in Becker's (1957) employer discrimination model, which assumes that discrimination is costly for prejudiced employers. In this model, prejudiced employers who hire high-wage White workers over lower-wage but otherwise identical nonwhite workers have a "taste" for discrimination and are thus willing to forgo profits to avoid hiring nonwhite workers. One implication of the model is that over time the least prejudiced employers will earn higher profits at the expense of the most prejudiced employers, which creates market pressure away from discrimination.

The main tenets of Becker's model appear in several leading introductory economics textbooks. Mankiw's *Principles of Economics* (2020) states that "competitive, market economies provide a natural antidote to employer discrimination. That antidote is called the profit motive" (p. 393-394). Baumol, Blinder, and Solow's *Economics: Principles and Policy* (2020) asserts that "the forces of competition will shift more and more of the total market to the low-cost (nondiscriminatory) producers, eventually driving the discriminators out of business" (p.438). In Arnold's *Economics* (2019), students learn that "discrimination will not necessarily disappear, but it comes with a price tab. And according to economic theory, the more something costs, the less of it there will be, ceteris paribus" (p. 579). In each case, students learn that substantial discrimination is unlikely to persist because competitive market forces should reduce or eliminate discrimination over time.

However, this prediction is hard to reconcile with the persistence of discrimination over long periods of time in the real world. Students new to economics may find it challenging to reconcile the existing discrimination narrative with their own lived experiences or with the

overwhelming evidence of ongoing discrimination.[1] Because a primary goal of introductory economics is to demonstrate how economic theory can explain real-world phenomena, introducing a richer discussion of discrimination may deepen students' appreciation for and understanding of economic theory.

In explaining how discrimination continues to persist despite the corrective abilities of the market, introductory textbooks shift the discussion to customer or statistical discrimination.[2] Becker's customer discrimination model posits that discrimination can be maintained under competitive market forces when prejudiced customers place pressure on employers to not hire nonwhite workers. Profit maximizing employers either accommodate prejudiced customers by hiring only White workers or are driven out of the market. Meanwhile, statistical discrimination models assume that employers have imperfect information about the productivity of applicants. Imperfect information creates an incentive to use group characteristics, to make inferences about productivity, and thus to preferentially hire members of groups believed to be more productive (Phelps 1972, Arrow 1972). Because these statistical inferences allow employers to increase their

[1] See Lang and Kahn-Lang Spitzer (2020) for a review of the empirical evidence on discrimination. See also Darity and Mason (1998) for a review of empirical evidence on discrimination and for a discussion of how the most significant narrowing of the racial wage gap occurred in the decade following the passage of the Civil Rights Act (1964) illustrating the role that policy, as opposed to market forces, plays in reducing economic inequality.

[2] Government mandated discriminatory practices and implicit bias are two additional explanations discussed in introductory textbooks. Using the example of municipal streetcar segregation laws initiated in the early 1900s, Mankiw (2020) attributes sustained discrimination to government policies that force employers to forsake profit motives and engage in discrimination. Stevenson and Wolfers (2020) discuss how implicit bias may result in employers hiring more men than women workers based on unconscious attitudes and stereotypes against women.

chances of hiring high-productivity workers, discriminating employers will earn higher profits than non-discriminating employers.

While customer and statistical discrimination provide explanations for how discrimination sustains itself against competitive market forces, they remain imperfect in explaining wide-spread and long-lasting discrimination. Darity et al. (2017) argue that for customer discrimination to be sustainable, customers must be able to "closely monitor the hiring practices of firms whose products appear in retail outlets without any explicit indication of whose hands made them" (p.48). Otherwise, customer discrimination is only applicable to jobs that involve contact with customers and not widespread employment. The authors also draw attention to the inconsistency between the theory's prediction that employers will hire fewer nonwhite workers in contact jobs and the disproportionate number of Black workers that have historically been employed in the service sector. Meanwhile, because statistical discrimination is only profitable when group membership remains informative about productivity after incorporating other available information about a worker, statistical discrimination should become less prevalent as measurements of productivity improve (Darity and Mason 1998, Darity et al. 2017).

Thus, while "taste-based" and statistical discrimination models presented in introductory textbooks make specific valid predictions about the ways in which individual prejudice and stereotyping produce discriminatory outcomes (Charles and Guryan 2008), they struggle to explain why some groups of people have maintained social or economic advantage over long periods of time or across generations. These models also provide little intuition about how discrimination in one market (such as the labor market) is connected to prejudice, inequality, and discrimination in other areas. As a result, the models struggle to effectively describe racism or

sexism which are systemic and structural (Koechlin 2019, Darity 1998), or to explain inequality that emerges from discrimination across multiple domains, such as racial wealth disparities (Koechlin 2019). Stratification Economics, with its focus on intergroup inequality, provides a framework that addresses these limitations.

Stratification Economics (SE) is a subfield in economics that provides a framework for understanding how actions to maintain an identity group's relative economic position and social status can create and sustain economic inequality (Darity 2022, Chelwa, Hamilton, and Stewart 2022). The premise of the framework, which relies on a set of interdisciplinary theories and models, is that identity groups compete for status because membership in high status groups improves individuals' access to resources. Discrimination serves as one of many mechanisms for preserving or extending the dominant group's relative position (Darity 2022). Thus, for members of the dominant group, engaging in discriminatory actions to preserve their relative status in the social or economic hierarchy is both a rational and functional strategy (Darity et al. 2017, Hamilton 2020).

We demonstrate how instructors can incorporate SE into two introductory economics lectures. In the first lecture, we show how instructors can modify Becker's model to illustrate the material benefits that dominant groups can obtain by discriminating. We then use game theory to demonstrate how group identity can incentivize individuals to act in the interests of their group. In the second lecture, we use both historical and contemporary examples to illustrate the theoretical framework presented in the first lecture. Specifically, we provide instruction on how to build a discussion around the ways in which White Americans' near-monopoly on wealth has led to collective action to maintain that monopoly. The lectures can be used in combination with each other for a more in-depth understanding of SE or as stand-alone lectures. The proposed

lectures use and reinforce tools commonly taught in introductory microeconomics such as producer theory, identification of consumer and producer surplus, and two-player simultaneous games. As a result, we expect these lectures to be appropriate for most curricula that discuss Becker's discrimination theories.

Incorporating Stratification Economics at the introductory level is advantageous for several reasons. First, it is a natural extension of Becker's discrimination theories that can help explain why discrimination persists in competitive markets. Second, while our discussion is rooted in discrimination in the labor market, it provides students with a framework for understanding economic inequality beyond the labor and housing markets. Students interested in intergroup disparities in wealth, health, encounters with police, education, or voting will find the subfield valuable in understanding why these disparities persist over time and across generations both in the U.S. and in other countries (Darity 2022, Darity, Hamilton, and Stewart 2015). Likewise, the framework allows students and instructors to expand the discussion of discrimination to understand other actions that maintain group dominance, such as violence, social exclusion, and stereotyping making the coverage more relevant and relatable for students studying economics. Finally, explaining Stratification Economics using the core tools and principles of introductory microeconomic theory can help students understand the value of economic theory for constructing and interrogating arguments and for understanding a wide range of economic and social problems.

In the next section we provide an overview of SE. In section 3, we illustrate how instructors can apply intergroup inequality to Becker's model of discrimination, as well as demonstrate how two-player simultaneous games can be used to show the processes of group identity. Section 4 provides instruction for building a discussion around historical and

contemporary examples that illustrate how collective efforts by the dominant group can maintain monopoly over important resources such as wealth. Section 5 concludes.

2. How stratification economics addresses persistent intergroup inequality

Intergroup inequality is the main entry point for the SE framework in predicting persistent discrimination (Darity 2022). Unlike Becker's models where the unit of analysis is the individual, SE focuses on group formation, identity, and action (Darity 2022). The framework argues that individuals 1) have group-based identities with some identities more salient than others, 2) care about both their absolute position within their identified group, as well as relative group standing, 3) believe that group membership affords them some level of lifetime benefits or privilege (e.g., social, political, economic resources) which can be sustained through intergenerational transmission effects, 4) experience higher levels of satisfaction when their group is perceived to be doing better relative to groups deemed to be rivals (e.g., groups of another race, ethnicity, or religion) and 5) have an incentive to "invest" in identities with higher social value even if that investment means giving up some level of personal benefit (Darity 2022, Darity et al. 2017, Darity 2005). The premise of the framework is that when a dominant group perceives their relative status to be threatened, members of the dominant group have an incentive to act collectively in ways that preserve or extend the group's position. Because a dominant group's status provides some level of benefits to all group members, acting to preserve that status is similar to other investments in public goods. As with other public good investments, individuals can be incentivized to invest through social and cultural arrangements (Ostrom 2010). As a result, in the presence of these arrangements, rational individuals can take actions that benefit their groups, even when those actions appear to be personally costly or harmful. According to SE, the social arrangements that encourage individuals to work to maintain group

position and control of resources are the "cornerstone of group formation, development, and continuity" (Darity et al. 2017, p. 38). In preserving relative group status, dominant groups utilize a wide range of practices such as discrimination or violence which serve to maintain economic inequality.

The incentive to preserve intergroup inequality explored by SE can explain why discrimination might persist within Becker's employer discrimination framework. While Becker's employer discrimination model shows that the choice to discriminate makes individual employers less profitable, the framework also shows that discrimination increases total surplus captured by the dominant group, for precisely the same reasons that monopoly power allows a firm to capture additional surplus from a market. Thus, if the dominant group can engage in collective action, it has a material interest in doing so. To the extent that the dominant group can maintain collective interest and solidarity, the dominant group would benefit from maintaining some degree of discrimination indefinitely.

While the SE framework can be reconciled with the other theories of discrimination, the framework extends the narrative in ways that the other theories cannot. The framework allows students to understand links between discrimination in specific markets (such as the labor and housing markets) and other forms of intergroup conflict and oppression, such as violence, political repression, and the propagation of stereotypes. For instance, violence has been used as a mechanism by dominant groups to suppress the political participation of Blacks in the United States (Williams 2021, Williams et al. 2021), and to suppress the economic power of Muslims in India (Mitra and Ray 2014). Violence and segregation have also been used to maintain racial disparities in innovation (Cook 2014). Darity Jr., Mullen, and Slaughter (2022) discuss the ways in which Black property was seized, destroyed, or denied and the implications for racial

disparities in wealth. Ards et al. (2015) find that racial stereotypes prevent creditworthy Blacks from applying for loans because of the "socially generated self-misperception of not being creditworthy." While these actions are hard to understand through models of individual prejudice, they are fully consistent with a collective interest in maintaining a dominant group's status and preserving its monopoly over valuable resources.

Instructors can find a wide range of resources on SE that can be assigned to introductory students as required and optional readings. Wilson and Darity Jr. (2022) provide a summary of SE and discuss how the subfield challenges prevailing economic theories used to explain racial inequality. Lewis, Asare, and Fields (2021) provide a detailed description of SE discussing how the framework differs from mainstream models, the main tenants of the framework, and its application to issues related to inequality. A more detailed theoretical discussion of the subfield and the far-reaching implications of the framework can be found in Darity Jr. (2022), who is the founder of SE, and Chelwa, Hamilton, and Stewart (2022), which are part of a special symposium on Race and Economic Literature in the *Journal of Economic Perspectives*.[3] Darity Jr. (2022) can also be supplemented with a short video on "How Group Identities Fuel Inequality" created by Duke University's Quick Learner Video Series.[4] In addition, several other videos and podcasts can be used to provide students with greater background on SE and how the framework was developed.[5] We add to this valuable collection of resources by providing a

[3] The special symposium can be found at https://www.aeaweb.org/issues/682

[4] See https://today.duke.edu/2022/07/how-group-identities-fuel-inequality

[5] See Darrick Hamilton's Institute for New Economic Thinking interview at https://www.youtube.com/watch?v=2fN-2rElsVo, William Darity Jr.'s 2020 Wayne K. Van Dyck Lecture at https://vimeo.com/466688721, and a podcast where William Darity Jr. describes SE at https://causalinf.substack.com/p/interview-with-william-sandy-darity-2d2#details

simple theoretical framework for Stratification Economics that is rooted in methodologically individualistic economic theory familiar to undergraduate students studying economics.

