

THE EXTENT OF INCOME DISPARITIES BASED ON THE INTERSECTIONS OF RACE, SEX, SEXUAL ORIENTATION, AND EDUCATION

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Abstract: Using pooled cross-sectional data from the 1998 to 2012 General Social Survey (GSS), this study examines the extent of annual income differences between queer (non-heterosexual), female, and nonwhite individuals and their majority group counterparts. These minority groups are analyzed both individually and at their intersections to observe their relative differences. Furthermore, the minority groups are disaggregated by the highest educational degree attained to further evaluate whether unexplained income differences are present. Overall, while the white female, nonwhite female, nonwhite male, and nonwhite-queer groups all experience income penalties in aggregate, only the nonwhite-queer and white female groups face unexplained income penalties at the majority of education levels. The queer, nonwhite female, and nonwhite male groups instead face an income premium at higher education levels. The results moreover show that unexplained income differences exist for many individuals, but minority groups must be disaggregated by education level to provide greater detail about the existence and extent of income disparities within the labor market. (*JEL J15 J16 J31 J71*)

Despite the continuing strides in civil rights protection for minority individuals, dissimilar outcomes continue to occur in several sectors of our modern society, including the labor market. Specifically, female, nonwhite, and non-heterosexual individuals have been empirically observed to obtain lower earnings relative to their majority group counterparts. However, few studies have brought all of these groups together into one model to assess the relative earnings penalties of present minority groups. Therefore, the aim of this study is to holistically examine the extent of income penalties based on race, sex, and sexual orientation, and to assess the relative magnitude of these biases individually and at their intersections to determine if

unexplained income differences are present, which may be caused by outright income discrimination.

The existing literature primarily focuses on the racial or sex earnings gap, but recently, a growing amount of research also focuses on the earnings gap between heterosexual and gay, lesbian, and bisexual people. However, much of the recent sex and racial inequality studies specialize in a single cause of the earnings disparity, neglecting the diversity and complexity of modern society. Furthermore, the specific source of differential earnings under study is rarely outright income discrimination, and the possibility that these earnings disparities arise solely because the worker is of a specific minority group. Although sexuality

studies have taken the broader approach, the data that researchers utilize all come from 1988-2001. These dated datasets do not capture the recent strides of the gay rights movement, including legalized gay marriage in several states and sexual orientation protection in state employment or all employment in certain states. Furthermore, earnings studies rarely take into account heterogeneity and differences between groups in respect to control variables. Failure to allow for heterogeneity, especially in education, does not provide the full story about the unexplained income differences experienced by minority groups.

This study attempts to address these issues in previous research to present a comprehensive analysis of income differences based on sex, race, and sexual orientation. Using pooled cross-sectional data from the 1998 to 2012 General Social Survey (GSS), I regress the log of individual annual income on race, sex, and sexual orientation, while controlling for disparities between time at work, human capital, family characteristics, location, industry, and occupation. Notably, I examine the income differences for single minority groups, nonwhite, female, and queer (individuals who do not identify as heterosexual), as well as their interaction groups: queer males, queer females, white females, nonwhite females, and nonwhite-queer individuals. In my single minority group model, I find that females have the highest income penalty of 24.6%, followed by nonwhite people with a penalty of 4.7%. However, these results change dramatically when my data allows for different returns to human capital accumulation, or human capital heterogeneity, as each minority group is disaggregated by education level. The queer group without a degree faces the largest income penalty of 41.5%, yet some queer people at higher education levels face low to moderate income premiums. Females

experience a significant income penalty at most of the education levels, ranging from 10.7% to 35%. The nonwhite group does not appear to observe differential earnings, except for those that attain at least a bachelor's degree, at which point an income premium is observed.

In the interaction model, a similar change in results can be observed. Without allowing for heterogeneity, nonwhite-queer people face the greatest reduction in earnings of 35.3%, followed by white females of 27.9%, nonwhite females of 25.5%, and then nonwhite males of 10.8%. Once I allow for human capital heterogeneity, however, nonwhite-queer people and white females observe a large income penalty at several education levels. Nonwhite females observe an income premium as long as they obtain a college degree of some kind, and nonwhite males experience a large premium after obtaining at least a bachelor's degree. No significant results arise for the queer male or queer female groups. Moreover, these unexpected results show that although unexplained income differences may still exist for certain groups, one must examine the income effects at each education level to more completely understand the experiences of minority groups in the labor market.

LITERATURE REVIEW

Discrimination studies truly began with Gary Becker's 1971 book *The Economics of Discrimination*, in which he discussed how the "taste for discrimination" by employers, employees and consumers results in a negative impact on the earnings of minority individuals. In terms of the employer, if he/she has distaste for minority laborers, every dollar paid to the minority worker will result in a monetized disutility for the employer. To minimize this disutility, the employer will offer the

minority worker lower wages. If there are enough nondiscriminatory employers in the labor market, the minority workers will simply relocate to these firms to receive equal wages for equal work. Yet if the number of jobs offered by non-discriminating employers is less than the number of minority job-seekers, then these workers will be forced into a discriminatory environment that offers them lower wages. In this model, not only do the minority laborers lose potential income, but the non-discriminatory employers receive lower profits compared to the employers with a “taste for discrimination” who reduce costs by offering their minority workers lower pay. Thus, in equilibrium, all profit-maximizing firms will pay their minority employees lower wages (1971).

Since 1971, many studies have tested Becker’s model by examining earnings differentials between white and nonwhite individuals. As previously mentioned, the majority of racial earnings research has focused on specific topics. However, Mount and Bennett (1975) perform a holistic study using data from the 1970 US Census, and found that white respondents are on average associated with an upward shift of \$1018.05 in expected income (Mount and Bennett, 1975). In current dollar amounts, this income premium would be about \$6100.

In terms of identifying the source of this discrimination, many studies focus on either the occupational segregation argument or the human capital argument. Occupational segregation occurs when disadvantaged groups become concentrated in jobs that are less prestigious, lower paying, and less stable (Gauchat et al. 2012). Grodsky and Pager expand upon this definition by noting that racial occupational segregation can take place between jobs, such that certain occupations receive higher wages with blacks concentrated in the lower paying occupations. It can occur within

professions, such that blacks and whites are offered different wages within the same occupation. Finally, it can take place between and within occupations, such that earnings differences between races vary systematically across occupations, according to their average earnings. They find that the concentration of blacks in lower paying jobs causes 20% of the racial wage gap, and these jobs also have lower prestige, fewer hard skill requirements, and higher proportions of females and blacks. Furthermore, occupations that offer the highest average earnings for white individuals have the greatest relative penalty for blacks (2001). However, research does conflict on the topic of occupational segregation causing the racial wage gap as Neal and Johnson note no evidence of the exclusion of blacks from the best occupations to be the source of the earnings disparity in their 1996 study. Notably, these conflicting results may stem from the different methodology and time of these studies.

The human capital argument is also often discussed as a primary cause for any observed racial income disparity. Grodsky and Pager find that blacks earn 16% less in the private sector and 9% less in the public sector of the labor market. A majority of this racial inequality can be explained by individual differences in human capital, as the human capital variables explain 37% of the gap in the private sector and 52% of the gap in the public sector (2001). Neal and Johnson provide additional insight on the human capital argument, noting that the wage gap is mainly caused by black and white individuals beginning their careers with different levels of human capital. This may result from black youths investing less on skill acquisition due to lower anticipated returns to skill investment compared to white youths, or because of the increasing

prices of unmeasured skills (Neal and Johnson 1996; Rodgers 2006).

Although occupations and human capital are the focal point of much of the literature, immigration and unionization also account for some of the racial earnings gap. The role of immigration in income inequality is complicated, acting through many different channels, yet McCall addresses one of these channels in her 2001 study. She notes that immigration increases the earnings of high-skill workers and capital workers, who are often white, while depressing the earnings of the nonwhite immigrant workers competing with other immigrants in low-skill occupations. A high concentration of immigrants marginally reduces the earnings of blacks, but for Hispanic and Asian individuals, immigration concentration is the leading cause of their wage gap with whites. The decrease of union jobs in urban areas is a significant source of the black earnings penalty, however, especially for black males (McCall 2001).

Similar to the research of differential wages for nonwhite individuals, research on the extent and source of the sex or gender wage gap often attributes the earnings gap to occupational segregation and human capital differences. Yet the occupational segregation argument is typically given more weight. Notably, the gender earnings gap has been decreasing since the mid-1970s due to stagnant income growth for men and increased employment opportunities for women. However, the wage gap still remains at about 6.2% for 2003, and the concentration of women into lower paying and less prestigious jobs still accounts for the majority of this earnings penalty (Jarrell and Stanley 2004, Gauchat et al. 2012). However, England et al. find that human capital effects and sex differences in experience still account for about 25-50% of the female earnings penalty (1988), since

women's traditional domestic responsibilities conflict with earnings, while men are able to specialize in their labor as the "breadwinner" of the household (Kilbourne et al. 1994).

Occupational segregation may not arise because employers prefer hiring men for specific jobs, but because women choose to work in these lower paying professions. The female-dominated occupations often have lower rates of appreciation and depreciation of human capital, benefitting women who plan intermittent employment due to family obligations. These occupations may thus have higher starting wages but lower returns to experience. Furthermore, female jobs may be paid less because they are more intrinsically satisfying, so do not require a compensating wage premium. Therefore, although occupational sex segregation may be the leading cause of the sex wage gap, economists assert that lesser skill demands, better job conditions, and higher entry wages compensate for this gap (England et al. 1988).

As in my study, several researchers examine the intersections of minority groups; however, their research mainly examines the interaction between the sex gap and the race gap. As expected, occupational segregation and human capital differences are at the forefront of race-sex research, yet marriage differences also account for some of the earnings gap.

Gauchet et al. notes that gendered occupational segregation often intersects with racial occupational segregation (2012). Females and blacks are both concentrated in occupations that require more nurturing skills or less cognitive skills in the peripheral sector of the economy. These jobs have lower capital intensity, fewer competitive markets for products, limited internal mobility, and are often without unions (Kilbourne et al. 1994). All workers in these occupations receive lower earnings,

with black women receiving the largest penalty (Kilbourne et al. 1994, McCall 2001, Cotter et al. 2003). This may result from the idea that black women have greater ties to their current residence due to strong family and social relations, so are least able to relocate to areas with more preferable job conditions and earnings potential (McCall 2001). Notably, racial occupational segregation affects all genders equally, so no race is specifically more disadvantaged solely by this effect (Cotter et al. 2003).

The human capital argument plays an integral role in the explanation of the sex and race earnings gap, as both experience and education differences account for much of the disparity. Differences in experience explains more of the race gap between black and white men than among black and white women, primarily due to the larger average experience gap among men and the greater returns to experience for both white individuals and men. This result may stem from the higher black unemployment rate that depresses black experience, and the assertion that women's experience is less continuous due to family obligations. Furthermore, the return to education is higher for white women compared to white men, but only slightly higher for black women compared to black men. Thus, educational differences also explain more of the race gap in earnings among men than among women (Kilbourne et al. 1994).

