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Inequality among the Disadvantaged? Racial/Ethnic Disparities in Earnings among Young Men and Women without a College Education

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Abstract: Despite the rapid expansion of higher education, many young adults still enter the labor market without a college education. However, little research has focused on racial/ethnic earnings disadvantages faced by non-college-educated youth. We analyze the restricted-use data from the High School Longitudinal Study of 2009 to examine racial/ethnic earnings disparities among non-college-educated young men and women in their early twenties as of 2016, accounting for differences in premarket factors and occupation with an extensive set of controls. Results suggest striking earnings disadvantages for Black men relative to white, Latinx, and Asian men. Compared to white men, Latinx and Asian men do not earn significantly less, yet their earnings likely differ substantially by ethnic origin. While racial/ethnic earnings gaps are less prominent among women than men, women of all racial/ethnic groups have earnings disadvantages compared to white men. The results call for future studies into the heterogeneity within racial/ethnic groups and the intersectionality of race/ethnicity and gender among non-college-educated young adults.

Keywords: non-college-educated youth; color line; race/ethnicity; earnings disparities, quantile regression

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INTRODUCTION

W. E. B. Du Bois famously asserted that "the problem of the twentieth century is the problem of the color line" (Du Bois 1903 [1997]: 45), a line that sharply differentiated the life chances of white and Black people in the United States. This centuries-old problem has become more complex over time, as the large influx of nonwhite immigrants from Latin and Asian origins has changed the racial/ethnic composition of the United States (Lee and Bean 2004). Studies considering the evolving nature of Du Boisian color lines, and how they relate to earnings disparities, are important. Racial/ethnic inequality will be perpetuated unless the racial/ethnic groups disadvantaged by the ongoing legacy of racism in the United States become able to achieve upward economic mobility (Gans 1999; Kim 2015; Lee and Bean 2007).

Although previous studies have seldom focused on non-college-educated young adults, we do know that racial/ethnic disparities in earnings differ by educational level (Cheng et al. 2019; Ren 2019, 2021; Sakamoto, Tamborini, and Kim 2018). Compared to college-educated workers, the white-Black earnings gap is more noticeable among less-educated workers (Ren 2019, 2021). The white-Black earnings gap set at the early career stage tends to widen over the life course, consistent with a cumulative discrimination perspective (Thomas, Herring, and Horton 1994). These findings suggest the importance of research on non-college-educated workers at their early career stage. Many young adults likely begin their careers in their early twenties if they do not enter college, yet researchers have not paid close attention to racial/ethnic disparities in this population's earnings. Previous studies of early-career earnings often focus on

workers in their late twenties or older (Cancio, Evans, and Maume 1996; Ren 2019). In addition, earlier studies often do not include Latinx and Asian workers, although they compose an increasing share of the workforce in the United States.

We aim to contribute to the previous literature by illuminating racial/ethnic disparities in earnings among non-college-educated youth, defined as young workers who have not attended college as of their early twenties. Research considering contemporary racial/ethnic earnings disparities among this population is imperative for several reasons. First, if racial/ethnic discrimination worsens the precarious economic conditions of young adults without a college education, the consequences are potentially devastating. Non-college-educated young adults already face poorer labor market outcomes because of their human capital disadvantage relative to college graduates (Ren 2019; Tamborini, Kim, and Sakamoto 2015; Thomas, Herring, and Horton 1994). Moreover, discriminatory structural barriers in the labor market may motivate a reliance on underground economic activities, leading to criminal offenses, with repercussions rippling throughout these youth's adulthoods (Neal and Rick 2014; Sakamoto, Tamborini, and Kim 2018). Second, despite the rapid expansion of higher education and the college-for-all movement, many adults, especially Black and Latinx youth, still do not attend college (Goyette 2008; Hussar et al. 2020). The dearth of studies into racial/ethnic inequality among non-college-educated youth may conceal severe social problems faced by many Black and Latinx young workers. Lastly, employers may particularly lean on racialized stereotypes when hiring non-college-educated youth for entry-level positions because they lack more objective indicators of human capital like a college diploma or previous employment history.

Utilizing restricted-use data from the High School Longitudinal Study of 2009, we delineate racial/ethnic disparities in earnings among non-college-educated youth. First, we examine earnings gaps between white, Black, Latinx, and Asian non-college-educated groups. We estimate the models separately for men and women and discuss the intersection of race/ethnicity and gender in earnings disparities among non-college-educated youth. We subsequently evaluate how earnings gaps between racial/ethnic groups vary across the earnings distribution. Furthermore, we explore the variation in our findings by Latinx and Asian young adults' ethnic origins. To the best of our knowledge, this is the first study to illuminate racial/ethnic disparities in earnings among non-college-educated workers in their early twenties, while accounting for an extensive set of premarket covariates (family background, human capital, and institutional compliance) and occupational allocation.

THEORETICAL BACKGROUND

Racial/Ethnic Composition and Earnings Disparities

Early in the twentieth century, Du Bois (1903 [1997]) used the term "color line" to describe how racial discrimination in the United States was largely focused on the divide between people who were considered to be Black and people who were considered to be white. The mid-twentieth century brought a rising number of immigrants from various Latin countries to the United States, with people who were eventually dubbed Hispanic, Latina/o, and then Latinx representing the second largest racial group by the beginning of the twenty-first century (Lee and Bean 2004; Pew Research Center 2013). The number of Asian immigrants has exceeded that of Latinx immigrants since the early twenty-first century, with the Asian

population expected to continue to grow (Budiman et al. 2020). The decreasing share of people who are regarded as white and the increasing complexity of persons who are not perceived as white have provoked debate concerning new color lines in the United States (Bonilla-Silva 2002; Gans 1999; Kim 2015; Lee and Bean 2004). It is important to note that documenting changes over time in the salience of various racial/ethnic categories is an explicit recognition that these categories do not represent coherent biological differences across people or even coherent cultural differences across groups (Gans 2005; Krogstad and Cohn 2014; Omi and Winant 1986). While flawed and insufficient markers of individuals' or groups' complexities, researchers have utilized these markers (i.e., white, Black, Latinx, and Asian) to strategically document racial/ethnic inequalities. In this current study, we additionally contribute to the consideration of heterogeneity within the Latinx and Asian populations in terms of ethnic origin.

Earnings disparities between racial/ethnic groups are partly attributed to the differences in premarket factors, such as family background (Bloome 2014; Cheng et al. 2019), human capital (Mandel and Semyonov 2016; Neal and Johnson 1996), and institutional compliance or criminal justice involvement (Neal and Rick 2014). The differences in these premarket factors are often used to indicate that labor market discrimination is not the cause of racial/ethnic earnings advantages and disadvantages. However, racial/ethnic earnings disparities are substantial even net of such premarket factors because of racialized labor market processes, such as discriminatory occupational allocation (Bradbury 2002; Mandel and Semyonov 2016) with workers from marginalized racial/ethnic backgrounds allocated to low-paying occupations (Kaufman 2010; del Rio Otero and Alonso-Villar 2015). Even among workers in comparable

occupations, employers' negative stereotypes and devaluation of nonwhite workers may produce additional racial/ethnic disparities in earnings (Gaddis 2015; Kaufman 2010; Mandel and Semyonov 2016; Pager and Karafin 2009; Shih 2002).

This body of literature has examined perennial racial/ethnic disparities in earnings but has rarely focused on non-college-educated workers in their early twenties, leading scholars to refer to this group as "the forgotten half" (Rosenbaum 2001). Researchers instead compare non-college-educated workers and college graduates in their late twenties and older, although racial/ethnic disparities in early earnings set the foundation for long-term disparities throughout the life course (Ren 2019; Tamborini et al. 2015; Thomas, Herring, and Horton 1994). The paucity of studies on non-college-educated workers in their early twenties particularly eclipses our understanding of later in life racial/ethnic disparities, given that Black and Latinx young adults are still more likely than White and Asian youth to not attend college (Goyette 2008; Hussar et al. 2020).