3. Lecture 1: A Theoretical Application of SE

Our first proposed lecture is intended to follow a discussion of Becker's theory of employer's taste-based discrimination in the labor market. The lecture is designed for students who are already familiar with basic labor market theory—a firm's demand for labor, labor demand and supply in a perfectly competitive market, and determinants of wages.

This lecture is divided into two parts. In Part A, we graphically illustrate Becker's employer discrimination model, and use it to explain the individual and group incentives around discrimination.[6] In Part B, we employ a basic two-player simultaneous game to illustrate the processes of group formation.

Part A. Incorporating intergroup dynamics

The purpose of the lecture is to apply elements of the SE framework to show that discrimination can benefit discriminatory employers *collectively* even as it harms them *individually*. To simplify the presentation, we illustrate a case where all workers are "Black" and all employers are "White."[7] We include a supplementary version of the model that includes

[6] Because most introductory economics textbooks only provide a narrative of Becker's theory of employer discrimination and do not provide a graphical illustration, instructors may wish to allocate additional time to helping students understand the graphical illustration of the standard employer discrimination model.

[7] Instructors may also choose to compare White employers to non-white workers instead of Black workers, or "dominant-group" employers to "marginalized-group" workers. However, instructors should refrain from using random colors such as blue employers or green workers as it distances the

White and Black workers in Appendix A that instructors can share with students who are interested in exploring applications of SE in greater depth or that instructors can use in their coverage of discrimination in economics electives such as Labor Economics or Economics of Inequality.

Becker's "individualist" analysis of prejudiced employers explains the presence of discrimination by arguing that it feels costly for some employers to employ Black workers. As a result, these employers pay a psychological "transaction" cost that affects interactions between Black and White people in the same way that a physical transaction cost affects trade between two countries. Because Becker takes this "transaction cost" seriously as a cost, he concludes that discrimination reduces the total surplus to the economy, and that it also hurts Black workers *and* prejudiced White employers (while helping White workers and unprejudiced employers).

Instructors can illustrate this model by first considering the decisions of a single prejudiced employer. For instance, suppose that Black workers were paid a market wage of $15/hour. However, prejudiced employers do not like working with Black workers, so they perceive the "cost" of a Black worker to be $C_B = W_B + \$5$ or $C_B = \$20$.[8] We label this $5 difference between the wage that Black workers receive and the cost that White employers incur *D*. Since employers perceive workers to be costlier than they are, they will only hire workers who produce at least $W_B + D$ dollars' worth of output. As a result, they will hire fewer workers

theoretical framework from real-world applications. We focus on Whites and Blacks to align the theoretical framework presented in Lecture 1 with the SE applications discussed in Lecture 2 which focus on White violence against Blacks.

[8] Instructors can also conceptualize discrimination as a perception among employers that Black workers are less productive than they actually are. With this conceptualization, discrimination lowers the MRP by $5, producing identical employment and wage effects to a $5 increase in "Cost" of labor.

than they should—an unprejudiced employer will hire *e* workers but a prejudiced employer will only hire *e'* workers. The problem facing an individual, prejudiced employer is illustrated in Figure 1.

[FIGURE 1]

As shown in Figure 1, prejudice lowers employer surplus for two reasons. First, employers choose not to hire some workers who would produce output worth more than $15, incurring dollar losses. Second, employers pay a psychological cost for each worker that they do hire.

In addition, Figure 1 demonstrates an important implication for the labor market as a whole: because each employer hires fewer workers than they would without discrimination, discrimination lowers labor demand. The effects of lower labor demand on the labor market as a whole are illustrated in Figure 2. Because employers perceive the cost of labor to be $5 higher than the wage, employer demand for labor shifts down by $5. Like any downward shift in demand, this in turn lowers equilibrium wage (here from $17/hour to $15/hour) and equilibrium employment (here from *E* to *E'*). Despite the reduction in equilibrium wage, employers will have a higher perceived cost of labor than they would absent discrimination because labor supply is upward sloping. Instructors can analogize the effects of discrimination to the imposition of a tax on employers—like a tax, prejudice raises the cost that employers pay and lowers the wage that employers receive.[9]

[9] Students taking introductory economics should be familiar with taxes imposed on a competitive market. We propose making the connection with taxes so that students can see how the same economic concepts can be applied to different settings. However, the analysis can still be shown even if

[FIGURE 2]

Instructors can explain to students that similar to a tax, deadweight loss is also generated. The deadweight loss comes from two places. First, there are fewer Black workers hired than there would be without discrimination, creating a triangle of deadweight loss. This is identical to the deadweight loss that a tax creates by reducing the number of units produced. In addition, because the employer feels like they're paying a higher wage than the worker is actually getting, there is a rectangle of deadweight loss with a height of $5—the difference between the $15 that workers get and the $20 that employers feel like they're paying, and a width of *E'*—the number of employees hired. This loss is equivalent to the revenue generated by a tax.

The welfare analysis in Figure 2 shows that everyone loses from prejudice. Black workers and prejudiced employers both experience a loss of surplus. Black workers receive $15/hour instead of $17/hour, causing some to not work and others to receive less money per hour worked. Prejudiced employers "pay" $20/hour instead of $17 an hour, causing some to not hire and others to "pay" a higher cost for labor than they would if they weren't prejudiced.

However, the conclusion that prejudiced employers are worse off as a consequence of discrimination is only true if we factor in the psychological cost, *D*, of interacting with Black workers when prejudiced. Employers might *feel* like they're paying $20/hour for labor because of prejudice, but only $15 are actually leaving their pockets.

This new, dollars-and-cents welfare analysis is shown in Figure 3. The employer's lost surplus from hiring fewer-than-optimal workers is represented by the upper dark grey triangle between the no-prejudice wage and *W*+*D*. The employer's gained surplus from paying workers

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students have not yet explored the impact of taxes because prejudice is perceived as raising the price of labor and reducing labor demand.

less than they would need to without discriminating is represented by the lower rectangle between $17/hour (the non-prejudiced wage) and $15/hour (the prejudiced wage).[10]

[FIGURE 3]

While Figure 3 shows that employers hire fewer workers than they would otherwise, for moderate values of *D*, they'll come out ahead (e.g., the rectangle portion of the deadweight loss is bigger than triangle portion of the deadweight loss). This is because the situation facing employers *as a group* is precisely the situation facing a single monopolist. Just like a monopolist will always gain by setting prices a bit higher than marginal cost, employers as a group will always gain by setting wages a bit lower than their competitive level. Thus, a group of employers who can all collectively choose a level of distaste *D* would always benefit by choosing *D* higher than zero.

What this implies is that if we only think about material costs and benefits, employers would be better off in a world where all employers discriminated than in a world where no employers discriminated. And this suggests a very simple answer to the question of why discrimination persists over time: perhaps it persists because it benefits people in advantaged groups. This analysis demonstrates a core claim of SE: that discrimination and other actions that maintain a group's status have material collective benefits for the dominant group.

[10] The discovery that aggregate White incomes are maximized when White capitalists discriminate against Black workers was first developed by Krueger (1968). However, Krueger errs in arguing that the return to White capital is maximized with no discrimination—in fact, the returns to White capital are maximized with a level of discrimination above zero but below that which maximizes total White income. We show this in Appendix C.

At the same time, however, Becker's analysis still shows that an individual employer could make more money by deciding not to discriminate. In this case, since all workers are Black, not discriminating would mean hiring every worker who produced at least $15 in revenue, rather than only hiring workers who produced at least $20 in revenue. Thus, as shown in Figure 4, even though employers gain financially when *all other* employers choose to discriminate, students will notice that employers lose financially when *they personally* choose to discriminate.

[FIGURE 4]

Before moving to the second part of the lecture, instructors can point out that this analysis faces two problems. First, if we think that employers are choosing to discriminate in order to keep wages low and boost their profits, why don't individual employers just stop perceiving a cost of hiring Black workers, hire more workers, and profit even more? After all, that would be in each employer's best interest as an individual, even if it wouldn't be good for employers as a group.

Second, even if all *White* employers agreed to discriminate, they would only benefit if all or nearly all employers were White. If nonwhite employers would not agree to discriminate, each nonwhite employer would hire an economically efficient number of workers, pushing up the wages of Black workers and reducing the benefits to White employers of discriminating.

The second part of this lecture explains how discrimination can still occur despite these problems. For there to be a collective monetary benefit for the dominant group from discriminating, the dominant group must have a near-monopoly on capital (or some other key resource). For individual members of the dominant group to discriminate, they must have some reason to give up some of their own personal profit to discriminate. We will show that they can get this benefit through the formation of a group identity.

Part B. The processes of group identity

The second part of this lecture has been written to be appropriate for introductory economics students. It uses introductory game theory, including identifying best responses in a two-player, two-action game. In Appendix B, we have provided an alternative version of this lecture that may be more appropriate for more advanced introductory-level students or for students in upper-level electives, such as Labor Economics.

What we demonstrated in the first part of the lecture is a classic prisoner's dilemma. When all employers discriminate, all employers are better off than when no employers discriminate. But each specific employer is worse off when they discriminate than when they don't. If we think that people usually do what's in their own personal self-interest, we'll therefore expect them not to discriminate.

However, in the real world, people often do things that benefit a group that they care about, even when it's personally costly to do so. Instructors can ask students for examples of when they have done things for the benefit of the group even when it wasn't in their personal interest to do so. Examples might include: 1) choosing to pick up your dog's poop on walks, even if you think it's gross or 2) helping your friends clean up after a party, or pitching in for food, even when no one's forcing you to. Instructors can then ask students to reflect on why they do these things. Students will most likely respond that they do these things because of a combination of external social pressure (e.g. someone might yell at them for not picking up the poop, or their friend might be nicer to them if they help clean up) and internalized ethics and norms (e.g. they feel that picking up poop and helping clean up are the right things to do). This set of social pressures and internal norms forms our *identity*.

Because the concept of identity might be new to students studying economics, instructors may want to spend some time thinking about how identity shapes a particular decision. For

example, students might be more likely to help clean up after a friend's party if they feel close to that particular group of friends, or if they think that their friends expect them to help. Some friend groups might establish this expectation by complaining about people who don't help, and might have signaled loyalty to each other by telling inside jokes, wearing matching clothing, or using special handshakes. If this is the case, acting against the shared norms and expectations of the group by not cleaning up might cause more pain than cleaning up would, both because their friends would be upset and because they would feel like they did something wrong.

This illustrates that social identity can push people to cooperate by creating personal incentives to act in the way expected by a group. The identity "friend" comes with benefits, as long as one can share it with others they care about. These include psychological benefits, especially if the group of friends is widely admired and popular, as well as material benefits, like having study partners, getting rides places, etc. We can label the benefits **"B."**

At the same time, one's identity makes it costly to do things that the friend group doesn't accept, like leaving a party without cleaning up. Instructors can label this cost **"C."** If the benefits of joining a friend group are greater than the cost of not breaking its rules, one might decide to join. And once the decision is made to join, there will be a direct personal incentive to clean up after parties and adhere to other rules or prescriptions, because doing so ensures membership in the group.[11]

[11] The concept of group identity might not be a concept that many students have formally discussed even though all students have experienced social identity. One way to illustrate the benefits and costs of social identity might be to show a clip from the popular movie *Mean Girls* such as the one found at https://www.youtube.com/watch?v=akbCmxb_w8s. The clip demonstrates both the benefits and costs of maintaining membership in a popular group.