Another factor that influences the sex and racial earnings gap is marriage. Kilbourne et al. notes that although there is a premium for married men, no premium exists for married women. Instead, marriage may have a negative effect on women's earnings if employers believe that new family obligations will reduce productivity or working hours. In terms of race, the married premium is greater for white men compared to black men. Black women are found to have a small gain in their earnings,

while white women observe no marriage premium whatsoever (1994).

Contrary to race and sex studies, research on sexual orientation earnings gaps is fairly recent. Badgett's 1995 study is the first to research the effect of sexual orientation in the labor market, finding that the annual income penalty for gay or bisexual men to be 11-27%, while the results for women are not consistently significant. Some of these results can be attributed to occupations, as gay/bisexual men are in the higher-paying jobs but earn less than heterosexual men in these jobs. For women, the model does not adequately control for the unobservable characteristics that distinguish between heterosexuals and non-heterosexuals in the workplace, such as experience and work attachment (Badgett 1995).

Since Badgett's study, several researchers observe gay, lesbian, and bisexual earnings gaps, but find results that conflict with the Badgett's original findings. Blandford and Black et al. both find a gay/bisexual male income penalty of 30.2-31.6% and 14-16% respectively, but find that lesbian/bisexual women observe an earnings premium. Blandford finds that the non-heterosexual female earnings premium to be 17.4-23.4% (2003), while Black et al. find it to be about 20% (2003). Both studies attribute the income gaps to occupational differences. Compared to heterosexual women, lesbian/bisexual women are less likely to specialize in the home as a caregiver, and focus on labor market activities in higher paying male-dominated occupations. Alternatively, non-heterosexual men concentrate in female-dominated jobs, which depress earnings and returns to human capital accumulation. Although one can also argue that heterosexual men are more likely to specialize in market activities as the traditional provider of the family, the fact that gay/bisexual men earn higher levels

of education and are less likely to have dependents would allow them to equally specialize in the labor market (Black et al. 2003, Blandford 2003).

The above studies all utilize data from the General Social Survey (GSS) from about 1989-1996. A 2005 study by Carpenter uses newer GSS data from 1988-2000, and finds that no gay/bisexual male gap exists, yet a lesbian premium does exist of 27%. However, when using data from the California Health Interview Survey, no gay or lesbian earnings gap is found.

A more recent study by Antecol et al. enhanced the research by not only separating lesbian women and gay men from both married and cohabitating heterosexuals, but also examined the causes of the observed earnings penalties and premiums in greater depth. Using data from the 2000 Census, the study finds that lesbians observe a 31.6% premium compared to cohabitating women and a 19.7% premium compared to married women. Gay men also observe an earnings premium compared to cohabitating males of 28.2%, but a penalty of 4.5% compared to married men. The premium for gay men compared to cohabitating men is largely explained by their higher relative education. While there is no strong evidence of occupational segregation influencing the earnings of gay men, occupations do play a large role in the determination of lesbian earnings. Lesbian women experience a larger wage penalty for working in female-dominated occupations, while a smaller wage premium for working in male-dominated occupations, relative to heterosexual women. However, their higher educational attainment compensates for the negative effects lesbians face within occupations, and primarily explains their premium relative to married women. Thus, educational differences largely account for the gay and lesbian premiums. Alternatively, the earnings penalty observed by gay men

relative to married men is likely to arise from unobservable characteristics in the model, such as employer/employee intolerance and poor knowledge of legal protections, as these are more common in lower-paying jobs (Antecol et al. 2008).

Finally, few studies examine the interaction between sex, race, and sexual orientation. Among these few studies is a 2006 report by Badgett et al. using data from the 2000 Census. The study finds that black non-heterosexuals earns less than white non-heterosexuals and black heterosexuals. Furthermore, black lesbian females earn less than black gay males, thus asserting that at the intersection of all three minority groups, female, nonwhite, and homosexual/bisexual, nonwhite lesbian females experience the largest earnings disadvantage, as expected.

DATA

As with the majority of the sexual orientation income studies, my research uses pooled cross-sectional data from the 1998 to 2012 GSS, a national survey that randomly samples non-institutionalized adults in the United States every two years. The primary purpose for use of this dataset is its inclusion of several questions that inquire about an individual's sexual history, which can be used to proxy for sexual orientation. Most datasets do not include an individual's sexual orientation, so much of the research uses a proxy for gay, lesbian, and bisexual men and women. Furthermore, other data sources, such as the US Census or the American Community Survey, collect responses based on households, thus any proxy created using that data would exclude any non-heterosexual individual not living in a same-sex household. Furthermore, my research focuses on only those respondents that were involved in full-time or part-time employment in the previous year. A pooled cross-sectional analysis is necessary since

Table 1. Variable Means and Percentages for Single Demographic Groups

	Heterosexual	Queer	Male	Female	White	Nonwhite	Total
N	12,876	446	6,550	6,772	10,212	3,110	13,322
Percent of All Workers	96.65%	3.35%	49.17%	50.83%	76.66%	23.34%	100%
Weeks Worked Per Year	45.74	45.96	46.50	45.02	45.94	45.08	45.75
Hours Worked Per Week	42.15	42.27	45.32	38.92	42.41	41.26	42.15
Hourly Earnings	\$22.53	\$21.04	\$24.84	\$20.10	\$23.24	\$19.89	\$22.48
<i>Education:</i>							
Less Than High School	9.93%	6.95%	11.66%	8.06%	7.90%	16.16%	9.83%
High School	51.55%	46.19%	50.09%	52.61%	50.66%	53.70%	51.37%
Associate	8.77%	10.31%	7.92%	9.70%	8.79%	8.92%	8.82%
Bachelor	19.40%	21.97%	19.50%	19.47%	21.28%	13.59%	19.48%
Graduate	10.36%	14.57%	10.83%	10.17%	11.37%	7.63%	10.50%
Potential Experience	22.18	18.17	22.39	21.72	22.75	19.75	22.05
Age	42.01	38.63	42.16	41.65	42.81	38.91	41.90
Married	49.88%	20.63%	51.89%	46.00%	52.02%	38.65%	48.90%
Have Children	69.46%	42.15%	64.96%	72.01%	67.19%	73.01%	68.55%
Lives in Large Metropolitan Area	15.40%	25.56%	15.39%	16.08%	12.18%	27.43%	15.74%
<i>Region:</i>							
Northeast	16.99%	18.83%	16.28%	17.79%	17.35%	16.05%	17.04%
Midwest	24.27%	21.53%	23.97%	24.38%	26.84%	15.44%	24.18%
South	36.88%	32.28%	37.06%	36.41%	33.87%	46.40%	36.74%
West	21.87%	27.35%	22.70%	22.05%	22.12%	22.12%	22.05%

Notes: Variable means and percentages for respondents working part-time or full-time, based on author's calculations. Hourly earnings are calculated as the respondent's annual income divided by the product of weeks the respondent worked last year and hours the respondent worked last week. Education is grouped as the highest educational degree attained by the respondent. Potential experience is a proxy for a worker's job experience, calculated as age minus the sum of years of education and six. Respondents with a negative level of potential experience are omitted from analysis.

the individuals of interest are minorities, and sample data from any single year is not large enough to achieve meaningful results.

A major flaw in using the GSS is that I generally am only able to observe a respondent's sexual behavior, rather than their sexual orientation. Since sexual behavior does not explicitly dictate one's sexual orientation, I choose to use the term "queer" to describe non-heterosexual individuals in my research, since "queer" is

an umbrella term for all people that do not identify as heterosexual. Thus, my research does not distinguish between gay and bisexual men or lesbian and bisexual women as in previous studies.

Finding the proxy most correlated with sexual orientation is key in this research because for differential earnings to arise, employers, coworkers, and customers must know the worker's sexual orientation. Thus, the worker must choose to disclose

his/her sexual orientation. Research by Ragins and Singh finds that the fear to disclose one's queer identity at work negatively affects their psychological well-being, causing fewer promotions, less positive career attitudes, and more physical stress-related symptoms. Thus, the choice to disclose is a balance between the psychological well-being of being open about one's identity, and the negative fear-based consequences that inhibit it (2007).

The 2008 to 2012 GSS datasets do ask respondents to self-report their sexual orientation. Although the 2008 to 2012 samples are too small to produce meaningful results, the data can be used to test proxies for sexual orientation. In the end, my research cannot assuredly state that those individuals who self-report their queer status will disclose their sexual identity in the workplace. Thus, I am assuming that those who self-report their queer status will be in favor of their psychological well-being, and will disclose their queer identity at work, at least partially.

Several proxies have been proposed throughout the literature, including having a same-sex sex partner since age 18, having more same-sex than opposite-sex sex partners since age 18, having exclusively same-sex sex partners or having both male and female sex partners in the past year, and having exclusively same-sex sex partners or having both male and female sex partners in the past five years (Badgett 1995, Black et al. 2003). Additionally, Blandford identifies a fifth proxy which uses both the one year and five year behavioral proxies. He identifies respondents as queer if he/she had exclusively same-sex sex partners or had both male and female sex partners in the past year. If the respondent has not had sex in the past year, the previous five years of sexual history are used (2003). After creating proxies for sexual orientation using all five of these measures, I use confusion

matrices to determine how accurately these proxies predict a respondent's self-identified sexual orientation in the 2008 to 2012 samples. Of the proxies, sexual behavior over the past five years most accurately predicted sexual orientation with a success rate of 98.22%.¹ Thus, in my research, a respondent is identified as queer if he/she has had exclusively same-sex sex partners or both male and female sex partners in the past five years, and is identified as heterosexual otherwise.

Table 1 provides the basic summary statistics of the single demographic groups. As expected, queer individuals represent the smallest sample size of only 446 individuals and 3.35% of the labor force under observation. The queer sample under study works more weeks in the year and more hours per week than their heterosexual counterparts, yet continue to earn about \$1.50 less per hour, on average. The wage penalty exists despite the fact that queer individuals are often more formally educated, as a higher percentage of this group obtain an associate's, bachelor's or graduate degree. Notably, heterosexuals have a higher average level of potential experience, but this is likely to be attributed to the younger sample of queer males and females.

In general, the summary statistics of males and females are as expected. The male sample works more on average, and earns about \$4.50 more per hour than the average female. The amount of human capital accumulation does not vary greatly between the sexes, yet males do attain higher degrees and have more potential experience.

In terms of race, nonwhite individuals work less weeks per year, less hours per week, and receive \$3.35 less per hour compared to white laborers. The wage penalty may be attributed to lower human capital accumulation among nonwhite

¹ See Table A in Appendix.

