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Returns in the labor market: A nuanced view of penalties at the intersection of race and gender

Mark Paul
Khaing Zaw
Darrick Hamilton
William Darity Jr.

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Returns in the Labor Market: A Nuanced View of Penalties at the Intersection of Race and Gender

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Mark Paul,[1] Khaing Zaw,[2] Darrick Hamilton,[3] and William Darity Jr.[4]

Abstract

There have been decades of research on wage gaps for groups based on their socially salient identities such as race and gender, but little empirical investigation on the effects of holding multiple identities. Using the Current Population Survey, we provide new evidence on intersectionality and the wage gap. This paper makes two important contributions. First, we find that there is no single "gender" or "race" wage penalty. Second, we present evidence that holding multiple identities cannot readily be disaggregated in an additive fashion. Instead, the penalties associated with the combination of two or more socially marginalized identities interact in multiplicative or quantitatively nuanced ways.

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1 Mark Paul is an Assistant Professor at New College of Florida.

2 Khaing Zaw is a Research Associate at the Samuel DuBois Cook Center on Social Equity at Duke University. She is now a member of the statistical research team at Facebook.

3 Darrick Hamilton is Professor of Economics and Urban Policy at the Milano School of International Affairs, Management and Urban Policy and Department of Economics at the New School for Social Research, and Director of the Doctoral Program in Public and Urban Policy at The New School.; and Co-Associate Director of the Samuel DuBois Cook Center on Social Equity at Duke University.

4 William Darity Jr. is the Samuel DuBois Cook Professor of Public Policy, African and African-American Studies and Economics and the Director of the Samuel DuBois Cook Center on Social Equity at Duke University.

1. Introduction

Race and gender disparities in income are a relentless and troubling feature of American labor markets. The gender wage gap and racial wage gap have been investigated for more than half a century, but remain areas demanding active and innovative research. While most research has considered these two types of wage gaps in relative isolation, little empirical analysis has been conducted on the intersection of race and gender.

Specifically, in this paper, we investigate whether the magnitude of these wage gaps varies across group identity, that is, do blacks and whites face different gender wage gaps? Do men and women face different racial wage gaps? Further, we ask how the possession of more than one socially salient identity marginalized in the labor market, like being both black and a woman, affects earned income, relative to the possession of a single socially marginalized identity, or the simple addition of the disadvantages of holding two or more identities.[5]

Economists typically have measured racial wage gaps and gender wage gaps by controlling for race in regressions assessing the gender gap, controlling for gender in regressions assessing the racial wage gap, or via a stratified technique, such as estimating racial wage gaps separately for men and women, respectively (see for examples, Becker, 1957; Blau and Kahn 2017; Lang and Lehmann, 2012). Such approaches largely fail to analyze and investigate whether persons with different combinations of identities have different degrees of privilege or stigma associated with them.

Intersectional theory posits that, among persons with multiple identities, the impact of any one of their identities on their life outcomes, or wage, are *qualitatively* different from the impact of a single

[5] While other socially salient identities, such as immigration status, country of origin, religious affiliation, or sexual orientation are of interest, an in-depth analysis focused on race and gender is conducted here. The techniques used here can be extended to examine other types of identity intersections.

identity on an outcome and suggest that they are *quantitatively* different from the mere sum of the effects of the separate identities (Cole, 2009 p. 178).

Commentaries in the popular press on advantage or disadvantage for individuals holding multiple identities are pervasive. A recent article in the *Washington Post* on the gender pay gap observed that "women of color get hit twice: they suffer the effects of the gender wage gap plus those of the racial wage gap" (G.V. 2017). Others emphasize how focusing on one socially salient identity alone, such as gender, overlooks the importance of holding multiple identities.

In an essay in *The Atlantic*, Adia Harvey Wingfield (2016) challenges the "now famous" statistic that women earn 79 cents on the dollar vis-á-vis men, arguing that "it obscures even wider gaps faced by women of color." An editorial from the *New York Times* Board of Editors acknowledges that penalties, or privileges, associated with certain identities depend on the bundle of identities that the individual holds. For example, the editorial says, "the racial pay gap is narrower among women" than it is among men (2016). Thus, intraracial-cum-intergender comparisons versus interracial-cum-intergender comparisons can result in highly divergent insights.

Such commentaries in popular media highlight the interest in, and acknowledgement of, the potential economic ramifications of holding multiple identities, i.e. intersectionality. In the critical race literature, the site where the notion of intersectionality emerged, researchers have argued that intersectionality provides a nuanced avenue through which we can gain an improved understanding of social outcomes, including labor market outcomes (McCall, 2005; Shields, 2008; Carastathis, 2013). Indeed, when legal scholar Kimberlé Crenshaw (1989) introduced the term, now widely used, she did so because of concerns over the precision of the application of antidiscrimination measures and the salience of anti-racist political action.

Economists should take seriously intersectionality theory in their analyses of labor markets and labor market discrimination. This work will deepen our understanding of the types of policy interventions needed to understand an d improve conditions of pay equity by demonstrating that simply targeting policies that address one socially salient identity, such being female or being black. To date, the precise effect of holding different identities on economic outcomes remains largely unclear. A notable exception is Marlene Kim's (2009) study where she analyzed variations in combined racial and gender penalties for black workers.

Our project contributes to the economics of discrimination literature, where economists typically have failed to fully explore or explain the *persistence* of discrimination in U.S. labor markets. While standard economic models assume the competition will eliminate discrimination, making it merely a temporary irrational market distortion needing to be cleansed by competitive forces, the real world has proven discrimination is resilient and omnipresent (Blau and Kahn, 2017; Agesa and Hamilton, 2004; Darity and Mason, 1998). This paper demonstrates that in addition to discrimination based solely on the singular identities such as race and gender, some groups face compounded non-linear discriminatory penalties.

In what follows, we present results which examine wage gaps associated with gender and race in the U.S. population, focusing on hourly wages for full-time workers with at least 26 weeks of employment. This paper addresses the following two research questions: (1) Are the economy-wide wage penalties associated with race the same for both black men and women relative to their same gender white peers; and, likewise, are the economy-wide wage penalties associated with gender the same for both black and white women relative to their same race male peers. Given the overwhelmingly dominant wage position of white men, this question is somewhat rhetorical.

A priori, it is not surprising that the wage penalty between black men in comparison to white men is much larger than that of black women in comparison to white women. Similarly, it is not surprising that the wage penalties between white women in comparison to white men is much larger than that of black women in comparison to black men. Our analysis quantifies these differences and sets up the next, perhaps more pertinent question: (2) Do people who hold multiple socially salient identities traditionally penalized in the labor market, such as being both black and a female, face an additional penalty above and beyond the direct sum of the penalties associated with each separate identity?