Racial/Ethnic Earnings Disparities Among Non-college-educated Men and Women

We rely on the previous literature on racial/ethnic disparities in earnings among the general population to speculate on the nature of racial/ethnic earnings disparities among non-college-educated young adults. Some scholars describe the significance of race/ethnicity as declining over time (Sakamoto, Wu, and Tzeng 2000; Wilson 2015), such that marginalization along racial/ethnic lines may gradually disappear (Alba 2012). The blurring of racial/ethnic differences in earnings may be particularly pronounced among non-college-educated youth, who are a socioeconomically disadvantaged group compared to their college-educated peers, for

several reasons. Likely ineligible for high-paying jobs, non-college-educated youth may be uniformly allocated to low-skill low-earnings jobs regardless of their race/ethnicity, especially in the early stages of their career. Racial/ethnic differences in selection into college education may also play a role in blurring racial/ethnic disparities in the earnings of non-college-educated young adults. White youth are more negatively selected into the group of non-college-educated young adults than their Black and Latinx peers, because of white youths' relative advantages in access to college (Kim and Sakamoto 2014). That is, non-college-educated white youth are highly marginalized within their racial group and may have lower levels of human capital compared to non-college-educated Black and Latinx youth. Similarly, Cheng et al. (2019) show that the white-Black gaps in long-term earnings among non-college-educated workers became narrower over cohorts, mainly due to the deteriorating economic position of white workers without a college degree. Thus, the earnings of Black, Latinx, and Asian non-college-educated workers may not significantly differ from the earnings of white non-college-educated young adults.

However, it is possible that white supremacy separates non-college-educated Black, Latinx, and Asian youth from their white peers. As the labor market is often thought to operate more meritocratically for college graduates than for less-educated counterparts (Breen and Jonsson 2007; Hout 1988; Oh and Kim 2020), the impacts of white privilege on racial/ethnic earnings disparities may be more evident among non-college-educated than college-educated workers. Because of white privilege, the disadvantages of lacking a college education may be smaller for white workers than for workers of other races/ethnicities.

Alternatively, earnings disparities may be primarily shaped by anti-Blackness. Previous

studies document that white-Black earnings gaps persist net of various premarket differences (Bradbury 2002; Kaufman 2010; Mandel and Semyonov 2016). Black people living in the United States tend to experience substantial earnings disadvantages because of the historical legacy of slavery and institutionalized anti-Black racism (Gans 1999; Lee and Bean 2007; Taylor 2016). For instance, Mandel and Semyonov (2016) find that Black workers earn less in part because of employers' negative stereotypes about them. In this case, earnings disadvantages relative to white peers may be more apparent for Black than for Latinx or Asian young workers who are not college-educated.

However, previous studies suggest Latinx workers also experience marked labor market disparities (Bradbury 2002; Browne and Askew 2005; Cajner et al. 2017). Although white-Latinx earnings gaps are often partially explained by differences in educational attainment (Browne and Askew 2005), substantial earnings disadvantages remain for Latinx workers at different educational levels (Bradbury 2002). Bradbury (2002) also documents that white-Latinx earnings gaps are more substantial among less-educated workers. It should be noted that Latinx persons are not a highly heterogeneous group, with the Latinx population in the United States including Mexicans, Puerto Ricans, and Central and South Americans (Cattan 1993). Likewise, Bonilla-Silva (2004) describes how Latinx persons' experiences with racism vary depending on their skin color. For instance, light-skinned Latinx people may be treated as honorary white people, whereas dark-skinned Latinx people can be considered to be Black (Bonilla-Silva 2004). According to these earlier studies, young non-college educated Latinx workers may experience earnings disparities similar to those of their Black peers, but the magnitude of those disparities

may vary by their ethnic origin.

Asian workers were regarded as undesirable and unassimilable immigrants until the mid-twentieth century (Lee and Zhou 2015; Sakamoto, Goyette, and Kim 2009). Some evidence suggests Asians in the United States have reached socioeconomic parity with white individuals (Kim and Sakamoto 2010, 2014; Sakamoto et al. 2009). Asian people may be granted honorary whiteness in some settings, such as schools and the STEM workforce (Hsin and Xie 2014; Xie and Goyette 2003). However, Asian workers often experience racial/ethnic discrimination, with lower earnings relative to equally educated white workers (Kim and Sakamoto 2010, 2014), particularly for less-educated Asian workers (Kim and Sakamoto 2014). Like the Latinx category, researchers document considerable ethnic variation within the Asian category (Kim and Sakamoto 2010; Kim and Zhao 2014; Takei, Sakamoto, and Kim 2013). Sakamoto et al. (2009) explain that the socioeconomic resources available to Asian individuals differ remarkably by their ethnic origin. Thus, it is possible that young non-college-educated Asian workers experience earnings disparities relative to their white peers and that the magnitude of that disparity varies depending on young Asian adults' ethnic origin.

Previous literature on gender discrimination and segregation in the workforce demonstrates the importance of considering earnings disparities at the intersection of race/ethnicity and gender. While women in the United States have surpassed men in terms of average educational attainment (DiPrete and Buchmann 2013; England and Li 2006), women's disadvantages in earnings relative to similarly educated men remain tenacious (Cha and Weeden 2014; Mandel and Semyonov 2016). Occupational gender segregation, with women more often

allocated to lower-wage labor sectors, is a major contributor to gender-based earnings disparities (Petersen and Morgan 1995; Reskin 1993; Tam 1997). Although potentially less relevant for the young adults we focus on, women perform more care work and domestic labor than men (Hunter and Leahey 2010; Long 1990). As women tend to earn low earnings regardless of their race/ethnicity, earnings disparities between racial/ethnic groups are likely less pronounced among women than men (Mandel and Semyonov 2016). In addition, employers tend to not negatively stereotype Black women to the same extent as they do Black men (Moss and Tilly 2001; Neckerman and Kirschenman 1991; Pager and Karafin 2009; Shih 2002). According to Shih (2002), while Black men are frequently perceived by employers as lazy, hostile, and dangerous, Black women tend to be regarded as hardworking, loyal, and stable. These findings present the possibility that the negative estimated effect of being Black on earnings is larger for men than for women. We account for the intersection between race/ethnicity and gender to the best of our ability by including a rich control for occupational category, as well as controls for marital status and number of children.

OLS regression is a conventional methodological approach for delineating racial/ethnic earnings disparities, but this approach does not show how disparities vary along the earnings distribution (Grodsky and Pager 2001; Kim and Sakamoto 2014; Leicht 2008). In analyses that examine earnings disparities between white and Asian workers, Kim and Sakamoto (2014) find variation in the white-Asian gaps at different earnings deciles. Standard OLS regression techniques may be limited because these average results may be unduly influenced by larger between-group differences at a given point of the earnings distribution. Moreover, Leicht (2008)

points out that research focusing on mean differences does not account for inequalities within groups. It is possible that racial/ethnic disparities are trivial at the low end of the earnings distribution and large at the high end, suggesting that a few non-college-educated workers among the advantaged group access highly profitable jobs that are unavailable to most non-college-educated young adults. Alternatively, it is possible that earnings gaps are large at the low end but negligible at the high end, with racial/ethnic discrimination potentially forcing some of the disadvantaged group to hold extremely low-paying jobs that others are able to avoid.