Table 2. Percentage of Individuals in Each Income Bracket for Single Demographic Groups

	Heterosexual	Queer	Male	Female	White	Nonwhite	Total
\$0 to \$9,999	16.84	15.92	11.97	21.19	15.49	21.10	16.80
\$10,000 to \$19,999	18.07	19.28	13.31	22.75	16.86	22.25	18.11
\$20,000 to \$29,999	17.52	17.49	16.24	18.76	17.21	18.51	17.52
\$30,000 to \$39,999	14.44	15.92	15.48	13.55	14.66	14.96	14.49
\$40,000 to \$49,999	10.21	9.87	11.82	8.62	10.61	8.81	10.19
\$50,000 to \$59,999	6.79	7.40	8.12	5.54	7.50	4.53	6.81
\$60,000 to \$74,999	6.18	5.61	8.32	4.08	6.58	4.79	6.16
\$75,000 to \$89,999	3.49	2.91	4.79	2.19	3.73	2.60	3.47
\$90,000 to \$109,999	2.16	2.69	3.08	1.30	2.40	1.45	2.18
\$110,000 and over	4.31	2.91	6.84	1.77	4.95	1.99	4.26

Notes: Percentage concentrations in each income bracket are based on author's calculations. Data used in later calculations is based on twenty-three income brackets, yet only ten are reported in Table 2 for clarity.

people, as they have the lowest levels of educational degree attainment and the second lowest level of potential experience among all single demographic groups. As with the queer sample, the lower level of potential experience likely results from the fact that the nonwhite group is about four years younger than their white counterparts.

A frequent explanation for earnings differentials by demographic group is occupational segregation, as certain occupations simply result in higher pay compared to others. Although I include occupational variables in my study, I primarily examine industries rather than occupations due to the higher amount of variation in employment categories.² As previously discussed, higher earnings are often found in the industries with a higher

density of white and male employees. However, after calculating the white-male density of each industry,³ I find no strong evidence that more white-male dense industries in fact observe higher hourly wages. Furthermore, several of the least white-male dense industries are among the most prestigious and highest paying. Alternatively, the most white-male dense industries are among the least prestigious and lowest-paying.⁴ Thus, it is difficult to say how industrial segregation will account for any observed income differences.

In line with previous research, I do find that queer individuals are more often found in four of the six least white-male dense industries. This may be because these industries are the most accepting of queer individuals, as queer people may choose occupations and industries where disclosure of sexual orientation is less damaging. The previous assumption that queer individuals are disclosing their sexual orientation is therefore supported by this finding, as the queer group is concentrated in industries that are most conducive to disclosure. The possibility that certain industries are more or less accepting is a factor that may bias my final estimates, yet I am unable to remove

² In the GSS, occupation is divided into six categories from 1998 to 2010 and five categories in 2012. Industries, however, are separated into twelve categories in 1998 to 2010 and sixteen categories in 2012. In my data, I merge these sixteen industry groups into the 1998 to 2010 classifications by matching the 2012 industries to the 1998 to 2010 categories as accurately as possible. I use a similar process to merge the six occupation groups into the five categories in 2012. Thus, my final data and regression analysis uses the twelve industry categories from 1998 to 2010 and the five occupation groups from 2012.

³ See Table B in Appendix.

⁴ See Table C in Appendix.

the effects of queer acceptance in my research (Drydak, 2009). By definition, more female and nonwhite individuals are in the least white-male dense industries.⁵

Another issue with using the GSS is that last year's income is reported in bracketed categories. Therefore, I choose the midpoint of each category for those below the highest income value, and choose \$120,000 for the highest income category to proxy for each respondent's annual income. This calculated income value is used for all analyses in this study. Some of the original income bracket categories are shown in Table 2. Although the average hourly wages of each group in Table 1 gives some indication of earnings disparities, Table 2 depicts the relative concentrations of groups in each income bracket, and provides further information about the possible existence of income discrimination.

There is not a clear sense of income disparities by sexuality, but more heterosexual people are in the top four income brackets (16.14% compared to 14.12%). However, income differences by sex and race are much more probable. The majority of females are in the bottom three income brackets, while males occupy the top seven. The income gap between the sexes almost appears to increase as the income brackets increase, as 15.48% of the male sample earn \$30,000 to \$39,999 annually, compared to 13.55% of women, while 6.84% of men earn \$110,000 and over compared to just 1.77% of women. Similarly, nonwhite people mostly fall in the bottom four income brackets, while the concentration of white individuals in all subsequent income brackets are above average. Overall, no concrete evidence arises that indicates that there is income discrimination based on sex or race, as the lower earnings for females and nonwhite individuals may be due to human capital,

industry, and other differences that factor into income. There may be evidence that the income differences for the queer group is attributable to discrimination, however, as the queer sample falls below the heterosexual sample in terms of earnings, despite higher levels of time at work and education.

After examining the characteristics of the single demographic groups based on sexual orientation, sex, and race, I decompose my dataset to examine the samples formed from interacting these groups. Tables E through M in Part I of the Appendix provide the summary statistics for all interaction groups, as well as their concentrations in each industry and income bracket. Overall, the data for each interaction group generally mirrors the data for the single groups. However, it is important to note that the nonwhite-queer interaction group is quite small, since it is the minority of the minority. The group only contains 93 individuals, so finding meaningful results will be difficult for this group.

MODEL

The econometric analysis of the GSS dataset occurs in two stages. First, I examine the income differences between single demographic groups, and then I study the interaction groups. The following econometric equation formally gives the income model for the first stage of analysis:

$$(1) \quad \log(\text{income})_i = \beta_0 + \beta_1 \text{queer} + \beta_2 \text{female} + \beta_3 \text{nonwhite} + \beta_i X_i + T_i + \varepsilon_i$$

where $\log(\text{income})_i$ is the log of respondent i 's nominal income from last year, which is used to proxy for the log of respondent i 's annual nominal income. β_0 represents the general intercept of the model, T_i is a vector of dummy variables to control for time

⁵ See Table D in Appendix.

differences between 1998 and 2012, while ε_i represents the random error for each respondent i , capturing all unobserved variables. By taking the log of income, I normalize my income data and reduce the wide spread of data points. Furthermore, by using the log of income and including time dummies, I eliminate the possibility of results arising from inflation between 1998 and 2012.

The majority of research on earnings differences based on race and sex use hourly wage instead of annual income to eliminate the possibility of income premiums stemming from simply working more, or penalties arising for groups that work less. Furthermore, using annual income instead of hourly wage significantly overestimates earnings discrimination (Jarrell and Stanley 2004). Although weeks worked last year does not differ systematically between the minority groups, I do confirm that hours worked last week does.⁶ Thus, my study would greatly benefit from using hourly wage instead of annual income, since higher incomes could simply result from more working hours. However, my calculated hourly wage data cannot feasibly represent the true population, as the variable ranges from \$0.11 to \$3,333.33 per hour, with an average wage of \$22.48 and a standard deviation of \$57.18. These unrealistic results for hourly wage may stem from the fact that hourly wage is calculated using three proxies, or that the majority of the respondents list that they worked 52 weeks last year and 40 hours last week, which skews my data. Thus, I use annual income in

⁶ I tested for systematic differences between minority groups in respect to working time by performing regressions using Equation 1, but substituting the number of weeks worked and hours worked for Y_i , and observing if the minority group variables were significant (not shown). The variable “weeks worked last year” is a proxy for the average weeks worked per year. Similarly, “hours worked last week” is a proxy for the average hours worked per week.

my regressions, while controlling for average weeks and hours worked as independent variables.

Other control variables are captured in X_i , which is a vector of independent variables for each respondent i , that includes: weeks worked last year, hours worked last week, four dummies for highest educational degree attained, interactions between degree and each single minority group, potential experience and its square, interactions between potential experience and its square and nonwhite, marital status, number of children, size of city respondent i resides in, three dummies for geographic region, eleven dummies for industry, and four dummies for occupation.⁷ This estimable model controls for the majority of factors that have been shown in previous research to impact an individual’s earnings, such as minority status, human capital accumulation, industrial and occupational placement, family structure, and location.

Not included in previous research, however, are the interaction terms between human capital and the queer, female, and nonwhite dummies. I include these variables to allow for heterogeneity and the possible differences in returns to human capital accumulation between the groups.

⁷ I omit the “Less Than High School” degree category, the “Northeast” region category, the “Personal Services” industry category, and the “Management, Professional, and Related Occupations” occupation category to prevent perfect collinearity and create my base groups for degree attainment level, geographic region, industry, and occupation. I use the dummy variable “metropolitan” to control for the size of city respondent i resides in. Metropolitan takes the value of 1 if the respondent lives in a large metropolitan area with a population of 250,000 or more. Industry is coded using U.S. Bureau of the Census three-digit industrial classification codes for 1998 to 2010 and the 2007 NAICS/Census Industrial Classification Codes for 2012. Occupation is coded using the 1980 U.S. Census three-digit occupational codes for 1998 to 2010 and the 2010 U.S. Census three-digit occupational codes for 2012.

Furthermore, human capital differences are often credited as a strong factor causing the income gaps, thus human capital heterogeneity is likely to exist. I did not include interaction terms between the minority dummies and the industry or occupation dummies, however, to preserve the degrees of freedom and to not overcomplicate the model.

I also did not allow for all human capital heterogeneity. After creating the interaction variables between education and queer, female, and nonwhite, and then the interaction variables between experience and queer, female, and nonwhite, I included them in my full model and tested the new terms for statistical significance. Among them, only the education interactions and the experience-nonwhite interactions were either individually or jointly significant.⁸ Thus, these fourteen human capital interaction variables are the only ones present in X_i and in my regression analysis.

The variables of interest are the individual minority terms, queer, nonwhite, and female. After controlling for the above independent variables, I can evaluate the existence and extent of unexplained income differences by examining the size and the significance of their β coefficients.

The second stage of my econometric analysis uses a model highly similar to the first stage. The estimable equation is formally written as:

$$(2) \quad \log(\text{income})_i = \beta_0 + \beta_1\text{queer} + \beta_2\text{female} + \beta_3\text{nonwhite} + \beta_4\text{femalequeer} + \beta_5\text{nonwhitefemale} + \beta_6\text{nonwhitequeer} + \beta_i X_i + T_t + \varepsilon_i$$

As in Equation 1, $\log(\text{income})_i$ is the log of respondent i 's nominal income

from last year, β_0 represents the general intercept of the model, T_t is a vector of dummy variables to control for time differences between 1998 and 2012, while ε_i represents the random error for each respondent i , capturing all unobserved variables. X_i is a vector that captures the same variables in Equation 1 as in Equation 2. I did not allow for human capital heterogeneity among the female-queer, nonwhite-female, and nonwhite-queer groups. After interacting these variables with education and experience, I included them in the regression analysis using Equation 2 and found that they did not add much explanatory power to my model. The inclusion of these variables simply reduced the degrees of freedom. Thus, the heterogeneity variables in Equation 2 are identical to those in Equation 1. The only difference between these two models is the inclusion of the interaction terms between the single minority groups, which captures any additional effects of being both female and queer, nonwhite and female, or nonwhite and queer. As in the first stage of analysis, I can determine if unexplained income differences exist for these six minority groups by evaluating the size and significance of each of their β coefficients.

