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Job Quality in the Service Sector?**

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# What Explains Race/Ethnic Inequality in Job Quality in the Service Sector?

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# What Explains Race/Ethnic Inequality in Job Quality in the Service Sector?

## **Abstract**

White workers experience significant advantages in the labor market both in hiring and in compensation compared to their non-white peers. Human capital differences and occupational segregation are commonly offered as partial explanations for these racial inequalities. To further explain the gap, some scholars have pointed toward firm and intra-organizational dynamics, yet such inquiries have been constrained by a lack of suitable data. The lack of data has also precluded an examination of key aspects of job quality beyond wages and benefits, in particular exposure to precarious scheduling practices. We draw on innovative matched employer-employee data from The Shift Project to estimate race/ethnic gaps in these temporal dimensions of job quality and examine the contribution of firm-level sorting and intra-organizational dynamics to these gaps. Results from regression and decomposition analyses show significant race/ethnic gaps in exposure to precarious scheduling that disadvantage non-white workers. Going beyond standard explanations such as human capital differences, we provide novel evidence that both firm segregation and racial discordance between workers and managers play significant roles in explaining race/ethnic gaps in job quality, though a portion of the gap remains unexplained. Notably, we find that race/ethnic gaps are larger but more explicable for women than for men.

# Introduction

White workers experience significant advantages in the labor market. In the hiring process, audit studies show that white workers receive a quarter to a third more job interview callbacks than otherwise identical Black and Hispanic workers (Quillian et al., 2018). White workers are also significantly less likely to experience involuntary termination (Elvira and Zatzick, 2002) and these disparate experiences of employment entry and exit conspire to produce a large race/ethnic gap in unemployment (Couch and Fairlie, 2010). Non-white workers also fare worse on the job, earning lower wages (Mandel and Semyonov, 2016) and having less access to benefits (Kristal et al., 2018).

Existing research on race/ethnic gaps in job quality suggests that a portion of the gap can be attributed to differences in human capital or occupational segregation (Mandel and Semyonov, 2016; Semyonov et al., 2011), and, less often, to differences in access to worker power (LaBriola and Schneider, 2019). However, these approaches do not generally consider the role of the firm in the stratification process. This is an important omission because, as Baron and Bielby (1980) note, occupations do not set wages or work schedules, firms do. Beyond occupational segregation, race/ethnic differences in job quality could be driven by firm-level sorting, in which non-white workers are sorted into lower job-quality firms through a process of allocative discrimination (Cardosa et al., 2015; Blau and Kahn, 2016). Scholars have also called attention to the intra-organizational processes that may produce race/ethnic gaps in job quality (Avent-Holt and Tomaskovic-Devey, 2010).

Wages and fringe benefits are important dimensions of job quality and comprise an economic dimension of precarious employment. However, recent research has called attention to the importance of the “temporal” dimension of job quality (Kalleberg, 2011; 2018). While scholars have long been concerned with non-standard work schedules (Presser, 1999) and limited workplace flexibility (Galinsky, 2011), research and policy has more recently recognized the importance of unstable and unpredictable work schedules. In this emerging research on temporal job quality, the service sector stands out as a setting where large proportions of

workers have schedules that are highly variable and are provided with as little as a few days of advance notice (Lambert, Fugiel, and Henly, 2014). More specifically, these workers are subject to last-minute shift cancellation and on-call shifts (Schneider and Harknett, 2019). These scheduling practices occur against a backdrop of involuntary part-time work and very limited employee schedule flexibility (Lambert, 2008). Moreover, exposure to these scheduling practices appears to have significant negative effects on worker and family wellbeing (e.g. Schneider and Harknett, 2019; Carillo et al., 2017; Henly and Lambert, 2014). However, we know very little about how exposure to these unstable and unpredictable scheduling practices may be patterned by race/ethnicity or about the underlying sources of any such inequalities.

We examine the presence and causes of race/ethnic inequality in these temporal dimensions of job quality with a focus on the retail and food service sectors. Workers in these sectors comprise upwards of 10% of the labor force and constitute the single largest concentration of low-wage workers (Osterman and Schulman, 2012). These sectors and these dimensions of job quality are also a strategic site for examining the sources of race/ethnic gaps in job quality because exposure to such scheduling practices is highly contingent on managerial practices and discretion at the company level (Ton, 2014), but also at the level of direct supervisor (Lambert, 2008).

Our analysis draws on data on 20,400 hourly workers employed at 81 of the largest retail and food-service firms in the United States. These data were collected as part of The Shift Project and contain detailed measures of work scheduling exposures, demographics, human capital, and access to worker power (Schneider and Harknett, 2019). These data are also quite unusual in that they comprise a matched employer-employee sample that allows us to examine firm-level sorting and intra-organizational dynamics.

We find that white workers are significantly advantaged in terms of job quality. White workers are less likely to have cancelled shifts, work on-call, work consecutive closing then opening shifts (“clopens”), be involuntary part-time workers, or have trouble getting time off. Approximately a third of the race gap in job quality is accounted for by demographic,

human capital, and occupational differences commonly featured in prior research. Worker power plays a relatively small explanatory role. The unique matched employer-employee data allows us to show the added explanatory power of firm-level sorting by race, which accounts for an additional 2% to 20% of the race/ethnic gap depending on the measure. The data also uniquely include information on the race of supervisors, with which we show that racial discordance between a worker and their manager explains between 3% and 28% of the remaining race/ethnic gap in job quality. Interestingly, race gaps in job quality are larger and more explicable for women than for men. Our results provide novel empirical evidence that firm-level sorting and intra-organizational dynamics are important for understanding labor market inequalities and underscore the importance of intersectional analyses of these inequalities and their explanations.

## **Race/Ethnic Gaps in Wages and Benefits**

The most developed research on race/ethnic gaps in employment relates to discrimination in hiring. A now well-established set of results from experimental audit studies shows that Black and Hispanic applicants are significantly less likely to receive interview call-backs than their otherwise identically qualified white peers (Quillian et al., 2018; Pager and Shepherd, 2008). These gaps are found in entry-level blue collar jobs for both Black (Pager, 2003) and Hispanic applicants (Pager, Western, and Bonikowski, 2009), in sales and administrative positions (Bertrand and Mullainathan, 2004), and in professional occupations (Gaddis, 2014; Nunley et al., 2015). While the audit methodology is powerful for isolating the effect of race on employment outcomes, it is quite limited in its application. The audit methodology has been used successfully to look at the preliminary stage of the hiring process, but not actual hires and certainly not at race/ethnic gaps in job quality among the employed.

A large body of empirical research has examined race/ethnic gaps in wages as one instance of inequality in job conditions among those who are employed. This line of research draws on rich observational data and uses decomposition techniques to examine race/ethnic gaps

in compensation. Most research focuses on the Black-white wage gap and documents that Black workers earn considerably less than white workers (Grodsky and Pager, 2001). Wilson (1980) famously predicted a declining significance of race for wages. Some research using Census data finds evidence of a decline over the period 1970-2000 (Mandel and Semyonov, 2016), while other work using PSID finds widening gaps in the late 1970s and mid-1980s (Cancio et al., 2005). However, since 2000, wage gaps appear to have widened significantly (Mandel and Semyonov, 2016). While much of this work has focused on the Black-white wage gap, this disadvantage extends to other race/ethnic minority groups as well. For instance, Black, Hispanic, and workers of other race/ethnicity were all significantly more likely to hold jobs in the bottom quintile of wages (Kalleberg, Reskin, and Hudson, 2000).

Scholars have also examined race/ethnic gaps in another important economic dimension of job quality - fringe benefits coverage. White men are significantly more likely to have pension and health coverage than Black men (Hersch and White-Means, 1993), both Hispanic men and women are less likely to have pension or health coverage than their white counterparts (Kalleberg et al., 2000; Keene and Prokos, 2007; Semyonov et al., 2011), and there is some evidence that Asians are similarly disadvantaged (Semyonov et al., 2011). In the most recent accounting of race/ethnic inequality in fringe benefits, Kristal et al. (2018) use data from the CPS and show that as of 2015, 44% (60%) of white workers had an employer-provided pension (health insurance) versus 36% (55%) of Black workers and 28% (46%) of Hispanic workers, and that these gaps have widened over time. This work consistently finds that Hispanic workers are less likely to have fringe benefits than Black workers who are in turn less likely to have access than white workers.

## Sources of the Job-Quality Gap

What explains these race/ethnic differences in job quality? One canonical set of explanations traces race/ethnic gaps to individual differences in demographics or human capital. A second set of explanations points to the importance of structural position with respect to occupation

or access to worker power. A more recent, largely theoretical line of research calls attention to between and within-firm processes that generate inequality. We review these potential explanatory factors below.

## **Demographics and Human Capital**

One set of explanations focuses on individual-level differences between white and non-white workers on other characteristics that are associated with wages and other dimensions of job quality. These could include demographic characteristics such as age, gender, marital status, and parenthood that pattern job quality and could be differentially distributed among white and non-white workers. But, much more prominently, differences in human capital endowments between white and non-white workers are posited as a key source of gaps in job quality between white and non-white workers. This position has been most famously articulated by Heckman (1998) who argues that “differences in skills they bring to the market” explains the majority of race/ethnic gaps in wages.

Differences in human capital indeed appear to explain a substantial portion of the race/ethnic gap in earnings. Recent estimates suggest that such differences can account between about half (Snipp and Cheung, 2016) and three-quarters of the gap (Mandel and Semyonov, 2016). Hersch and White-Means (1993) combine wages with the value of health and pension benefits and find that individual differences can explain about half of the gap in total compensation, while Semyonov et al. (2011) find that demographic and human capital characteristics explain all of the Asian gap, a significant portion of Black disadvantage, but relatively less of the white/Hispanic gap in benefits.

