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Racial discrimination in the U.S. labor market: Employment and wage differentials by skill☆,☆☆,☆☆☆

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ABSTRACT

In the U.S. the average black worker has a lower employment rate and earns a lower wage compared to his white counterpart. Lang and Lehmann (2012) argue that black–white wage and employment gaps are smaller for high-skill workers. We show that a model combining employer taste-based discrimination, search frictions and skill complementarities can replicate these regularities, and estimate it using data from the U.S. manufacturing sector. We find that discrimination is quantitatively important to understand differences in wages and job finding rates across workers with low education levels, whereas skill differences are the main driver of those differences among workers with high education levels.

1. Introduction

In their survey of the economic literature on racial discrimination Lang and Lehmann (2012) document persistent differences in employment and wages across black and white workers in the United States (U.S.). They argue that negative black–white employment and wage gaps are the two main empirical regularities a model of discrimination should seek to replicate.[1] Critically, their review of the evidence suggests these gaps vary considerably by skill. In particular, wage gaps '*are smaller or nonexistent for very high-skill workers*' and employment gaps are '*somewhat smaller among high-skill than among low-skill workers*' (p. 12). The authors also assess the ability of existing discrimination models to replicate these facts. They conclude that '*no existing* [discrimination] *model can fully explain these regularities*' (idem).

In this paper we develop a model of discrimination that successfully replicates these regularities. We show that a model of taste-based employer discrimination can deliver simultaneously mean black–white wage and employment gaps, as well as a decreasing profile of these gaps as the skill of workers increases.[2] Recent evidence in the economics literature suggests labor market discrimination remains a plausible hypothesis to rationalize observed wage and employment gaps across races (see Fryer et al., 2013). Correspondence and audit studies find pervasive evidence of unequal treatment of black workers

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[1] In this literature wage gaps are defined as one minus the ratio of mean black to white wages, whereas employment gaps refer to the percentage-point difference between mean white and black employment rates.

[2] We are not claiming that the model developed in this paper is the only one that can successfully replicate these empirical regularities. In fact, recent models of customer taste-based discrimination and statistical discrimination can also replicate those patterns (see Cavounidis and Lang, 2016; Decreuse and Tarasonis, 2016).

vis-a-vis seemingly equally skilled white workers (see Bertrand and Mullainathan, 2004; Charles and Guryan, 2011). The latest evidence produced by regression-based studies using the methodology proposed by Neal and Johnson (1996) points to the conclusion that, although differences in premarket factors are likely to play a major role in explaining observed mean black–white wage gaps, a substantial wage gap remains after controlling for premarket factors (Lang and Lehmann, 2012). Ritter and Taylor (2011) use Neal and Johnson's methodology to measure the importance of premarket factors for observed mean black–white employment gaps and also find that a substantial gap remains after controlling for premarket factors and a number of other variables.[3]

Two competing approaches dominate the economic literature on discrimination: prejudice or taste-based models, pioneered by Becker (1971), and models of statistical discrimination, starting with Phelps (1972) and Arrow et al. (1973).[4] Despite the voluminous empirical literature on racial discrimination, there is no systematic evidence pointing to one approach as being more plausible than the other (Charles and Guryan, 2011; Lang and Lehmann, 2012). We find both approaches theoretically compelling and existing evidence suggests both are important to rationalize the data. However, in this paper we set statistical discrimination aside and focus only on the consequences of taste-based discrimination for differences in labor market outcomes of blacks and whites. In particular, we build on a modeling approach that combines employer taste-based discrimination and random search frictions to describe differences in labor market outcomes of workers who differ in terms of a nonproductive attribute (e.g. race or gender). The assumption of search frictions is a natural modeling choice in this context, since there are sizable differences in mean unemployment durations of black and white individuals.

Previous models in the discrimination literature have shown how the combination of taste-based discrimination and random search frictions generates mean employment and wage differentials across races.[5] The central intuition is the following. Consider an economy populated by two types of workers (who differ by race) and two types of employers, where one type (prejudiced) incurs a utility cost from hiring a black worker. Since prejudice reduces the match value between prejudiced employers and black workers, the matching opportunities of black workers are smaller compared to those of white workers. Under random search, black workers cannot direct their search away from prejudiced employers (their probability of meeting a prejudiced employer is the same as that of whites), so in this setup black workers have lower employment prospects compared to white workers. This delivers mean employment differentials across races. Lower employment prospects in turn imply black workers have lower reservations values. Since all employers know it takes longer for black workers to find a job, they will take advantage of that and offer black workers lower wages. This delivers mean racial wage differentials.