How does this apply to dominant and marginalized groups? To simplify, instructors can identify two identities available to employers to choose from: "Dominant" and "Individualist." While "Individualist" employers will be solely focused on maximizing profits, "Dominant" employers will believe that members of the "Dominant" group are better and more deserving than people outside the dominant group, so will engage in discrimination. If a person identifies as "Dominant," they might receive the following benefits and costs:

(1) If other employers are also "Dominant," being "Dominant" will feel good, because the identity is prestigious and powerful. On top of that, "Dominant" employers might directly help other "Dominant" employers, for example by preferentially doing business with them or referring clients. Together, this makes up the benefit **"B."** Suppose "B" is equal to **$10.**

(2) On the other hand, joining the "Dominant" group means adopting a narrative where "Dominants" are more worthy, smarter, or more important than other people, and believing this narrative creates internal pressure to favor other "Dominants" across many domains. This includes preferentially hiring "Dominant" employees, but also favoring "Dominants" in romantic relationships, housing, and other areas. This sort of favoritism carries a cost, because it means not hiring, falling in love with, or living near whatever individuals may be most suitable or compatible. Suppose this cost "**C,"** is equal to **$5.**

(3) Choosing an "Individualist" identity means that the person does not identify with the "Dominant" group so will incur neither the benefits nor costs outlined above.

Instructors can now have students think about the decision of whether to take on a "Dominant" or an "Individualist" identity as a game between two employers. The best way to model this game is with a payoff matrix. Students may have seen payoff matrices used to

illustrate prisoners' dilemma or in coverage of the economics of cooperation when studying oligopolies or strategic behavior among firms. We have simplified the analysis below so that students with no familiarity with payoff matrices will still be able to follow.

Each employer gets "B" only if *both* employers are dominant. However, they pay "C" *regardless* of the other employer's choice. This gives the following payoffs[12]:

[FIGURE 5]

We can then consider each player's best response to each other player. If Aaron chooses a "Dominant" identity, Bruce will choose a "Dominant" identity as well, because +5 is better than zero. But if Aaron chooses an "Individualist" identity, Bruce will also choose an "Individualist" identity, because 0 is better than -5. And likewise, for the same reason, Bruce will choose a "Dominant" identity if Aaron chooses "Dominant", and an "Individualist" identity if Aaron chooses "Individualist." In other words, this sort of situation doesn't force anyone to create or identify with a dominant identity, but once one is formed it can be really hard to un-form. And once one is formed, aligning oneself with that identity, when possible, is personally beneficial.

This might explain discrimination by providing an answer to the question raised in Part A: even if discrimination helps employers collectively, why would an employer discriminate if doing so harms them individually? This framework argues that in the presence of social pressure, adopting an ideology that demands discrimination can benefit employers individually. Once

[12] Some students might have seen payoff matrices during an instructor's coverage of oligopoly where game theory is typically used to model strategic or interdependent decision-making. For students that have not seen a payoff matrix, instructors may want to review the prisoner's dilemma model so that students have a better understanding of how to construct the matrix based on payoffs. Instructors might also find it useful to review dominant strategies and how to determine of a player has a dominant strategy or not.

employers adopt an ideology that puts some people ahead of others, they might choose to act on that ideology both for personal reasons—they believe that members of the dominant group are better—and for social reasons—they want their friends and associates to respect them and so do what their friends expect of them. And since the ideology creates real material benefits for its members, as shown in Part A of the lecture, the members of a dominant group have a collective interest in maintaining the identity/ideology.

This simple game illustrates a few arguments of Stratification Economics. First, exclusionary or discriminatory actions are socially reinforced. We see here that adopting a "Dominant" identity can be reinforced by two things: a psychological benefit of being in a powerful or high-status group *and* the ability to get rewards by having the same worldview and group memberships as other powerful people. Second, the presence of "Individualist" employers directly threatens the existence of "Dominant" groups. In this case, if some employers can't join the dominant group (for instance, because they have a skin color that's stigmatized by the dominant group), they will choose to be individualists and to not discriminate. This choice will lower the profits earned by discriminatory firms and make discrimination costlier. Lastly, these *social* or *psychological* factors of discrimination unlock or enable the *material* benefits of discrimination discussed in Part A. In turn, those material benefits create rewards for belonging in the dominant group that make it easier for dominant groups to form and to maintain themselves.

4. Lecture 2: Real-World Applications of SE

The theory in the preceding sections has argued that if a dominant group has a monopoly or near-monopoly on a productive resource, it will be in that group's material economic interest to discriminate, and to maintain the group's monopoly. As a result, stratification economics

predicts that dominant group with a near-monopoly on wealth, such as White Americans, will engage in collective action to maintain that monopoly. We present a second lecture intended to introduce students to basic facts about the racial wealth gap in the United States and to discuss ways in which the racial wealth gap has been maintained. This lecture can be used in combination with the previous theoretical lecture or in can be used as a stand-alone lecture. If using this lecture as a stand-alone lecture, it can follow discussions of earnings inequality or income inequality in an introductory course.

Instructors can begin by presenting historical data on wealth by race using the Federal Reserve's Survey of Consumer Finance. The Interactive Chartbook allows instructors to create tables or graphs that display racial differences in wealth dating back to 1989. When introducing students to the racial wealth gap, instructors might also find it useful to emphasize the following:

(1) Racial disparities in wealth are much larger than racial disparities in income. Faculty can use the interactive chartbook discussed above to make comparisons.[13]

(2) Racial wealth gaps exist at all levels of educational attainment, at all levels of employment (full-time, out of the labor force, unemployed), and across income quintiles (Darity et al. 2018). Black households where the head of the household graduated from

[13] Most introductory textbooks do not include a discussion of wealth inequality. Instructors may find that students need to be introduced to the differences between wealth and income. Wealth is the value of one's assets minus debt. Wealth allows families to make investments in their health, homes, and education without having to accumulate new debt; opens pathways for entrepreneurship; provides financial reserves during illness or job loss; allows families to relocate to different neighborhoods; generates political and social power; and makes it easier to navigate the criminal justice system.

college have less wealth than White households where the head of the household dropped out of college (Hamilton 2020).

(3) People of color have been largely excluded from intergenerational transfers of wealth because structural factors have denied or made it challenging for them to access capital (Hamilton and Darity, 2017).

Instructors may also want to reference work by Derencourt, Kim, Kuhn, and Schularick (2022) showing the evolution of the racial wealth gap from 1870 to the present. In particular, instructors may wish to highlight that Black households have experienced slower growth in their capital than White households in all periods except the reconstruction era following the end of slavery (1870-1900) and the civil rights era (1960-1980).

Once students have examined data that illustrate the magnitude and persistence of the racial wealth gap, instructors can segue to a discussion of how dominant groups have taken collective action to maintain their monopoly on wealth. While there are many historical and contemporary examples that can be used as the focus of the discussion, instructors should consider using the following criteria for locating examples that are consistent with the SE framework outlined in section 3. Examples should demonstrate:

(1) Actions taken by a dominant group that interfere with Black/Minoritized wealth creation. These actions can include discrimination, violence, seizure, state policy, bias, etc.

(2) Actions that do not appear to be clearly in the interests of the person taking the action, but that help the dominant group to maintain its monopoly on wealth.

(3) Actions taken by the dominant group to maintain its monopoly on wealth are socially rewarded by other members of the dominant group and can be used to strengthen or extend the dominant group's position.

We demonstrate how Stratification Economics can be used to understand particular events. Our first example is the Tulsa Race Massacre of 1921—a well-studied event of national historical significance. Our second example is the sale of a real estate development in South Central, Los Angeles to a development firm—a small, local event. We present these events as a blueprint for faculty who wish to identify examples that will be relevant for their students.

Example 1: Tulsa Race Massacre of 1921:

The Tulsa Race Massacre of 1921 is an historical example that meets the criteria above. It is an example that illustrates how state policy and socially reinforced collective action can reinforce each other to maintain a White monopoly on capital. In 1921, White residents of Tulsa, Oklahoma attacked the Greenwood District in Tulsa—an affluent Black neighborhood colloquially known as "Black Wall Street." The attack killed or hospitalized hundreds of Black residents, left about 10,000 Black people homeless, and destroyed over 1,000 homes and almost 200 businesses (Albright et al. 2021). Instructors can begin the discussion of the Tulsa Race Massacre by helping students understand the context of Greenwood and the scale of the destruction. Instructors may wish to use an interactive resource produced by the New York Times that allows students to tour the Greenwood neighborhood that was destroyed between May 31 and June 1, 1921.

Next, instructors can explore the long-term impact of the massacre on Black wealth and capital. There are several excellent resources to help students understand the long-term impact of the Tulsa Race Massacre on Black wealth. The Institute for Race and Political Economy at the New School and the Justice for Greenwood Foundation have a video that explores the impact of the massacre on the racial wealth gap that can be assigned to students to view outside of class.

Instructors might also consider highlighting a study by Albright et al. (2021) which examines the long-term effects of the massacre.

Last, instructors can ask students why the violence might have been in the collective economic interest of White Oklahomans. This provides students with an opportunity to apply the theoretical framework developed in the first lecture. Instructors might pose the following questions to students:

(1) *What resource were White Oklahomans trying to protect?* Students should be able to identify that the destruction of "Black Wall Street" protected a White monopoly on capital.

(2) *How would the surplus of White business owners be affected by a thriving Black business district such as Greenwood?* Greenwood represents a threat to the collective material interests of White people because by providing employment, financing, or consumer goods to Black people on better terms than those provided by White businesses it would reduce the surplus that White business owners could extract from Black workers and consumers.

(3) *What incentive did individual White Oklahomans have to destroy Black wealth?* The model predicts that individual White people would be incentivized to participate in the destruction of Black wealth by the promise of social rewards from the White community.

The aftermath of the Tulsa Race Massacre upholds these predictions in several ways. Consistent with the prediction that the destruction of Black wealth was welcomed by Tulsa's White residents, Tulsa city officials passed a fire ordinance that interfered with the rebuilding of Greenwood and rezoned the destroyed area for industrial use (Willows 1921). Interference with efforts to rebuild the Greenwood business district continued for decades after the riot, with a

1967 urban renewal program demolishing the reconstructed neighborhood (Darity Jr. and Mullen 2021). Darity Jr and Mullen (2021) state, "Tulsa was subjected to both a White massacre and a 'slum clearance,' approximately half a century apart" (p. 222).

Likewise, consistent with the predictions of the theory presented in Lecture 1B, participants in the massacre were protected from prosecution and socially rewarded for their actions. While a few participants were charged with crimes such as looting or arson, no one was charged for the deaths resulting from the massacre (Krehbiel 2020). Meanwhile, the Tulsa Ku Klux Klan (KKK), which described the massacre as "the best thing to ever happen to Tulsa," (Gerkin, 2014, p. 16) incorporated itself as an official organization six months after the massacre, gaining prominent businesspeople and politicians as members, including three of Tulsa's five state representatives (Gerkin, 2014, p. 23). The year after the massacre, the Tulsa KKK held a daytime march through downtown Tulsa with 1,741 attendees (p.17). When Oklahoma's governor acted to suppress the KKK, the KKK led a successful effort to impeach him and remove him from office (p. 20).

Example 2: Sale of Baldwin Hills Crenshaw Plaza:

Instructors may want to present examples of contemporary actions that are local to their college or university. For example, instructors teaching at institutions in Los Angeles, CA might find the Harridge Development Group's recent purchase of Baldwin Hills Crenshaw Plaza to be a prime example.[14] The Plaza is one of the oldest regional shopping centers in operation in the

[14] Many cities have examples similar to Los Angeles where large development companies have won bids to purchase properties such as malls in communities of color with the intent to redevelop the property in ways that dampen wealth accumulation.

U.S. and has been used as a gathering place for the Black community in Crenshaw, a neighborhood located in South Los Angeles. In 2021, Downtown Crenshaw, a community-centered development group representing South Central LA residents, offered $115 million to purchase the Baldwin Hills Crenshaw Plaza.[15] Downtown Crenshaw intended to redevelop the property to include community resources, job training programs, worker-owned cooperatives, and affordable housing—80 percent of the residences would be priced at below-market rates. A local development corporation, Harridge Development Group, made a competing offer of $111 million for the property, with the intention of using the space primarily for commercial real estate and market-rate housing—only 10 percent of residences would be priced at below-market rates. Despite offering more money for the property, Downtown Crenshaw lost the bid to Harridge Development Group.