It is important to note that these differences in human capital attainment are not devoid of the influence of racial discrimination, but that rather, non-white workers face significant barriers to educational attainment as well as to training and other forms of skill acquisition (Altonji and Blank, 1999). Further, labor market discrimination may also affect human capital attainment (Tomaskovic-Devey, Thomas, and Johnson, 2005).



## Occupational Segregation

A second class of explanations focuses on occupational segregation. White workers may be concentrated in occupations that are higher paying and provide generally better job quality. This segregation could be the result of preferences (Altonji and Blank, 1999), but appears to be much more likely to be the product of allocative discrimination in which non-white workers face discrimination in hiring into occupations with better job quality (Petersen and Morgan, 1995).

Occupational segregation plays an important role in accounting for wage gaps (Grodsky and Pager, 2001; Huffman and Cohen, 2004). However, Semyonov et al (2011) show that occupational segregation plays a relatively small role in explaining race/ethnic gaps in health and pension coverage, though Kristal et al. (2018) suggest that occupational segregation played a role in widening benefits gaps between white and Hispanic and white and Black workers through 2015.

## Worker Power

Human capital and occupational segregation explanations for race/ethnic gaps in job quality have dominated prior literature. Job quality is affected by these individual-level characteristics. But, job quality is also affected by worker's access to power in relation to employers. Worker power can stem from associational bases, most prominently through union membership (Wright, 2000). Here, union members appear to derive significantly higher wages and more generous benefits compared to workers not covered by union contracts (e.g. Freeman and Medoff, 1984). They also appear to receive more stable, if also less-standard, schedules (Finnigan and Hale, 2018). But, the associational power of unions also extends to non-unionized workers in union-dense industries and regions (Western and Rosenfeld, 2011). Unionization likely contributes to a reduction in the size of the wage gap between whites and non-whites. Private-sector unionization rates are higher among non-whites than whites (Defreitas, 1993; Rosenfeld and Kleykamp, 2009), and research shows that unionization can

have protective effects against discrimination in the non-unionized private sector. Rosenfeld and Kleykamp (2012) show, for example that wage gaps would be up to 30% lower for black women if union representation had remained high in the United States.

A second source of worker power is structural and derives from workers' position in the economic system. One manifestation of this is marketplace bargaining power, where workers can more effectively bargain better working conditions when labor markets are tight (Silver, 2003). Recent research on the great recession shows that slack labor market conditions were associated with an increase in precarious jobs (Wallace and Kwak, 2018) as well as with increasing class-polarization in work hour volatility (LaBriola and Schneider, 2019). There are also significant differences in labor market conditions experienced by white and non-white workers. A very large literature documents these disparities in marketplace bargaining power in terms of spatial mis-match (Ihlandfeldt and Sjoquist, 1998; Gobillon, Selod and Zenou, 2007; Andersson et al., 2018), showing the Black workers, in particular, reside in much weaker labor markets than white workers.

## **Firm-Level Sorting**

Recent research focused on the gender wage gap suggests that beyond occupational segregation, workers may also be sorted and segregated differentially by firm (Blau and Kahn, 2017). In this instance, even within the same sector and occupations, non-white workers may be sorted into firms with lower job quality. Research on firm-level sorting is quite limited because little matched employer-employee data exists for the United States. While matched data has been used in a limited fashion to examine the gender wage gap in Portugal (Card et al., 2014) and the motherhood penalty in Canada (Fuller, 2018) and Norway (Petersen et al., 2014), these data cannot capture the dynamics of racial inequality found in the United States. The limited work to date using matched data in the United States to examine job quality disparities (i.e. Bayard et al., 2003; Webber, 2016) focuses on gender.

There is ample research that suggests significant discrimination at the point of hire,

but we know much less about whether this sort of allocative discrimination functions to sort non-white workers not only into certain occupations and sectors, but whether allocative discrimination may also function to sort non-white workers into lower job quality firms within the same sector.

## **Intra-Organizational Dynamics: Worker/Manager Discordance**

By using matched employer-employee data, scholars are able to both estimate the contribution of firm-level sorting and look within employers to examine how intra-organizational dynamics contribute to race/ethnic gaps in job quality.

A large body of research on the distribution of job rewards given to workers with supervisors of a different race, what we call racial discordance, suggests that this intra-firm dynamic is central to understanding inequality. Giuliano, Levine, and Leonard (2009) find significant racial bias in hiring at a large retail firm, in which black and hispanic workers are more likely to be hired by managers of the same race. The researchers also find that manager-worker pairs of the same race tend to have better outcomes in terms of quits, dismissals and promotions (Giuliano, Levine and Leonard, 2011). Maume, Rubin, and Brody (2013) study manager's characteristics, finding that certain characteristics, such as technical competence at work, increase job satisfaction, organizational commitment, and mental health. Benefits to having a manager of the same race have been studied outside of the private sector as well. Grissom and Keiser (2011) demonstrate that teachers are more satisfied and less likely to quit when the principals of their schools are of the same race. Hensvik (2014) uses matched data to study employers in Sweden, finding that female managers are associated not only with more female hires, but also with a reduction in the gender wage gap. Tomaskovic-Devey et al. (2015) find that, in Sweden, workplace inequality between natives and immigrants decreases once immigrants become represented in management. Drawing on Tilly (1998), Tomaskovic-Devey and Avent-Holt have shown (Tomaskovic-Devey, Hallsten and Avent-Holt, 2015; Avent-Holt and Tomaskovic-Devey, 2011; 2014) how relationships within a firm generate inequality, while building an explanatory model of how intra-firm

inequality may progress.

This literature identifies a discordance effect that could theoretically function to disadvantage both non-white and white workers whose managers are of another race/ethnicity. This dynamic operates within a context of often very unequal organizational demography to potentially account for race/ethnic gaps in job quality. That is, white workers are over-represented among managerial ranks with the consequence that non-white workers are much more likely to have a discordant manager than white workers (Stainback and Tomaskovic-Devey, 2009).

## **Everyday Discrimination and Normative In-Group Bias**

A key contention of the racial discordance approach is that each workplace will develop its' own regime of inequality depending on the race of the manager (Tomaskovic-Devey, et al. 2016), and key findings from the research presented above supports the notion that the race of managers dictates the inequality regime. However, DiTomaso and Parks-Yancy (2014) argue that it may be problematic to completely decontextualize workplace dynamics from a broader national context. With respect to race, historical differences in the treatment of whites and all other minorities may be difficult to overcome. DiTomaso (2007) use the term normative in-group to describe those who, as a group, become associated with success, competence, and are given the benefit of the group. DiTomaso (2007) finds, for instance, in a survey of scientists and engineers, that U.S. born white men receive more favorable performance evaluations from their managers, regardless of the race of the manager.

This argument is in line with qualitative research which documents the discrimination non-whites report in the workplace. Deitch et al. (2003), for instance, argues that Blacks confront regular discrimination at the workplace, in a more subtle and pervasive form they call "everyday discrimination." Cortina (2008) argues that racial disparities may persist through what she calls selective incivility in the workplace, where veiled manifestations of racism may enter into an organization. This persistence of racial bias in the workplace does

not seem to be the effect merely of the relational dynamics of the workplace, but a reflection of the racial hierarchy in the United States. According to these theories of a normative in-group, even among individuals within a firm, a national racial hierarchy which puts whites above all other groups may bleed into an organization and put non-whites at a greater risk for worse treatment, regardless of the race of the person in charge. This general discriminatory atmosphere is difficult to observe, since different levels of human capital or firm sorting may be the result of a generally discriminatory environment. Normative in-group bias is only directly visible if, after controlling for all possible explanations, race/ethnic gaps persist. However, the lack of a persistent gap would not suggest that there is no normative in-group bias, since this bias may manifest in measurable differences in the included variables. Instead, it would suggest that this bias manifests at the intra-firm level.

## **Gender Differences in the Race/Ethnic Gap**

A large literature documents significant gender disparities in job quality alongside race/ethnic gaps (Petersen and Morgan 1995; Blau and Khan, 2017). How might these two axes of disadvantage, race/ethnicity and gender, intersect to shape labor market inequality? Scholars such as Collins (2009), Hooks (1984), and Glenn (1992) argue that race and gender are not simply separate dimensions of disadvantage, but are rather intersectional, that “race, class, gender, sexuality, ethnicity, nation, ability, and age operate not as unitary, mutually exclusive entities, but as reciprocally constructing phenomena that in turn shape complex social inequalities” (Collins, 2015). However, there is ambiguity and disagreement about the empirical predictions of an intersectional approach (Mandel and Semeyonov, 2016; Grollman, 2014; McCall, 2005).

One possibility is that race/ethnic and gender disadvantages will be additive, such that white men would have the most advantageous position in the labor market and women of color the most disadvantaged. In the literature on wages and the literature on fringe benefits, there is evidence that women of color earn the lowest wages and have the least access to

benefits as compared to men of color and both white men and women (i.e. Jones and Schmitt, 2015; Mandel and Semeyonov, 2016).

However, the intersectional relationship between race and gender and job quality may be more nuanced than a simple additive relationship. For instance, the magnitude of race gaps may differ between men and women. There is some evidence for this more nuanced relationship in intersectional analyses of wages. Contrasting race/ethnic gaps in wages by gender, it appears the gaps are larger for men than for women (e.g. Greenman and Xie 2008; Cancio et al., 2010; Mandel and Semeyonov, 2016; Snipp and Cheung, 2016) and the same holds true of race/ethnic gaps in fringe benefits such as health insurance and pension coverage (Kristal, Cohen, and Navot, 2018).