I apply the same methodology of regression analysis to both stages of the study. I begin with a baseline model which only includes the dummies for each minority group, average weeks worked per year, and average hours worked per week. Then, I begin to slowly control for additional variables and observe the relative changes of the coefficients of the minority group dummies until I reach the final model. Through this method, I can understand how much each group of variables accounts for any observed income penalty or premium, since every group of additional variables controls for differences between the

⁸ See Part II in Appendix for joint significance tests. Table 3 and Table 4 present the individual significance levels of the education and experience interaction terms.

minority groups and the base group which may be a source of income disparities.

If I find that a dummy for minority status is not significant after reaching the final model, I can conclude that there is not outright income discrimination against that group, since there are no longer unexplained income differences. That is not to say, however, that that group does not observe explained differences in income relative to the base group, heterosexual white males, or faces discrimination in some other area. If one of the regression models finds that a group has a significant earnings penalty, and that penalty disappears when new control variables are added in the subsequent model, that simply means that that group does observe an earnings penalty, but not simply because they are a member of that minority group. Instead, the new control variables are the source of the explained income disparity, such that after they are controlled for, the disparity disappears. Furthermore, the control variables may be the source of the income disparity because discrimination lies within those variables. In this way, my research is able to distinguish between differences in income based solely on your sexual orientation, sex, and/or race, and differences in income based on other factors that influence one's earnings.

RESULTS

The OLS regression results for the single minority groups are presented in Table 3. The initial results in Model 1 indicate that females observe a highly significant earnings penalty relative to their heterosexual white male counterparts of 25.8%. The nonwhite sample also observes an income penalty of 17.2%. However, queer individuals do not appear to experience an income penalty. These coefficients serve as the baseline for the sexual orientation, sex, and race gaps.

Adding human capital variables has opposite effects for females and nonwhite people. Controlling for education and experience increases the female penalty to 30%, while the nonwhite penalty greatly reduces to 6.9%. In Model 3, industry and occupation are added, reducing the female earnings gap to 25.4% and the nonwhite penalty to 5.0%. The marital status control slightly reduces the income disadvantages for both groups. The female gap moves to 25.0%, while the nonwhite penalty falls to 4.3%. In Model 5, after including controls for number of children and location, such as geographic region and size of city, the female income gap reduces further to 24.6%, while the nonwhite penalty rises to 4.7%. In Models 1 through 5, the queer variable remains insignificant.

Results dramatically alter in the final model, Model 6, after allowing differences in returns to education for queer, female, and nonwhite respondents and in returns to experience for the nonwhite group. However, since the experience-nonwhite interactions are individually insignificant, I base my interpretations for each minority group on only their individual coefficients and the intersections of education and minority status. Therefore, my final interpretations of any income premium or penalty are made by summing the coefficients of the minority status dummy variable and the education-minority status interaction term. Thus, the queer group without any degree observes the greatest income penalty of 41.5%. However, the associate-queer group faces a 9.4% premium, while the bachelor-queer group experiences a 1.4% premium relative to their heterosexual counterparts at the same education level. Although the queer group without a degree appears to receive an unreasonably high penalty, this group is extremely small with only 31 individuals out of the total sample, so a penalty of this

Table 3. OLS Regression Results for Single Minority Groups

Model:	1 Baseline	2 Add Human Capital	3 Add Industry and Occupation	4 Add Marital Status	5 Add Number of Children and Location	6 Add Human Capital Heterogeneity
<i>Personal Details:</i>						
Queer	-0.017 (0.045)	-0.058 (0.039)	-0.043 (0.038)	-0.026 (0.038)	-0.035 (0.039)	-0.415* (0.253)
Female	-0.258*** (0.017)	-0.300*** (0.016)	-0.254*** (0.017)	-0.250*** (0.017)	-0.246*** (0.017)	-0.350*** (0.059)
Nonwhite	-0.172*** (0.020)	-0.069*** (0.019)	-0.050*** (0.018)	-0.043** (0.018)	-0.047** (0.019)	-0.042 (0.081)
<i>Human Capital:</i>						
High School		0.328*** (0.031)	0.251*** (0.031)	0.250*** (0.031)	0.298*** (0.031)	0.192*** (0.041)
Associate		0.554*** (0.037)	0.417*** (0.037)	0.416*** (0.037)	0.413*** (0.037)	0.244*** (0.051)
Bachelor's		0.832*** (0.034)	0.620*** (0.036)	0.616*** (0.036)	0.604*** (0.035)	0.483*** (0.048)
Graduate		1.114*** (0.037)	0.866*** (0.041)	0.861*** (0.041)	0.842*** (0.041)	0.687*** (0.054)
High School - Queer						0.370 (0.259)
Associate - Queer						0.509* (0.263)
Bachelor's - Queer						0.429* (0.263)
Graduate - Queer						0.418 (0.265)
High School - Female						0.045 (0.061)
Associate - Female						0.243*** (0.072)
Bachelor's - Female						0.157** (0.066)
Graduate - Female						0.192*** (0.072)
High School - Nonwhite						0.083 (0.064)
Associate - Nonwhite						0.097 (0.079)
Bachelor's - Nonwhite						0.135* (0.072)
Graduate - Nonwhite						0.210*** (0.080)
Potential Experience		0.050*** (0.022)	0.045*** (0.002)	0.044*** (0.002)	0.044*** (0.002)	0.046*** (0.002)
Potential Experience Squared		-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Potential Experience - Nonwhite						-0.007 (0.005)
Potential Experience Squared - Nonwhite						0.0001 (0.000)

Continued

Table 3. Continued

Constant	7.686*** (0.051)	6.924*** (0.070)	7.264*** (0.082)	7.249*** (0.082)	7.318*** (0.080)	7.385*** (0.088)
N	10531	10499	10499	10497	10484	10484
R ²	0.290	0.429	0.469	0.470	0.4731	0.4758

Notes: Statistical significance is denoted with a single asterisk ($p < 0.10$), a double asterisk ($p < 0.05$) or a triple asterisk ($p < 0.01$). See Table N in Appendix for full regression results.

magnitude is rare. Furthermore, the small sample size may be causing this unlikely result.

Less than high school educated females receive the second highest income penalty of 35.0%. Most of the other education-female groups receive similar income penalties, but not as extensive, ranging from 19.3% for females with bachelor's degrees to 10.7% for females with associate's degrees relative to males of the same education level. In the high school education level however, female earnings are not observably different from males. Finally, there is no observable difference between the income levels of white and nonwhite people with less than a bachelor's degree. After nonwhite individuals earn a bachelor's or graduate degree, however, they earn a 13.5% or 21% higher income relative to white individuals of the same education level, respectively.

Table 4 contains the OLS regression results after decomposing the minority groups into six interaction groups. The baseline regression in Model 1 depicts that nonwhite females have the highest penalty of 39.7%, followed by white females with a 28.2% penalty. Interestingly, the only evidence of differential earnings for queer individuals is for the nonwhite-queer sample, who receives a 46.6% income penalty. Finally, nonwhite males observe a 21.9% income gap relative to the heterosexual white males.

After human capital controls are added, the nonwhite-queer group is no longer significant, nor is the queer male or queer female sample. The nonwhite female

penalty lessens to 33.8%, yet the white female penalty increases to 33.1%. The nonwhite male income gap also lessens significantly to 12.5%. Controlling for industry and occupation further lessens the nonwhite female income gap to 27.0%, yet the racial gap within the sexes increases, as the white female income penalty is now 28.5%. For nonwhite males, the addition of industry and occupation variables further decreases the income gap to 10.7%. Although the queer male and queer female groups remain insignificant, the nonwhite-queer group becomes significant with an income penalty of 34.4%. The inclusion of marital status in Model 4 widens the racial difference in female earnings, as the nonwhite female penalty becomes 25.6% while the white female penalty is 28.2%. The nonwhite male coefficient continues to decrease to 10.3% less than the earnings of the heterosexual white male sample. Furthermore, the nonwhite-queer penalty remains significant, and the penalty increases to 34.8%. In Model 5, the nonwhite-queer penalty increases further to 35.3%. The nonwhite-female and white-female penalties are similarly large at 25.5% and 27.9% respectively. Among the minority groups, the nonwhite male sample is the least disadvantaged, experiencing an income penalty of 10.8%. In Models 1 through 5, the queer and queer female coefficients are insignificant.

As with the regression results from using Equation 1, the stage two results change dramatically with the inclusion of human capital heterogeneity variables. Among these variables, the experience-

Table 4. OLS Regression Results for Interaction Minority Groups

Model:	1 Baseline	2 Add Human Capital	3 Add Industry and Occupation	4 Add Marital Status	5 Add Number of Children and Location	6 Add Human Capital Heterogeneity
<i>Personal Details:</i>						
Queer	0.046 (0.062)	-0.076 (0.055)	-0.031 (0.055)	-0.006 (0.055)	-0.018 (0.056)	-0.364 (0.243)
Female	-0.282*** (0.020)	-0.331*** (0.018)	-0.285*** (0.019)	-0.282*** (0.019)	-0.279*** (0.019)	-0.406*** (0.061)
Nonwhite	-0.219*** (0.030)	-0.125*** (0.028)	-0.107*** (0.027)	-0.103*** (0.027)	-0.108*** (0.027)	-0.092 (0.082)
Female - Queer	-0.029 (0.090)	0.107 (0.078)	0.067 (0.077)	0.056 (0.076)	0.061 (0.077)	0.060 (0.075)
Nonwhite - Female	0.104** (0.041)	0.118*** (0.037)	0.122*** (0.036)	0.129*** (0.036)	0.132*** (0.036)	0.148*** (0.036)
Nonwhite - Queer	-0.247* (0.149)	-0.188 (0.133)	-0.237* (0.128)	-0.245* (0.128)	-0.245* (0.128)	-0.222* (0.124)
<i>Human Capital</i>						
High School		0.326*** (0.031)	0.248*** (0.031)	0.247*** (0.031)	0.245*** (0.031)	0.189*** (0.041)
Associate		0.552*** (0.037)	0.414*** (0.037)	0.413*** (0.037)	0.410*** (0.037)	0.243*** (0.051)
Bachelor's		0.832*** (0.034)	0.617*** (0.036)	0.614*** (0.036)	0.602*** (0.036)	0.475*** (0.048)
Graduate		1.114*** (0.037)	0.865*** (0.041)	0.859*** (0.041)	0.840*** (0.041)	0.679*** (0.054)
High School - Queer						0.337 (0.256)
Associate - Queer						0.450* (0.262)
Bachelor's - Queer						0.390 (0.257)
Graduate - Queer						0.362 (0.262)
High School - Female						0.062 (0.061)
Associate - Female						0.260*** (0.072)
Bachelor's - Female						0.184*** (0.066)
Graduate - Female						0.220*** (0.072)
High School - Nonwhite						0.064 (0.064)
Associate - Nonwhite						0.071 (0.080)
Bachelor's - Nonwhite						0.121* (0.072)
Graduate - Nonwhite						0.202*** (0.080)
Potential Experience		0.050*** (0.002)	0.045*** (0.002)	0.044*** (0.002)	0.044*** (0.002)	0.045*** (0.002)

Continued

Table 4. Continued

Potential Experience Squared		-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Potential Experience - Nonwhite						-0.007 (0.005)
Potential Experience Squared - Nonwhite						0.000 (0.000)
Constant	7.697*** (0.070)	6.941*** (0.070)	7.283*** (0.082)	7.268*** (0.082)	7.337*** (0.084)	7.407*** (0.088)
N	10531	10499	10499	10497	10484	10484
R ²	0.2905	0.4295	0.4698	0.4708	0.4741	0.4770

Notes: Statistical significance is denoted with a single asterisk ($p < 0.10$), a double asterisk ($p < 0.05$) or a triple asterisk ($p < 0.01$). See Table O in Appendix for full regression results.

nonwhite terms are individually insignificant, so I base my interpretations on the education-minority group interactions. In Table 4, the interaction minority groups will receive the penalties of being in multiple minority groups. At the same time, these individuals in will receive the premiums of higher returns to education for each of their minority group associations. For example, if all minority dummies and education interaction terms were significant, a nonwhite female would receive the penalties associated with being nonwhite, female, and both nonwhite and female, yet simultaneously receiving the premiums of the education-nonwhite terms and education-female terms. The final results would stem from summing all of these coefficients. However, it is unlikely that a nonwhite female will receive both the higher returns to education for being nonwhite and for being female, but my data cannot separate these effects.