Students could be required to read articles on the purchase of the Baldwin Hills Crenshaw Plaza such as Buhl (2021) or Bakewell Jr. (2021). Students can also watch a video that describes the history of the Plaza and efforts by developers and Downtown Crenshaw to purchase the property.[16] Instructors can facilitate the discussion with the following questions which allow students to connect the example with the SE framework:

(1) *Who do you think the "Dominant" group is in this example? Is the "Dominant" group necessarily defined by race?*

[15] For more information on the purchase of the Baldwin Hills Crenshaw Plaza see https://capitalandmain.com/black-community-group-fights-plan-to-redevelop-baldwin-hills-crenshaw-plaza

[16] The video can be found at https://www.youtube.com/watch?v=93Wk2_dfPBw

Students might identify that in this story, Harridge is a member of the dominant group, and Downtown Crenshaw is a member of the excluded group. However, students might disagree about whether the dominant group is "Corporate America" or "White-owned businesses." Students might be encouraged to think about what identities might have been most salient to DWS, the asset management company placed in charge of selling and operating the plaza for Capri Capital, at the time of the sale, as well as what identities might be most valuable for DWS to maintain.

(2) *What incentive do "Dominant" group members have to remain in good standing with other "Dominant" members?*

Students might argue that remaining a "member in good standing" among corporate developers and asset management companies might give DWS preferential access to future financial opportunities. Students might consider that because the financial value of real estate is often shaped by the types of businesses and residences located nearby, real-estate holding companies might often want to give input about what type of development happens near their holdings.

Thus, developers or asset management companies may want to maintain good relationships with other major owners and developers so that they are more likely to be able to ask the owners of properties neighboring their own to consider their interests when deciding what to build. This example illustrates that while developers and asset management companies often compete with similar companies, they may also receive substantial benefits from cooperating with each other. As a result, when networks of developers form to facilitate cooperation, being inside that network can be valuable.

(3) Why would DWS (the asset management company placed in charge of selling and operating the plaza for Capri Capital) have accepted a lower bid from a White-owned developer instead of a Black-owned community group?

(a) If DWS was only concerned about getting the maximum value for this property, why might they have sold to Harridge, rather than Downtown Crenshaw?

Students might think that DWS thought that since Harridge was more established, they would be less likely to default, despite having a smaller down-payment. When asked about the sale, DWS responded, "We welcomed all potential buyers, including community groups, to participate in the bidding process. The winning bidder was selected based upon a number of factors which included both purchase price and proof of adequate financing, as well as development expertise" (Bakewell Jr 2021). It is useful to note for students, however, that a default would have hurt Downtown Crenshaw's lenders, not DWS.

(b) What other reasons might DWS have had to sell to Harridge?

If DWS owns neighboring properties in Crenshaw, they may have been concerned that development with mostly below-market housing would bring low-income residents to the neighborhood and potentially lower property values. Even if DWS does *not* own neighboring properties, other developers who do may have put pressure on DWS not to support a project that would lower property values.

Students might also think that a business relationship with Harridge could be valuable for DWS or Capri Capital in the future. Shortly after the sale, Harridge announced that they had hired personnel from Capri Capital to be a part

of the leadership team overseeing the re-development (Bakewell Jr. 2021). Instructors can note that a willingness to forgo profit on a particular transaction in order to maintain a relationship is consistent with the Stratification Economics model.

Lastly, White executives at DWS might have felt more comfortable working with other White property developers, rather than Black activists.

(4) *How could the behavior identified here limit the creation and maintenance of Black capital or wealth?*

To generate wealth, individuals and communities need to be able to purchase productive assets. If Black individuals and community groups need to pay more money or have greater securitization in order to purchase property, their wealth will grow less than it would otherwise.

In addition, because the Baldwin Hills/Crenshaw mall is an important space located in the commercial core of Crenshaw Boulevard, control of the property grants control over the types of businesses and residents with access to an important productive resource. Had Downtown Crenshaw won the bid, they could have used the property to provide economic opportunities to Black entrepreneurs and investors, while reducing the housing costs of low-income Black renters.

5. Conclusion

We believe that stratification economics can enrich the introductory economics curriculum in two ways. First, by creating a framework to understand persistent economic inequality, it can help students understand the value of economic theory for understanding

important economic and social problems. This framework may be especially compelling to women and underrepresented minority students, who are underrepresented in economics relative to other majors (Bayer & Wilcox 2017).

Second, by showing students how small changes to an economic model can generate markedly different predictions and conclusions, this discussion can help students understand economic theory as a medium of discussion and debate, rather than as a fixed set of laws leading to fixed ideological conclusions. While economists think of economic theory as being a "Method, not a doctrine" (Keynes 1922), students in introductory economics classes are often taught concepts in microeconomics as a series of established "laws." By demonstrating that the framework of employer taste-based discrimination can lead to discrimination disappearing when employers act as individuals but maintaining itself when they act collectively, our lectures can help students see economic theory as an active and changing form of inquiry. They can also demonstrate the use of theoretical deductive reasoning to identify which assumptions are key determinants of an economic outcome. This is helpful for students regardless of whether they agree with the premises and conclusions of Becker's treatment of discrimination. While students who disagree with Becker's treatment can be shown that economic theory can be useful for understanding models of society that they find relevant, students who agree with Becker's treatment can see those ideas challenged with a similar level of rigor and deductive reasoning with which they are presented.

While we have designed these lectures to be appropriate for most classes at or above the introductory level, instructors can have considerable flexibility in how this material is taught. While the three components of our proposed lecture are complementary, each can be taught independently. Additionally, instructors teaching more advanced courses may wish to use more

complex and realistic models, which are included in the appendices. Lastly, we encourage instructors to refer to empirical examples of stratification economics concepts that they expect to be most relevant to their student bodies.