To sum up, this study aims to illuminate racial/ethnic disparities in earnings among non-college-educated youth, accounting for a rich set of premarket and occupational factors. First, following the conventional analytic approach, we examine the between-group gaps in average earnings of white, Black, Latinx, and Asian non-college-educated youth. We estimate the models separately for men and women and discuss the intersection of race/ethnicity and gender in earnings disparities among non-college-educated youth. Subsequently, we evaluate whether the racial/ethnic earnings gaps vary across the earnings distribution. Lastly, we examine variation in our findings by Latinx and Asian young adults' ethnic origin.

ANALYTIC STRATEGY

Data

We analyze the restricted-use data from the High School Longitudinal Study of 2009 (HSLS:09). HSLS:09 is a nationally representative, longitudinal survey conducted by the National Center for Education Statistics (NCES) beginning in 2009 when respondents were in the 9th grade. After Wave I in 2009, Waves II through IV were conducted in 2012, 2013, and

2016. HSLS:09 data includes extensive information on young adults' family background, educational experiences, and labor market activities, which allows us to account for many of the dominant explanations for why earnings disparities may not represent direct earnings discrimination in the labor market. Most of the HSLS:09 respondents graduated high school in 2013 and reached age 21 in 2016. We limit the sample to respondents who had not attended any two- or four-year colleges by 2016, and who were employed as of 2016. Our final analytic sample, which includes high school dropouts, consists of 1,080 men and 680 women.[1] As specified in the HSLS:09 users' guide (Duprey et al. 2020), we use Stata's survey procedure to apply the analytic weight, account for HSLS:09's complex survey design, and adjust for the clustering of students within schools. To replace missing data, we conduct multiple imputation utilizing the *ice* module in Stata (Royston 2009). To obtain unbiased estimates, we include the dependent variable in the imputation process but do not impute values for it. Five versions of complete data sets are used for all empirical estimates.

Statistical Models

OLS Regression

To investigate racial/ethnic earnings disparities among non-college-educated youth, we first estimate OLS models as below:

$$ln\,(y) = \alpha + \sum \beta_g R_g + \sum \gamma_l P_l + \sum \delta_m O_m + e, \quad (1)$$

where $ln\,(y)$ refers to log-transformed annual earnings reported in Wave IV, which is three years after most of the respondents graduated high school. They were asked to report annual income before taxes and deductions, which includes all income from work, investments,

and alimony, but not income from spouse's work, grants, loans, or family. No respondent reported zero earnings. Because of the right-skewed distribution, researchers often estimate models using log-transformed earnings as a dependent variable, such that results show relative gaps in earnings.

R_g stands for respondents' racial/ethnic group: white (reference), Black, Latinx, and Asian. β_g represents the earnings gaps between white and other racial/ethnic groups. In a best attempt to address limitations in the racial/ethnic categories available in the HSLS:09 data (and in most large datasets), we conduct supplementary analyses in which we divide the Latinx category into Mexican and other Latinx (Puerto Ricans, Central and South Americans, etc.) subgroups and the Asian category into Filipino/Southeast Asian and other Asian (Chinese, Indian, Korean, and Japanese, etc.) subgroups. All subgroups in these supplementary analyses number more than ten. NCES did not ask white and Black respondents to report their ethnic origins.

Capitalizing on the restricted-use HSLS:09 data, we include an extensive set of covariates. Premarket controls (P_l) measure family background, human capital, and institutional compliance. Family background variables include family income, the absence of father or mother, the highest educational level attained by parents (less than high school, high school or GED, certificate/diploma, some college, bachelor's degree, master's degree, and PhD/professional degrees), Census division (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific), urbanicity (city, suburb, town, and rural), high school type (public and private), and,

finally, whether the respondent lived with a parent, was married, and/or had one or more children as of 2016. We measure human capital with end of high school math course attainment (no math or algebra I, geometry, algebra II, and beyond algebra II) and science course attainment (no biology, biology, chemistry or physics, and chemistry and physics), standardized math test score (percentile rank)[2], overall high school grade point average (GPA), and high school credential status (diploma, GED or other high school equivalency, and no high school credential). To control for institutional compliance, we use Wave IV reports from respondents on whether they were ever suspended or expelled. Additionally, we account for whether respondents reported in Wave II that they were absent from school; late for school; cut or skipped classes; or attended class without books/reading materials, notetaking supplies, and homework. These measures of institutional compliance may help to capture differences in respondents' attitudes and behaviors in the workplace (Owens 2017). If racial/ethnic earnings disparities are fully attributed to inequalities in these premarket factors rather than labor market discrimination, β_g will no longer be significant after controlling for P_l. Otherwise, if racial/ethnic disparities remain significant holding the premarket covariates constant, further consideration of labor market processes is required.

To account for the influence of racial/ethnic differences in occupational allocation, we utilize 15 categories of occupational fields. Because racial/ethnic differences in occupational allocation itself are an aspect of labor market discrimination, models including controls for occupational variables (O_m) narrow in on potential earnings discrimination. These models essentially examine racial/ethnic differences in earnings among workers in similar occupations.

We present models without any controls, with controls for premarket covariates, and with controls for both premarket and occupational variables. Because of gender distinctions in labor market processes (Browne and Misra 2003; Mandel and Semyonov 2016), we estimate separate models for men and women. As we center all control variables at the mean, the intercept (α) indicates the predicted log-transformed earnings of average non-college-educated white youth.

Quantile Regression

Kim and Sakamoto (2014) demonstrate that quantile regression analysis can be effectively applied to determine whether between-group differences vary across the earnings distribution. In quantile regression, racial/ethnic disparities in earnings are estimated at each quantile (Hao and Naiman 2007). Because the assumptions of quantile regression, unlike OLS regression, do not require the earnings measure to be normally distributed, we do not use the log-transformed earnings in these analyses. We utilize the following quantile regression model:

$$Q_\tau(y) = \alpha(\tau) + \sum \beta_g(\tau) R_g + \sum \gamma_l(\tau) P_l + \sum \delta_m(\tau) O_m, \quad (2)$$

where $Q_\tau(y)$ stands for conditional quantile (i.e., τ) of actual earnings (y). τ is an element of the set {0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9}, which indicates the nine decile points. R_g refers to the four racial/ethnic groups, and β_g indicates the earnings disparities between white non-college-educated youth and other racial/ethnic counterparts at the nine decile points of earnings. Unfortunately, we are unable to apply quantile regression models in the analyses using the Latinx and Asian subgroups because of small cell size issues. For control variables (P_l and O_m), we consider the same set of covariates used for the OLS models.

Inverse Probability Weighted Regression Adjustment

This study's findings may be influenced by unmeasured factors that select young adults to enter the labor market without a college education in their early twenties. Although there is no panacea for completely addressing selection bias in non-experimental analyses of survey data, researchers have developed various statistical adjustments to address selection bias as best as possible (Winship and Mare 1992). One approach is to adjust the outcome model using the inverse probability weight obtained from the selection model (Wooldridge 2002). However, the inverse probability weighted regression adjustment (IPWRA) is based on the assumption that researchers have access to sufficient variables to predict the sample selection, and the estimations without IPWRA are often more efficient than estimations with IPWRA (Puhani 2000; Wooldridge 2002). Therefore, we estimate the main models without IPWRA and then check the robustness of our findings using IPWRA. We first estimate the multinomial model to predict the probabilities of being non-college-educated employees controlling for all observed premarket covariates (i.e., selection model) and subsequently calculate and utilize the IPW to adjust the outcome equation.