Finally, we might expect gender differences in the extent to which race/ethnic gaps in job quality can be “explained” by the factors discussed above, such as human capital differences or occupational segregation. Here, scholarship suggests that men of color may experience the highest levels of direct discrimination in the labor market (Grodsky and Pager, 2001). In the literature on wages, there is some evidence that differences in demographics, human capital, and occupation explain more of the gap for women than for men (Mandel and Semeyonov, 2016), in line with expectation that men of color may experience the most direct discrimination. However, when looking at fringe benefits, these explanatory factors account for a similar share of Black and Hispanic disadvantage in coverage for women as for men (Semeyonov, et al., 2011).

## **Temporal Precarity**

In addition to low pay, few fringe benefits, little autonomy, and high rates of turnover, jobs in the U.S. service sector are characterized by a large degree of temporal instability. This instability is multi-dimensional and includes short advance notice of work schedules, variability in the timing of work shifts and in the number of hours worked each week, and involuntary part-time work (Lambert, Fugiel, and Henly 2014; Lambert, 2008; Rubery et al.

2005; Halpin 2015). Work schedules are typically determined by employers with little input from workers about when they are available or would prefer to work, and schedules are often set without regard for workers' need to rest, to care for children or other family members, to pursue schooling or hold second jobs, or to anticipate and plan for non-work time (Golden 2001).

This temporal instability is the result of a set of human resource management strategies, used by employers to closely align staffing with consumer demand and thus minimize labor costs (Lambert 2008). These scheduling practices, sometimes referred to as "just-in-time" scheduling, are part of a broader "risk shift" in which employers have offloaded more of the risk, uncertainty, and costs of doing business onto workers themselves (Hacker 2006). Although these "just-in-time" scheduling practices have some advantages from the employer perspective in terms of lowering labor costs, from the perspective of the workers these practices create routine instability and chronic uncertainty.

This routine uncertainty manifests in a number of specific ways. Many workers experience a cancelled shift, often with less than a days' notice. Typically workers receive no pay for these shift cancellations, and because workers are usually only paid for the hours they actually work, each of these cancellations represents an unexpected earnings shock. Workers are also often expected to keep their schedules open and available for "on-call" work shifts with no guarantee that these shift will translate into actual hours worked and actual earnings. Another form of temporal precarity is the common practice of scheduling of back-to-back closing then opening ("clopening") shifts with little time for workers to rest in between (Kantor 2014).

One key driver undergirding this temporal precarity is the prevalence of involuntary part-time work. Workers often receive fewer hours than they desire and fewer hours than they need to make ends meet. As a result, out of economic necessity workers will remain open and available to pick up new shifts, even on short notice and at inconvenient times.

The "flexibility" in work scheduling should not be confused with desirable flexibility on

the part of workers. Instead, this is flexibility for employers, which works to the advantage of employers and represents what is usually an undesirable instability from the perspective of workers. Few workers have much input into their work schedules, and workers also often lack the flexibility to get time off from work when needed. Schedules are primarily dictated by employer needs.

Unstable and unpredictable work schedules are a potential source of stress and economic insecurity. When workers are paid hourly, fluctuations in work hours mechanically lead to fluctuations in earnings, and work schedule instability has been shown to lead to income volatility, difficulty making ends meet, and material hardship. Prior research has also documented the work-life conflict that is caused by these scheduling practices (Henly and Lambert, 2014) as well as negative consequences for worker health and well-being (Schneider and Harknett, 2019). Temporal precarity is both a prevalent and a consequential dimension of job quality.

## **Race/Ethnic Inequality in Temporal Precarity**

While unstable and unpredictable work scheduling practices appear to be common and consequential for employee wellbeing, there is very little research that examines race/ethnic inequality in exposure to this aspect of job quality. Swanberg et al. (2014) use data from 2008 National Study of the Changing Workforce to examine to examine inequality between workers in terms of scheduling. However, notably, comparing across multiple measures of scheduling, including schedule control, being asked to work overtime, being required to work overtime, experiencing hour reductions, or being involuntary part time, Swanberg et al.(2014) find no evidence of any race/ethnic inequality in work schedules among low-wage workers. However, Swanberg et al (2014) actually find very little evidence of any patterning of scheduling exposures by any explanatory variable and the failure to detect significant effects may be driven by the relatively small sample size - just 645 respondents.

However, Reutshlin and Asanta-Muhammad (2015) use CPS ASEC data from 2012-



2015 and find that Black and Hispanic workers in retail are substantially more likely to be involuntary part-time than their white, non-Hispanic counterparts. Lambert et al (2014) use a broader set of scheduling measures from the NLSY97 for workers across the full range of occupations. Black and Hispanic workers receive less advance notice of their work schedules than white workers and have less schedule control, but do not experience more work hour volatility.

These studies show unadjusted gaps in work schedule quality by race/ethnicity. However, they do not decompose these gaps into differences due to demographics, human capital, or segregation. McCrate (2012) focuses on a narrower measure of scheduling and reports that Black men, American Indian men, and men with more than one race are all more likely to have a variable schedule which they do not control than white men, as are Black women and Hispanic women as compared to white women. Adjusting for demographic and human capital variables leaves a significant gap between Black and white workers.

This existing empirical literature is limited, and, like the broader literature on race/ethnic gaps in job quality, does not consider the role of firm-level sorting or of intra-organizational processes in producing race/ethnic inequality. However, in the domain of scheduling, these are perhaps especially likely to be important factors underlying race/ethnic inequalities.

Within the context of the service sector, firm segregation likely plays a much more important role than occupation. The structure of the service sector is such that there is a relatively large base of, bottom-tier work which has relatively low requirements for human capital and is low-prestige. Additionally, there are few opportunities for upward mobility into new and significantly better occupations. However, firms distinguish themselves from their competitors by offering higher starting salaries or more desirable scheduling practices. Through word-of-mouth, workers may see jobs at these firms as more desirable, thus creating more firm-level sorting or employers may be differentially selective in the hiring process.

Further, as discussed above, front-line managers are granted substantial discretion when it comes to scheduling (Lambert, 2008). Therefore, discordance may play a larger role in

scheduling, where stability is a prized resource which managers may keep for employees of the same race. Similarly, normative in-group bias may also play a larger role, if whites are afforded better quality schedules by their managers regardless of manager race or any other observable characteristics.

## Hypotheses

We expect that non-white workers will experience higher levels of exposure to precarious scheduling than their white counterparts. Prior theory and empirical research is ambiguous with respect to whether these race/ethnic gaps will be larger or smaller for women as compared to men as well as with respect to the relative disadvantage of Black and Hispanic workers compared to white workers.

We then expect that a significant portion of overall race/ethnic gaps in precarious scheduling will be explained by differences in demographics, human capital, occupation, and worker power. We also hypothesize that firm-level sorting and managerial discordance will explain an additional portion of race/ethnic gaps. We expect that, collectively, these factors will explain a larger portion of race/ethnic gaps among women than among men.

## Data and Methods

### Data

We draw on an innovative survey of retail and food service workers conducted between 2016 and 2018. The Shift Project collected survey data from 20,433 respondents employed at one of the 120 largest retail or food service firms in the country. The survey contains detailed information on respondent’s job quality including work scheduling practices, demographic information and human capital measures.

The data thus nest workers within firms and so constitute matched employer-employee data. Such data are very rare in the United States. Data sets that are commonly used to describe employees’ job conditions such as the NLSY, PSID, or CPS do not allow a

link to identifiable employers. Studies, such as the LEHD or the BLS's OES are limited by containing little information on demographics, human capital, and compensating differentials that are potentially important explanations for the race/ethnic job quality gap. They also contain no data on the dimensions of temporal precarity that we focus on here.

The innovation is to use the highly sophisticated targeting capabilities of Facebook in order to assemble a sampling frame of workers at specific retail/food service companies. Facebook allows advertisers to target messages to users based on characteristics provided by users and on characteristics derived from user activity data - including employer. By acting as an "advertiser," these tools can be used to purchase and place ads in the newsfeeds of Facebook users who work at specific companies. The Shift Data are created using this approach - purchasing paid advertisements targeted to employees of large retail and food service firms and then routing users who click on an advertisement to a web survey, where they are asked to consent, and then begin the survey.

The advertisement is labeled as falling under the auspices of the sponsoring university. There is a photo designed to resemble the workplace of the targeted employer and users are offered the chance to enter a drawing for an Apple iPad. Users who click on the advertisement are routed to an electronic survey hosted by Qualtrics. The survey can be accessed on desktop or mobile. Users are asked to consent to participation and then begin the survey. In essence, Facebook serves as both the sampling frame and the recruitment channel.

This approach to data collection departs from traditional probability sampling and some have raised reasonable questions about such approaches (Groves, 2011; Smith, 2013). One potential concern arises from the sampling frame of Facebook users. However, approximately 80% of Americans age 18-50 are active on Facebook (Perrin, 2015), on par with telephone frames (Christian et al., 2010). Another potential concern is non-random non-response to the recruitment advertisement. The approach follows emerging research that demonstrates that non-probability samples drawn from online platforms, in combination with statistical adjustment, yield similar distributions of outcomes and estimates of relationships as

probability-based samples. This prior work has drawn data from Xbox users (Wang et al., 2015), MTurk (Mullinix et al., 2016), and Pollfish (Goel et al., 2015). Yet, of all of these, Facebook is the most widely used by the public. The data collection methodology and tests of bias are described in detail in Schneider and Harknett (2019).

## Dependent Variables

We include five key measures of job quality which we use as our dependent variables. These questions are designed to measure workers’ exposure to unstable and unpredictable work schedules, access to working hours, and schedule flexibility. Specifically, we measure:

*Cancel Shift.* This variable is constructed with the question “In the last month, was one of your scheduled shifts cancelled with less than 24 hours notice?” A 1 indicates that the respondent answered yes, while a 0 indicates a no.