First, using Blinder-Oaxaca decompositions, we confirm — *there is no single "gender" or "race" penalty* irrespective of one's race or gender. That is, black women face a different gender penalty than white women, and different race penalties than black men. Second, we present evidence that holding multiple identities cannot so easily be disaggregated in an additive fashion, but rather the penalties associated with the combination of two or more socially marginalized identities interact in multiplicative or mathematically nuanced ways. This finding highlights the critical role intersectionality should play in the economic analysis of discrimination.[6]

Key caveats about our approach are warranted. Context is important to consider when conducting intersectional analysis. For instance, Rebecca Pettit's (2012) book Invisible Men emphasizes that many labor market studies exclude incarcerated individuals who are grossly and disproportionately black males. Black men make up about six percent of the U.S. population, but roughly 50 percent of the population in America's prisons. and there is about a one and three chance that a black man will serve time at some point in his life. A negative spillover (and intersectional) effect of mass incarceration of black men is the fact that rather than being a source of resources for a household, black males in prison further drain household budgets (Cohen and Hamilton 2018). Compounding the situation, there also is a growing share of incarcerated black women relative to white women.

[6] In this application of a technique for estimating the magnitude of the economic effects of intersectionality, we solely examine the impact of binary identities associated with race and gender in the United States. However, the same technique is sufficiently general that is can be extended to the examination of a larger set of socially salient identities – three or even more.

More generally, the results presented here are economy-wide, but there may be specific geographic and employment contexts (i.e. those that are particularly pernicious towards the formerly incarcerated, or those in which the trope of the physically threatening black male is particularly salient) in which the combination of being black and a man may generate the worst labor market penalties.

2. Review of Race and Gender Gaps in the U.S.

Standard economics has historically done a poor job in explaining the persistence of discrimination in the labor market. The traditional stance taken by economists is most famously explained in Gary Becker's (1957) "taste for discrimination" model, where Becker characterizes discrimination as a particular preference for members of one group over another in a competitive environment.

This "taste for discrimination" can arise from preferences held by the employer, the employee, or the customer. In Becker's model, where two groups of workers have the same productivity, wages between workers will eventually equalize, as a result of competitive forces compelling non-bigoted firms to arbitrage away discriminatory wages. Thus, discrimination may arise; but, ostensibly discrimination cannot be sustained under competitive conditions.

In this paper, we investigate two distinct, but related, types of wage gaps: the racial wage gap and the gender wage gap. Decades of research has been devoted to understanding these wage gaps, but little quantitative research has investigated how they may interact. Despite landmark pieces of legislation in the United States to combat discrimination and unequal pay in the labor market, including the Equal Pay Act of 1963, the Civil Rights Act of 1964 and the Pregnancy Discrimination Act of 1978, among others, there is little evidence that group-based discrimination is going by the wayside.

Racial Wage Gaps

The black-white wage gap, referred to henceforth as the racial wage gap, is a critical driver of income inequality between whites and blacks in the United States. Historically, the racial wage gap has been large, typically estimated to be in the vicinity of 60 to 65 cents per dollar received by whites. The gulf in the racial wage gap started to narrow considerably with the passage of the Civil Rights Act of 1964 (Card and Krueger, 1992).The passage of this legislation, not any apparent improvement in the competitiveness of labor markets, was the key event associated with a narrowing of the wage gap between white and black workers.[7]

Evidence since the late 1970s demonstrates that the racial wage gap is still substantial and convergence in black and white wages has stagnated. Most recent research is indicative of an average racial wage gap of around 20 percent from the late 1970s to the mid-2010s. However, evidence from the past decade has indicated that the wage gap may have widened slightly due to the extended weak labor market following the Great Recession. Weak labor markets put extreme downward pressure on the wages and employment opportunities of stigmatized groups, like black workers in particular (Wilson and Rogers III, 2016; Daly et al., 2017).

When economists investigate wage differentials between groups they tend to start by asking the following question: why might two workers of two different groups, in this instance one black and one white, have different earnings? The conventional answer has it that some portion of the wage gap is due to skills acquisition or differences in productivity related characteristics, typically grouped under the heading of “human capital.” Differences. It is then argued that the other portion of the gap is related to

[7] For a discussion of employer discrimination prior to passage of the Civil Rights Act of 1964 (see Darity and Mason, 1998; and Hamilton, 2000). Darity and Mason (1998) document how newspaper help wanted ads for workers provides explicit evidence of employers preference for white workers, along with a plethora of other evidence . No degree of market competition mitigated this discrimination.

differences in the treatment of a particular group, which can be interpreted as the degree of discrimination.[8]

Variation exists between blacks and whites in the acquisition of characteristics associated with human capital. Since, according to economic theory, wages should largely reflect workers productivity, we need to investigate differences associated with indirect ways to measure workers productivity, including analyzing the wage rate, level of education, industry and occupation of employment, etc.[9] Other relevant factors include where workers reside geographically, their full-time or part-time status, and time off from being in the labor market for both voluntary and involuntary reasons.

While it is true that black workers, on average, are paid less than white workers in part due to having fewer educational credentials (Weinberger and Joy, 2007), prior research has shown that among black and white workers with similar levels of education, black workers routinely are paid less. Significant racial wage gaps persist after taking education and other productivity related characteristics into account (Darity et al., 1996; Weinberger and Joy, 2007; Jones and Schmitt, 2014). Of course, many aspects of skills acquisitions are associated with other forms of discrimination that exist external to labor market, ensuring that equality of opportunity between blacks and whites remains a longstanding myth (Katznelson, 2005; Chetty et al., 2014; Rothstein, 2017), but economists typically have focused on the presence (or absence) of discrimination within the labor market.[10]

A critical part in a thorough investigation of labor market discrimination is to understand whether employers treat workers of various groups differently. The literature on audit studies has been particularly enlightening here, where field experiments have consistently shown that when workers with

[8] This framing ignores any processes of pre-market discrimination in assessing the presence of discrimination in wages (Hamilton, 2000).

[9] There is a sizable group of economists that have always rejected the idea that wages are based on the marginal product of labor. Recently, this has been entering the mainstream through debates about monopsony power in labor markets (see Krueger, 2017; Dube et al., 2018).

[10] We do not discuss AFQT scores in this paper. For an excellent discussion on how they relate to the literature on the racial wage gap, see Darity and Mason 1998.

equivalent identities and qualifications apply for the same job, black workers are significant less likely to receive callbacks, and job offers, than white workers (for a discussion of audit studies, see Darity and Mason, 1998; Bertrand and Mullainathan, 2004). The case-control experimental nature of audit studies provides the most direct and causal evidence of labor market discrimination (Hamilton, 2000).