RESULTS

Descriptive Statistics

Table 1 first shows descriptive statistics on the dependent variable by race/ethnicity.[3] Among men, the average earnings of Asian non-college-educated youth are the highest ($24,837) in 2016, followed by their white ($22,056) and Latinx ($17,984) peers. Black non-college-educated men only earn $12,573 on average. Compared to men, the earnings gaps between racial/ethnic groups among women are less conspicuous but still substantial. Among women, the

average earnings of white non-college-educated youth are the highest ($14,766). Latinx, Asian, and Black women earn $12,465, $10,935, and $10,871, respectively. For both men and women, Black and Latinx non-college-educated young adults earn significantly less than their white peers. Although white-Asian earnings gaps are not statistically significant for men or women, Asian men's mean earnings are the highest among men, whereas non-college-educated Asian women earn less on average than white women. Significance tests using actual and log-transformed earnings yield identical results.

[Table 1 about here]

Gender differences in earnings are also noticeable within each racial/ethnic group. The earnings gaps between men and women are largest among Asian youth ($13,902), followed by the gender gaps for white ($7,290), Latinx ($5,519), and Black ($1,702) young adults. In supplementary analyses (not shown here but available upon request), the gender earnings gaps are significant for white, Latinx, and Asian young adults, but not for Black young adults. Although the gender earnings gaps within the Black group are relatively modest, Black women earn less on average than all other women. Moreover, women of all racial/ethnic groups earn significantly less than white men. These descriptive statistics suggest the importance of examining earnings disparities at the intersection of race/ethnicity and gender.

Table 1 also shows racial/ethnic variation in selected premarket covariates and occupation. Consistent with the previous literature, Black and Latinx youth are disadvantaged relative to white and Asian youth in terms of socioeconomic and academic background. For both men and women, the family income of Black and Latinx non-college-educated youth are lower

than that of their white peers. White youth are less likely to attend a high school located in a city than all other racial/ethnic groups. Black youth have lower math test scores than their white peers. Asian youth have higher GPAs compared to their white counterparts, but Black and Latinx youth have lower GPAs. Although the occurrence of suspension or expulsion in high school is higher for Black men and women than for their white peers, the difference is not statistically significant. Asian men and women are significantly less likely to be suspended or expelled than their white peers.

For all men, regardless of their race/ethnicity, the most common occupational category is service. The second most common occupational category is production for white and Black men, sales for Latinx men, and business/finance for Asian men. For all women, regardless of their race/ethnicity, service and sales are the two most common occupational categories. These racial/ethnic differences in premarket covariates and occupation represent potential confounders in the relationship between race/ethnicity and earnings. Thus, in the following OLS and quantile regression analyses, we account for differences in premarket factors and occupation to achieve a less biased estimate of racial/ethnic gaps in earnings among non-college-educated youth.

Racial/Ethnic Disparities in Average Earnings

Table 2 shows the OLS regression estimates of racial/ethnic disparities in log earnings. The estimations for men are above those for women. Model 1, without any controls, suggests that the white-Black and white-Latinx gaps among men are statistically significant. Black and Latinx men respectively earn 74% (=exp(-1.36)-1) and 25% less than white men. Among men, the white-Asian earnings disparities are not significant. The white-Black gap among women is

significant, with Black women earning 39% less on average than white women. The white-Latinx and white-Asian gaps are not statistically significant for women, yet, because statistical significance estimates are likely affected by the small number of Asian respondents in the sample, it is important to note that the coefficient size for Asian women is larger than that for Black women.

[Table 2 about here]

Model 2 in Table 2 includes controls for all premarket covariates. Among men, the white-Black gap is still significant, while the white-Latinx and white-Asian gaps are not, controlling for premarket differences. Black men's earnings remain 68% lower than white men's earnings. In other words, the marked earnings disadvantages of Black non-college-educated young men relative to white men cannot be dismissed as a product of racial/ethnic differences in family background, human capital, or institutional compliance. Compared to white women, Black, Latinx, and Asian women do not earn significantly less, holding premarket covariates constant.

In Table 2, Model 3 includes the occupational controls in addition to the premarket covariates. The white-Black earnings gap among men is still statistically significant. Black men earn 64% less than white men, controlling for all covariates observed in this study. Our supplementary analyses indicate that Black men also earn significantly less than Latinx and Asian men. The earnings of Black men are 60% and 77% lower than those of Latinx and Asian men, respectively. Racial/ethnic disparities in earnings are not statistically significant for women (Model 4), controlling for premarket factors and occupation.

[Figure 1 about here]

To explore the intersection of race/ethnicity and gender, we display predicted log earnings in Figure 1 based on Models 3 in Table 2. Among both men and women, the predicted earnings of Latinx and Asian adults are not significantly different from those of white adults. Yet, the negative estimated effect of being Black is larger for men than for women; while the difference among women is not significant, the predicted earnings of Black men are significantly lower than those of white men. Our findings should not be considered to suggest that women of color are not economically disadvantaged. Compared to white men, the predicted log earnings of white, Black, and Latinx women are significantly lower. The gap between white men and Asian women is not statistically significant, yet the predicted log earnings of Asian women are the lowest among women's groups. That is, along with Black men, women of all racial/ethnic groups have substantial earnings disadvantages compared to white men.

Racial/Ethnic Disparities over the Earnings Distribution

Racial/ethnic gaps in earnings may not be constant across the earnings distribution (Kim and Sakamoto 2014; Leicht 2008). To examine this possibility, we next use quantile regression to estimate absolute earnings gaps between racial/ethnic groups at nine earnings decile points (Table 3). The quantile regression estimations control for all differences in premarket factors and occupation.

[Table 3 about here]

Black men's earnings are significantly lower than white men's earnings at deciles 0.2 through 0.7. The white-Black differences at deciles 0.1, 0.8, and 0.9 are not statistically significant. In terms of the coefficient size, the white-Black gaps are only slightly wider at

deciles 0.4 to 0.6 than at lower and higher deciles, implying that earnings disadvantages for Black men are substantial at most earnings deciles. Predicted mean earnings are not significantly different between white, Latinx, and Asian men at any decile. Similarly, racial/ethnic gaps among women are not statistically significant at any earnings deciles. To sum up, both OLS and quantile regression estimates corroborate the striking earnings disadvantages of non-college-educated Black men.

We utilize IPWRA to evaluate whether our findings are sensitive to sample selection bias (Appendix Figure A and Table A). The results in Appendix Figure A show no substantial difference compared to the results in Figure 1, with both estimations (with and without IPWRA) showing earnings disadvantages for Black men and for women of all racial/ethnic groups. Likewise, the results from the quantile regression analysis with IPWRA (Appendix Table A) are identical to Table 3.

Subgroup Variation

Previous studies of racial/ethnic earnings disparities indicate considerable subgroup variation by ethnic origin, particularly within Latinx and Asian groups (Bonilla-Silva 2004; Cattan 1993; Sakamoto et al. 2009). Results from supplementary analyses in Figure 2 show predicted log earnings of white, Black, Mexican, other Latinx, Filipino/Southeast Asian, and other Asian men and women after controlling for premarket factors and occupation.

[Figure 2 about here]

For both men and women, the predicted earnings of the two Latinx subgroups are between those of white and Black groups (Figure 2). The heterogeneity among Asians is more

conspicuous. Among men, the predicted log earnings of the other Asian subgroup, including Chinese, Indian, Korean, and Japanese, are higher on average than those of other racial/ethnic (sub)groups. Among women, the predicted log earnings of the Filipino/Southeast Asian subgroup are lower on average than those of other racial/ethnic (sub)groups. These results may be related to our finding that men of the other Asian subgroup have the highest probability of being allocated to a business/finance occupation (37%), and women of the Filipino/Southeast Asian subgroup have the highest probability of being allocated to service or sales occupation (85%) (these supplementary analyses available by request). Potentially partly due to small sample sizes, these differences in earnings for Asian subgroups are not statistically significant relative to any other (sub)group of men and women. Our supplementary subgroup analysis warrants future studies into heterogeneity within racial/ethnic categories using data with a larger number of Asian respondents.