After allowing heterogeneity, I find no significant overall results for the queer male and queer female groups. Although the associate-queer variable is significant with an income premium of 45%, I find no significance in any other education-queer group. However, results arise for the nonwhite-queer sample, as the penalty for those with less than a high school education is 22.2%. Summing the nonwhite-queer

penalty of 22.2% and the significant education-nonwhite coefficients results in a penalty remaining for nonwhite-queer people with a bachelor's and graduate's degree of 10.1% and 2.0% respectively. Note, I do not include the associate-queer premium in the determination of nonwhite-queer earnings due to the overall weak results for the education-queer groups.

As with previous models, white females receive lower incomes compared to nonwhite females, regardless of education level. As expected, an increase in education level generally reduces the annual income penalty, yet this reduction is greater for the nonwhite female group, who begin with a 25.8% penalty without a degree to a 16.4% premium with a graduate degree, relative to white males of the same education level. For white females, the penalty for those without a degree is 40.6%, while the penalty for a white female with a graduate degree is merely lessened to 18.6%. As with the single minority group model, high school educated females show no observable difference in earnings relative to high school educated males.

Finally, similar to the nonwhite sample in the stage one regressions, nonwhite males no longer have statistically significant results, except for those with at least a bachelor's degree. The higher returns to education for nonwhite males in these

groups results in income premiums of 12.1% for those with a bachelor's degree and 20.2% for those with a graduate's degree, relative to white males at the same education level.

Overall, I can assert that unexplained income differences still exist in the modern day labor market, and these differences may result from outright income discrimination.

DISCUSSION

In the analysis of both the single minority groups and the interaction groups, the inclusion of human capital heterogeneity variables significantly alters my regression results, as human capital differences are a major determinant of income among minorities. Although the results from Model 5 in both the single and interaction group regressions show income differences for many groups, the aggregate coefficients do not show the full story.

In terms of the queer population, the overall regression results are mixed. In the single minority group analysis, neglecting to account of heterogeneity among the queer group results in no observable income differences relative to heterosexual white males. Yet after allowing human capital differences, slight differential incomes do arise. As previously noted, the large 41.5% income penalty for queer individuals with less than a high school degree affects only 6.95% of the queer population, and this small sample size may skew the true income penalty or premium in the labor market. Results do find, however, that queer individuals earn a moderate premium relative to their heterosexual counterparts in the associate's or bachelor's degree category.

In the interaction group regression, after disaggregating the queer population by race and sex, the results nearly disappear for the queer group. The only significant results

among the queer groups are for the nonwhite-queer population, who earn an income penalty at the less than high school, the bachelor degree, and the graduate degree education level. Thus, it appears as if, in aggregate, the queer population observes an unexplained income premium relative to heterosexuals at some education levels. Yet after disaggregating this population by race and sex, only the nonwhite-queer group faces unexplained differences, and these differences actually adversely affect their income level relative to white heterosexuals at similar education levels. For the white and queer population, I find no evidence of differential earnings or income discrimination.

Contrary to the results of the queer population, the regression results of the female sample are generally consistent. In the single minority group analysis, females receive a large income penalty of 24.6% relative to heterosexual white males, and the penalty persists after disaggregating by education. Notably, aside from the insignificance in the high school education level, the gap between male and female earnings is minimized in the associate's degree education level. Females with an associate's degree only earn 10.7% less than males with the same degree. Therefore, females do observe unexplained income penalties with or without the heterogeneity variables, yet the extent of these differences alter when the model fails to correct for differential returns to education for females.

Surprisingly, the unexplained income differences that effect females may have a greater negative effect on white females compared to nonwhite females. Before allowing for human capital heterogeneity, the white female penalty is 2.4 percentage points higher than the nonwhite female penalty. After adding the education interaction terms, a penalty occurs for white females regardless of education level,

similar to the results of the overall female population. Nonwhite females, however, only observe an income penalty at the less than high school degree level. After earning at least an associate's degree, nonwhite females observe an unexplained income premium relative to white males. This may be an effect of life choice, as white females are more likely to pursue the path of homemaker. Also, this may occur because, in my study, nonwhite females receive the benefits of higher returns to education for both females and nonwhite people. In the labor market, the compounding benefit may not exist. Thus, I cannot claim with certainty that the unexplained income differences that negatively affects females has a greater adverse effect on white females. I simply can deduce that even after all heterogeneity variables are added, white females continue to experience unexplained income penalties. Nonwhite females do not appear to face income discrimination after disaggregating by education level, yet they do experience an unexplained penalty in aggregate.

As with the female populations, the nonwhite and nonwhite male results are moreover consistent. In aggregate, the nonwhite sample observes an income penalty of 4.7%, yet this penalty disappears after disaggregating by education level. Rather, the nonwhite population receives higher returns to education relative to white individuals at the bachelor's and graduate degree level. These results may be driven by the nonwhite male sample, as nonwhite males similarly receive an aggregate penalty of 10.8%, yet an income premium at the bachelor's and graduate degree level. Thus, neither the nonwhite nor the nonwhite male populations appear to experience unexplained income penalties or outright income discrimination.

Notably, stating that the queer, nonwhite, nonwhite male and nonwhite female groups do not experience outright

income discrimination does not mean that these groups do not face discrimination in other areas of society. Similarly, finding that nonwhite females may be discriminated less than white females in the determination of income does not mean that modern employers have a greater bias against white females. Rather, discrimination may be present in other factors that cause the lack of observable discrimination in income. Since a multitude of factors affects one's income, it is likely that one's minority status will affect those factors. However, my research cannot quantify the existence of discrimination in these other factors. Rather, it simply notes that when the queer, nonwhite, nonwhite male and nonwhite female groups are disaggregated by education level, the role of outright income discrimination in unexplained income differences is less clear.

An additional factor of the unexplained income differences is the possibility of inherent marginal productivity differences. Specific groups may naturally be more or less productive than others in certain regards, affecting their earnings in unobservable ways. Thus, the penalties and premiums of specific minority groups may not result from outright income discrimination or discrimination in other factors, but rather an inherent inadequacy or aptitude within their occupations that drive differential incomes.

The methodology of slowly adding control variables to the study provides some evidence of the sources of income disparity other than human capital. In the study, industrial and occupational controls reduce the female penalty by 15% and the nonwhite penalty by 27.5% in the Equation 1 regressions. In the Equation 2 regressions, these controls reduce the white female penalty by 14%, the nonwhite female penalty by 20%, the nonwhite male penalty by 14%, and makes the nonwhite-queer

coefficient statistically significant.⁹ The nonwhite group of Equation 1 is also affected by the inclusion of a marital status control and by number of children and location controls, as each reduce the penalty by 14% or increase the penalty by 9% respectively. The other independent variables, however, did not have a major effect on the income gap of the other groups, as they merely increased or decreased the penalty by about 5% or less. Thus, an individual's choice in industry and occupation appears to be a significant cause of the earnings disparities for different minority groups, yet human capital effects remain the overarching source.

Although my research suggests that unexplained income differences exist for some groups, and that these differences may result from outright income discrimination, further research is needed. A study that uses hourly wage instead of annual income, more variation among the industry and occupation categories, a more accurate proxy for experience, and larger sample sizes of the minority groups would help further illuminate the source and extent of unexplained income differences.

In sum, differential earnings exist for several minority groups, and some income gaps are caused by unexplained income differences. In many cases, examining these differential earnings in aggregate does not provide all the detail, and part of the story is hidden when not accounting for different returns to human capital accumulation. Nonwhite-queer individuals, white females, nonwhite females, and nonwhite males experience large income penalties relative to the heterosexual white male sample in aggregate. Yet after disaggregating by education level, only the female, specifically

the white female, and nonwhite queer groups experience an unexplained income penalty at the majority of education levels. The queer, nonwhite female and nonwhite male groups all face an income premium at higher education levels, relative to heterosexual white males with the same degree. In sum, although several minority groups face unexplained income differences, my research finds that the nonwhite-queer group and the white female group generally face the greatest income penalty.

⁹ All calculations on the impact of control variables on the coefficients of minority group variables are in relation to the "Less Than High School" minority groups.