Gender Wage Gaps

A vast empirical literature on gender wage disparities has shown a persistent male-female wage gap in the United States (Blau et al., 1998; Goldin, 1990; O'Neil, 2003; Hegewisch et al., 2010; Blau and Kahn, 2017). The raw gender gap – the gap in wages prior to taking differences in human capital and other worker characteristics into account, indicates that women earned 21 percent less than men in 2010 (Blau and Khan, 2017). This is a significant decline from the historic wage gap, where female full-time workers were earning just sixty cents on the dollar of male full-time workers in 1980. Yet it remains far from parity.

Similar to the racial wage gap, federal legislation to combat gender discrimination, including the Civil Rights Act of 1964, has been shown to have had an important impact in reducing discrimination against women in the labor market (Miller, 1966). While the long-term trend has demonstrated substantial reductions in the gender wage gap, evidence suggests that path towards convergence in wages between men and women has slowed, and perhaps even halted, since the 1990s (Blau and Khan, 2017). A large part of the historic decline in the gender earnings gap has been attributed to a convergence in many productivity related characteristics. Most striking is the education reversal, where women have obtained higher educational credentials than men during the past two decades (Goldin et al., 2006).

Despite a closing of the education gap, economic theory posits that a portion of the gender gap may still be explained by other productivity-linked characteristics that differ by gender. To account for these, the gender wage gap literature typically runs regression analysis controlling for such factors. While observable proxies for human-capital differences were large contributors to the gender wage gap historically, recent analysis confirms that productivity related differences now account for only a small fraction of the gender wage gap, with only 14.8 percent of the gender pay gap explained by gender differences in measured human capital (Blau and Kahn 2017, Table 4).[11]

A host of potential factors contributing to the persistent wage gap have been discussed in depth by prior researchers in an attempt to understand the dynamics of the gender wage gap. Research has long found that differences across industries and occupations are important to take into account when analyzing the gender gap, especially when analyzing the lack of equal pay for equal work in the same job (Gross, 1968; Beller, 1982; Levanon et al., 2009; Blau and Kahn, 2017).

Occupational segregation by gender has declined in the United States over the last few decades (Blau et al., 2010), though progress has stalled since the 1990s (Hegewisch et al., 2010). Despite increases in women's representation in historically male-dominated industries and occupations, analysis of the gender wage gap continues to find large occupational and industrial segregation, and regression analysis confirms that this segregation has a sizable effect in the persistence of the gender wage gap, with Blau and Kahn (2017) finding that differences in industry and occupation account for *half* of the gender wage gap.[12]

Other factors traditionally affecting the gender wage gap include labor-force participation (Mincer, 1962; Goldin, 2006; Blau and Kahn, 2007; Goldin and Katz, 2002), selection (Heckman, 1979; Blau and Beller, 1988; Mulligan and Rubinstein, 2008; Jacobsen et al., 2014), experience and work hours

[11] Omitted-variable bias may also be present.
[12] Arguable researchers may want to omit occupation and industry from wage regressions that attempt to quantify discrimination (see Goldsmith, Hamilton and Darity, (2007). In general, we do not want to control for occupation and industry because part of the lower pay for women and blacks occurs through barriers to specific occupations and industries in the first place. For example, a "glass ceiling" means it is harder for women to enter higher-paid managerial positions. Controlling for the glass ceiling (i.e. occupation) underestimates the penalties women face.

(Mincer and Polacheck, 1974; Goldin, 2014; Blau and Khan, 2017), and the motherhood penalty (Jee et al., 2017; Albanesi and Olivetti, 2009; Goldin et al., 2017).

One thing is clear: human capital variables have mattered historically, but are now of far less importance. Other differences in the characteristics of male and female workers appear to remain important, including women's disproportionate family responsibilities, labor-force interruptions, shorter work hours, and industry and occupation segregation - most of which are a form of labor market discrimination themselves. Taking all of these into account, there remains substantial evidence for the continued presence of discrimination in explaining the gender wage gap. In sum, the gap persists, and the narrowing of the gap appears to have stalled.

3. Conceptual Framework for Multiple Identities

Thus far, we have focused the discussion on *the* gender and *the* racial wage gaps, but the story is not so simple. Prior research has overlooked the fact that gender and race are but two of the particular socially salient identities that individuals hold, and that these individuals also hold other identities which may affect their returns in the labor market. The literature on intersectionality, largely a product of critical race theory and feminist literature, has been a notable exception.

Intersectional theory proposes that, among persons with multiple identities, the impact of any one of their identities on their life outcomes are qualitatively different from the impact of a particular identity on the life outcome for a person possessing only that single identity (Cole, 2009 p.178). Berthoud (1976, 2003) and Watson and Lunn (2010) have advanced a compelling approach to characterizing how multiple identities affect the scope of advantage or disadvantage experienced by members of socially salient groups, such as race and gender. They propose that multiple identities can be associated with one of three conditions: the economic impact of multiple identities can be *additive*, *subtractive*, or *multiplicative* relative to any of the single identities. However, they do not provide a theory of intersectionality nor the cause of those outcomes as they relate to intersectionality.[13] Moreover, identities may also intersect on non-linear and shifting ways as well. For this analysis, we will limit our examination to economy-wide comparisons between additive or subtractive effects of multiple identities in relation to multiplicative effects.

Different identities will have different degrees of privilege or stigma associated with them. Some individuals may possess identities that provide them with multiple advantages, for example, white men. In general, identities are nuanced and, as described above, their affect depends on context, domain, and other attributes. In the case of economy-wide wages, we find that black women face a penalty relative to white men that exceeds the subtractive effect of both their race and gender penalties, relative to white women and black men, respectively. The full effect in all of multiple identities requires systematic, quantitative and qualitative assessment.

4. Data and Descriptive Statistics

This paper uses data from the 2017 Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS). The CPS is used to collect labor force data on the entire U.S. population and specific population subsets. With the ASEC supplement, the CPS provides data concerning family characteristics, household composition, marital status, education attainment, and the previous year's work, earnings, and occupation. Administered by the U.S. Census Bureau, the CPS uses a probability selected sample of about 60,000 occupied households, resulting in over 180,000 individual profiles in the 2017 ASEC microdata.

To be eligible to participate in the CPS, individuals must be 15 years of age or over and not in the Armed Forces. People in institutions, such as prisons, long-term care hospitals, and nursing homes

[13] The three categories used here are consistent with those advanced by Berthoud (1976, 2003) and Watson and Lunn (2010), although the labels are not identical.

are ineligible to be interviewed in the CPS. Our initial sample of "all workers" considers all part-time and full-time workers between the ages of 25 and 64 and that earned at least one dollar of income and were not in the armed forces in 2016.