*On Call.* This variable is constructed with the question “In the past month or so, have you ever been asked to be ‘on-call’ for work at [EMPLOYER NAME]? By ‘on-call,’ we mean you have to be available to work, and you find out if you are needed to work just a few hours before your shift.” A 1 indicates that the respondent answered yes, while a 0 indicates a no.

*Involuntary Part-Time.* This variable is constructed through the use of two questions. First, we ask “Do you agree or disagree?: I would like to work more hours.” Respondents are given four choices from Strongly Agree to Strongly Disagree. If respondents selects either “Agree” or “Strongly Agree,” we check responses to the question “How many hours per week do you usually work...” Respondents are given options at five hour intervals from zero to 50, and can also answer that it varies. Involuntary part-time is a dummy variable where a 1 indicates that the worker would like to work more hours, and they report usually working fewer than 30 hours per week.

*Get Time Off.* This variable is constructed with the question “Do you agree or disagree?: It is easy to get time off from work when I need it.” Respondents are given four choices from Strongly Agree to Strongly Disagree. In order to match the interpretation of this variable,

we flip the responses in order to indicate difficulty getting time off, and we dichotomize the variable. A 1 indicates that the respondent answered that they Strongly Disagree or Disagree with the question, and a 0 indicates that the respondent Agreed or Strongly Agreed.

*Clopening.* This variable is constructed with the question “In the last month, have you ever worked a closing shift and the very next opening shift (clopening)?” We create a dummy indicator of 1 if the respondent answered yes, and a 0 if the respondent answers no.

Finally, we create an additive scale of precarious scheduling conditions which measures the five variables described above. *Precarious Schedule Scale.* This variable ranges from 0 to 5. A value of 0 indicates that a worker did not experience any of the precarious scheduling conditions among shift cancelation, on-call work, involuntary part-time work, difficulty getting time off, and working a clopening shift. A value of 5 on the scale indicates that a worker experienced all 5 of these precarious scheduling conditions. We use this scale for greater parsimony in presenting results separately for men, women, Black, Hispanic, and other race/ethnic groups.

## Independent Variables

We derive our measures of race/ethnicity by asking respondents to check all race or ethnicities that apply to themselves from among white, Hispanic or Latino/Latina, Black or African American, Asian or Pacific Islander, American Indian or Alaskan Native, or other. From the question about the respondent’s own race/ethnicity, we created the measure *Non-White*. Non-white is a simple dummy variable indicating a 1 if the respondent did not check white, or if white was checked in combination with any other response, and a 0 if the respondent checked white and only white. The non-white category consists of approximately 43% Hispanic or Latino/Latina, 15% Black or African-American, 10% Asian or Pacific Islander, 5% American Indian or Alaskan Native, and around 27% who indicated an “Other” race/ethnic category. We also create a four-category measure of *Race/Ethnicity* that categorizes respondents as white, non-Hispanic; Black, non-Hispanic, Hispanic, or Asian/Other/Multi-racial,

non-Hispanic.

We also construct a variable for gender based on respondents' self-reports. This variable is coded as one if a respondent says their gender is male, and a zero if the respondent says their gender is female. We primarily use this variable to stratify our analyses of the race/ethnic job quality gap.

## Sources of Race/Ethnic Gaps in Job Quality

*Demographics.* We include a series of demographic characteristics as a first set of controls for our models. *Age.* This variable is coded as respondent's age by ten-year age group, starting with 18-19, 20-29, and ending with 70+. *Relationship Status.* This variable categorizes whether an individual is unmarried and living with a partner, married and living with a partner, or not living with a spouse or a partner. *Children.* This is a dummy variable, coded as a one if the respondent indicates they have children, and a zero if they indicate they do not.

*Human Capital.* We also control for an employees' human capital. *Tenure.* This variable includes four responses identifying how long they have worked at their current job: less than one year, one to two years, three to five years, five to ten years, or more than ten years. *Hourly Wage.* This continuous variable is the dollar amount that the respondent earns per hour. *Education.* This variable indicates the highest level of education that has been completed by the respondent. Respondents can indicate that they have no degree, a high school diploma/GED, some college, an associate's degree, a bachelor's degree, or a master's degree/advanced Degree. *Enrolled.* This dummy variable is coded as a one if the respondent is currently enrolled in school, and a zero if the respondent is not.

*Occupation.* Our research design, focusing on a sub-set of industries, limits the variation in occupation by examining the race/ethnic gap in job quality within the service sector. However, within our sample, workers vary on whether they occupy a managerial position or not. As a general measure of occupation, we include a dummy variable indicating that the

respondent is a *manager*.

*Worker Power* We measure worker power with indicators of union membership at the individual level and unionization rates at the state level. The union membership is reported by workers on the Shift Survey. State unionization rates are derived from the CPS question if an individual is in or covered by a union from 2014-2017. Each unique response to this question is then averaged over state and industry, and merged at the state-industry level. We also include previous year state unemployment rates compiled from the Bureau of Labor Statistics as an indicator of (less) worker power.

*Employer.* When the indicator “Employer Fixed Effects” is followed by “Yes,” we include a fixed effect for the respondent employer. Respondent employer is usually first identified by surveying individuals who marked that they were employees of the specific organization on Facebook. Individuals are asked to confirm in the first question of the survey that they do in fact work for this employer. If they do not, they are asked to write in their employer and are re-categorized. Respondents who work at an employer not included among the 120 target firms are excluded. By including the employer fixed-effect, we account for firm-level sorting.

*Discordant Race/Ethnicity* In addition to reporting on their own race/ethnicity, respondents are also asked to report the race/ethnicity of their supervisor with the same response options. In order to measure race/ethnic discordance, we collapse both the respondent and supervisor race/ethnic categories into four categories: white, Black, Hispanic, and multiracial or other race. We then create a dummy variable indicating a 1 if the four-category respondent race/ethnicity variable is the same as their supervisor’s four-category race/ethnicity variable, and a 0 otherwise. Therefore, white workers with a non-white manager, are coded 1 to indicate race/ethnically discordant, as are Black workers with a non-Black managers, and so on. White workers with a white manager, Black workers with a Black manager, and Hispanic workers with Hispanic managers are all coded as 0 to indicate race/ethnic concordance between worker and manager. We note that there is some ambiguity in the measure of

discordance for workers and supervisors categorized as multiracial or other. As a robustness check, we omit workers from our sample who identify as multiracial/other or as having a supervisor who is multiracial/other and this exclusion does not change the pattern of results. These separate results are included as an Appendix.

## Analytical Approach

We estimate a series of linear probability models (Angrist and Pischke, 2009) to describe the race/ethnic gap in job quality. We first take each measure of job quality ( $Y$ ) for each individual ( $i$ ) and regress it on the dichotomous indicator for race/ethnicity  $Nonwhite_i$ .

$$Y_i = \beta_0 + \beta_1 Nonwhite_i \quad (1)$$

We will find evidence of a race/ethnic gap in these novel dimensions of job quality if the coefficient on  $Nonwhite_i$  is positive and significant.

Next, we account for a vector of demographic characteristics  $D$ , human capital,  $HC$ , and occupation,  $Occ$ ; firm-level sorting by introducing a firm fixed-effect,  $\gamma_f$ ; measures of worker power,  $Pow$ ; and a measure of race/ethnic discordance between workers and their supervisors,  $Discord$ :

$$Y_i = \beta_0 + \beta_1 Nonwhite_i + \beta_2 D + \beta_3 HC + \beta_4 Occ + \gamma_f + \beta_5 Pow + \beta_6 Discord \quad (2)$$

We will find evidence that the race/ethnic gap in job quality is at least in part attributable to differences in our hypothesized explanatory mechanisms if the  $\beta_1$  are attenuated between models (1) and (2).

To understand the contribution of each of the hypothesized explanatory mechanisms to explaining the race/ethnic gap in job quality, we next conduct an Oaxaca-Blinder decomposition of the race/ethnic gap. These decompositions are done using pooled twofold linear decompositions as described by Jann (2008), and non-continuous variables in the model are normalized in order to control for biased results as a function of the choice of reference cat-



egory, as suggested by Yun (2005). In these decompositions, the sample is stratified into white and non-white subsamples and job quality is estimated as a function of explanatory variables in nested models. The decompositions compare three regression models, for whites, non-whites, and pooled with a non-white variable included in the pooled model. The explained portion of the decomposition refers to the difference in levels of explanatory variables between whites and non-whites, using the coefficients produced by the pooled model. The unexplained portion refers to the differences in the size of the coefficients between whites and non-whites, along with differences in the regression constant. The decomposition essentially simulates how much the race/ethnic gap would narrow after accounting for differences between white and non-white groups in each set of explanatory variables, and allows for a parsing of the race/ethnic gap in job quality into "explained" and "unexplained" components. Since the results are additive, we present subsumed variable sets which add together variables contributing to similar types of analyses. We subsume demographic characteristics, human capital, and occupation into the category of traditional explanations, and also include worker power, employer fixed effects, and racial discordance between workers and managers.

We run this decomposition for the full sample for each scheduling outcome. We then decompose the job quality gap using the precarious scheduling scale, stratifying by gender and disaggregating the non-white group into separate Black, Hispanic, and other race/ethnicity groups.

## Results

### Descriptive Statistics

In Table 1, we present descriptive statistics of our main variables by race. Of primary interest, we find that non-white workers report worse job quality. Indeed, non-whites on average report higher likelihood of each of our poor job-quality characteristics. They are more likely to have cancelled shifts, to work on-call, to be involuntary part-time workers, to have trouble getting time off, and to work clopening shifts.