REFERENCES

- Antecol, Heather, Anneke Jong, and Michael Steinberger. 2008. "The sexual orientation wage gap: The role of occupational sorting and human capital." *Industrial and Labor Relations Review*, Vol. 61, No. 4 (July), pp. 518-543.
- Badgett, Lee M. V. (1995). "The wage effects of sexual orientation discrimination." *Industrial and Labor Relations Review*, Vol. 48, No. 4 (July), pp. 726-739.
- Badgett, Lee, Lisa Saunders, and Gary Gates. 2006. "Double disadvantage? African American same sex-couples: Evidence from Census 2000." *Population Association of America Annual Meeting*, Los Angeles, California.
- Becker, Gary S. 1971. *The economics of discrimination*, 2nd ed. Chicago: University of Chicago Press.
- Black, Dan A., Hoda R. Makar, Seth G Sanders, and Lowell J. Taylor. 2003. "The earnings effects of sexual orientation." *Industrial and Labor Relations Review*, Vol. 56, No. 3 (April), pp. 449-469.
- Blandford, John M. 2003. "The nexus of sexual orientation and gender in the determination of earnings." *Industrial and Labor Relations Review*, Vol. 56, No. 4 (July), pp. 622-642.
- Carpenter, Christopher S. 2005. "Self-reported sexual orientation and earnings: Evidence from California." *Industrial and Labor Relations Review*, Vol. 58, No. 2 (January), pp. 258-273.
- Cotter, David A., Joan M. Hermsen and Reeve Vanneman. 2003. "The effects of occupational gender segregation across race." *The Sociological Quarterly*, Vol. 44, No. 1 (Winter), pp. 17-36.
- Drydakis, Nick. 2009. "Sexual orientation discrimination in the labour market." *Labour Economics*, Vol. 16, pp. 364-372.
- England, Paula, George Farkas, Barbara Stanek Kilbourne, and Thomas Dou. 1988. "Explaining occupational sex segregation and wages: Findings from a model with fixed effects." *American Sociological Review*, Vol. 53, No. 4 (August), pp.544-558.
- Gauchat, Gordon, Maura Kelly, and Michael Wallace. 2012. "Occupational gender segregation, globalization, and gender earnings inequality in U.S. metropolitan areas." *Gender & Society*, Vol. 26, No. 5 (August), pp. 718-747.
- Grodsky, Eric and Devah Pager. 2001. "The structure of disadvantage: Individuals and occupational determinants of the Black-White wage gap." *American Sociological Review*, Vol. 66, No. 4 (August), pp. 542-567).
- Jarrell, Stephen B. and T.D. Stanley. 2004. "Declining bias and gender wage discrimination? A meta-regression analysis." *The Journal of Human Resources*, Vol. 39, No. 3 (Summer), pp.828-838.
- Kilbourne, Barbara, Paula England, and Kurt Beron. 1994. "Effects of individual, occupational, and industrial characteristics on earnings: Intersections of race and gender." *Social Forces*, Vol. 72, No. 4 (June), pp. 1149-1176.
- McCall, Leslie. 2001. "Sources of racial wage inequality in metropolitan labor markets: Racial, ethnic, and gender differences." *American Sociological Review*, Vol. 66, No. 4 (August), pp. 520-541.
- Mount, Randall I. and Richard E. Bennett. 1975. "Economic and social factors in income inequality: Race and sex discrimination and status as elements in wage differentials." *The American Journal of Economics and Sociology*, Vol. 34, No. 2 (April), pp. 161-174.

- Neal, Derek A. and William R. Johnson. 1996. "The role of premarket factors in Black-White wage differences." *Journal of Political Economy*, Vol. 104, No. 5 (October), pp. 869-895.
- Ragins, Belle R. and Romila Singh. 2007. "Making the invisible visible: Fear and disclosure of sexual orientation at work." *Journal of Applied Psychology*, Vol. 92, No. 4, pp. 1103-1118.
- Rodgers, William M. III. 2006. "Male White-Black wage gaps, 1979-1994: A distributional analysis." *Southern Economic Journal*, Vol. 72, No. 4 (April), pp. 773-793.
- NORC at the University of Chicago. (1998-2012). General Social Survey [Data file and codebook]. Retrieved from <http://www3.norc.org/GSS+Website/>

APPENDIX

I. Tables

Table A. Confusion Matrices to Test for Most Accurate Proxy of Queer Group

	One Same Sex Partner Since Age 18	
Identify as Queer	0	1
0	3,229	175
1	25	101
Accuracy: 94.33%		

	More Than One Same Sex Partner Since Age 18	
Identify as Queer	0	1
0	3,380	24
1	71	55
Accuracy: 97.31%		

	Exclusively Same-Sex or Both Male and Female Sex Partners: Past Year	
Identify as Queer	0	1
0	3,379	25
1	49	77
Accuracy: 97.90%		

	Exclusively Same-Sex or Both Male and Female Sex Partners: Past Five Years	
Identify as Queer	0	1
0	3,370	34
1	29	97
Accuracy: 98.22%		

	Exclusively Same-Sex or Both Male and Female Sex Partners: Past Year, or Past Five Years if No Sex in Past Year	
Identify as Queer	0	1
0	3,377	27
1	38	88
Accuracy: 98.17%		

Notes: Accuracy is calculated by totaling the number of correct predications divided by the total number of respondents in the sample. Thus, it is the sum of the (0,0) cell (those that are not assumed to be queer via the proxy definition and those that do not identify as queer) and the (1,1) cell (those that are assumed to be queer via the proxy definition and those that identify as queer) divided by 3,530.

Table B. White-Male Density: The Percentage of Workers in a Given Industry Who Are White and Male

	Percent White And Male	Percent Not White Or Female
Personal Services	15.73	84.27
Professional And Related Services	21.42	78.58
Finance, Insurance, And Real Estate	32.26	67.74
Wholesale And Retail Trade	34.85	65.15
Public Administration	43.94	56.06
Entertainment And Recreation Services	47.44	52.56
Transportation, Communications, And Other Public Utilities	48.66	51.34
Business And Repair Services	48.72	51.28
Manufacturing	53.77	46.23
Agriculture	61.39	38.61
Mining	72.73	27.27
Construction	72.86	27.14

Table C. Average Hourly Wage Of Each Given Industry, in Dollars

	Average Hourly Wage
Personal Services	16.79
Professional And Related Services	24.27
Finance, Insurance, And Real Estate	24.16
Wholesale And Retail Trade	16.59
Public Administration	26.97
Entertainment And Recreation Services	23.48
Transportation, Communications, And Other Public Utilities	22.86
Business And Repair Services	29.18
Manufacturing	22.15
Agriculture	16.77
Mining	21.82
Construction	22.12

Notes: Hourly wage is calculated by dividing the respondent's nominal income from last year by the number of weeks worked last year and the number of hours worked last week.

Table D. Percentages of Each Single Demographic Group in Each Industry

	Heterosexual	Queer	Male	Female	White	Nonwhite	Total
Personal Services	3.93	4.12	1.71	6.08	3.72	4.65	3.94
Professional And Related Services	28.03	27.46	15.71	39.87	27.62	29.27	28.01
Finance, Insurance, And Real Estate	6.36	7.32	5.32	7.43	6.44	6.25	6.40
Wholesale And Retail Trade	17.31	23.80	16.08	18.92	17.37	18.04	17.52
Public Administration	6.40	5.26	7.02	5.73	6.33	6.48	6.37
Entertainment And Recreation Services	1.72	3.66	2.05	1.53	1.92	1.34	1.79
Transportation, Communications, And Other Public Utilities	7.76	5.95	10.63	4.86	7.20	9.33	7.70
Business And Repair Services	6.28	6.18	8.03	4.58	6.26	6.32	6.27
Manufacturing	13.24	11.90	17.73	8.81	13.77	11.30	13.19
Agriculture	1.98	1.83	3.07	0.93	2.15	1.41	1.98
Mining	0.35	0.00	0.59	0.09	0.37	0.23	0.34
Construction	6.64	2.52	12.05	1.16	6.85	5.37	6.50

Table E. Variable Means and Percentages for Males, by Sexual Orientation and Race

	Male			
	Heterosexual	Queer	White	Nonwhite
N	6,349	201	5,143	1,407
Percent of Male Workers	96.93%	3.07%	78.52%	21.48%
Weeks Worked Per Year	46.50	46.57	46.62	46.06
Hours Worked Per Week	45.39	43.14	45.73	43.82
Hourly Earnings	\$24.85	\$24.59	\$26.09	\$20.15
<i>Education:</i>				
Less Than High School	11.82%	6.47%	9.40%	19.91%
High School	50.29%	43.78%	50.33%	49.22%
Associate	7.88%	8.96%	7.92%	7.89%
Bachelor	19.31%	25.37%	20.96%	14.15%
Graduate	10.69%	15.42%	11.39%	8.82%
Potential Experience	22.44	21.06	23.02	20.12
Age	42.18	41.71	42.99	39.13
Married	52.94%	18.91%	53.84%	44.78%
Have Children	66.03%	31.34%	63.99%	68.52%
Lives in Large Metropolitan Area	14.93%	29.85%	12.02%	27.72%
<i>Region:</i>				
Northeast	16.17%	19.41%	16.64%	16.28%
Midwest	23.99%	23.39%	26.66%	14.14%
South	37.19%	32.84%	34.76%	45.42%
West	22.65%	24.38%	21.93%	25.51%

Notes: Variable means and percentages for respondents working part-time or full-time, based on author's calculations. Hourly earnings are calculated as the respondent's annual income divided by the product of weeks the respondent worked last year and hours the respondent worked last week. Education is grouped as the highest educational degree attained by the respondent. Potential experience is a proxy for a worker's job experience, calculated as age minus the sum of years of education and six. Respondents with a negative level of potential experience are omitted from analysis.

Table F. Percentage of Males in Each Income Bracket, by Sexual Orientation and Race

	Male			
	Heterosexual	Queer	White	Nonwhite
\$0 to \$9,999	12.09	8.97	10.82	16.28
\$10,000 to \$19,999	13.29	13.93	11.86	18.61
\$20,000 to \$29,999	16.15	19.41	15.67	18.34
\$30,000 to \$39,999	21.98	15.67	15.59	15.07
\$40,000 to \$49,999	11.80	12.44	6.90	4.98
\$50,000 to \$59,999	8.21	5.47	8.94	5.12
\$60,000 to \$74,999	8.36	6.97	8.75	6.75
\$75,000 to \$89,999	4.82	3.98	5.02	3.98
\$90,000 to \$109,999	3.13	1.49	3.46	1.71
\$110,000 and over	6.90	4.98	7.86	3.13

Notes: Percentage concentrations in each income bracket are based on author's calculations. Data used in later calculations is based on twenty-three income brackets, yet only ten are reported for clarity.

Table G. Percentages of Males in Each Industry, by Sexual Orientation and Race

	Male			
	Heterosexual	Queer	White	Nonwhite
Personal Services	1.64	4.08	1.61	2.10
Professional And Related Services	15.43	24.49	15.57	16.20
Finance, Insurance, And Real Estate	5.30	6.12	5.36	5.21
Wholesale And Retail Trade	15.86	22.96	15.85	16.92
Public Administration	7.08	5.10	7.26	6.15
Entertainment And Recreation Services	2.02	3.06	2.20	1.52
Transportation, Communications, And Other Public Utilities	10.77	6.12	9.72	13.96
Business And Repair Services	8.03	8.16	7.93	8.39
Manufacturing	17.84	14.29	18.41	15.26
Agriculture	3.08	2.55	3.15	2.75
Mining	0.61	0.00	0.63	0.43
Construction	12.33	3.06	12.30	11.14

Table H. Variable Means and Percentages for Females, by Sexual Orientation and Race

	Female			
	Heterosexual	Queer	White	Nonwhite
N	6,527	245	5,069	1,703
Percent of Female Workers	96.38%	3.62%	74.85%	25.15%
Weeks Worked Per Year	45.01	45.45	45.27	44.29
Hours Worked Per Week	38.83	41.46	38.90	39.01
Hourly Earnings	\$20.19	\$17.72	\$20.23	\$19.67
<i>Education:</i>				
Less Than High School	8.08%	7.35%	6.38%	13.06%
High School	52.78%	48.16%	51.00%	57.41%
Associate	9.63%	11.43%	9.67%	9.76%
Bachelor	19.48%	19.18%	21.60%	13.12%
Graduate	10.03%	13.88%	11.35%	6.65%
Potential Experience	21.94	15.80	22.48	19.44
Age	41.85	36.09	42.62	38.74
Married	46.90%	22.04%	50.17%	33.59%
Have Children	72.80%	51.02%	70.43%	76.72%
Lives in Large Metropolitan Area	15.86%	22.04%	12.45%	27.19%
<i>Region:</i>				
Northeast	17.78%	18.36%	18.07%	16.97%
Midwest	24.54%	20.00%	27.03%	16.5%
South	36.58%	31.84%	32.80%	47.21%
West	21.10%	29.79%	22.11%	19.32%

Notes: Variable means and percentages for respondents working part-time or full-time, based on author's calculations. Hourly earnings are calculated as the respondent's annual income divided by the product of weeks the respondent worked last year and hours the respondent worked last week. Education is grouped as the highest educational degree attained by the respondent. Potential experience is a proxy for a worker's job experience, calculated as age minus the sum of years of education and six. Respondents with a negative level of potential experience are omitted from analysis.