Table 1. Mean Unadjusted Wages by Race and Gender

	Sample Size	Hourly Wage	Percentage Compared to White Males	Annual Wage	Percentage Compared to White Males
All Workers					
White Males	19,973	$34.17	1.00	$73,126	1.00
White Females	19,041	$26.70	0.78	$50,638	0.69
Black Males	3,239	$25.98	0.76	$50,095	0.69
Black Females	3,959	$20.92	0.61	$40,681	0.56
Full-Time Workers					
White Males	18,681	$33.94	1.00	$77,096	1.00
White Females	15,040	$26.95	0.79	$58,068	0.75
Black Males	2,903	$24.99	0.74	$54,401	0.71
Black Females	3,292	$21.77	0.64	$45,963	0.60

Source: Current Population Survey, Annual Social and Economic Supplement, March 2017.

Notes: All workers sample includes all non-military, and non-Hispanic wage and salary workers ages 25-64. Full-time sample includes those from the all workers sample with at least twenty-six weeks of employment and at least 35 usual hours of work per week.

Table 1 presents labor market earnings for our four groups which we identify by race and gender. The table provides summary statistics for mean hourly wages and annual wage income for all workers in the CPS with positive earnings, excluding military and Hispanic workers and those not between the ages of twenty-five and sixty-four. We define full-time workers as workers who worked at least twenty-six weeks during the preceding year and had at least thirty-five hours of usual employment per week. As expected, white males are the highest earners. Therefore, we use them as the comparison group.

Focusing first on all employed workers, we see pronounced gaps across race and gender. White females receive the highest wages after white males, with hourly wages that are 78 percent of those received by white males. This gender wage gap is exacerbated when we analyze annual wages as opposed to hourly wages, with white women receiving only 69 percent of the annual wages received by white males. The discrepancy between hourly and annual wages is largely because women are more likely to work part-time, resulting in important gender differences between hourly and annual wages.[14]

The wage gap between black males and white males is similar in magnitude to the gap between white females and white males. Black males receive just 76 cents on the dollar in terms of hourly wages compared to white males. Annual wage gaps are larger, with white males receiving an average annual wage 46 percent greater than black males (or, conversely, black males receive an average annual wage 31 percent less than white males). This may be due to a number of factors, including the fact that black males are more likely to experience unemployment during a given year and are more likely to be working part-time due to economic reasons.

The final group, black females, allows us to start unpacking the idea that holding multiple marginalized identities may have a unique impact on returns in the labor market. Here, we see the largest wage gap, with black women receiving wages that are just 61 percent, on average, of those received by white men. In terms of the annual wage gap, black women receive just 56 percent of what the average white man receives. Further, the annual wage for black women is just 80 percent of the annual wage received for white women.

Modest variations exist when we analyze full-time workers rather than all workers in terms of hourly wages. When considering full-time workers' annual wages, the wage gaps relative to white men are narrowed. In part, this is due to variation in employment rates, where black workers have historically been exposed to unemployment rates that are twice as high, regardless of educational attainment, and lower labor force participation rates for black and female workers. It is important to

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[14] Excluded from our analysis are the unemployed and workers out of the labor force, which does introduce selection bias, unless interpretation is extrapolated for only those in the labor market. See Goldsmith, Hamilton and Darity (2007) for analyses of racial and skin color wage disparities that demonstrate substantially larger wage penalties when the unemployed are incorporated.

note that these statistics are for 2016, a year with relatively low unemployment when compared to the recent past.[15] In times of strong labor markets, those at the bottom of the distribution tend to benefit the most. These comparisons provide a brief overview into the existing unadjusted gender and racial wage gaps.

Table 2. Unadjusted Log Hourly Wage Gaps, Full-Time Workers

Full Time Workers	Sample Size	Mean	10th percentile	25th percentile	50th Percentile	75th Percentile	90th Percentile
White Male	18,681	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
White Female	15,040	81.7%	84.6%	82.9%	83.3%	80.4%	77.8%
Black Male	2,903	73.1%	76.9%	76.4%	74.1%	74.1%	73.0%
Black Female	3,292	66.8%	71.9%	69.4%	66.7%	65.4%	61.5%

Source: Current Population Survey, Annual Social and Economic Supplement, March 2017.

Notes: All workers sample includes all non-military, and non-Hispanic wage and salary workers ages 25-64. Full-time sample includes those from the all workers sample with at least twenty-six weeks of employment and at least 35 usual hours of work per week. Entries are exp(A), where A is the out-group bean log wage, or percentile log wage, minut the corresponding white male log wage.

Table 2 shows the ratio of average hourly earnings between each of our groups and white males at the mean and also the tenth, twenty-fifth, fiftieth, seventy-fifth, and ninetieth percentile. As we see, means and medians can hide important variation in the wage gap across the wage distribution. The data reveals that all our three comparison groups, white women, black men, and black women, receive lower relative pay at the top of the distribution relative to the middle or bottom of the distribution.

For instance, the pay gap for black women relative to white males is 10.5 percent higher for those in the 90th percentile of the distribution compared to those in the 10th percentile. The wage gap expands as we move from low-wage to high-wage workers in the distribution, a finding that is near monotonic for all groups. Thus, the data show that pay gaps are exacerbated at the higher end of the wage distribution.

[15] While we use the 2017 CPS, the data are for last year's earnings and labor market participation.

Table 3. Means of Variables—Full-time Workers

Variable	White Male	White Female	Black Male	Black Female
Log Hourly Wage	3.282	3.080	2.968	2.877
Age	43.795	44.120	42.487	42.605
<u>Indicators of Education Levels</u>				
Less than High School Graduate*	0.033	0.018	0.050	0.043
High School Graduate or Equivalent Only	0.272	0.197	0.344	0.245
Some College Only	0.157	0.152	0.208	0.219
Associate Degree Only	0.112	0.136	0.113	0.134
Bachelor's Degree Only	0.274	0.299	0.195	0.212
Higher than College Degree Only	0.151	0.197	0.090	0.147
<u>Family Structure Variables</u>				
Indicator for Married	0.658	0.606	0.501	0.356
Indicator for At Least One Child	0.188	0.223	0.174	0.253
Number of Children Above One Child	0.284	0.252	0.246	0.304
Indicator for At Least One Child Under Age 5	0.105	0.086	0.097	0.108
Number of Children Under Age 5, Above One Child	0.041	0.024	0.025	0.019
Indicator for Metropolitan Statistical Area	0.853	0.849	0.927	0.925
<u>Region Indicator Variables</u>				
New England*	0.061	0.062	0.029	0.025
Middle Atlantic	0.137	0.139	0.127	0.136
East North Central	0.179	0.184	0.116	0.123
West North Central	0.087	0.091	0.033	0.038
South Atlantic	0.188	0.188	0.353	0.366
East South Central	0.065	0.066	0.099	0.093
West South Central	0.094	0.094	0.138	0.142
Mountain	0.075	0.066	0.032	0.018
Pacific	0.113	0.109	0.072	0.058
Indicator for Public Sector Employee	0.144	0.211	0.179	0.247