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FIGURES

Figure 1: Lost Surplus Due to Discrimination

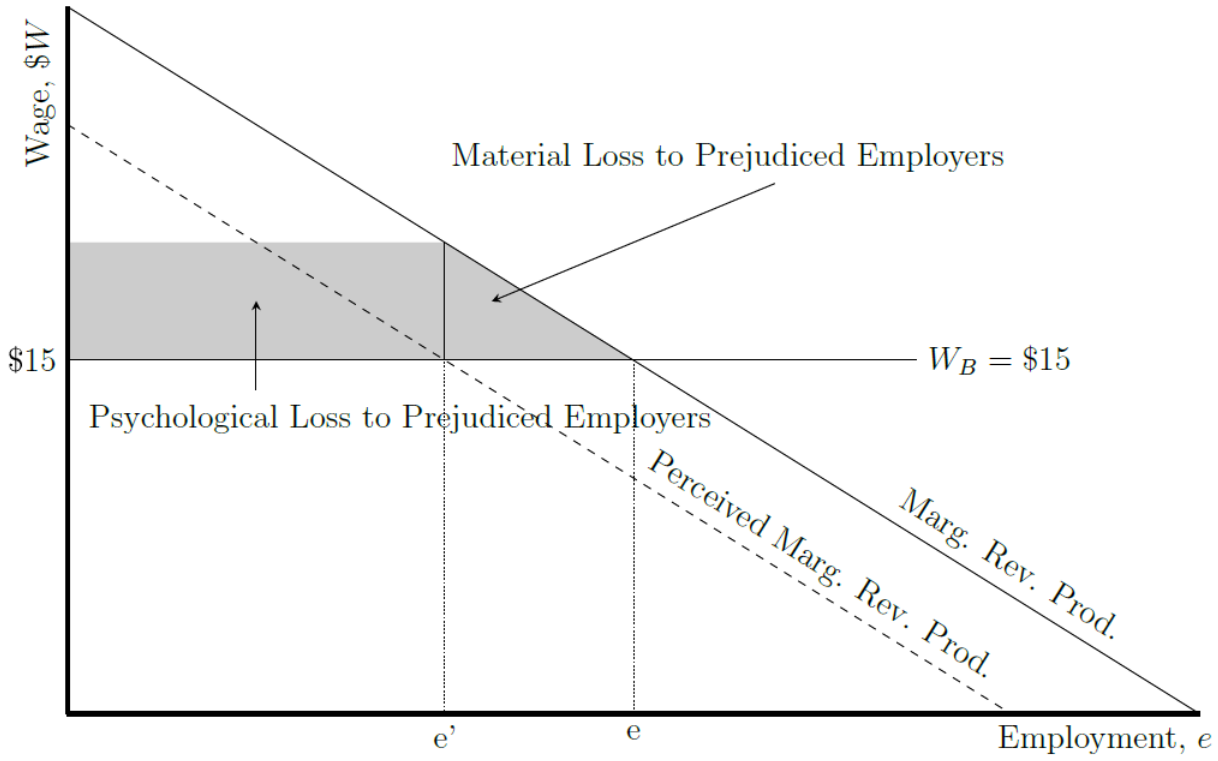


Figure 2: Implications of Becker's Employer Discrimination Model

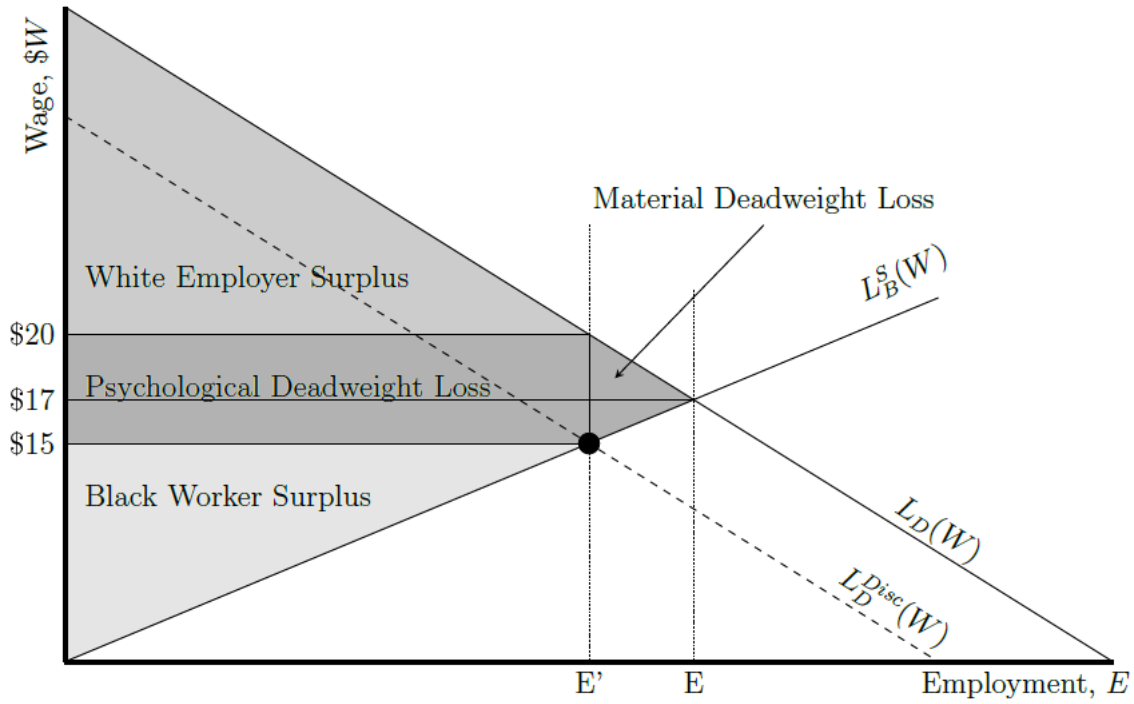


Figure 3: Analysis Using Only Dollars and Cents

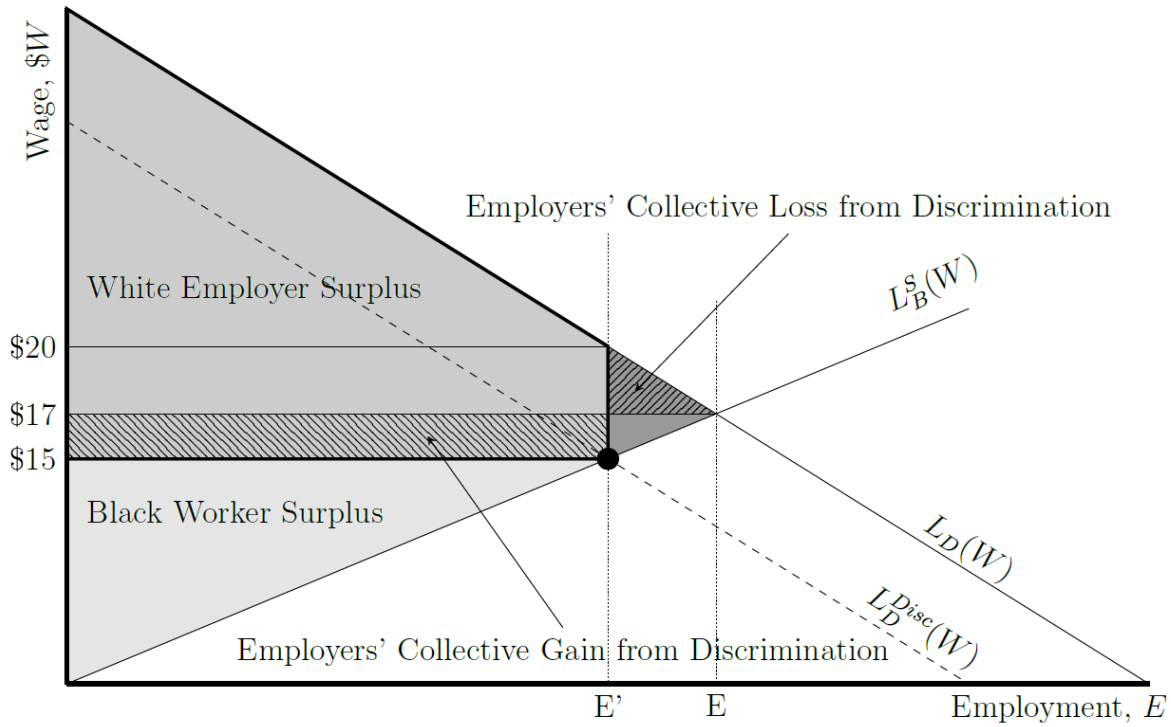


Figure 4: Collective Gains vs. Personal Losses from Discrimination

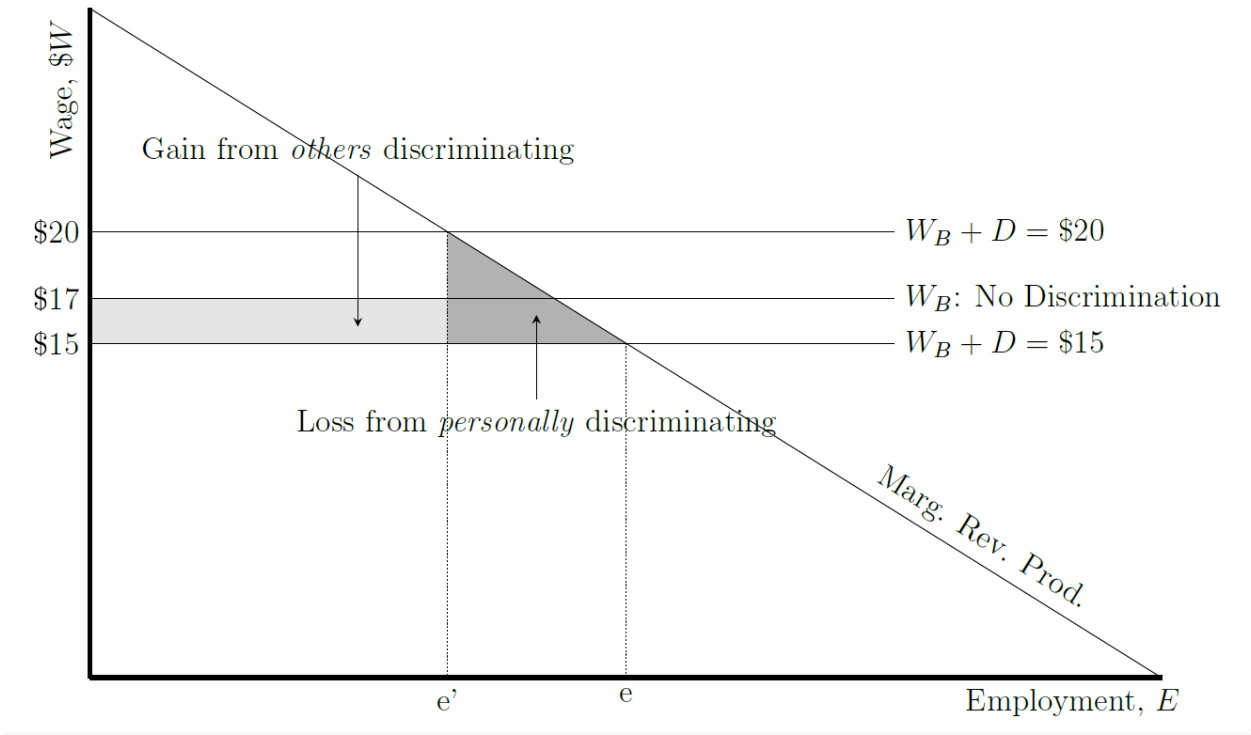
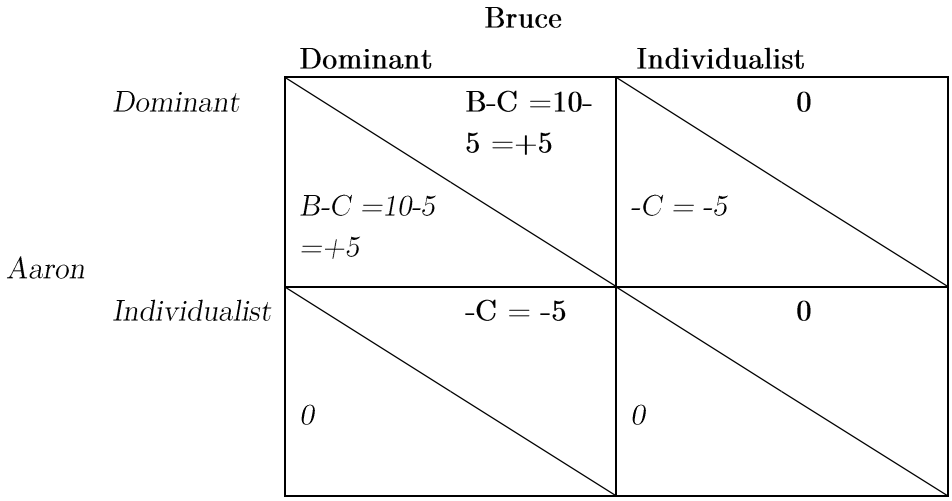


Figure 5: Selecting Identities



Appendix A: Theory Lecture, Part A, Advanced.

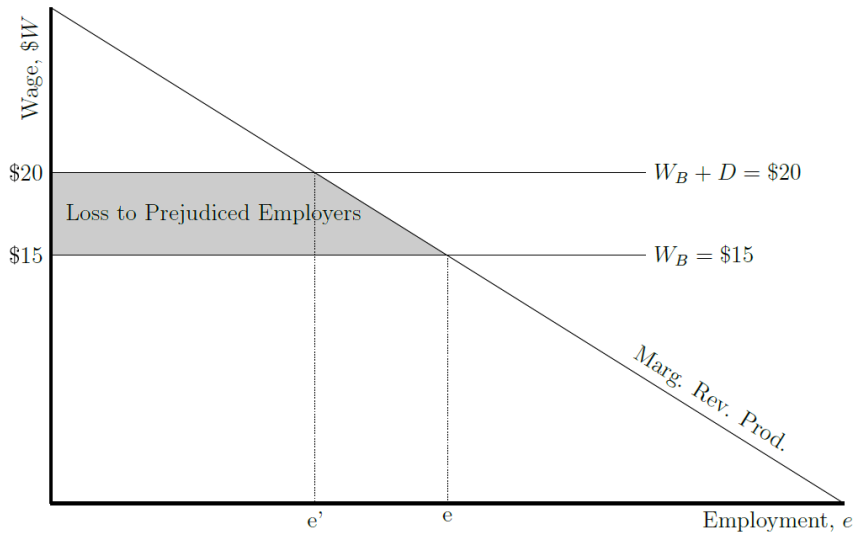
The lecture below presents a supplement to lecture 1A with both Black and White workers. As a consequence, it is more conceptually challenging than our primary proposed lecture. Instructors may wish to add this supplementary analysis or to make it available to students in elective classes or other contexts where students are comfortable with the tools of core microeconomic theory.

The main paper discusses a scenario where all employers are White and all workers are Black. In this appendix, we examine the slightly more complicated case where some workers are White (and thus don't face discrimination), while others are Black (and thus do).

We will continue to make several simplifying assumptions: we assume that all employers are equally prejudiced, that workers are either White or Black, and that all workers are identical. We again start by thinking through the decisions of an individual employer, and then think about implications for the market as a whole.

Let's continue to imagine that the wage for Black workers is \$15/hour, but that prejudiced employers feel an additional cost from employing Black workers of D=\$5. As a result, the perceived cost of a Black worker to a prejudiced employer will be $C_B = W_B + D$ *or* $C_B = \$20$. If employers are entirely unprejudiced toward White workers, they will thus be willing to pay White workers \$20/hour—equal to the perceived cost of Black workers. As a result, an individual employer faces a similar problem as before, where because of their prejudice, they will hire some combination of White and Black workers at a perceived cost of \$20. In contrast, an unprejudiced employer would hire only Black workers at a wage of \$15. As a result, as shown in Figure A.1, prejudiced employers earn lower profits than do unprejudiced employers, both as a consequence of paying a higher cost for labor and of hiring fewer workers:

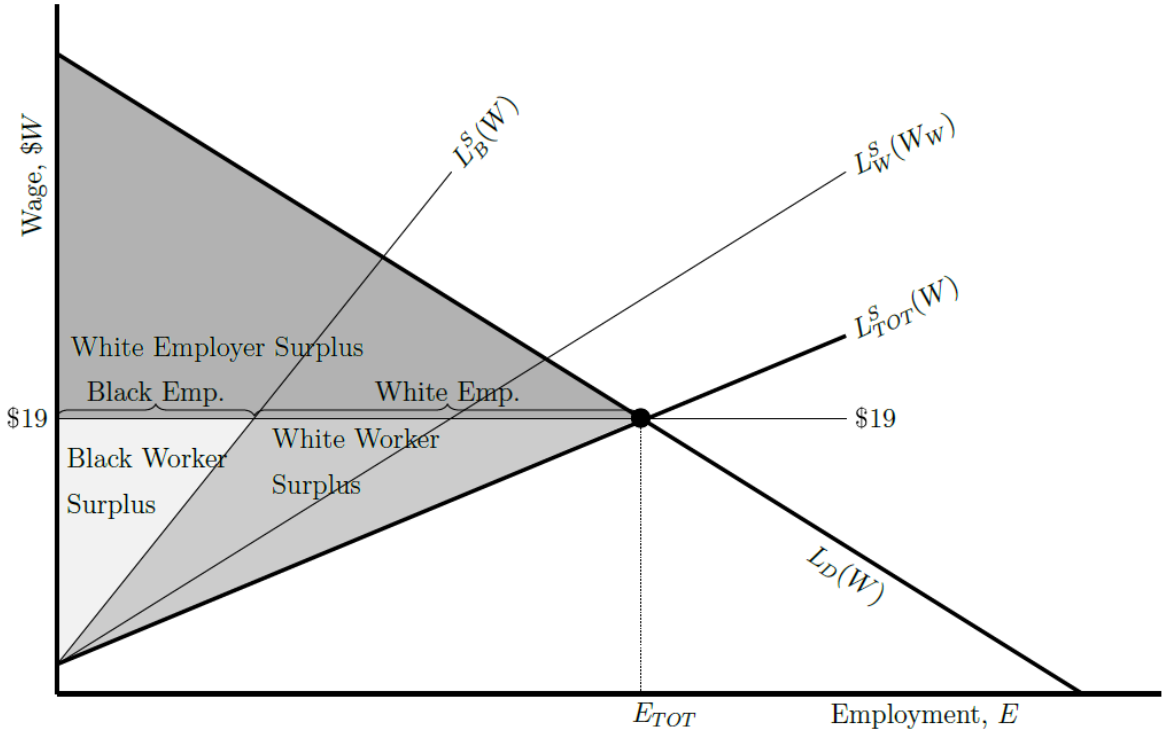
Figure A.1: Losses to Discrimination for a Single Employer



How does this affect the market as a whole? It will do a few things. First, as before, prejudice will lower demand for Black workers, and thus lower Black workers' wages. As before, prejudice will increase employers' perceived cost of labor. However, White workers will now benefit from discrimination, because reduced competition from Black workers will increase their equilibrium wages and employment.