Turning to potential explanatory variables, the most pronounced differences are on demographics. While gender composition is similar between white and non-white workers, white workers are more likely to have children, are more likely to be married, less likely to be single, and are somewhat older than non-white workers.

There are notably few differences in human capital by race/ethnicity. Educational attainment is almost identical in the two samples as are managerial status and job tenure. Non-white workers report slightly higher hourly wages, and non-white workers are more likely to report being enrolled in school.

Important to our analysis, non-white workers are over three times more likely than their white coworkers to have managers of a different race/ethnicity than their own. Therefore, if there is a disadvantage in job quality that stems from having a manager from a different race/ethnic group, non-white workers will be far more disadvantaged by this discordance than their white counterparts.

[Table 1 about here]

While the descriptive statistics suggest a job quality gap, they do not decompose the sources of this gap. We next present results from our regressions accounting for several likely sources of the job quality gap. We first show how the explanatory variables collectively account for a sizeable portion of the race/ethnic gap in job quality. We then decompose the sources of the race/ethnic gap to show the contribution of each of the hypothesized explanations.

## **Race/ethnic Gaps in Job Quality**

For each of the job quality characteristics, we present unadjusted regression models and models that control for an array of explanatory variables. The first model of each set (models “a”) includes no controls, and simply shows the raw race/ethnic gap in the measure. The second set of models (models “b”) include controls for demographics, human capital, and occupation; measures of worker power (unionization and unemployment rates); employer

fixed effects to account for firm-level ; and racial discordance between workers and their managers.

[Table 2 about here]

As suggested by the descriptive statistics and as we hypothesized, we find significant race/ethnic gaps in job quality for each of our measures. Non-white workers are more likely, by between 3 and 5 percentage points, to have had a shift cancelled, more likely to work on-call shifts, more likely to be involuntary part-time, more likely to have trouble getting time off from work, and more likely to work clopening shifts. All of these differences are statistically significant and sizeable. In percentage terms, non-white workers are about 10% to 30% more likely to have a precarious work schedule across the five outcome measures.

This race/ethnic gap may in part be attributable to race/ethnic differences in demographics, human capital or occupation, race/ethnic differences in exposure to worker power, race/ethnic segregation at the firm level, or differences in race/ethnic discordance with managers. In the second set of models (models “b”), we introduce a wide array of controls that may explain race/ethnic gaps in job quality. We include all explanatory variables at once to see how much of the race/ethnic gap is explicable by these observed variables, and how much of the race/ethnic gap persists.

For most measures of job quality, the explanatory variables account for a large portion of the race/ethnic gap. For clopening shifts, the race/ethnic gap is entirely explained, and for canceled shifts and the ability to get time off, the full set of explanatory variables account for approximately two-thirds of the race/ethnic gap. About half the gap in involuntary part time work is explained, and mediators explain a smaller but not insubstantial portion of the race/ethnic gap in on-call work (20%).

After controlling for these explanatory variables, a statistically significant race/ethnic gap persists in cancelled shifts, on-call shifts, and involuntary part-time work. Non-white workers are more likely to experience these precarious schedules compared with white workers, even after controlling for demographics, human capital, worker power, firm segregation, and

discordance with the race/ethnicity of one’s manager. For clopening shifts, the race/ethnic gap entirely disappears after accounting for explanatory variables, and for the ability to get time off, the race/ethnic gap becomes small and is no longer statistically significant. However, with these models it is difficult to determine exactly which factor plays an important role in reducing or closing the race/ethnic gap.

## **Other Predictors of Job Quality**

Along with the estimates of the unadjusted and adjusted race/ethnic gap, Table 2 also shows the relationships between explanatory variables and job quality. In terms of demographics, we see that men are less likely to be involuntary part-time workers, though are more likely to have clopening shifts. In comparison to married workers, those who are cohabiting or single have more trouble getting time off and are more likely to have clopening shifts. Across outcomes, we observe a significant age gradient, with older workers (net of tenure and education), less likely to have cancelled shifts, on-call shifts, involuntary part-time work, trouble getting time off, or clopening shifts.

In terms of human capital, we see that education is at times protective, reducing exposure to on-call and involuntary part-time work. Longer tenure also reduces the risk of involuntary part-time work, but is weakly related to other dimensions of job quality, and is in fact predictive of working clopenings. We see few associations with our measures of worker power. One important exception is more involuntary part time work when unemployment is higher and another is that union members report being more likely to work on-call.

A final noteworthy relationship is that between worker/manager race/ethnic discordance and precarious work schedules. For three of five of our scheduling outcomes, having a manager of a different race/ethnicity was associated with worse job quality. In particular, this worker/manager discordance was associated with canceled shifts, inability to get time off, and working clopening shifts. We highlight this relationship because worker/manager race/ethnic discordance is ordinarily an unobserved, omitted variable, and because this discordance does

seem to be an important predictor of some types of job quality.

## **Decomposing Sources of the Race/Ethnic Gap in Job Quality**

Next, we conduct a decomposition of the race/ethnic gap in scheduling conditions using an Oaxaca-Blinder decomposition. This allows us to determine the portion of the race/ethnic gap that is accounted for by different types of explanatory variables. These results are presented in Table 3 and Figure 1.

[Table 3 about here]

The top panel of Table 3 presents the predicted probabilities of the five schedule outcomes for white workers and for non-white workers, and shows the difference between the two groups. This difference is equivalent to the unadjusted race/ethnic gap presented in Table 2 models “a”. As before, we see significant race/ethnic gaps in each measure of job quality.

The middle panel of Table 3 decomposes the portion of the race/ethnic gap explained and Figure 1 summarizes the relative power of each explanation for each outcome. The “traditional explanations” are shown first and include demographics, human capital, and occupation. The traditional explanations account for a significant portion of the race/ethnic gap for each of the five measures of job quality. The race/ethnic gap narrows after we take into account demographics, human capital, and occupation, but 60% to 80% of the race/ethnic gap remains unexplained.

[Figure 1 about here]

We next turn to a set of potential explanations that have received less attention in previous research because they often go unmeasured: worker power, firm-level racial sorting, and racial discordance between workers and managers.

Worker power explains a small portion of the race/ethnic gap in on-call shifts (2.5%) and in involuntary part-time work (3.5%). For on-call shifts, union membership reduces the race/ethnic gap slightly, and for involuntary part-time it is stronger labor market conditions that reduce the race/ethnic gap slightly. But, this is not an important source of the

race/ethnic gap.

We find that firm-level sorting by race/ethnicity significantly contributes to the race/ethnic gap in cancelled shifts (23%) and clopening shifts (20%). The within-firm race/ethnic gaps in canceled shifts and clopening shifts are smaller than the between-firm race/ethnic gaps. This result implies that if white and non-white workers had equivalent distributions across firms, there would be a smaller race/ethnic gap in canceled shifts and clopening shifts. Firm-level sorting by race across firms does not contribute to the race/ethnic gap in involuntary part-time work or in the ability to get time off. For on-call shifts, sorting by race across firms acts as a suppressor with respect to the race/ethnic gap. The decomposition results suggest that if white and non-white workers had the same distribution across firms, the race/ethnic gap in on-call shifts would be even larger.

Race/ethnic discordance contributes to race/ethnic gaps in job quality in the context of unequal organizational demography. Recall that while only 20% of white workers had non-white managers, the share of non-white workers with managers of a different race/ethnicity was three times as large - 60%. After we adjust for discordance and in light of these differences in exposure, we see that the race/ethnic gap in cancelled shifts is significantly narrowed. Non-white workers are disadvantaged by having a discordant manager, and this disadvantage manifests as more canceled shifts, more difficulty getting time off, and more clopening shifts. Discordance between the race/ethnicity of the worker and their manager explains 23% of the race/ethnic gap in cancelled shifts, 28% of the gap in ability to get time off, and 16% of the gap in clopening shifts. For two other dimensions of job quality - on-call shifts and involuntary part-time work - race/ethnic discordance is a much smaller (3% and 7%) and non-significant contributor to race/ethnic gaps.

The lower panel of Table 3 shows the cumulative portion of the race/ethnic gap accounted for by all hypothesized explanations. As shown in Table 2, models “b”, explanatory mechanisms account for most or all of the race/ethnic gap in getting time off (70%) and clopening shifts (85%), two-thirds of the race/ethnic gap in canceled shifts, and half of the race/ethnic

gap in involuntary part-time work. For on-call work, most of the race/ethnic gap is unexplained. This unexplained portion of the race/ethnic gap in each of these cases is potentially due to normative in-group bias at the intra-firm level, where workers see differential returns to the variables included in the model due to a pervasive against people of color in American society.

We have shown that gaps in job quality exist between white and non-white workers. In Table 4, we unpack these race gaps in job quality in two ways: by examining race gaps separately for men and women and by disaggregating the non-white group into separate Black, Hispanic, or other race/ethnicity groups. In Table 4, we examine a scale of precarious scheduling conditions that ranges from 0 to 5, with higher values indicating more types of temporal precarity.

[Table 4 about here]

The first column of Table 4 shows that white workers averaged 1.35 types of precarious scheduling conditions, compared with non-white workers who averaged 1.56 types, a 16% difference. The next two columns compare race gaps in precarious scheduling experiences between female and male worker subgroups.

First, looking at the predicted scores in the first two lines of the Female and Male columns, we see that white men have the lowest exposure to precarious scheduling (1.327), followed by white women (1.354) and then non-white men (1.483). Women of color have the highest degree of exposure to precarious scheduling, with an average of 1.593 exposures.