Industry Indicator Variables				
Agriculture*	0.298	0.095	0.220	0.072
Wholesale Trade	0.036	0.019	0.033	0.008
Retail Trade	0.091	0.090	0.100	0.085
Transportation	0.081	0.027	0.132	0.040
Information Services	0.027	0.021	0.024	0.014
Finance, insurance, real estate	0.068	0.097	0.048	0.082
Professional Services	0.130	0.103	0.113	0.093
Education	0.065	0.167	0.068	0.124
Medical	0.051	0.206	0.068	0.266
Social Work, Arts & Recreation & Other Services	0.089	0.120	0.117	0.130
Public Administration	0.065	0.054	0.075	0.085
Occupation Indicator Variables				
Managers*	0.154	0.140	0.087	0.082
Business Operations Specialists	0.029	0.044	0.018	0.032
Financial Operations Specialists	0.026	0.033	0.014	0.025
Computer and Math Technicians	0.052	0.021	0.037	0.021
Architects and Engineers	0.044	0.010	0.027	0.004
Life, Physical and Social Science Technicians	0.013	0.012	0.006	0.004
Community and Social Workers	0.013	0.027	0.020	0.049
Legal	0.011	0.018	0.003	0.009
Educators	0.039	0.124	0.032	0.090
Arts, Design, Entertainment, Sports and Media	0.021	0.019	0.012	0.006
Healthcare Practitioners and Technical Occupations	0.030	0.117	0.026	0.110
Healthcare Support Occupations	0.004	0.031	0.010	0.087
Protective Service Occupations	0.035	0.008	0.053	0.024
Food Preparation and Serving Occupations	0.024	0.030	0.047	0.032
Building and Grounds Cleaning and Maintenance Occupations	0.025	0.013	0.051	0.033
Personal Care and Service Occupations	0.006	0.027	0.023	0.045
Sales and Related Occupations	0.094	0.084	0.061	0.071
Office and Administrative Support Occupations	0.056	0.192	0.095	0.192
Farming, Fishing, and Forestry Occupations	0.007	0.002	0.004	0.001

Construction and Extraction Occupations	0.078	0.004	0.054	0.002
Installation, Maintenance, and Repair Workers	0.070	0.002	0.051	0.003
Production Occupations	0.073	0.024	0.087	0.039
Transportation and Material Moving Occupations	0.082	0.015	0.165	0.033

Source: Current Population Survey, Annual Social and Economic Supplement, March 2017.

Notes: All workers sample includes all non-military, and non-Hispanic wage and salary workers ages 25-64. Full-time sample includes those from the all workers sample with at least twenty-six weeks of employment and at least 35 usual hours of work per week. *Denotes reference category in regressions.

Table 3 provides the means of the variables used in the regression analysis below.[16] Wages are presented in terms of the log hourly wage (see Table 1). In terms of education, we see important variation across groups. White females are the highest educated groups, which is in line with recent findings showing women have surpassed men in terms of educational attainment.

In our sample, 49.6 percent of white women have at least a bachelor's degree, compared to 42.5 percent of white men. Maintaining the intraracial comparison, black women are also more likely to hold at least a bachelor's degree (36 percent) than black men (28.5 percent). However, the generalization of higher educational attainment for women is consistent within race but not across racial lines; black women have lower level of educational attainment than white men.[17]

While such summary statistics are informative, further analysis is necessary to understand the dynamics behind the sizable wage gaps for different identity-holders. Standard economic theory posits that workers' earnings are a reflection of their productivity, and therefore we attempt to account for differences in wages using data on worker characteristics; variables intending to capture human capital (or productivity linked traits), as well as other variables that may contribute to differences in wages,

[16] As alluded to earlier, when deciding which covariates to include in regression models, there are often trade-offs between mitigating the potential for omitted variable bias in relation to endogeneity bias. For instance, we opt to include occupation and industry controls, so as to reduce concerns that uncontrolled productivity-linked characteristics associates with occupation and industry sorting will not bias our coefficients. However, a reasonable concern it that the process of sorting into occupation and industry is stochastically related to wage generation, in which case, we introduce endogeneity

[17] This is despite the fact that black women have the fastest rate of growth in educational attainment. https://www.brookings.edu/blog/social-mobility-memos/2017/12/04/black-women-are-earning-more-college-degrees-but-that-alone-wont-close-race-gaps/

such as industry and occupation.[18] Nevertheless, historical and contemporary work on wage gaps across race and gender consistently report an earnings gap residual despite controlling for all of these factors. This residual is commonly interpreted as discrimination in the labor market (Darity and Mason 1998; Hamilton, 2000).

5. Methods

We utilize the Blinder-Oaxaca wage decomposition strategy to examine binary and multiple identity difference (Blinder, 1973; Oaxaca, 1973). We will first discuss the intuition behind the model and then present the model formally. In brief, the exercise considers the dual identities associated with gender and race. We first measure the size of the within-race female disadvantage by separately estimating outcome equations for men and women, respectively by race.

The gender penalty is calculated by comparing the actual mean wage for women against a hypothetical wage that would be generated, if given their typical (mean) labor market characteristics (right-hand side variables, they would receive if that had the wage generating abilities of men (male right-hand side coefficients)[19] A parallel procedure can be applied to the determination of the magnitude the race penalty.

Once the estimates of wage penalties associated with each of the two identities, gender and race, are calculated, we add them together to estimate a hypothetical additive (subtractive) effect associated with the specific identities. Finally, we compare the estimated additive (subtractive) effect of

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[18] As an example of commonplace economic understanding of wage gaps, Goldin (2014) states "The wage is also a summary statistic for an individual's education, training, prior labor force experience, and expected future participation. The gender gap in wages is a summary statistic for gender differences in work."

[19] An alternative way to measure the gender penalty would be to use male labor markets characteristics as the weights and still compare coefficient difference across gender group. With this approach we would be comparing how much lower wages men would have, if instead of their own labor market generating abilities (male coefficients) they had the wage generating ability of women (female coefficients). Such an approach would yield different results that would likely indicate smaller gender penalties given that own group weights (in the case above female mean characteristic weights) tends to make the own group relatively better in the outcome of interest in comparison to using other groups characteristics as the weights.

their gender and race, for white women, black men, and black women, respectively, against the overall wage penalty each of the three group endure relative to the wage dominant white male group, In this context, we treat white males as the reference group, and estimate the magnitude of the net penalty for black males, black females, and white females against them, using the Blinder-Oaxaca strategy outlined above.