We walk through these dynamics by first illustrating a market without any discrimination. As shown below, total labor supply is the horizontal sum of Black and White labor supply. Equilibrium wages and employment are given where total labor supply equals total labor demand. Consumer (employer) surplus is the triangle below Labor Demand and above the equilibrium wage. The producer (worker) surplus to Black and White workers are given by the triangles above Labor Supply and below the wage. Note that because the difference between Total Labor Supply and Black Labor Supply is White labor supply, the area of "White Worker Surplus" shown below is equivalent to the area above the White worker labor supply curve. Let's imagine that absent discrimination, the equilibrium wage would be $19/hour.

Figure A.2: Employer and Worker Surpluses Without Discrimination

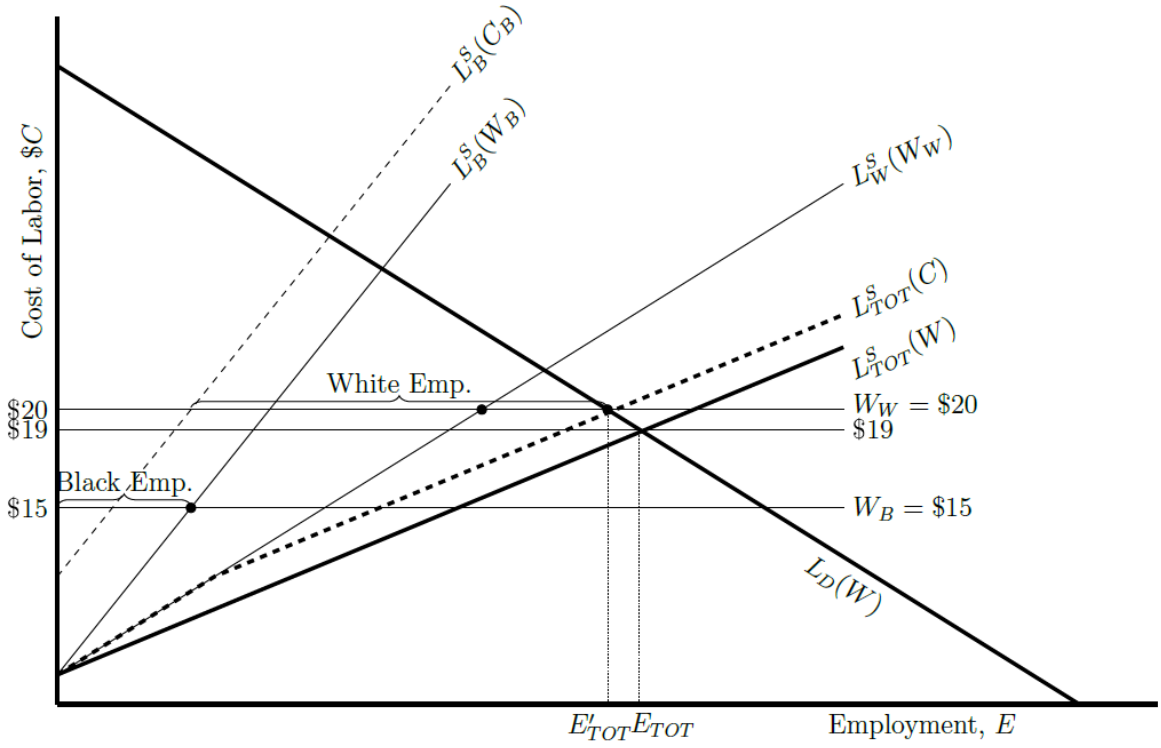


Labor market discrimination changes this picture in a few ways. First, employers perceive Black workers to be costlier than the wage they are paid by D=$5. Thus, if we think of the supply of labor at a given *cost* of Black workers, it will be shifted up by $5 from the Black labor supply curve. As a result, total labor supply in terms of worker's cost will fall—with fewer workers willing to work at a given cost.

This will increase the equilibrium cost of labor, and thus White workers' wages—for example, to $20/hour. It will decrease Black worker's wages to $W_W - D = \$15$, because employers will only hire Black workers when their wages are low enough to counterbalance employers' perceived cost of employing Black workers.

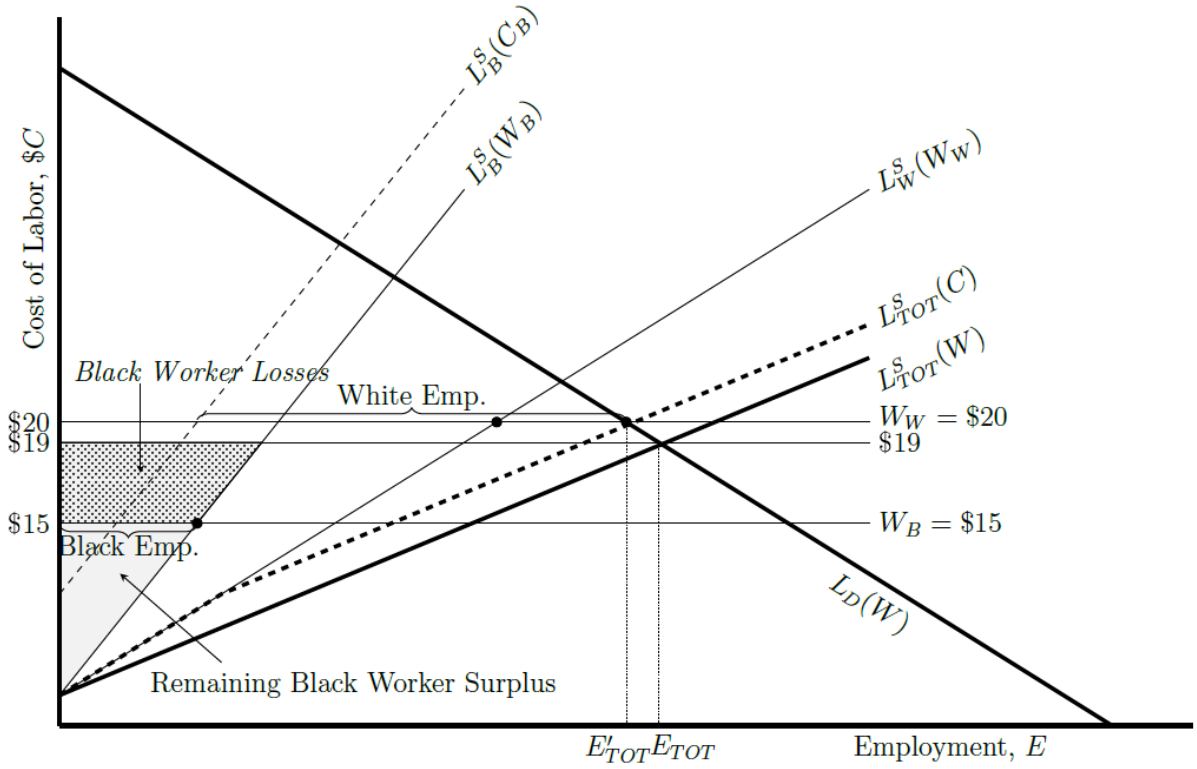
As a consequence, Black employment will decrease, White employment will increase, and Total employment will decrease. These changes are shown below in Figure A.3:

Figure A.3: Employment Consequences for Black and White Workers of Discrimination



Next, we consider how discrimination affects the surplus from the labor market earned by White employers, White workers, and Black Workers. The effect of discrimination on Black workers is shown in Figure A.4. As shown in Figure A.4, Black workers lose surplus for two reasons: because Black workers who remain employed earn $4 less than they would absent discrimination, and because fewer Black workers choose to work at low, discriminatory wages.

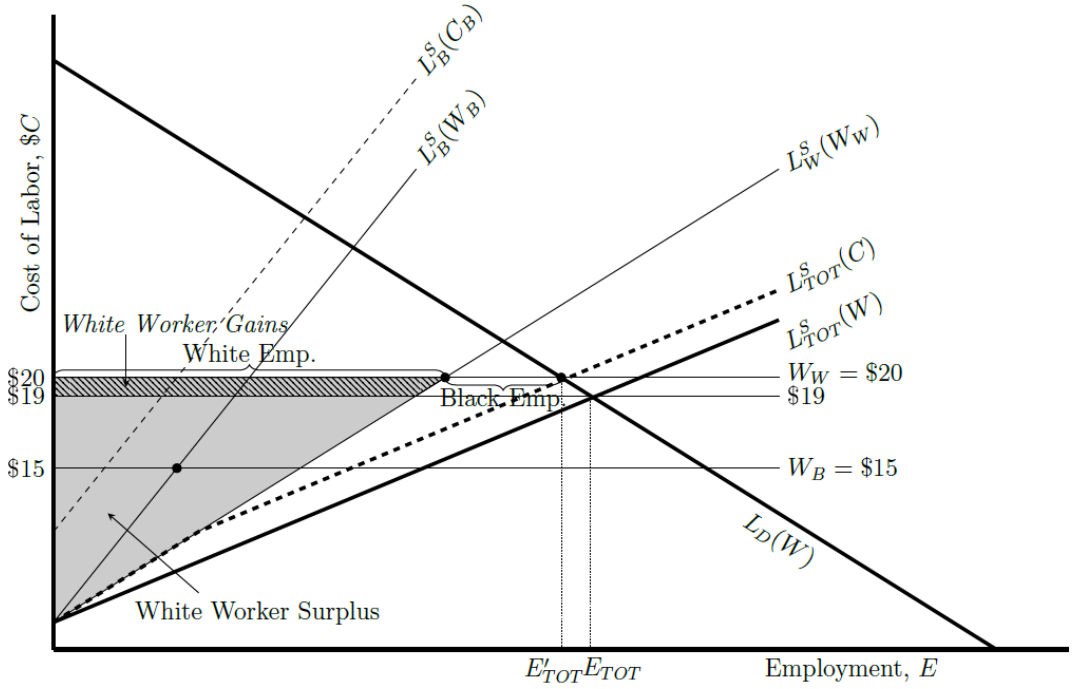
Figure A.4: Black Worker Losses from Discrimination



Meanwhile, because discrimination increases the wages of White workers, White workers gain surplus, as shown in Figure A.5.[17] White workers who would work at a wage of $19 gain $1 in additional surplus, and a larger number of White workers choose to work at wages increased by discrimination:

[17] White Worker Surplus shown here overlaps with the Black Worker Surplus shown in figure A.4. The area shown here, above the White Labor Supply curve and below the White wage, is equivalent to the area between the Black Labor Supply Curve and the Total Labor Supply curve and below the wage, as will be shown in Figure A.8.