DISCUSSION

This study examined racial/ethnic earnings disparities among young men and women without a college education, with our findings showing striking earnings disadvantages for Black men, and for women of all racial/ethnic groups, relative to white men. Our findings indicate that non-college educated Latinx and Asian men do not earn significantly less than their white counterparts, at least in their early twenties. Likewise, racial/ethnic earnings disparities among non-college-educated young women are not statistically significant.

Focused on the long-term earnings of white and Black workers, Sakamoto et al. (2018) document that the white-Black gaps are wider among non-college-educated men than their

college-educated counterparts. Our research contributes to the previous literature by showing that, among non-college-educated young workers at early career stages, the earnings disadvantages of Black men are striking, even after controlling for a multitude of racial/ethnic differences in premarket experiences. Markedly, the white-Black gaps in earnings are evident for non-college-educated young Black men, even with controls for differences in occupation. The results may indicate that employers devalue the work of young Black men without a college education to a greater degree than they do the work white, Latinx, and Asian men without a college education. Importantly, our analyses also include controls for differences in institutional compliance and academic achievement as an adolescent, providing a counterpoint to arguments that Black men's earnings disparities reflect valid differences in work productivity or attitude. This interpretation is supported by findings on anti-Black labor market discrimination from other studies (Gaddis 2015; Mandel and Semyonov 2016; Moss and Tilly 2001; Neckerman and Kirschenman 1991; Pager and Karafin 2009; Shih 2002). Most telling, audit studies and in-depth interviews identify significant bias against Black workers in workforce processes (Gaddis 2015; Pager and Karafin 2009; Shih 2002). As the inequities Du Bois ([1903] 1997) delineates in *The Souls of Black Folk* continue in the United States, the Black Lives Matter movement struggles for the liberation of Black people (Taylor 2016; Thomas 2021). Police violence and criminalization targeting unarmed young Black adults demonstrates the institutionalized prevalence of anti-Black stereotypes in the United States. It would not be surprising if these stereotypes also negatively affect non-college-educated young Black workers in the labor market (Desmond, Papachristos, and Kirk 2016). Nonetheless, we cannot directly test the possibility of

racialized work devaluation due to the lack of measures of employers' racialized stereotypes or preferences. Our research suggests an imminent need for future studies into the labor market mechanisms behind the striking color line separating Black non-college-educated young men from their peers of other races and ethnicities.

The earnings disadvantages of non-college-educated women of all racial/ethnic groups relative to white men also persist with controls for differences in premarket factors and occupation. Studies focused on the general population, or college-educated women, similarly find gender disparities in earnings (Cha and Weeden 2014; Mandel and Semyonov 2016). These disparities are often attributed to occupational gender segregation (Petersen and Morgan 1995; Reskin 1993; Tam 1997) or differences in domestic labor (Browne and Kennelly 1999; Hunter and Leahey 2010; Long 1990). Future studies using more detailed measures of occupation and domestic labor are needed, yet we attempt to account for these alternate explanations to the best of our ability in this research. Moreover, these explanations are less relevant for this population as most young non-college-educated adults are in entry-level occupations, and many do not have spouses or children yet. Our findings suggest that, like their more educated counterparts, young non-college-educated women may face pernicious earnings discrimination in the labor market, regardless of their race/ethnicity.

Limitations merit mention. As the dependent variable of this study is annual earnings, it should be noted that earnings disadvantages may partially reflect a lower number of working hours or irregular employment. Yet, in supplementary analyses, we find that results are robust to the inclusion of a control for hours worked per week. In addition, racial/ethnic and gender

differences in the likelihood of being employed are rarely significant, holding all premarket covariates constant. Some may insist disparities like these are the result of differences in innate abilities, individual preference, and other premarket variables unobserved in this research. Without accepting overtly racist and sexist perspectives, however, it is difficult to imagine that abilities and preferences vary enough to cause young Black men, and women of all racial/ethnic groups, to voluntarily opt out of labor market activities that relate to higher earnings, particularly relative to their peers who are similar in terms of their family background, human capital, institutional compliance, and occupation. It is possible, with HSLS:09 only extending three years past the end of high school, that some of these young adults will eventually enter college; nonetheless, similar to not attending college, delayed entry into college also links to poorer labor market outcomes (Oh and Kim, 2020; Taniguchi, 2005). Although we do not claim that our findings are not influenced by unobserved variables, we employ an extensive set of covariates from the restricted-use HSLS:09 dataset and expect that our findings would be robust to additional controls, should they be available. In addition, our quantile regression analyses suggest future research should examine why the white-Black earnings gaps among men are not statistically significant at the low and high end of the earnings distribution.

Based on previous literature, we utilize four racial/ethnic categories (i.e., white, Black, Latinx, and Asian) for the main analyses. This framework is not without limitations. For one, it may eclipse heterogeneity in the Latinx and Asian categories. To overcome this limitation, we explore variation in earnings by Latinx and Asian workers' ethnic origins. The subgroup analyses warrant future research, particularly focused on non-college-educated Asian men and

women. Any earnings disadvantages of Latinx and/or Asian non-college-educated youth may have increased in recent years, with Latinx workers often depicted as a threat to white workers and increases in anti-immigrant sentiment targeting both Latinx and Asian persons (Becerra et al. 2012; Citrin et al. 2007). Simultaneously, since the outbreak of the COVID-19 pandemic, negative stereotyping and hate crimes targeting Asian people have surged (Gover, Harper, and Langton 2020), which may extend into the labor market.

Given that non-college-educated workers tend to have lower earnings than their college-educated counterparts throughout adulthood (Tamborini et al. 2015), the earnings disadvantages for non-college-educated young Black men, and women of all racial/ethnic groups, are foreboding. Racial/ethnic discrimination may structurally exclude Black men from mainstream work and induce engagement in underground economic activities, which subsequently increases the risk of criminal offense and poor health, and negatively affects their long-term earnings (Sakamoto et al. 2018). Increasing access to higher education is the solution commonly proposed, particularly for marginalized racial/ethnic groups. However, despite the rapid expansion of higher education during recent decades, the decline in the proportion of non-college-educated youth has slowed since 2010 (Hussar et al. 2020). The privatization of higher education and rising tuition costs may continue to limit college access for racially marginalized youth (Goldin and Katz 2009; Oh 2022). In addition, our empirical findings imply that policy geared towards addressing social inequality in premarket factors would not fully address racial/ethnic and gender earnings disparities among non-college-educated youth. Further investigations and policy interventions into racist and sexist processes in the labor market are

urgent to reduce earnings disparities among non-college-educated young adults.

NOTES

[1] NCES requires that all unweighted frequencies be rounded to the nearest ten.

[2] The NCES administered standardized math proficiency exams to respondents during the first and second waves of data collection. We use test scores collected during Wave II.

[3] We only show descriptive statistics on representative covariates describing family background, human capital, institutional compliance, and occupation due to the page limit. Descriptive statistics of all analytic variables are available upon request.