Interestingly, the race/ethnic gap in precarious scheduling is larger among women than it is among men. For female workers, the race/ethnic gap in the precarious scheduling scale is .24 (an 18% difference) and for men the gap is .16 (a 12% difference). Using the Clogg test, the difference in race/ethnic gaps between men and women is just on the border of conventional levels of statistical significance ( $p=.052$ ). We had hypothesized that women of color may face greater disadvantage than their male counterparts, and our evidence is

consistent with this hypothesis.

Table 4 decomposes the contribution of various explanations of the race/ethnic gaps in precarious scheduling conditions. Traditional explanations, including demographics, human capital, and occupation, explain a larger share of the race/ethnic gap for women (37%) than for men (23%). Firm sorting, captured by employer fixed effects, and racial discordance between worker and manager each additionally contribute to race/ethnic gaps for women and for men. Overall, a greater share of the race/ethnic gap in job quality is explained for women (60%) than for men (44%) because of the relatively greater explanatory power of traditional explanations for women. The unexplained gap suggests that men experience more discrimination due to normative in-group bias at the intra-firm level, even though women experience a larger race/ethnic gap in schedule quality. Figure 2 depicts these decompositions visually.

[Figure 2 about here]

The final 3 columns of Table 4 disaggregate the non-white race/ethnic group into separate Black, non-Hispanic; Hispanic; and other race/ethnicity, non-Hispanic categories. These results are summarized in Figure 3 below. For these subgroups, each of the non-white race/ethnic groups are compared with white, non-Hispanic workers to estimate the race/ethnic gaps in job quality. Compared with white workers, each of the non-white groups experience significantly more precarious scheduling conditions, on average. Black workers average 0.19 points higher on the precarious scheduling scale compared with white, and Hispanics are 0.23 points higher and Other race/ethnic groups are 0.20 points higher. Although the magnitude of the race/ethnic gap is slightly higher for Hispanic workers, the differences in the race/ethnic gaps across these 3 non-white groups are not statistically significant (separate calculations, not shown).

Traditional explanations explain a sizable portion of race gaps for Black (34%), Hispanic (36%), and Other race/ethnic groups (29%). Interestingly, accounting for firm sorting



through the inclusion of an employer fixed effect plays a much larger explanatory role for the race gap experienced by Black workers compared with the other two non-white groups. This suggests that Black workers experience more precarious scheduling conditions than their White counterparts in part because of a selection process that leads Black workers to be concentrated in firms with more precarious scheduling practices. For Black workers, this type of racial segregation by firm accounts for 27% of the race gap in precarious schedule experiences. For Hispanic workers and the other race/ethnic group category, firm sorting plays little or no role in explaining race/ethnic gaps in job quality.

[Figure 3 about here]

Worker power plays little or no role in explaining the race/ethnic gap in precarious schedules overall and for any of the three non-White groups. In contrast, racial discordance between workers and managers plays an explanatory role for each of the three non-White groups, but a relatively larger role for the Other and Black groups than for Hispanics.

Overall, most (86%) of the race gap in job quality for Black workers is explained by a combination of traditional (demographics, human capital, and occupation) explanations, firm-level sorting, and racial discordance between workers and managers. For Hispanic and Other race/ethnic group workers, about half the race/ethnic gap is explained. Relative to Black workers, the scheduling gap for Hispanics and for workers of other race/ethnic groups is much less explicable, suggesting that more of this gap is due directly to normative in-group bias at the intra-firm level. These results are depicted graphically in Figure 3.

## Discussion

Race/ethnic gaps in job quality are well established and persistent. White workers have a significant advantage in the hiring process and earn more and have more access to fringe benefits once on the job. However, in the contemporary service sector, job quality is more than compensation. Scholars increasingly have recognized the role of precarious scheduling practices in shaping job quality (Kalleberg, 2011; 2018). In particular, retail and food

service workers are exposed to “just in time” scheduling practices that are characterized by instability, unpredictability, insufficient work hours, and inflexible schedules (Lambert et al., 2014; Lambert, 2008). Exposure to these practices has negative effects on worker health and wellbeing (Schneider and Harknett, 2019). However, little research has examined race/ethnic gaps in these important indicators of job quality. Further, while individual differences in terms of demographics and human capital along with occupational sorting explain a portion of race/ethnic gaps in compensation, research has been unable to go further and investigate the between- and within-firm dynamics that may produce racial inequality (Tilly, 1998).

We draw on unique matched employer-employee data from The Shift Project that contains detailed measures of this temporal dimension of job quality for a sample of over 20,000 hourly retail and food service workers. We find significant gaps in each indicator of job quality. Non-white workers are more likely to have cancelled shifts, to work on call, to have insufficient hours, to have trouble getting time off, and to work clopening shifts. We show that about a quarter of these gaps are accounted for by differences in demographics, human capital, and occupation. We find that relatively little of the remaining gaps is explained by unequal access to worker power. We next account for between-firm sorting on race/ethnicity - the clustering of non-white workers in firms with lower job quality. We find that this dynamic accounts for an additional 20% of the gaps in job quality for cancelled shifts and clopening, but much less for involuntary part time and ability to get time off. Finally, we look within the firm. We show that race/ethnic discordance between workers and their direct supervisors reduces job quality. In the context of unequal organizational demography, in which non-white workers are far more likely to have a supervisor of a different race/ethnicity than white workers are to have a non-white supervisor, this dynamic contributes meaningfully to overall race/ethnic gaps in job quality, explaining an additional 15% - 28% of the gap for cancelled shifts, ability to get time off, and clopening.

Our approach serves to document significant race/ethnic inequality in an understudied but highly salient dimension of job quality. We decompose these significant race/ethnic gaps

into several sources. While the significant residual is perhaps the clearest manifestation of race/ethnic discrimination, we emphasize that many of the other pathways to race/ethnic inequality are also mechanism of discrimination - in human capital disparities and in the allocative discrimination of between-firm sorting.

We provide new insight into the intersectional nature of race/ethnic and gender inequality. We find that women of color are most disadvantaged in terms of exposure to temporal precarity, followed by men of color, white women, and then, with the best job quality, white men. We also find that race/ethnic gaps are larger among women than among men. However, a larger fraction of the race gaps for women than men are explicable in terms of the identifiable pathways. That is, our work builds on the literature in finding that men of color experience the most direct discrimination on the job. These three empirical results align closely with the set of empirical predictions that prior literature has derived from the theoretical literature on intersectionality. Notably, in the domain of scheduling, we find the hypothesized larger race/ethnic differences among women that have not been documented in the empirical literature on wages.

In our main results, we aggregate race/ethnicity and compare white, non-Hispanic workers with all others. Our aggregation averages disadvantage in order to maintain cell sample size. However, by doing so we may obscure some patterns of race/ethnic difference in job quality, and the variation in the role of potential explanations for these gaps across race/ethnic group. When we disaggregate, we document similar gaps for each race/ethnic group, but find that more of these gaps are explained for Black, non-Hispanic workers than for Hispanic workers and those of other/multiple race/ethnicities. Notably, a significant explanation for Black disadvantage in job quality is between-firm sorting, suggesting that while Black workers may experience less discrimination within workplaces than Hispanic workers and those of other races, they experience more allocative discrimination at the point of hire which results in sorting.

We acknowledge that our analysis is subject to some important limitations. First, The

Shift Project data is based on a non-probability sample in which workers are sampled using Facebook’s targeting platform and then recruited using paid advertisements. This approach generates uniquely rich data on scheduling practices for a matched sample of workers nested within firms, which is not otherwise available for the U.S., but the risk of bias in the sample is real. If there is differential selection into the sample by race/ethnicity, that could bias the estimate of the job quality gaps. If there is differential selection into the survey based on demographics, human capital, or occupation, that could bias the decomposition of the gaps. However, we note that prior validation work with The Shift Project data finds that the data fairly closely align with “gold-standard” sources such as the NSLY97 and CPS on univariate statistics and associations. We also limit our analysis to the retail and food service sectors. While these sectors are large and comprise a substantively important share of low-wage work, this focus mechanically will reduce the contribution of occupational segregation to the race/ethnic job quality gap. However, it is striking that even within this somewhat narrow sector, sorting between firms plays a sizeable role in accounting for race/ethnic gaps.

This work suggests a number of additional fruitful directions for future research. One such direction is to take up Tomaskovic-Devey’s (2014) admonition to consider both resource pooling and claims-making in the workplace stratification process. Test of the role of resource pooling could be conducted by examining the degree to which firm-level measures of “surplus” or “rents” moderate race/ethnic gaps in job quality. Tests of the claims-making process could be done by examining the degree to which union membership or union density moderates the gap.

We bring new innovative data to bear on an old question. In doing so, we expose the degree of race/ethnic inequality in an emergent and important domain of job quality - precarious scheduling. We show that, as for wages and benefits, a significant portion of the gap can be explained by individual differences. But, we also present novel results on how the between-firm sorting of non-white workers into lower job quality firms also contributes to the gap and how, within firms, managerial racial discordance in the context of an unequal

organizational demography also structures race/ethnic inequality.

## Methodological Appendix

In addition to the decompositions breaking down the non-white category into its components, we also test for the sensitivity to the “Other” category in our regression analysis. The results of this are depicted in Table 5.

[Table 5 about here]

These results show that the patterns we see in the analysis are largely the same when excluding the “Other” category.