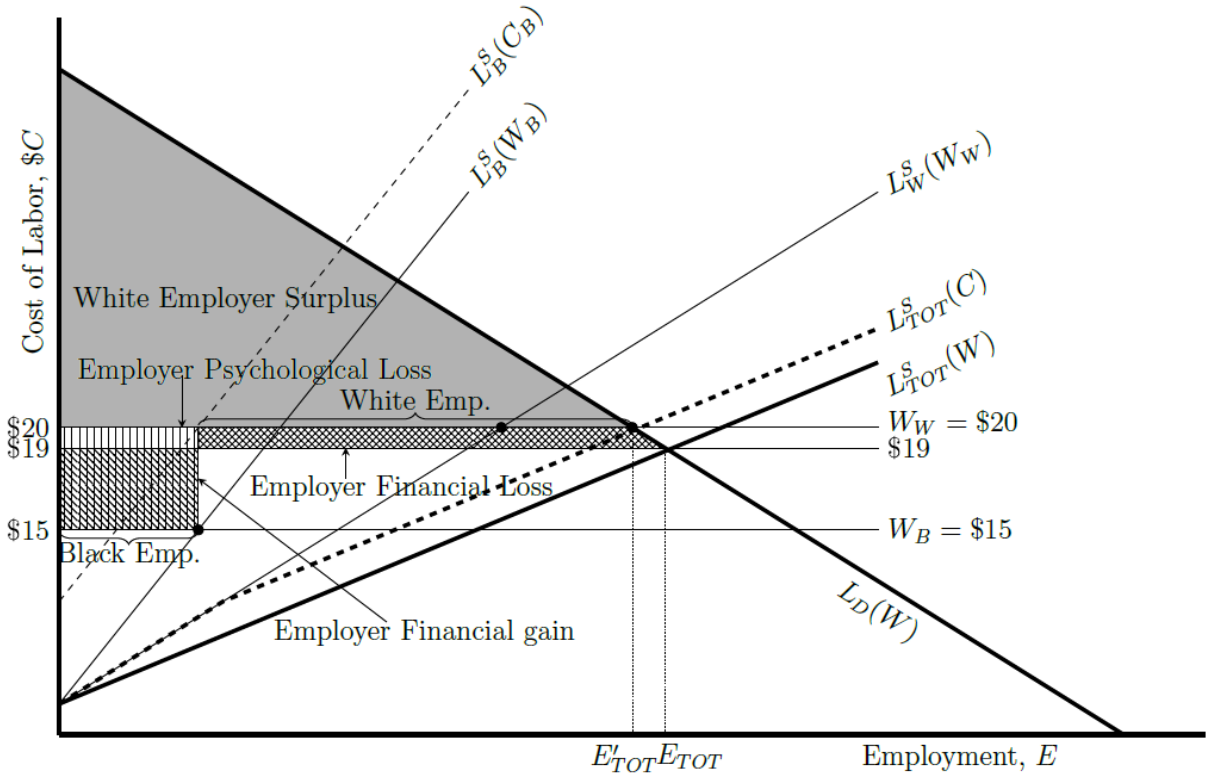
Figure A.5: White Worker Gains from Discrimination



Last, we consider the effects of discrimination on employers. If we consider the discrimination coefficient, *D*, to be a true cost, the effect of discrimination on employers is straightforward: discrimination increases the cost of labor from $19 to $20, thus reducing employer surplus.

However, as shown in Figure A.6, the psychological cost, *D*, of employing Black workers plays a key role in this reduction of surplus. While discrimination increases the financial cost of White workers by $1, reducing employer surplus, it *reduces* the financial cost of Black workers by $4. Employers costs from employing Black workers only increase because the psychological cost, *D*, of $5, increases the perceived cost of Black workers by more than discrimination decreases their monetary cost.

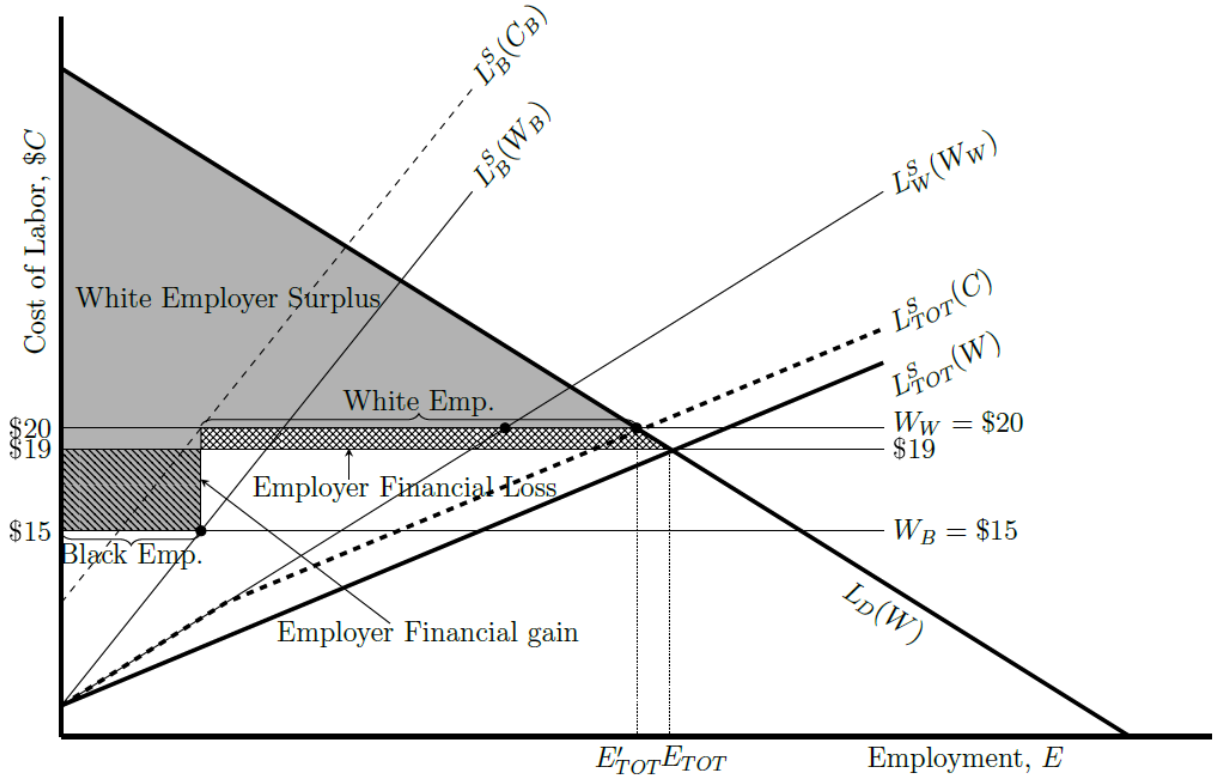
Figure A.6: Employer Financial + Psychological Returns to Discrimination



As a result, if we focused entirely on monetary costs, employers can collectively gain from discrimination.[18] Employers would experience a monetary gain by reducing the wages of Black workers which would offset the monetary loss from increasing the wages of White workers, as shown in Figure A.7.

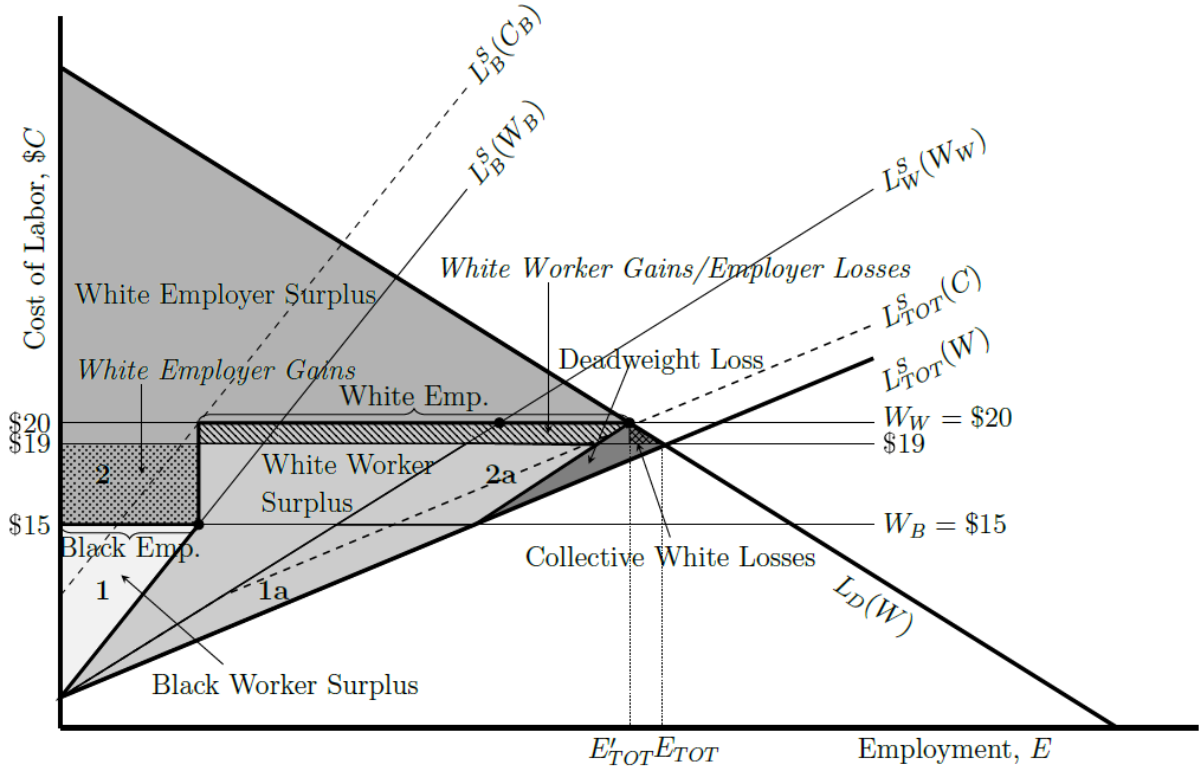
[18] Employers can always gain from sufficiently small levels of discrimination because the employer-profit-maximizing choice of Black wage will always be below the competitive equilibrium. Note that the collective position of employers is equivalent to an employer with greater monopsony power over one group of workers than over another, as discussed in Robinson (1969).

Figure A.7: Employer Financial Gains from Discrimination with Black & White Workers



Importantly, the financial losses to White employers shown in Figure A.7 accrue almost entirely to White workers, with only a small portion constituting a deadweight loss. As a result, small to moderate levels of discrimination can substantially increase the total surplus from the labor market accruing to "Whites" collectively. We show this in Figure A.8, which combines the welfare analyses shown in Figures A.4, A.5, and A.7.

Figure A.8: All Financial Payoffs to Discrimination with Black and White Workers



Note: Region 1 has the same area as region 1a, and region 2 has the same area as region 2a. As a result, the area here designated as "White Worker Surplus" has the same area as the triangle above the White labor supply curve and below the White wage of $20.

As shown in Figure A.8, Whites collectively receive a financial benefit from discrimination by lowering Black wages from $19 to $15. Because higher wages for White employees are a transfer among Whites, White losses from discrimination are restricted to the deadweight loss incurred by employers by hiring fewer than the optimal number of workers (shown here as the triangle between E'_{TOT} and E_{TOT}, with a height of $1).

However, from the perspective of an individual employer, discrimination is now even more financially costly than it appeared when all workers were Black. A prejudiced employer will hire fewer workers than they would absent discrimination, but will also pay $5/hour extra to

each of their White workers. Thus, each discriminatory employer could increase their personal profits by hiring only Black workers at a wage of $15/hour. As discussed in the main lecture, employers gain when all other employers discriminate, but lose when they discriminate.

Appendix B: Theory Lecture Part B, Advanced.

The lecture below is a substitute for lecture 1B that uses somewhat more advanced game theory than is used in the primary proposed lecture. Specifically, it incorporates a game with more than two options and uses Nash Equilibrium. As a result, this may be more appropriate for students in elective or upper-level classes.

What we demonstrated above is a classic prisoner's dilemma. When all employers discriminate, all employers are better off than when no employers discriminate. However, each specific employer is worse off when they discriminate than when they don't. If we think that people usually do what's in their own, personal self-interest, we'll therefore expect them not to discriminate. In fact, if we thought about a simplified world with two employers, we could write down the problem exactly as a prisoner's dilemma, with arbitrarily chosen payoffs:

Figure B.1: Monetary Payoffs to Own and Other's Discrimination Decision.

		Bruce: Discriminate	Bruce: Equal Opportunity
Aaron	Discriminate	5 / 5	7 / -4
	Equal Opportunity	-4 / 7	0 / 0

This game shows two things: First, as we argued above, if employers all choose to discriminate, they'll earn more than if none discriminate, for the same reason that monopolists earn higher profits than competitive firms. Second, just as Becker argued, each employer can earn higher profits by not discriminating, regardless of what the other employer does. And, just

like in any prisoner's dilemma, there's a clear, obvious equilibrium here: Defect/Defect is a dominant strategy for both employers, so even though employers are collectively better off discriminating, they'll both defect.