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Table 1. Descriptive Statistics on Selected Variables by Race/Ethnicity and Gender among Non-college-educated Youth

	White	Black	Latinx	Asian
Men				
Dependent variable				
Annual earnings	$22,056	$12,573***	$17,984***	$24,837
Log annual earnings	9.62	8.27***	9.33*	9.88
Selected Covariates				
Family income	$60,381	$34,246***	$42,602***	$60,040
Urbanicity:				
City	0.21	0.43**	0.43***	0.71***
Suburb	0.32	0.30	0.34	0.10***
Town	0.15	0.15	0.07**	0.02***
Rural	0.32	0.12***	0.16***	0.18
High school math test score	46.22	40.47***	44.63	48.41
High school GPA	2.10	1.74**	1.87***	2.43*
Suspension or expulsion	0.15	0.21	0.13	0.04**
The two most common occupations	Service (0.20) & Production (0.14)	Service (0.22) & Production (0.20)	Service (0.28) & Sales (0.13)	Service (0.42) & Business/ Finance (0.21)
Women				
Dependent variable				
Annual earnings	$14,766	$10,871***	$12,465***	$10,935
Log annual earnings	9.12	8.62***	9.02*	8.33
Selected Covariates				
Family income	$62,890	$39,008***	$46,524***	$59,650
Urbanicity:				
City	0.15	0.45**	0.53***	0.48***
Suburb	0.31	0.29	0.33	0.29***
Town	0.14	0.11	0.04**	0.00***
Rural	0.40	0.16***	0.10***	0.22
High school math test score	46.08	40.86***	45.56	49.31
High school GPA	2.41	1.92**	2.04***	2.66*
Suspension or expulsion	0.05	0.16	0.09	0.00**
The two most common occupations	Service (0.37) & Sales (0.21)	Sales (0.38) & Service (0.29)	Service (0.34) & Sales (0.21)	Sales (0.60) & Service (0.22)

Source: US Department of Education, National Center for Education Statistics, "The High School Longitudinal Study of 2009" 2009-2016.

Note: Means and proportions are weighted and adjusted for survey design.

*** $p < .001$; ** $p < .01$; * $p < .05$ (two-tailed tests for the differences from white counterparts)

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Table 2. OLS Regression Estimates of Racial/Ethnic Disparities in Log Annual Earnings by Gender among Non-college-educated Youth

	Model 1	Model 2	Model 3
Control variables:			
Family background [(a)]		Y	Y
Human capital [(b)]		Y	Y
Institutional compliance [(c)]		Y	Y
Occupational allocation [(d)]			Y
Men (Reference = White)			
Black	-1.36***	-1.14***	-1.01***
	(0.38)	(0.28)	(0.24)
Latinx	-0.29*	-0.13	-0.10
	(0.13)	(0.15)	(0.15)
Asian	0.25	0.44	0.45
	(0.23)	(0.29)	(0.33)
Intercept	9.62***	9.54***	9.52***
	(0.05)	(0.07)	(0.06)
Women (Reference = White)			
Black	-0.49*	-0.33	-0.27
	(0.23)	(0.19)	(0.19)
Latinx	-0.09	-0.13	-0.17
	(0.15)	(0.18)	(0.17)
Asian	-0.79	-0.50	-0.38
	(0.57)	(0.49)	(0.48)
Intercept	9.12***	9.10***	9.09***
	(0.07)	(0.08)	(0.08)

Source: US Department of Education, National Center for Education Statistics, "The High School Longitudinal Study of 2009" 2009-2016.

Note: Numbers in parentheses are standard errors. Estimations are weighted and adjusted for survey design. [(a)] Measures of family background include family income, the absence of a father or mother, parents' education, Census division, urbanicity, high school type, and whether a respondent is married and/or has one or more children. [(b)] Human capital is measured with math and science course attainment, math test score, ever transferred from high school, high school GPA, and high school credential status. [(c)] Institutional compliance is measured by whether they were absent or late for school; cut or skipped classes; attended class without books/reading materials, notetaking supplies, and homework; suspended; and/or expelled. [(d)] Measures of occupational allocation are 15 occupations.

*** $p < .001$; ** $p < .01$; * $p < .05$ (two-tailed tests)

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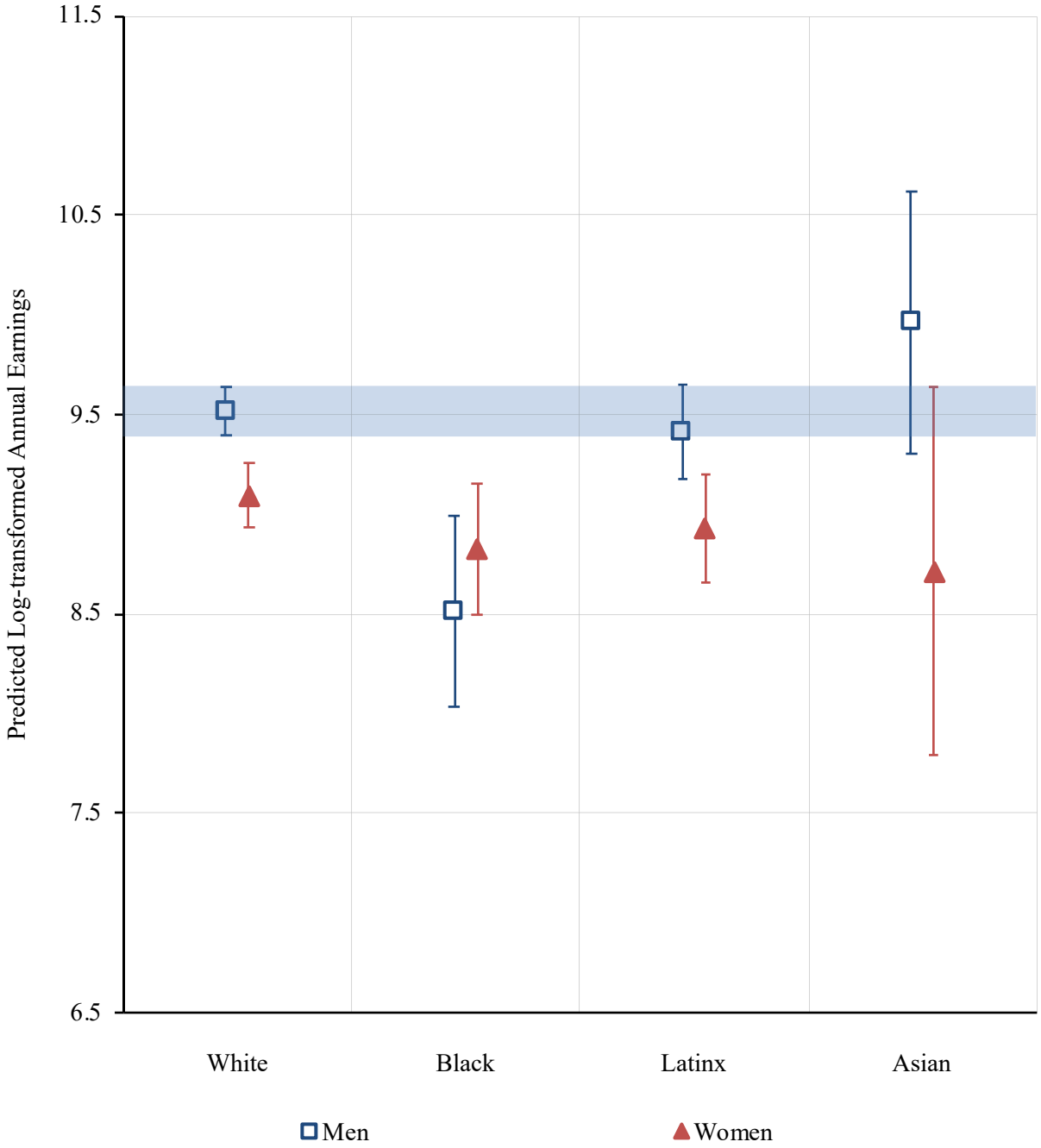
Table 3. Quantile Regression Estimates of Racial/Ethnic Disparities in Annual Earnings by Gender among Non-college-educated Youth