Table I. Percentage of Females in Each Income Bracket, by Sexual Orientation and Race

	Female			
	Heterosexual	Queer	White	Nonwhite
\$0 to \$9,999	21.45	21.62	20.24	25.08
\$10,000 to \$19,999	22.72	23.68	21.92	25.26
\$20,000 to \$29,999	18.87	15.92	18.78	18.67
\$30,000 to \$39,999	13.65	10.61	13.71	13.03
\$40,000 to \$49,999	8.66	7.76	9.17	6.99
\$50,000 to \$59,999	5.41	8.98	6.04	4.05
\$60,000 to \$74,999	4.06	4.49	4.38	3.17
\$75,000 to \$89,999	2.19	2.04	2.43	1.47
\$90,000 to \$109,999	1.21	3.67	1.32	1.23
\$110,000 and over	1.79	1.22	2.01	1.06

Notes: Percentage concentrations in each income bracket are based on author's calculations. Data used in later calculations is based on twenty-three income brackets, yet only ten are reported in for clarity.

Table J. Percentages of Females in Each Industry, by Sexual Orientation and Race

	Female			
	Heterosexual	Queer	White	Nonwhite
Personal Services	6.15	4.15	5.85	6.76
Professional And Related Services	40.25	29.88	39.80	40.10
Finance, Insurance, And Real Estate	7.40	8.30	7.54	7.12
Wholesale And Retail Trade	18.71	24.48	18.90	18.97
Public Administration	5.75	5.39	5.39	6.76
Entertainment And Recreation Services	1.43	4.15	1.64	1.20
Transportation, Communications, And Other Public Utilities	4.83	5.81	4.65	5.51
Business And Repair Services	4.58	4.56	4.57	4.61
Manufacturing	8.77	9.96	9.08	8.02
Agriculture	0.92	1.24	1.14	0.30
Mining	0.09	0.00	0.10	0.06
Construction	1.12	2.07	1.34	0.60

Table K. Variable Means and Percentages for White and Nonwhite Respondents, by Sexuality

	White		Nonwhite	
	Heterosexual	Queer	Heterosexual	Queer
N	9,859	353	3,017	93
Percent of Workers	96.54%	3.46%	97.01%	2.99%
Weeks Worked Per Year	45.94	45.97	45.06	45.91
Hours Worked Per Week	42.40	42.88	41.31	39.63
Hourly Earnings	\$23.28	\$22.13	\$20.00	\$16.27
<i>Education:</i>				
Less Than High School	8.02%	4.53%	16.16%	16.13%
High School	50.87%	44.76%	53.77%	51.61%
Associate	8.69%	11.61%	9.03%	5.38%
Bachelor	21.21%	23.23%	13.47%	17.20%
Graduate	11.21%	15.86%	7.57%	9.68%
Potential Experience	22.89	18.87	19.88	15.53
Age	42.93	39.56	39.03	35.11
Married	53.15%	20.40%	39.18%	21.51%
Have Children	68.19%	39.09%	73.61%	53.76%
Lives in Large Metropolitan Area	11.75%	24.36%	27.35%	30.11%
<i>Region:</i>				
Northeast	17.33%	18.13%	15.87%	21.35%
Midwest	26.95%	23.85%	15.51%	12.90%
South	33.88%	31.16%	46.70%	36.56%
West	21.84%	26.91%	21.91%	22.12%

Notes: Variable means and percentages for respondents working part-time or full-time, based on author's calculations. Hourly earnings are calculated as the respondent's annual income divided by the product of weeks the respondent worked last year and hours the respondent worked last week. Education is grouped as the highest educational degree attained by the respondent. Potential experience is a proxy for a worker's job experience, calculated as age minus the sum of years of education and six. Respondents with a negative level of potential experience are omitted from analysis.

Table L. Percentage of White and Nonwhite Respondents in Each Income Bracket, by Sexuality

	White		Nonwhite	
	Heterosexual	Queer	Heterosexual	Queer
\$0 to \$9,999	15.55	13.88	21.01	23.67
\$10,000 to \$19,999	16.81	17.85	22.18	24.73
\$20,000 to \$29,999	17.15	18.98	18.73	11.84
\$30,000 to \$39,999	14.59	16.72	13.98	12.91
\$40,000 to \$49,999	10.67	9.07	8.68	12.90
\$50,000 to \$59,999	7.49	7.93	4.51	5.38
\$60,000 to \$74,999	6.59	6.23	4.84	3.23
\$75,000 to \$89,999	3.75	3.12	2.62	2.15
\$90,000 to \$109,999	2.37	3.12	1.46	1.08
\$110,000 and over	5.02	3.12	1.99	2.15

Notes: Percentage concentrations in each income bracket are based on author's calculations. Data used in later calculations is based on twenty-three income brackets, yet only ten are reported in for clarity.

Table M. Percentages of White and Nonwhite Respondents in Each Industry, by Sexuality

	White		Nonwhite	
	Heterosexual	Queer	Heterosexual	Queer
Personal Services	3.71	4.06	4.66	4.35
Professional And Related Services	27.62	27.83	29.37	26.09
Finance, Insurance, And Real Estate	6.41	7.25	6.21	7.61
Wholesale And Retail Trade	17.11	24.64	17.96	20.65
Public Administration	6.37	5.22	6.52	5.43
Entertainment And Recreation Services	1.86	3.77	1.28	3.26
Transportation, Communications, And Other Public Utilities	7.24	6.09	9.45	5.43
Business And Repair Services	6.30	5.22	6.21	9.78
Manufacturing	13.83	11.88	11.28	11.96
Agriculture	2.17	1.74	1.38	2.17
Mining	0.38	0.00	0.24	0.00
Construction	7.01	2.32	5.44	3.26

Table N. Full OLS Regression Results for Single Minority Groups

Model:	1 Baseline	2 Add Human Capital	3 Add Industry and Occupation	4 Add Marital Status	5 Add Number of Children and Location	6 Add Human Capital Heterogeneity
<i>Personal Details:</i>						
Queer	-0.017 (0.045)	-0.058 (0.039)	-0.043 (0.038)	-0.026 (0.038)	-0.035 (0.039)	-0.415* (0.253)
Female	-0.258*** (0.017)	-0.300*** (0.016)	-0.254*** (0.017)	-0.250*** (0.017)	-0.246*** (0.017)	-0.350*** (0.059)
Nonwhite	-0.172*** (0.020)	-0.069*** (0.019)	-0.050*** (0.018)	-0.043** (0.018)	-0.047** (0.019)	-0.042 (0.081)
<i>Work Information:</i>						
Average Weeks Worked	0.036*** (0.001)	0.033*** (0.001)	0.032*** (0.001)	0.032*** (0.001)	0.032*** (0.001)	0.032*** (0.001)
Average Hours Worked	0.019*** (0.001)	0.015*** (0.001)	0.014*** (0.001)	0.014*** (0.001)	0.014*** (0.001)	0.014*** (0.001)
<i>Human Capital:</i>						
High School		0.328*** (0.031)	0.251*** (0.031)	0.250*** (0.031)	0.298*** (0.031)	0.192*** (0.041)
Associate		0.554*** (0.037)	0.417*** (0.037)	0.416*** (0.037)	0.413*** (0.037)	0.244*** (0.051)
Bachelor's		0.832*** (0.034)	0.620*** (0.036)	0.616*** (0.036)	0.604*** (0.035)	0.483*** (0.048)
Graduate		1.114*** (0.037)	0.866*** (0.041)	0.861*** (0.041)	0.842*** (0.041)	0.687*** (0.054)
High School - Queer						0.370 (0.259)
Associate - Queer						0.509* (0.263)
Bachelor's - Queer						0.429* (0.263)
Graduate - Queer						0.418 (0.265)
High School - Female						0.045 (0.061)
Associate - Female						0.243*** (0.072)
Bachelor's - Female						0.157** (0.066)
Graduate - Female						0.192*** (0.072)
High School - Nonwhite						0.083 (0.064)
Associate - Nonwhite						0.097 (0.079)
Bachelor's - Nonwhite						0.135* (0.072)
Graduate - Nonwhite						0.210*** (0.080)
Potential Experience		0.050*** (0.022)	0.045*** (0.002)	0.044*** (0.002)	0.044*** (0.002)	0.046*** (0.002)

Potential Experience Squared		-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Potential Experience - Nonwhite						-0.007 (0.005)
Potential Experience Squared - Nonwhite						0.0001 (0.000)
<i>Family Details:</i>						
Married				0.062*** (0.015)	0.075*** (0.015)	0.076*** (0.015)
Number of Children					-0.006 (0.006)	-0.004 (0.006)
<i>Location:</i>						
Metropolitan					0.067*** (0.020)	0.068*** (0.020)
Midwest					-0.121*** (0.022)	-0.123*** (0.022)
South					-0.133*** (0.021)	-0.134*** (0.021)
West					-0.058** (0.023)	-0.059** (0.023)
<i>Industry:</i>						
Professional And Related Services			0.007 (0.041)	0.006 (0.041)	0.007 (0.041)	0.000 (0.041)
Finance, Insurance, and Real Estate			0.261*** (0.046)	0.259*** (0.046)	0.252*** (0.046)	0.246*** (0.046)
Wholesale and Retail Trade			-0.076* (0.043)	-0.077* (0.043)	-0.070 (0.043)	-0.076* (0.074)
Public Administration			0.258*** (0.045)	0.257*** (0.045)	0.267*** (0.045)	0.257*** (0.043)
Entertainment and Recreation Services			-0.087 (0.077)	-0.082 (0.075)	-0.091 (0.075)	0.093 (0.074)
Transportation, Communications, and Other Public Utilities			0.279*** (0.046)	0.277*** (0.046)	0.275*** (0.046)	0.267*** (0.046)
Business and Repair Services			0.094** (0.050)	0.094* (0.050)	0.092* (0.050)	0.084* (0.050)
Manufacturing			0.241*** (0.044)	0.235*** (0.044)	0.241*** (0.044)	0.240*** (0.044)
Agriculture			-0.235** (0.075)	-0.237** (0.075)	-0.228** (0.074)	-0.240*** (0.074)
Mining			0.345*** (0.089)	0.345*** (0.089)	0.354*** (0.089)	0.337*** (0.087)
Construction			0.158** (0.053)	0.157** (0.053)	0.157** (0.053)	0.143*** (0.053)
<i>Occupation:</i>						
Service			-0.464*** (0.027)	-0.460*** (0.027)	-0.459*** (0.027)	-0.444*** (0.027)
Sales and Office			-0.212*** (0.022)	-0.210*** (0.022)	-0.210*** (0.022)	-0.202*** (0.022)
Natural Resources, Construction, and Maintenance			-0.131*** (0.033)	-0.128*** (0.033)	-0.121*** (0.033)	-0.137*** (0.033)
Production, Transportation, and			-0.342*** (0.027)	-0.339*** (0.027)	-0.329*** (0.027)	-0.339*** (0.027)

Material Moving						
Constant	7.686*** (0.051)	6.924*** (0.070)	7.264*** (0.082)	7.249*** (0.082)	7.318*** (0.080)	7.385*** (0.088)
N	10531	10499	10499	10497	10484	10484
R ²	0.290	0.429	0.469	0.470	0.4731	0.4758

Notes: Statistical significance is denoted with a single asterisk ($p < 0.10$), a double asterisk ($p < 0.05$) or a triple asterisk ($p < 0.01$).