In the Blinder-Oaxaca results presented below, we compare black men to white men alone to yield the race penalty for males, and similarly, compare black women to white women alone to yield the race penalty for females. Likewise, white women are compared to white men, and black women are compared to black men to yield the respective gender penalties by race. *A priori*, we would not expect the racial penalty necessarily to be the same across gender nor the gender penalty to be same across race. In fact, one could certainly conceive of an alternative frame by which to determine if race and gender identities manifest in an additive (subtractive) way.[20]

The following equations illustrate the Blinder–Oaxaca decomposition that we use. With the 2017 CPS data, we estimate separate white male (*wm*), white female (*wf*), black male (*bf*) and black female (*bf*) ordinary least squares (OLS) log wage regressions for individual *i* (the *i* subscripts are suppressed to simplify the notation):

(1) $Y_{wm} = X_{wm} B_{wm} + u_{wm}$

(2) $Y_{wf} = X_{wf} B_{wf} + u_{wf}$

[20] The Appendix presents such an alternative frame that we plan to implement in future work. For starters, it compares each of the four race/gender groups labor market generating abilities (i.e. coefficients) to the coefficients of the entire population, rather than relative to the white group. This will allow us to not only measure "disadvantage/discrimination," but rather "advantage/nepotism" as well. In addition, the method calculates additive effects for race and gender, not specific to within group context.

For instance, the additive penalty for black women, would not be the sum of their race penalty in relation to white women and their gender penalty in relation to black men; but rather the sum of economy-wide race penalty of blacks relative whites and economy-wide gender penalty of women relative to men. Such a forthcoming analysis juxtapose against the results presented here will allow for the examination of intersectional comparisons across various analytical frames.

(3) $Y_{bm} = X_{bm} B_{bm} + u_{bm}$

(4) $Y_{bf} = X_{bf} B_{bf} + u_{bf}$

where Y is the log of wages, X is a vector of explanatory variables such as education and occupation, B is a vector of coefficients, and u is an error term that is assumed to be independent and identically distributed.

For decomposition of the gender gaps, let □□ and □□ be respectively the OLS estimates of □□□ and □□□ for whites or, for blacks, the OLS estimates of □□□ and □□□ and denote mean values with a bar over the variable. Then, since OLS with a constant term produces residuals with a zero mean, we have:

$$(5)\quad \overline{Y}_m - \overline{Y}_f = b_m \overline{X}_m - b_f \overline{X}_f = b_m (\overline{X}_m - \overline{X}_f) + \overline{X}_f (b_m - b_f)$$

The first term on the far right-hand side of (5) is the impact of gender differences in the explanatory variables evaluated using the male coefficients. The second term is the unexplained differential that corresponds to the component of the gender wage differential due to males having greater wage generating coefficients than females.

Similarly, for decomposition of the racial gaps, let □□ and □□ be respectively the OLS estimates of □□□ and □□□ for males or, for females, the OLS estimates of □□□ and □□□ Then, for each of the racial gaps, between males or between females, we have:

$$(6)\quad \overline{Y}_w - \overline{Y}_b = b_w \overline{X}_w - b_b \overline{X}_b = b_w (\overline{X}_w - \overline{X}_b) + \overline{X}_b (b_w - b_b)$$

For the decomposition of the wage gap between white males and black females, either (5) or (6) can apply.

6. Results

Our results are broken down into three tables below, with the first table documenting the racial wage gap by gender, the second decomposing the gender wage gap by race, and the final table analyzing an intersectional case—the wage gap between black women and white men. Ultimately, the final table will compare the additive measures of the racial wage penalty and gender wage penalty, both within gender and racial group respectively, against the intersectional estimates. The objective is to gauge the overall wage penalty that black women endure in comparison to white men, who tend to occupy the primary position in the wage distribution.

The Blinder-Oaxaca decompositions enable us to determine what portion of the identified pay gaps across the multiple identities are "explained" by the included variables in the model and what portion of the pay gap remains "unexplained." For the explained portion, we are able to further detail the contribution of particular labor-market characteristics to the various wage gaps. This group-based analysis of wage gaps provides an investigation into whether the race penalty differs for males and females, and whether the gender penalty differs for whites and blacks.[21]

Table 4 provides the results of the Blinder-Oaxaca decompositions pay gap, including the associated penalty, for being black across genders. Focusing on male workers first, we find a sizable earnings gap between white men and black men. In aggregate, full-time employed black men receive only 74 percent of the average hourly pay that is received by their white male counterparts (represented by the 0.314 log point difference in total pay gap). Of that sizable gap, 57.9 percent can be explained by factors such as age, educational attainment, industry and occupation, etc.

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[21] The CPS only allows people to identify either as either "male" or "female."

Mean differences in education and occupation represent the largest portions of the explained gap. In addition, 16.6 percent of the racial pay gap for males is explained by blacks men having lower educational attainment than white men.

Nevertheless, 42.1 percent of the pay gap is the unexplained by labor market characteristics, but rather results from differences due to rates of returns on those characteristics, which, customarily, is identified as the component of the Blinder-Oaxaca decomposition that is due to discrimination. Despite the large magnitude, this can be thought of as a conservative estimate of discrimination, given that occupation and industry sorting are included in the regression, and unemployed workers are not. Controlling for occupation and industry potentially underestimates race penalties, since differences in occupational and industrial location, themselves, may result from discriminatory practices.

The right-hand side of the table shows our results when we run the decomposition for female workers only, analyzing the racial wage gap between white women and black women. The raw wage gap is 0.2024 log points, which translates into black women receiving 80.8 percent of the average hourly wage received by white women. Of this difference, 63.3 percent is explained by labor market characteristics included in the model, while the remaining 36.7 percent of the difference remains unexplained.

Like in the case of men, differences in education attainment and occupational sorting are the largest factors explaining the racial wage gap for women. Educational differences between black and white women explain 29.5 percent of the wage gap, while occupational differences explain 26.1 percent. The fact that black women are more likely to live in a metropolitan statistical area slightly *raises* their relative wage compared to white women. Interestingly, the industry of employment seems to be rather unimportant in explaining the racial wage gap for either gender. These findings indicate that there are indeed substantial differences in the racial wage gap across genders. Not surprising, given the dominant positon of white men, women experience a markedly smaller racial difference in wage than their male counterparts.