	Earnings Decile								
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Men (Reference = White)									
Black	-1903.39	-5593.26**	-6382.44***	-7280.22***	-7826.89***	-7834.58**	-6966.10**	-5046.16	-4747.74
	(2286.38)	(2135.73)	(1613.18)	(1758.71)	(1582.70)	(2307.25)	(2597.37)	(3405.82)	(4582.58)
Latinx	158.54	-574.51	-18.08	-363.42	-427.16	-1003.21	-1815.61	-2053.78	-2677.00
	(1852.82)	(1755.21)	(1297.61)	(1335.11)	(1246.03)	(1581.02)	(1792.69)	(2175.14)	(3380.44)
Asian	3594.69	2394.51	2370.49	1982.12	3843.52	14201.79	15922.62	13649.23	5679.39
	(8933.21)	(6858.39)	(5674.57)	(4493.87)	(15824.93)	(15246.33)	(9268.18)	(15479.18)	(29727.43)
Intercept	5302.07***	10358.84***	13706.32***	16741.33***	19597.16***	22695.92***	25942.67***	30458.76***	37478.85***
	(1147.79)	(943.69)	(777.75)	(793.48)	(841.10)	(959.65)	(1028.36)	(1413.22)	(1698.85)
Women (Reference = White)									
Black	395.79	371.61	-332.53	-2353.50	-3589.48	-3811.06	-2208.57	-2588.54	-2156.76
	(2380.21)	(1972.44)	(2230.81)	(2326.46)	(2376.55)	(1969.31)	(2543.26)	(2478.49)	(4506.86)
Latinx	-473.56	-591.64	-474.31	-552.35	-1172.93	-1681.21	-1731.68	-2421.85	-4803.90
	(1822.92)	(1948.31)	(1661.22)	(1847.67)	(2059.39)	(1467.13)	(2374.58)	(2957.49)	(3437.62)
Asian	-387.25	-1116.06	-1341.17	-1405.93	-4009.62	-4251.13	-2437.65	3907.72	3689.88
	(4126.52)	(5517.62)	(3561.74)	(3292.85)	(3522.93)	(3387.25)	(8254.93)	(5559.00)	(12557.88)
Intercept	3739.31*	6261.47***	8208.59***	10870.28***	13572.83***	16093.70***	17887.53***	21562.04***	26012.42***
	(1637.63)	(1016.96)	(1013.49)	(1626.45)	(1148.41)	(1159.21)	(1597.51)	(1597.20)	(2209.21)

Source: US Department of Education, National Center for Education Statistics, "The High School Longitudinal Study of 2009" 2009-2016.
Note: Numbers in parentheses are standard errors. Estimations are weighted and adjusted for survey design. Control variables include family background, human capital, institutional compliance, and occupational allocation.
*** p < .001; ** p < .01; * p < .05 (two-tailed tests)

Figure 1. Predicted Log Annual Earnings by Race/Ethnicity and Gender among Non-college-educated Youth



Source: US Department of Education, National Center for Education Statistics, "The High School Longitudinal Study of 2009" 2009-2016.
Note: The predicted average annual earnings are calculated based on Models 3 in Table 2, which includes controls for family background, human capital, institutional compliance, and occupational allocation. The

vertical lines indicate the 95% confidence intervals. In addition, the shaded area represents the range of values that are not statistically different from white men.

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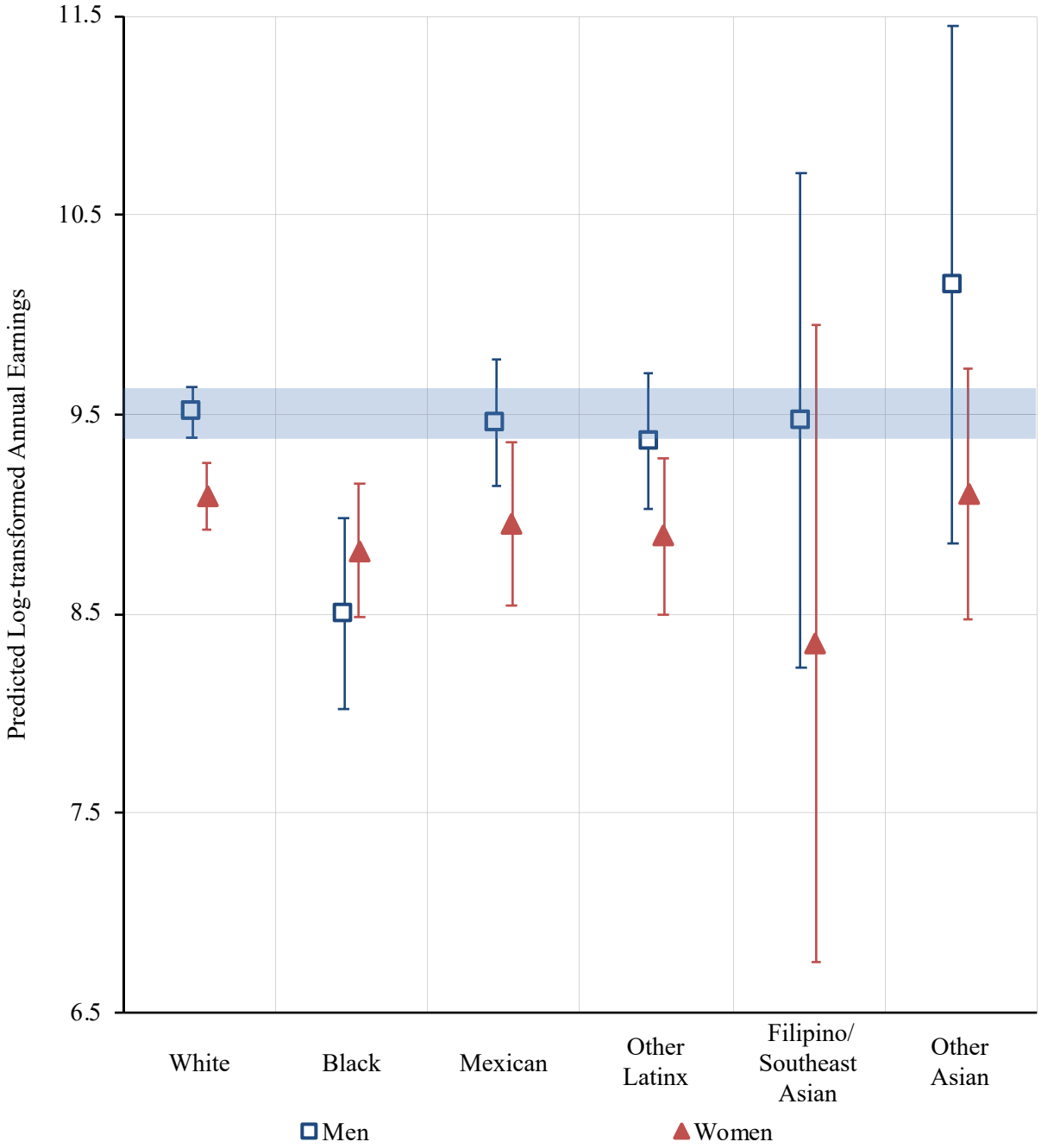
Figure 2. Predicted Log Annual Earnings by Racial/Ethnic Subgroups and Gender among Non-college-educated Youth