## Tables and Figures

Figure 1: Oaxaca-Blinder Results

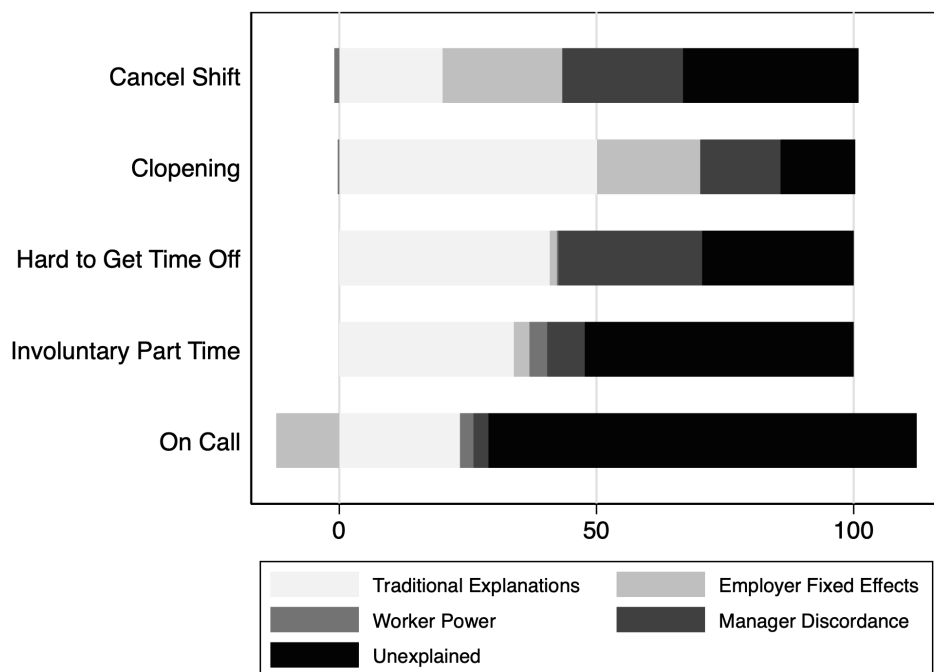


Figure 2: Oaxaca-Blinder Results by Gender

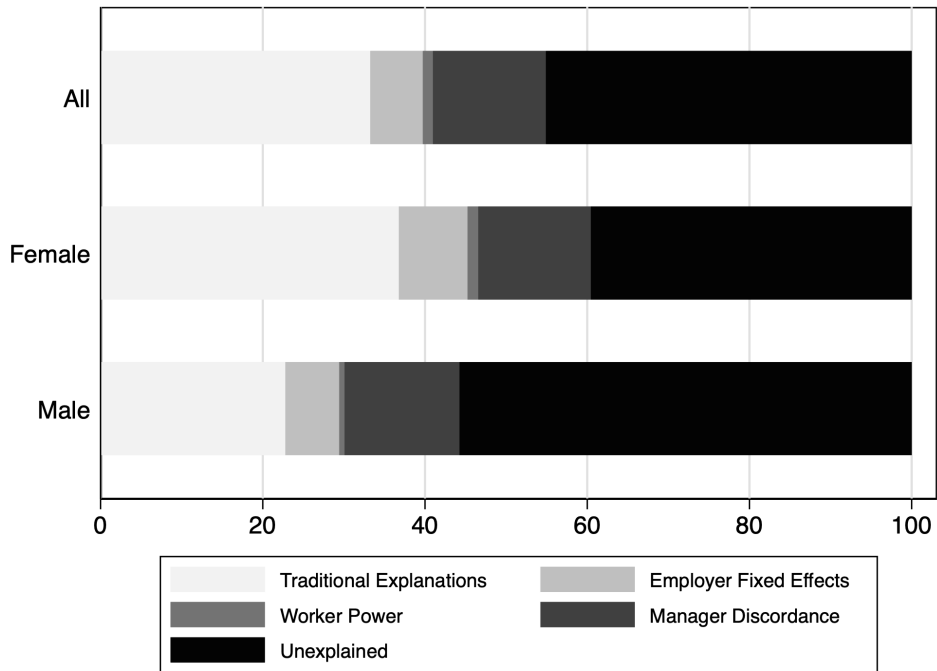


Figure 3: Oaxaca-Blinder Results by Race/Ethnicity

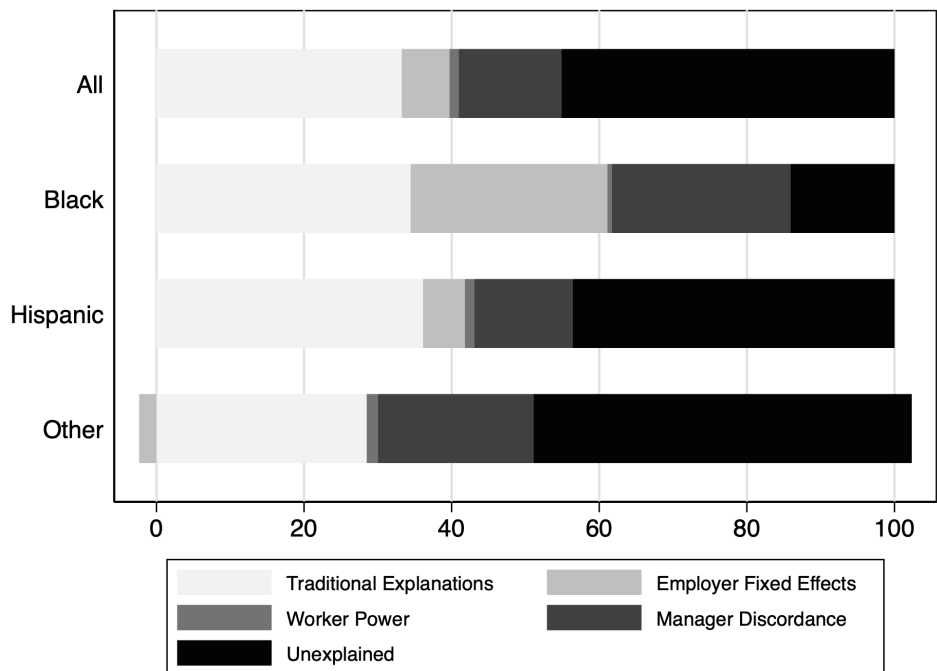


Table 1: Descriptive Statistics by Employee Race/Ethnicity

	White mean	Non-White mean
<b>Demographics</b>		
Male	0.27	0.30***
Kids	0.48	0.40***
<i>Relationship Status</i>		
Married	0.30	0.22***
Cohabiting	0.21	0.20*
Single	0.49	0.58***
<i>Age</i>		
18-19	0.14	0.16***
20-29	0.33	0.43***
30-39	0.16	0.17
40-49	0.14	0.11***
50-59	0.16	0.10***
60-69	0.07	0.03***
70+	0.00	0.00*
<b>Human Capital</b>		
<i>Education</i>		
No Degree	0.40	0.40
High School Degree/GED	0.50	0.51
Some College	0.10	0.09
Currently Enrolled	0.23	0.33***
Hourly Wage	11.82	12.23***
Manager	0.24	0.23
<i>Job Tenure</i>		
Less Than 1 Year	0.21	0.20
1-2 Years	0.30	0.34***
3-5 Years	0.23	0.23
6+ Years	0.26	0.23***
<b>Job Quality</b>		
Cancel Shift	0.13	0.17***
On Call	0.24	0.29***
Involuntary Part-Time	0.27	0.32***
Hard to Get Time Off	0.25	0.28***
Cloping	0.46	0.50***
Precarious Scheduling Scale	1.35	1.56***
<b>Worker Power</b>		
Union Member	0.05	0.07***
State-Industry Unionization Rate	4.91	5.18***
Previous Year State Unemployment Rate	4.69	4.83***
<b>Race/Ethnic Discordance</b>		
Discordant Manager	0.20	0.62***
<i>N</i>	15913	4493

Stars indicate results from T-Tests. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001



Table 2: Regressions on Non-White Disadvantage

	Cancel Shift (1a)	Shift (1b)	On Call (2a)	On Call (2b)	Involuntary Part Time (3a)	Involuntary Part Time (3b)	Hard to Get Time Off (4a)	Hard to Get Time Off (4b)	Cloping (5a)	Cloping (5b)
<b>Non-White</b>										
Non-White	0.039*** (6.75)	0.013* (2.13)	0.048*** (6.53)	0.039*** (5.06)	0.052*** (6.93)	0.026*** (3.39)	0.031*** (4.18)	0.010 (1.27)	0.043*** (5.09)	0.007 (0.82)
<b>Traditional Explanations</b>										
<b>Demographics</b>										
Male		0.009 (1.53)		0.011 (1.65)		-0.042*** (-6.26)		-0.007 (-1.01)		0.038*** (4.83)
Kids		-0.001 (-0.17)		0.013 (1.70)		0.006 (0.82)		0.009 (1.13)		-0.019* (-2.15)
<i>Relationship Status</i>										
Cohabiting		0.005 (0.71)		0.017 (1.91)		-0.006 (-0.64)		0.058*** (6.24)		0.038*** (3.72)
Single		0.007 (1.06)		0.020** (2.62)		0.027*** (3.59)		0.032*** (3.98)		0.034*** (3.81)
Age		-0.016*** (-6.43)		-0.030*** (-9.91)		-0.017*** (-5.79)		-0.028*** (-8.98)		-0.043*** (-12.63)
<b>Human Capital</b>										
<i>Education</i>										
High School Degree/GED		0.007 (1.42)		-0.031*** (-4.90)		-0.019** (-3.11)		-0.005 (-0.78)		0.017* (2.38)
Some College		0.004 (0.41)		-0.058*** (-5.39)		-0.023* (-2.15)		0.010 (0.91)		0.027* (2.18)
Currently Enrolled		0.001 (0.14)		-0.009 (-1.05)		0.117*** (14.59)		-0.018* (-2.12)		-0.009 (-0.93)
Hourly Wage		-0.001 (-0.89)		0.000 (0.34)		-0.007*** (-9.60)		0.001 (1.61)		-0.001 (-0.93)
Manager		-0.031*** (-4.85)		0.047*** (5.99)		-0.211*** (-27.98)		0.050*** (6.19)		0.244*** (27.81)
<i>Job Tenure</i>										
1-2 Years		0.007 (1.06)		0.021* (2.47)		-0.087*** (-10.76)		0.033*** (3.82)		0.085*** (9.06)
3-5 Years		-0.003 (-0.40)		0.005 (0.54)		-0.150*** (-16.66)		0.018 (1.86)		0.105*** (10.01)
6+ Years		-0.002 (-0.23)		0.013 (1.23)		-0.177*** (-17.76)		0.027* (2.54)		0.056*** (4.85)
<b>Worker Power</b>										
Union Member		-0.008 (-0.59)		0.057*** (3.49)		0.019 (1.23)		0.025 (1.49)		-0.020 (-1.10)
State-Industry Unionization Rate		0.000 (0.28)		-0.000 (-0.60)		0.001 (1.11)		-0.000 (-0.38)		0.000 (0.35)
Prev. Year State Unemployment Rate		-0.002 (-0.69)		0.004 (1.02)		0.010* (2.43)		-0.001 (-0.29)		0.001 (0.13)
<b>Race/Ethnic Discordance</b>										
Discordant Manager		0.022*** (3.86)		0.003 (0.44)		0.009 (1.34)		0.020** (2.82)		0.016* (2.01)
Constant	0.129*** (47.25)	0.159*** (5.80)	0.245*** (70.89)	0.164*** (4.85)	0.266*** (75.00)	0.374*** (11.40)	0.246*** (71.34)	0.409*** (11.68)	0.461*** (116.69)	0.397*** (10.39)
<b>Employer Fixed Effects</b>	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
N	20406.000	20406.000	20406.000	20406.000	20406.000	20406.000	20406.000	20406.000	20406.000	20406.000