Table O. Full OLS Regression Results Interaction Minority Groups

Model:	1 Baseline	2 Add Human Capital	3 Add Industry and Occupation	4 Add Marital Status	5 Add Number of Children and Location	6 Add Human Capital Heterogeneity
<i>Personal Details:</i>						
Queer	0.046 (0.062)	-0.076 (0.055)	-0.031 (0.055)	-0.006 (0.055)	-0.018 (0.056)	-0.364 (0.243)
Female	-0.282*** (0.020)	-0.331*** (0.018)	-0.285*** (0.019)	-0.282*** (0.019)	-0.279*** (0.019)	-0.406*** (0.061)
Nonwhite	-0.219*** (0.030)	-0.125*** (0.028)	-0.107*** (0.027)	-0.103*** (0.027)	-0.108*** (0.027)	-0.092 (0.082)
Female - Queer	-0.029 (0.090)	0.107 (0.078)	0.067 (0.077)	0.056 (0.076)	0.061 (0.077)	0.060 (0.075)
Nonwhite - Female	0.104** (0.041)	0.118*** (0.037)	0.122*** (0.036)	0.129*** (0.036)	0.132*** (0.036)	0.148*** (0.036)
Nonwhite - Queer	-0.247* (0.149)	-0.188 (0.133)	-0.237* (0.128)	-0.245* (0.128)	-0.245* (0.128)	-0.222* (0.124)
<i>Work Information:</i>						
Average Weeks Worked	0.036*** (0.001)	0.033*** (0.001)	0.032*** (0.001)	0.032*** (0.001)	0.032*** (0.001)	0.032*** (0.001)
Average Hours Worked	0.019*** (0.001)	0.015*** (0.001)	0.014*** (0.001)	0.014*** (0.001)	0.014*** (0.001)	0.014*** (0.001)
<i>Human Capital:</i>						
High School		0.326*** (0.031)	0.248*** (0.031)	0.247*** (0.031)	0.245*** (0.031)	0.189*** (0.041)
Associate		0.552*** (0.037)	0.414*** (0.037)	0.413*** (0.037)	0.410*** (0.037)	0.243*** (0.051)
Bachelor's		0.832*** (0.034)	0.617*** (0.036)	0.614*** (0.036)	0.602*** (0.036)	0.475*** (0.048)
Graduate		1.114*** (0.037)	0.865*** (0.041)	0.859*** (0.041)	0.840*** (0.041)	0.679*** (0.054)
High School - Queer						0.337 (0.256)
Associate - Queer						0.450* (0.262)
Bachelor's - Queer						0.390 (0.257)
Graduate - Queer						0.362 (0.262)
High School - Female						0.062 (0.061)
Associate - Female						0.260*** (0.072)
Bachelor's - Female						0.184*** (0.066)
Graduate - Female						0.220*** (0.072)
High School - Nonwhite						0.064 (0.064)
Associate - Nonwhite						0.071 (0.080)
Bachelor's - Nonwhite						0.121* (0.072)

Graduate - Nonwhite						0.202*** (0.080)
Potential Experience		0.050*** (0.002)	0.045*** (0.002)	0.044*** (0.002)	0.044*** (0.002)	0.045*** (0.002)
Potential Experience Squared		-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Potential Experience - Nonwhite						-0.007 (0.005)
Potential Experience Squared - Nonwhite						0.000 (0.000)
<i>Family Details:</i>						
Married				0.065*** (0.015)	0.078*** (0.015)	0.078*** (0.015)
Number of Children					-0.006 (0.006)	-0.003 (0.006)
<i>Location</i>						
Metropolitan					0.066*** (0.020)	0.068*** (0.020)
Midwest					-0.121*** (0.022)	-0.124*** (0.022)
South					-0.134*** (0.020)	-0.135*** (0.020)
West					-0.056** (0.023)	-0.057** (0.023)
<i>Industry:</i>						
Professional and Related Services			0.008 (0.041)	0.007 (0.041)	0.008 (0.041)	-0.000 (0.041)
Finance, Insurance, and Real Estate			0.261*** (0.046)	0.258*** (0.046)	0.251*** (0.046)	0.244*** (0.046)
Wholesale and Retail Trade			-0.077* (0.043)	-0.077* (0.043)	-0.070 (0.043)	-0.077* (0.043)
Public Administration			0.256*** (0.045)	0.256*** (0.045)	0.265*** (0.045)	0.255*** (0.045)
Entertainment and Recreation Services			0.089 (0.074)	0.084 (0.075)	0.093 (0.074)	0.097 (0.074)
Transportation, Communications, and Other Public Utilities			0.280*** (0.046)	0.278*** (0.046)	0.277*** (0.046)	0.267*** (0.046)
Business and Repair Services			0.095* (0.050)	0.095* (0.050)	0.093* (0.050)	0.084* (0.050)
Manufacturing			0.240*** (0.044)	0.234*** (0.044)	0.238*** (0.044)	0.237*** (0.044)
Agriculture			-0.232** (0.075)	-0.232** (0.075)	-0.225** (0.074)	-0.238*** (0.074)
Mining			0.342*** (0.088)	0.331*** (0.088)	0.350*** (0.089)	0.332*** (0.087)
Construction			0.157** (0.053)	0.157** (0.053)	0.156** (0.053)	0.141*** (0.053)
<i>Occupation:</i>						
Service			-0.467*** (0.027)	-0.464*** (0.027)	-0.462*** (0.027)	-0.447*** (0.027)
Sales and Office			-0.210*** (0.022)	-0.208*** (0.022)	-0.208*** (0.022)	-0.199*** (0.022)
Natural Resources, Construction, and			-0.134*** (0.033)	-0.131*** (0.033)	-0.124*** (0.033)	-0.142*** (0.033)

Maintenance						
Production, Transportation, and Material Moving			-0.341*** (0.027)	-0.337*** (0.027)	-0.327*** (0.027)	-0.338*** (0.027)
Constant	7.697*** (0.070)	6.941*** (0.070)	7.283*** (0.082)	7.268*** (0.082)	7.337*** (0.084)	7.407*** (0.088)
N	10531	10499	10499	10497	10484	10484
R ²	0.2905	0.4295	0.4698	0.4708	0.4741	0.4770

Notes: Statistical significance is denoted with a single asterisk ($p < 0.10$), a double asterisk ($p < 0.05$) or a triple asterisk ($p < 0.01$). See Table G in Appendix for full regression results.

II. F-tests to Determine the Joint Significance of Human Capital Interaction Terms

Part I. Single Minority Group Regression

$$H_0: \beta_{highschoolqueer} = \beta_{graduatequeer} = 0$$

$$H_A: \text{At least one } \beta \text{ coefficient is unequal to zero}$$

$$\alpha: 0.10$$

$$F\text{-value (4, 10434): 1.25}$$

Since the F-value is not large, I fail to reject the null hypothesis and conclude that the highschool-queer and graduate-queer terms are not jointly significant.

$$H_0: \beta_{highschoolnonwhite} = \beta_{associatenonwhite} = 0$$

$$H_A: \text{At least one } \beta \text{ coefficient is unequal to zero}$$

$$\alpha: 0.10$$

$$F\text{-value (4, 10434): 0.95}$$

Since the F-value is not statistically significant at 10% level, I fail to reject the null hypothesis. These education-nonwhite interactions are jointly insignificant, and must not be included in my interpretations.

$$H_0: \beta_{experiencenonwhite} = \beta_{experiencesquarednonwhite} = 0$$

$$H_A: \text{At least one } \beta \text{ coefficient is unequal to zero}$$

$$\alpha: 0.10$$

$$F\text{-value (2, 10434): 2.78}$$

Although the experience-nonwhite interaction terms are individually insignificant, they are jointly significant and thus included in the final model. I reject the null hypothesis. Notably, all joint significance tests are based on Model 6 of the single minority group regression. Also, I do not include the tests for the interaction variables for experience and queer and experience and female because these variables are both individually and jointly insignificant.

Part 2. Interaction Minority Group Regression

$$H_0: \beta_{\text{highschoolqueer}} = \beta_{\text{bachelorqueer}} = \beta_{\text{graduatequeer}} = 0$$

H_A : At least one β coefficient is unequal to zero

$$\alpha: 0.10$$

$$\text{F-value (4, 10434): 0.81}$$

Since the F-value is not large, I fail to reject the null hypothesis and conclude that these education-queer interaction terms are not jointly significant.

$$H_0: \beta_{\text{highschoolnonwhite}} = \beta_{\text{associatenonwhite}} = 0$$

H_A : At least one β coefficient is unequal to zero

$$\alpha: 0.10$$

$$\text{F-value (4, 10434): 0.53}$$

Since the F-value is not statistically significant at 10% level, I fail to reject the null hypothesis. These education-nonwhite interactions are not jointly significant.

$$H_0: \beta_{\text{experiencenonwhite}} = \beta_{\text{experiencesquarednonwhite}} = 0$$

H_A : At least one β coefficient is unequal to zero

$$\alpha: 0.10$$

$$\text{F-value (2, 10434): 3.08}$$

Although the experience-nonwhite interaction terms are individually insignificant, they are jointly significant and thus included in the final model. I reject the null hypothesis. Notably, all joint significance tests are based on Model 6 of the interaction minority group regression. As in *Part 1*, I do not include the tests for the interaction variables for experience and queer and experience and female because these variables are both individually and jointly insignificant.