Source: US Department of Education, National Center for Education Statistics, "The High School Longitudinal Study of 2009" 2009-2016.
Note: The predicted average annual earnings are calculated by controlling for family background, human capital, institutional compliance, and occupational allocation. The vertical lines indicate the 95%

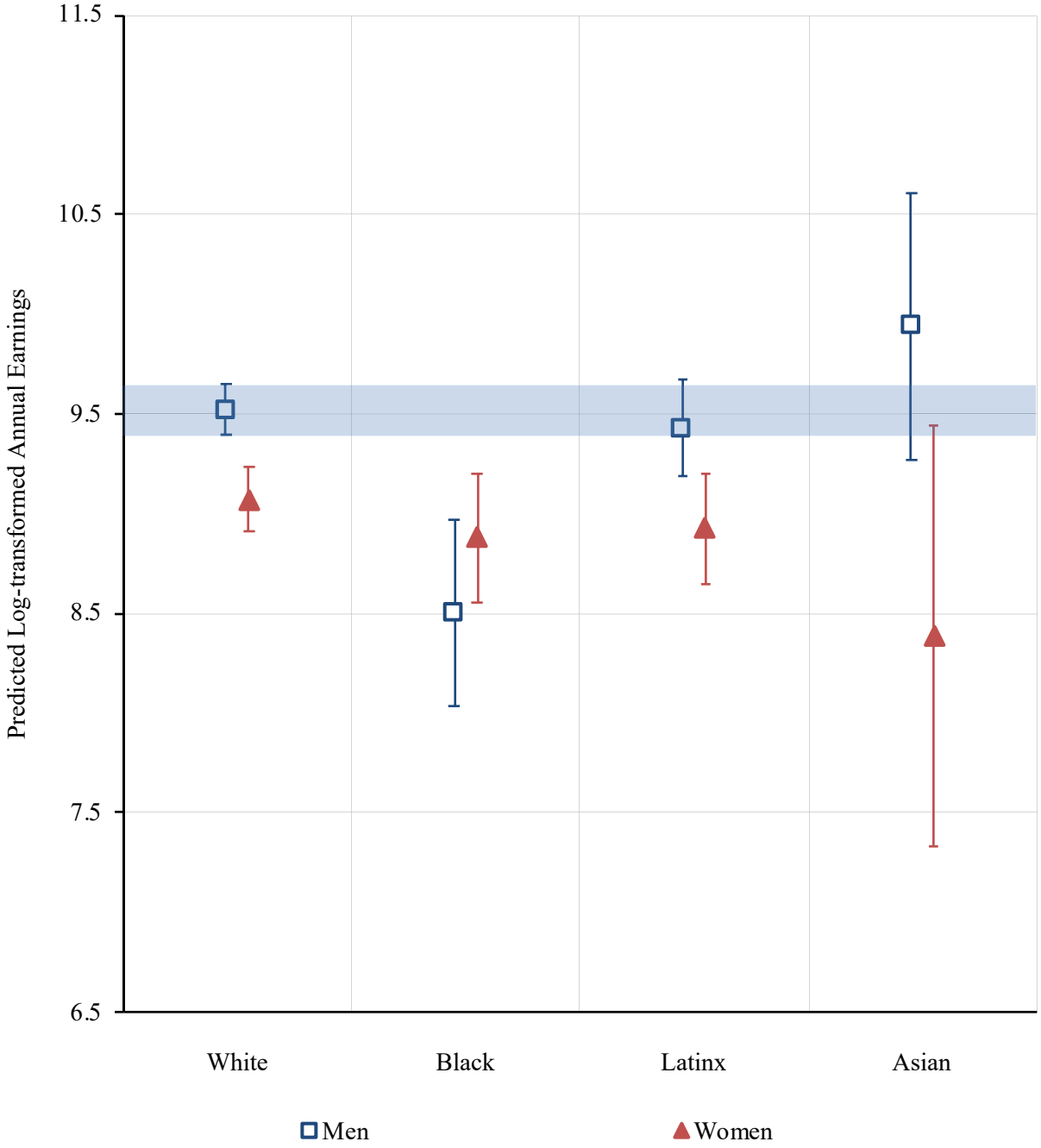
confidence intervals. In addition, the shaded area represents the range of values that are not statistically different from white men.

Appendix Table A. Quantile Regression Estimates of Racial/Ethnic Disparities in Annual Earnings by Gender among Non-college-educated Youth with the Inverse Probability Weighted Regression Adjustment

	Earnings Decile								
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Men (Reference = White)									
Black	-1882.15	-5578.42*	-6338.20***	-7381.94***	-8007.07***	-8443.16**	-7867.77**	-6588.56	-6708.79
	(2242.13)	(2505.91)	(1789.44)	(1922.71)	(1716.12)	(2431.88)	(2383.71)	(3564.95)	(5548.76)
Latinx	-93.57	-736.88	-254.93	-469.69	-670.36	-1264.28	-2332.93	-2536.21	-2908.22
	(1701.97)	(2026.91)	(1550.23)	(1437.65)	(1439.65)	(1822.06)	(1764.01)	(2313.96)	(3642.30)
Asian	1988.48	1798.39	2088.63	2020.87	5593.81	16037.19	15890.68	12236.86	5703.99
	(8440.68)	(5723.35)	(5830.52)	(7381.16)	(17389.69)	(12961.45)	(11659.28)	(19780.77)	(29985.29)
Intercept	5386.59***	10444.50***	13731.29***	16877.07***	19890.89***	22976.73***	26187.10***	30376.69***	37948.20***
	(1011.86)	(1068.32)	(839.37)	(902.67)	(902.03)	(1015.31)	(1011.60)	(1399.72)	(1705.99)
Women (Reference = White)									
Black	670.47	491.33	128.89	-1725.82	-2906.13	-3795.18	-2857.26	-2376.30	-867.98
	(2101.99)	(2226.13)	(2649.74)	(2296.17)	(2501.66)	(2565.96)	(2476.52)	(3425.85)	(4727.95)
Latinx	-606.93	-726.00	201.89	602.14	-523.26	-2230.10	-1385.95	-2704.83	-3584.30
	(1711.84)	(1925.75)	(1762.73)	(1829.94)	(2000.66)	(2258.05)	(2287.56)	(2830.17)	(4333.90)
Asian	-20.34	-1638.89	-817.94	-2142.71	-4391.51	-5826.95	-3072.30	770.86	1921.67
	(4878.07)	(4912.25)	(4252.62)	(5544.25)	(3359.35)	(3631.10)	(7265.25)	(7986.54)	(8125.21)
Intercept	3700.97**	6111.47***	7963.13***	10452.01***	13284.06***	16233.93***	18032.91***	21640.04***	25774.58***
	(1332.04)	(1725.76)	(1375.10)	(1186.14)	(1150.83)	(1261.41)	(1354.84)	(1762.06)	(2844.79)

Source: US Department of Education, National Center for Education Statistics, "The High School Longitudinal Study of 2009" 2009-2016.
Note: Numbers in parentheses are standard errors. Estimations are weighted and adjusted for survey design. Control variables include family background, human capital, institutional compliance, and occupational allocation.
*** p < .001; ** p < .01; * p < .05 (two-tailed tests)

Appendix Figure A. Predicted Log Annual Earnings by Race/Ethnicity and Gender among Non-college-educated Youth with the Inverse Probability Weighted Regression Adjustment



Source: US Department of Education, National Center for Education Statistics, "The High School Longitudinal Study of 2009" 2009-2016.
Note: The predicted average annual earnings are calculated by controlling for family background, human capital, institutional compliance, and occupational allocation. The vertical lines indicate the 95% confidence intervals. In addition, the shaded area represents the range of values that are not statistically different from white men.