Table 4. Decomposition of the Race Wage Gap by Gender

	Males		Females	
Variables	log points	Percent of race gap explained	log points	Percent of race gap explained
Age variables	0.0103	3.3	0.0098	4.8
Education variables	0.0520	16.6	0.0584	28.9
Family Structure variables	0.0260	8.3	0.0104	5.1
MSA status	-0.0057	-1.8	-0.0127	-6.3
Region variables	0.0002	0.1	-0.0011	-0.5
Public Sector	0.0097	3.1	0.0079	3.9
Industry variables	0.0049	1.6	0.0001	0.0
Occupation variables	0.0846	26.9	0.0553	27.3
Total explained	0.1819	57.9	0.1281	63.3
Total unexplained gap	0.1321	42.1	0.0743	36.7
Total pay gap	0.3140	100	0.2024	100.0

Source: Current Population Survey, Annual Social and Economic Supplement, March 2017.

Notes: Sample includes full-time wage and salary workers ages 25–64 with at least twenty-six weeks of employment. Entries are the black–white differential in the indicated variables multiplied by the white log wage coefficients for the corresponding variables. The total unexplained gap is the mean black residual from the white log wage equation of the same gender.

Table 5 below presents the decomposition of the gender wage gap across race; first analyzing the gender gap for white workers, then for black workers. For white workers, we find a gender pay gap of 0.2019 log points. Of this difference, only 12.8 percent is explained by the model, while the bulk of the gender pay gap for white workers is unexplained or identified as the portion due to discrimination (87.2 percent).

While industry was relatively unimportant for the two racial wage gaps examined in Table 4, here we see that industry is the largest component of the explained portion of the gender pay gap for white workers, accounting for 20.4 percent of the pay gap. As a result of higher educational attainment, the component of the wage gap due to education favored white women relative to men

Table 5. Decomposition of the Gender Wage Gap by Race

	Whites		Blacks	
Variables	log points	Percent of gender gap explained	log points	Percent of gender gap explained
Age variables	-0.0013	-0.6	-0.0048	-5.3
Education variables	-0.0340	-16.8	-0.0349	-38.7
Family Structure variables	0.0098	4.9	0.0161	17.8
MSA status	0.0003	0.2	0.0001	0.1
Region variables	0.0004	0.2	-0.0023	-2.5
Public Sector	0.0006	0.3	0.0014	1.5
Industry variables	0.0413	20.4	-0.0095	-10.5
Occupation variables	0.0088	4.4	0.0198	21.9
Total explained	0.0259	12.8	-0.0141	-15.7
Total unexplained gap	0.1760	87.2	0.1044	115.7
Total pay gap	0.2019	100	0.0903	100.0

Source: Current Population Survey, Annual Social and Economic Supplement, March 2017.

Notes: Sample includes full-time wage and salary workers ages 25–64 with at least twenty-six weeks of employment. Entries are the male–female differential in the indicated variables multiplied by the current year male log wage coefficients for the corresponding variables. The total unexplained gap is the mean female residual from the male log wage equation.

The gender wage gap results are substantially smaller for black in comparison to white workers. Again, this is largely due to the dominant wage position of white men compared to all three of the other groups. Table 5 shows a gender gap amongst black workers of 0.0903 log points, which is about half the gender gap for white workers. Of the gender gap for black workers, -15.7 percent is explained, meaning 115.7 percent, of the gap, is unexplained. Although the wage difference between black men and women is relatively small, it does results from black women having worse labor market characteristics than black men. In fact, on net black women better labor market characteristics, particularly educational attainment, and thus more than the entire gender gap amongst blacks is unexplained.

Table 6. Decomposition of the White Male to Black Female Wage Gap

Variables	log points	Percent of wage gap explained
Age variables	0.0075	1.9
Education variables	0.0150	3.7
Family Structure variables	0.0390	9.6
MSA status	-0.0056	-1.4
Region variables	0.0006	0.2
Public Sector	0.0112	2.8
Industry variables	0.0388	9.6
Occupation variables	0.0734	18.1
Total explained	0.1800	44.5
Total unexplained gap	0.2243	55.5
Total pay gap	0.4043	100

Source: Current Population Survey, Annual Social and Economic Supplement, March 2017.

Notes: Sample includes full-time wage and salary workers ages 25–64 with at least twenty-six weeks of employment. Entries are the male–female differential in the indicated variables multiplied by the current year male log wage coefficients for the corresponding variables. The total unexplained gap is the mean female residual from the male log wage equation.

Table 6 provides the results for the decomposition between white men and black women, allowing us to analyze the effects of holding two socially marginalized identities that are penalized in the labor market, black women, relative to wage dominant white men. The wage gap between these two groups amounts to 0.4043 log points, which is by far the largest disparity among all other groups in our study. This translates into black women recieving $0.64 on the dollar compared to white men. Of this difference, 44.5 percent (0.18 log points) is explained by variables in the model, while the majority of the gap, 55.5 percent (0.2243 log points) is unexplained. Differences in education explains a relatively small portion of the difference (3.7 percent).

In contrast, industry and occupation sorting, which as we point out may very well be a product of discrimination, explains a large portion (27.8 percent). The unexplained portion of this wage gap represents the largest unexplained penalty of those analyzed in this paper.

Table 7. Summary Results from Decomposition of Gender and Race Wages Gap, (log points)

	Race Differences		Gender Differences		Race and Gender Intersection Penalty
	Men	Women	White	Black	White Men vs. Black Women
Total	0.314	0.202	0.202	0.128	0.404
Explained	0.182	0.128	0.026	-0.014	0.180
Unexplained	0.132	0.074	0.176	0.104	0.224

Source: Current Population Survey, Annual Social and Economic Supplement, March 2017.

Notes: The log points above are wage gap faced by the disadvantaged group. Sample includes all non-military, and non-Hispanic wage and salary workers ages 25-64 with at least twenty-six weeks of employment and at least 35 usual hours of work per week.

Table 7 provides a summary of the unexplained components of the wage gaps investigated in the paper. The last column of Table 7 provides comparison between white men and black women, and, we see that black women are indeed the most penalized group. The total pay gap between these groups amounts to 0.404 log points, with 0.224 log points, or more than half of the entire gap, unexplained, or interpreted as labor market discrimination. The results presented in the table provide an analytical frame to examine if the intersectional effects of being both black and a woman or additive, subtractive or multiplicative.

We would expect an unexplained wage gap between black women and white men of 0.179 log points if the intra-gender racial wage penalty of 0.074 log points and intra-racial gender wage penalties of 0.104 log points were additively related to the intersectional wage penalties experienced by black women. But it is not, *we find the unexplained portion of the wage gap between black women and white men (0.224 log points) is larger than the sum of the two individual penalties. This result confirms that to truly understand the labor market experience for black women, one cannot simply examine racial and gender discrimination in isolation, since in actuality, relative to the dominant earning white men, black women experience wage penalties associated with their race and gender well beyond the additive components of measured race and gender penalties in isolation.*

While this paper provides an attempt at quantifying intersectionality, alternative approaches with different analytical frames should also be considered in future work. First, nuance is critical when examining intersectionality. While our findings demonstrate that black women are worse-off in an economy-wide context, it may not always be the case that the intersection of race and gender will yield such a result. Second, as vividly illustrated in this paper, the choice of reference or comparison group is important, especially with respect to the magnitude of measured penalties. Most important, intersectional analyses should be grounded in theory as to how and why various identities interact in a particular context with respect to a particular outcome. Therefore, it is essential to include a sound empirical strategy that goes beyond the simple examination of various identities in isolation in an additive manner.