To generate wage and employment gaps that are smaller for high-skill workers compared to low-skill workers we extend this modeling approach in two directions. We start by assuming that workers and firms differ respectively in their levels of skill and technology and that the production value of the match is a complementary function of firms' and workers' skill levels. Under production complementarities and capacity constraints, in equilibrium, high(low)-skill workers will be matched more frequently with high(low)-technology firms. In other words, there will be positive assortative matching on skill. Because production is also an increasing function of workers' and firms' skill levels, matches involving high-skill workers will involve higher levels of production. If we further assume the utility cost for prejudiced employers of employing a black worker is constant, then the cost of prejudice represents a smaller share of the value of matches as the skill of workers increases. This will translate into lower employment and wage differentials across races as the level of workers' skill increases.

The model developed in this paper shares several features with other models of taste-based discrimination in a random search environment, like Black (1995), Bowlus and Eckstein (2002), Rosén (2003) and Flabbi (2010).[6] In all these models prejudiced employers incur a psychic cost of employing a worker who belongs to the minority group.[7] Our model setup differs from these papers by assuming two-sided skill heterogeneity, production complementarities and endogenous vacancy posting. These assumptions have strong empirical support. The analysis of matched employer–employee data sets over the past two decades established the importance of both worker and firm unobserved heterogeneity to explain observed differences in wages across workers (see Abowd et al., 1999; Lopes De Melo, 2017). Production complementarities are increasingly seen as a plausible description of the production technology in modern labor markets.[8] Although this question is not fully settled, there is a growing consensus that positive sorting on skill is an important feature of labor markets. Lastly, the assumption of endogenous vacancy posting is supported by evidence on the empirical relevance of an aggregate matching function in the U.S. labor market and on firms' response to changes in vacancy filling rates (see Borowczyk-Martins et al., 2013; Davis et al., 2013; Petrongolo and Pissarides, 2001).

We estimate the model using various sources of publicly available data for the U.S. manufacturing sector.[9] A critical feature the model must satisfy to make its empirical implementation plausible is to allow for the possibility that black and white workers have different skill distributions. Indeed, there is substantive evidence of persistent black–white gaps in educational attainment and cognitive skill (see Fryer Jr, 2011; Neal, 2006), which suggests differences in skill across races are likely to play an important role in shaping mean employment and wage differentials. Other models of taste-based employer discrimination have been estimated using structural methods (see Bowlus and Eckstein, 2002; Flabbi, 2010). However, our paper is the first to take to the data a search-discrimination model based on Shimer and Smith's (2000) two-sided skill heterogeneity partnership model. An important distinction of our estimation strategy with respect to other

[3] Neal's and Johnson's investigation of the role of premarket factors in explaining mean black–white wage gaps had a major impact in the literature. In that study the authors argue that controlling for differences in premarket factors (measured by the Armed Forces Qualification Test at an individual's young age) can fully explain the mean wage gap across blacks and whites in the U.S. As mentioned in the main text, recent evidence (see Carneiro et al., 2005; Lang and Manove, 2011) suggests a more nuanced view of the importance of premarket factors.

[4] The literature that followed Phelps (1972) focuses on the possibility that blacks' productivity is more difficult to observe than that of whites, while the literature that builds on Arrow et al. (1973) stresses the effects of differences in employers' beliefs about blacks' and whites' productivity.

[5] This result was first shown in Black (1995).

[6] We only refer to papers based on a similar modeling approach. See Lang and Lehmann (2012) for a comprehensive review of all discrimination models.

[7] Black (1995) assumes prejudiced employers never match with black workers. Bowlus and Eckstein (2002) develop a wage posting model and allow both types of worker to draw their productivity from separate (degenerate) distributions. Rosén (2003) and Flabbi (2010) model the productivity of the match (and not of workers and jobs) as being heterogeneous.

[8] Shimer and Smith (2000) established the equivalence between a specific form of production complementarities and positive assortative matching in a random search environment, generalizing the famous result in a competitive setup put forth by Becker (1973). Several papers in the applied search literature have tried to measure the sign and strength of assortative matching in skill nonparametrically (see Abowd et al., 1999, Eeckhout and Kircher, 2011; Hagedorn et al., 2017; Lopes De Melo, 2017), or estimate the degree of skill complementarities in production using a structural approach (see Bagger and Lentz, 2016; Lise et al., 2016).

[9] Two-sided skill heterogeneity is a distinctive feature of the model that calls for an estimation strategy based on matched employer-employee data. Unfortunately, at the time we started this project there was no matched employer-employee database for the U.S. labor market accessible for researchers based outside the U.S.