However, as discussed in the main text, social identity can push people to cooperate. Sharing an identity with others that you care about can have both psychological benefits, especially if those with the identity have high social status, as well as material benefits. We'll call all of these benefits **"B."** At the same time, adopting an identity can increase the costs of doing things that those with the identity don't accept. Let's call this cost **"C"**. If the benefits of joining a group are greater than the cost of not breaking its rules, you might decide to join. And once you've joined, you'll have a direct personal incentive to adhere to the rules of the group, in order to maintain your position in the group.

How does this apply to dominant and marginalized groups? Perhaps there are two identities available to employers, which we call "Dominant" and "Individualist." Identifying as "Dominant" has the following benefits and costs:

(1) If other employers are also "Dominant," being "Dominant" will feel good, because the identity is prestigious and powerful. On top of that, dominant employers might directly help other dominant employers, for example by preferentially doing business with them or referring clients. Together, this makes up the benefit **"B,"** which we set equal to **$10.**

(2) On the other hand, joining the "Dominant" group means adopting a narrative where "Dominants" are more worthy, smarter, or more important than other people, and believing this narrative creates internal pressure to favor other "Dominants" in hiring, romantic relationships, housing, etc. As a result, a person who adopts a "Dominant"

identity might suffer some cost, which we'll call **"D"**, if they choose to adopt an "equal opportunity" instead of a "discriminatory" hiring policy**.** Let's imagine that **"D**" is **$5.**

(3) Now, let's think about Aaron and Bruce's game again, but imagine that in addition to choosing an *action* (whether to discriminate or be equal opportunity) they're also choosing an *identity*. As a result, each player has four choices. In addition to the direct payoffs of their choices, which are the same as in the first game, the players get payoffs from their identity and the other player's identity. Each employer gets "B" only if *both* employers are dominant. However, they pay "C" if they adopt a dominant identity and don't discriminate, *regardless of* the other player's choice of identity. This gives the following payoffs:

Figure B.1: Payoffs to Joint Decision of Identity and Discrimination

Aaron \ Bruce	Dominant Discriminate	Dominant Equal Opportunity	Individualist Discriminate	Individualist Equal Opportunity
Dominant Discriminate	5+B = **$15** 5+B = **$15**	7+B – D = **$13** -4+B = **$6**	**$5** **$5**	**$7** -**$5**
Dominant Equal Opportunity	-4+B = **$6** 7+B – D = **$13**	0+B-D = **$5** 0+B-D = **$5**	-**$4** 7-D = **$2**	**0** 0 – D = -**$5**
Individualist Discriminate	**$5** **$5**	7-D = **$2** -**$4**	**$5** **$5**	**$7** -**$4**
Individualist Equal Opportunity	-**$4** **$7**	0 – D = -**$5** **$0**	-**$4** **$7**	**$0** **$0**

Let's think about best-responses in this game. If Aaron chooses Dominant, Discriminate, Bruce's best response is also to choose Dominant, Discriminate, because $15 is better than $13, $5, or $7. If Aaron chooses Dominant, Equal Opportunity, Bruce's best response is still Dominant, Discriminate, because $6 is better than $5, $4, or $0. If Aaron chooses Individualist, Discriminate, Bruce will choose Individualist, Equal Opportunity, because $7 is better than $5 or $2. And if Aaron chooses Individualist, Equal Opportunity, Bruce will choose Individualist,

Equal Opportunity, because $0 is better than -$4 or -$5. Since the problem is symmetrical, Aaron's best-responses to Bruce are just the same as Bruce's to Aaron.

What this means is that our game has two Nash Equilibria. Either both players will choose Dominant, Discriminate, or both players will choose Individualist, Equal Opportunity. In other words, this sort of situation doesn't force anyone to create a discriminatory or supremacist identity, but once one is formed it can be really hard to un-form. And once one is formed, aligning yourself with that identity, when possible, is personally beneficial.

How does this explain discrimination? In this explanation, employers benefit from adopting an ideology that puts some people ahead of others. Once they have adopted that ideology, they act on that ideology both for personal reasons—they believe that members of the dominant group are better—and for social reasons—they want their friends and associates to respect them, so do what their friends expect of them. And since the ideology creates real material benefits for its members, the members of a dominant group have a collective interest in maintaining the identity/ideology.

This simple game illustrates a few arguments of Stratification Economics. First, exclusionary or discriminatory actions are socially reinforced. We see here that adopting a "Dominant" identity can be reinforced by two things: a psychological benefit of being in a powerful or high-status group *and* the ability to get rewards by having the same worldview and group memberships as other powerful people. Second, the presence of "non-dominant" employers directly threatens the existence of "dominant" groups. In this case, if some employers can't join the dominant group (for instance, because they have a skin color that's stigmatized by the dominant group), they will choose to be individualists and to not discriminate. This choice will lower the profits earned by discriminatory firms and make discrimination costlier. Lastly,

these *social* or *psychological* factors of discrimination unlock or enable the *material* benefits of discrimination discussed in lecture 1. In turn, those material benefits create rewards for belonging in the dominant group that make it easier for dominant groups to form and to maintain themselves.

Appendix C: Discrimination in a 2-factor economy: Reconciliation with Krueger (1968)

This appendix section reconciles our claim that discrimination can increase aggregate profits of White employers with work by Anne Krueger (1968), which makes the claim that while discrimination can increase aggregate White incomes, it will reduce the incomes of capital owners.

Krueger follows Becker (1958) in outlining the optimal level of discrimination in an economy with fixed quantities of White and Black-owned capital and labor, identical CRS production technology in the "White" and "Black" economies, and a higher capital-to-labor ratio in the White economy than in the black economy. She then considers the decision to "export" capital from the White to the Black economy from the perspective of aggregate White income and aggregate capital income. She argues that total White and Black income are given by:

$$Y_w = F(L_w, K_w - E) + \frac{\partial F}{\partial K_b} E \quad (1a)$$

$$Y_b = F(L_b, K_b + E) - \frac{\partial F}{\partial K_b} E \quad (1b)$$

Where F(L,K) is the concave CRS production technology common to both economies, *E* is the quantity of White capital exports to the Black economy, and L_w, K_w, L_b, K_b are the quantities of labor and capital available in the White and Black economies. For simplicity, assume that L_w=L_b.

From this model, the incomes of White capital owners will be:

$$P_{kw} = \frac{\partial F(K_w - E, L_w)}{\partial K_w} * (K_w - E) + \frac{\partial F(K_b + E, L_b)}{\partial K_b} * E \quad (2)$$

White capital owners thus maximize income when the derivative of income with respect to E is zero:

$$-\frac{\partial F}{\partial K_w} - \frac{\partial^2 F}{\partial^2 K_w}(K_w - E) + \frac{\partial F}{\partial K_b} + \frac{\partial^2 F}{\partial^2 K_b}E = 0 \qquad (3)$$

Suppose that the ratio of capital to labor is the same in the White and Black economies, indicating no discrimination. This requires that $K_w - E = K_b + E$. This implies that $\frac{\partial F}{\partial K_w} = \frac{\partial F}{\partial K_b}$ and $\frac{\partial^2 F}{\partial^2 K_w} = \frac{\partial^2 F}{\partial^2 K_b}$, so equation 3 is equal to $\frac{\partial^2 F}{\partial^2 K} * (E - (K_w - E))$. We know that $K_w - E > E$, and that $\frac{\partial^2 F}{\partial^2 K_w}$ is negative. As a result, when the capital to labor ratio is equal in the two sectors, White capitalists could increase income by exporting more capital to the Black sector, effectively discriminating against White workers.

This result comes about because all capital in the White sector is White-owned by assumption. As a result, raising the returns to capital in the White sector and lowering them in the Black sector increases earnings of White capitalists. Because this result is a pathological consequence of the assumption that Black capital is trapped in the Black sector, however, it is reasonable to conclude that the optimal level of discrimination for White capitalists is zero.

This result contrasts with the discussion in Appendix A, where we show that White employers increase their aggregate profits by discriminating against Black workers. We reconcile these models by showing that Krueger's conclusion rests on two strong assumptions: that the supply of capital is perfectly inelastic, and that capital cannot be freely disposed of.

Take first the question of free disposal. As shown in equation 3, reducing exports of capital from the White to Black sectors has three consequences. Reducing capital exports increases returns to capital in the Black sector, lowers returns to capital in the White sector, and

changes the return on previously-exported capital by the difference in return in the White and Black sectors. When the amount of capital owned by White capitalists in the two sectors is equal, increases in the rental rate in the Black sector are counterbalanced by decreases in the rental rate in the White sector.

If it is possible for capitalists to dispose of capital, however, they can increase returns in the Black sector without decreasing returns in the White sector. Consider a reformulation of equations 1a and 1b:

$$Y_w = F(L_w, K_w - E) + \frac{\partial F}{\partial K_b} I \tag{4a}$$

$$Y_b = F(L_b, K_b + I) - \frac{\partial F}{\partial K_b} I \tag{4b}$$

$$S.T. I \leq E \tag{4c}$$

Now, White capitalist income and its partial with respect to I are:

$$P_{kw} = \frac{\partial F(K_w - E, L_w)}{\partial K_w} * (K_w - E) + \frac{\partial F(K_b + I, L_b)}{\partial K_b} * I \tag{5}$$

$$\frac{\partial P_{kw}}{\partial I} = \frac{\partial F}{\partial K_b} + \frac{\partial^2 F}{\partial^2 K_b} I \tag{6}$$

Thus, White capitalists would optimally reduce exports if the gains from increasing returns on capital invested in the Black sector $\left(-\frac{\partial^2 F}{\partial^2 K_b} I\right)$ are greater than the loss from investing fewer units of capital $\left(-\frac{\partial F}{\partial K_b}\right)$. This in turn depends on the elasticity of demand for capital, and the share of capital in the Black sector owned by White capitalists.

A second modification, however, fully reconciles the Krueger (1968) model with our model. If we imagine that capital is produced at an increasing cost, we know that in a competitive market without discrimination, the marginal cost of capital will equal the rate of

return on capital in both sectors. Thus, the net return on the marginal unit of capital not invested is zero, creating a clear incentive on the part of capital owners to engage in some amount of discrimination. Consider the following White and Black income functions, where $c_w()$ and $c_b()$ are convex increasing functions with $c_w(x)<c_b(x)$:

$$Y_w = F(L_w, K_w) + \frac{\partial F}{\partial K_b} E - c_w(K_w + E) \quad (7a)$$

$$Y_b = F(L_b, K_b + I) - \frac{\partial F}{\partial K_b} E - c_b(K_b) \quad (7b)$$

Leading to the following White capital income function:

$$P_{kw} = \frac{\partial F(K_w - E, L_w)}{\partial K_w} * (K_w) + \frac{\partial F(K_b + I, L_b)}{\partial K_b} * E - c_w(K_w + E) \quad (8)$$

Now, the White capitalist return on capital exported to the Black sector is:

$$\frac{\partial P_{kw}}{\partial E} = \left(\frac{\partial F}{\partial K_b} - \frac{\partial c_w}{\partial K}\right) + \frac{\partial^2 F}{\partial^2 K_b} E \quad (9)$$

Thus, because $\frac{\partial^2 F}{\partial^2 K_b} < 0$, the optimal choice of exported capital must occur when $\frac{\partial F}{\partial K_b} > \frac{\partial c_w}{\partial K}$. Thus, White capitalists will maximize their aggregate income by withholding investments in the Black sector that have a positive return.

Note, however, that this incentive toward discrimination is simple monopoly pricing power, and in no way depends on the two-sector nature of this economy. Indeed, White capital owners have precisely the same collective interest in reducing the quantity of capital to increase its return in the White sector as in the Black sector. Thus, the implication of this model is that when social conditions exist that suppress the level of capital investment directed toward Black workers, owners of capital have a collective interest in maintaining those conditions.