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Appendix

Consider two groups, a high earning group (w^H) and a low earning group (w^L). The earning gap between the two groups may be expressed as the following:

(1) $w^H - w^L = (b^H - b^L)X^H + b^L(X^H - X^L)$; Or alternatively

(2) $w^H - w^L = (b^H - b^L)X^L + b^H(X^H - X^L)$;

H,L - group affiliation,
b=vector of coefficient estimates,
X=vector of human capital controls

The following two equations decompose earning inequalities first, into differences not explained by human capital endowments (i.e. differential labor market treatment) and second, into differences due to human capital endowments.

(3) $UNEXP_1 = (b^H - b^L)X^H$; Differences due to different intercepts and rates of return.
(4) $EXP_1 = b^L(X^H - X^L)$; Differences due to different group characteristics.

Alternatively, the earning gap could have been decomposed based on equation (2):

(5) $UNEXP_2 = (b^H - b^L)X^L$; Differences due to different intercepts and rates of return.
(6) $EXP_2 = b^H(X^H - X^L)$; Differences due to different group characteristics.

Let's consider when H is representative of males (M) and then representative of whites (Wh), and L is representative of females (F) and then blacks (Bl)

So the penalty associated with being Female instead of Male would equal one of the following

(1) $UNEXP_1 = (b^M - b^F)X^M$; Differences due to different intercepts and rates of return.
(2) $UNEXP_2 = (b^M - b^F)X^F$; Differences due to different intercepts and rates of return.

And the penalty associated with being Black as opposed to White would equal one of the following

(1) $UNEXP_1 = (b^{Wh} - b^{Bl})X^{Wh}$; Differences due to different intercepts and rates of return.
(2) $UNEXP_2 = (b^{Wh} - b^{Bl})X^{Bl}$; Differences due to different intercepts and rates of return.

Below are expressions that treat economy-wide expressions of the penalties associated with gender and race as additive.

White Male Privilege: Gender Race

(1) $UNEXP_{1white\_male} = (b^M - b^F)X^M + (b^{Wh} - b^{Bl})X^{Wh}$
(2) $UNEXP_{2white\_male} = (b^M - b^F)X^F + (b^{Wh} - b^{Bl})X^{Bl}$
(3) $UNEXP_{3white\_male} = (b^M - b^F)X^M + (b^{Wh} - b^{Bl})X^{Bl}$

(4) $UNEXP_{4white\_male} = (b^M - b^F)X^F + (b^{Wh} - b^{Bl})X^{Wh}$

White Female Privilege/Discrimination: Gender Race

(1) $UNEXP_{1white\_female} = -(b^M - b^F)X^M + (b^{Wh} - b^{Bl})X^{Wh}$
(2) $UNEXP_{2white\_female} = -(b^M - b^F)X^F + (b^{Wh} - b^{Bl})X^{Bl}$
(3) $UNEXP_{3white\_female} = -(b^M - b^F)X^M + (b^{Wh} - b^{Bl})X^{Bl}$
(4) $UNEXP_{4white\_female} = -(b^M - b^F)X^F + (b^{Wh} - b^{Bl})X^{Wh}$

Black Male Privilege/Discrimination: Gender Race

(1) $UNEXP_{1black\_male} = (b^M - b^F)X^M - (b^{Wh} - b^{Bl})X^{Wh}$
(2) $UNEXP_{2black\_male} = (b^M - b^F)X^F - (b^{Wh} - b^{Bl})X^{Bl}$
(3) $UNEXP_{3black\_male} = (b^M - b^F)X^M - (b^{Wh} - b^{Bl})X^{Bl}$
(4) $UNEXP_{4black\_male} = (b^M - b^F)X^F - (b^{Wh} - b^{Bl})X^{Wh}$

Black Female Discrimination: Gender Race

(1) $UNEXP_{1black\_female} = -(b^M - b^F)X^M - (b^{Wh} - b^{Bl})X^{Wh}$
(2) $UNEXP_{2black\_female} = -(b^M - b^F)X^F - (b^{Wh} - b^{Bl})X^{Bl}$
(3) $UNEXP_{3black\_female} = -(b^M - b^F)X^M - (b^{Wh} - b^{Bl})X^{Bl}$
(4) $UNEXP_{4black\_female} = -(b^M - b^F)X^F - (b^{Wh} - b^{Bl})X^{Wh}$

Equations (3) and (5) at the top display alternative ways to estimate the discriminatory/nepotistic component of inequality. Equation (3) is based on weights attained from the high earning group, while equation (5) is based on weights from the low earning group. Neither choice of weights is functionally incorrect, however the empirical results of decompositions are dependent on the choice of weights from the reference group, which leaves us with four iterative approaches to estimate the additive discriminatory/nepotistic component of wages associated with gender and race for each of the four groups. This basically amounts to an indexing problem with the Blinder-Oaxaca decomposition.

We could alternatively estimate a fifth equation for the population at large, and instead of using weighting mean characteristics from either of the gender or racial groups, simply use the population as the weighting mean characteristics throughout all comparisons. Basically, we would be comparing treatment differences due to either race or gender, indexed to (weighted against) the mean characteristics of the average worker in the economy.

Then the following would be the various comparisons, where X^P are the economy wide average wage generating characteristics:

White Male Privilege: Gender Race

(1) $UNEXP_{white\_male} = (b^M - b^F)X^P + (b^{Wh} - b^{Bl})X^P$

White Female Privilege/Discrimination: Gender Race

(1) $UNEXP_{white\_female} = -(b^M - b^F)X^P + (b^{Wh} - b^{Bl})X^P$

Black Male Privilege/Discrimination: Gender Race

(1) $UNEXP_{black\_male} = (b^{M} – b^{F})X^{P} - (b^{Wh} – b^{Bl})X^{P}$

Black Female Discrimination: Gender Race

(1) $UNEXP_{black\_female} = - (b^{M} – b^{F})X^{P} - (b^{Wh} – b^{Bl})X^{P}$

Regardless of what we use as the weighting characteristics by which we compare differences in gender and race treatment (i.e. coefficient differences), it seems as though this approach, by design, presumes that the penalties due to gender and race interact additively.