Standard errors included in parentheses; \*p&lt;0.05; \*\*p&lt;0.01; \*\*\*p&lt;0.001

Table 3: Normalized Oaxaca-Blinder Decomposition of the Race/Ethnic Gap

	Cancel Shift	On Call	Involuntary Part Time	Hard to Get Time Off	Cloping
White	0.129	0.245	0.266	0.246	0.461
Non-White	0.168	0.293	0.318	0.276	0.504
Difference	-0.039*** (-6.35)	-0.048*** (-6.33)	-0.052*** (-6.73)	-0.031*** (-4.10)	-0.043*** (-5.08)
Explained (Percent of Difference)					
Traditional Explanations	-20.09*** (-6.91)	-23.48*** (-7.54)	-33.96*** (-5.59)	-40.92*** (-8.24)	-40.12*** (-8.01)
Employer Fixed Effects	-23.27*** (-4.36)	12.25* (2.16)	-3.03 (-0.64)	-1.40 (-0.20)	-20.05** (-2.89)
Worker Power	0.95 (0.76)	-2.62 (-1.96)	-3.44** (-2.96)	-0.29 (-0.14)	0.29 (0.18)
Race/Ethnic Discordance	-23.47*** (-3.73)	-2.90 (-0.48)	-7.30 (-1.35)	-27.93** (-2.81)	-15.61* (-2.03)
Total (Percent of Difference)					
Total Explained	-65.88*** (-7.81)	-16.75 (-1.91)	-47.73*** (-5.14)	-70.53*** (-5.58)	-85.49*** (-7.46)
Total Unexplained	-34.12* (-1.99)	-83.25*** (-4.99)	-52.27*** (-3.54)	-29.47 (-1.09)	-14.51 (-0.70)
<i>N</i>	20406	20406	20406	20406	20406

Confidence intervals included in parentheses. Stars indicate results from T-Tests. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Table 4: Normalized Oaxaca-Blinder Decomposition of the Race/Ethnic Gap - Precarious Scheduling Scale

	All	Female	Male	Black	Hispanic	Other
White	1.347	1.354	1.327	1.347	1.347	1.347
Non-White	1.560	1.593	1.483	1.536	1.572	1.551
Difference	-0.213*** (-10.77)	-0.239*** (-10.01)	-0.156*** (-4.41)	-0.189*** (-4.20)	-0.226*** (-8.63)	-0.204*** (-6.34)
Explained (Percent of Difference)						
Traditional Explanations	-33.25*** (-12.64)	-36.78*** (-12.66)	-22.78*** (-3.61)	-34.46*** (-6.00)	-36.14*** (-11.27)	-28.51*** (-6.94)
Employer Fixed Effects	-6.48 (-1.96)	-8.47* (-2.27)	-6.65 (-0.83)	-26.66*** (-3.67)	-5.66 (-1.33)	2.33 (0.50)
Worker Power	-1.25 (-1.69)	-1.32 (-1.62)	-0.66 (-0.34)	-0.62 (-0.67)	-1.30 (-1.40)	-1.52* (-2.02)
Race/Ethnic Discordance	-13.93*** (-3.94)	-13.88*** (-3.56)	-14.17 (-1.74)	-24.21*** (-4.13)	-13.33*** (-3.91)	-31.10*** (-5.27)
Total (Percent of Difference)						
Total Explained	-59.40*** (-10.14)	-60.45*** (-10.10)	-44.25*** (-3.40)	-85.95*** (-7.89)	-56.44*** (-9.05)	-48.80*** (-6.60)
Total Unexplained	-45.10*** (-4.71)	-39.55*** (-3.83)	-55.75* (-2.40)	-14.05 (-0.59)	-43.56*** (-3.77)	-51.20*** (-3.36)
<i>N</i>	20406	14696	5710	16602	18252	17378

Confidence intervals included in parentheses. Stars indicate results from T-Tests. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

Table 5: Regressions on Non-White Disadvantage - Excluding Other Category

	Cancel Shift (1a)	(1b)	On Call (2a)	(2b)	Involuntary Part Time (3a)	(3b)	Hard to Get Time Off (4a)	(4b)	Cloping (5a)	(5b)
<b>Non-White</b>										
Non-White	0.040*** (5.90)	0.010 (1.32)	0.049*** (5.74)	0.037*** (4.16)	0.053*** (6.01)	0.025** (2.91)	0.026** (3.02)	0.005 (0.54)	0.049*** (4.97)	0.010 (0.97)
<b>Traditional Explanations</b>										
<b>Demographics</b>										
Male		0.009 (1.52)		0.014 (1.96)		-0.042*** (-6.05)		-0.008 (-1.14)		0.035*** (4.27)
Kids		-0.003 (-0.46)		0.011 (1.33)		0.008 (0.98)		0.004 (0.49)		-0.021* (-2.31)
<i>Relationship Status</i>										
Cohabiting		0.003 (0.42)		0.019* (2.07)		-0.004 (-0.43)		0.058*** (6.04)		0.033** (3.17)
Single		0.005 (0.75)		0.023** (2.85)		0.029*** (3.75)		0.031*** (3.76)		0.034*** (3.77)
Age		-0.016*** (-6.51)		-0.028*** (-9.25)		-0.016*** (-5.50)		-0.027*** (-8.64)		-0.043*** (-12.39)
<b>Human Capital</b>										
<i>Education</i>										
High School Degree/GED		0.006 (1.16)		-0.032*** (-4.88)		-0.022*** (-3.40)		-0.007 (-0.98)		0.018* (2.41)
Some College		-0.001 (-0.06)		-0.066*** (-5.90)		-0.024* (-2.20)		0.012 (1.06)		0.032* (2.49)
Currently Enrolled		-0.001 (-0.07)		-0.009 (-1.06)		0.117*** (13.98)		-0.016 (-1.80)		-0.012 (-1.21)
Hourly Wage		-0.001 (-1.32)		0.000 (0.15)		-0.007*** (-8.86)		0.001 (1.49)		-0.001 (-0.57)
Manager		-0.031*** (-4.82)		0.047*** (5.92)		-0.212*** (-27.23)		0.051*** (6.17)		0.244*** (26.77)
<i>Job Tenure</i>										
1-2 Years		0.009 (1.30)		0.022** (2.60)		-0.086*** (-10.31)		0.038*** (4.27)		0.085*** (8.67)
3-5 Years		-0.003 (-0.43)		0.008 (0.85)		-0.151*** (-16.27)		0.021* (2.11)		0.104*** (9.58)
6+ Years		0.002 (0.29)		0.013 (1.23)		-0.180*** (-17.56)		0.030** (2.73)		0.056*** (4.65)
<b>Worker Power</b>										
Union Member		-0.005 (-0.40)		0.055** (3.27)		0.015 (0.91)		0.031 (1.78)		-0.025 (-1.30)
State-Industry Unionization Rate		0.000 (0.40)		-0.000 (-0.69)		0.001 (0.86)		-0.000 (-0.37)		0.000 (0.01)
Prev. Year State Unemployment Rate		-0.002 (-0.66)		0.005 (1.09)		0.010* (2.28)		-0.002 (-0.38)		0.000 (0.02)
<b>Race/Ethnic Discordance</b>										
Discordant Manager Race		0.024*** (4.05)		-0.000 (-0.06)		0.006 (0.92)		0.017* (2.29)		0.015 (1.80)
Constant	0.129*** (47.57)	0.165*** (5.82)	0.245*** (71.13)	0.152*** (4.35)	0.266*** (75.24)	0.374*** (11.00)	0.246*** (71.57)	0.424*** (11.65)	0.461*** (116.71)	0.404*** (10.17)
<b>Employer Fixed Effects</b>	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
N	18941.000	18941.000	18941.000	18941.000	18941.000	18941.000	18941.000	18941.000	18941.000	18941.000

Standard errors included in parentheses; \*p&lt;0.05; \*\*p&lt;0.01; \*\*\*p&lt;0.001