WOMEN AND BLUE-COLLAR WORK: EXPLORING FACTORS OF WOMEN'S LOW PRESENCE IN MEN-CONCENTRATED OCCUPATIONS AND INDUSTRY

by

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ABSTRACT

Though women's presence in education and the labor force has grown exponentially in the twentieth century, many agree that progress toward equality in work and pay has stalled from the 1990s onward. Today, women find themselves in lower-paying occupations, women-concentrated occupations and industries, or both—despite rising levels of education. This dissertation aims to explore how the tightening labor market conditions of 2005 to 2019 has influenced women's presence in men-concentrated occupations and industries. Two chapters of this dissertation focus on women's presence in blue-collar industries, namely women's presence in skilled labor and managerial occupations. I find that the power of the industry is a good predictor of women's presence in skilled labor and management, specifically, that increases in the blue-collar industry's employment in a city lead to fewer women in skilled blue-collar labor or in blue-collar management.

The last chapter focuses on the changes in women's occupational prestige level during the 2005 to 2019 time period, and I explore the factors that lead women to high-prestige occupations in men-concentrated occupations and industries. This dissertation takes steps to further understanding of women's choice of occupation and the factors that influence women to enter into men-concentrated occupations and industries.

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1.1 Introduction

Literature on feminization proves that occupations are "typed." That is, occupations are gendered based on perceptions of traits associated with those occupations (Yavorsky and Dill 2020; Addison, Ozturk, & Wang 2018). Therefore, women who enter into men-typed occupations, such as blue-collar occupations, are met with push-back from their co-workers and supervisors (Kissman 1990), if the women are even hired at all.

However, some women have found employment in blue-collar occupations, and literature from the 1990s onward shows how harassment and task separation by gender can cause adverse effects, such as job dissatisfaction leading to turnover (Mansfield 1991) and lack of task experience leading to fewer women in supervisory or managerial roles (Krzywdzinski et al. 2019).

Skilled blue-collar labor is distinct from other types of blue-collar labor due to the educational or training requirements of skilled jobs, and examples of these jobs include welders, pipefitters, or electricians (Kissman 1990). The presence of women in these skilled blue-collar jobs is small (O'Farrell 1999), but the potential for women to make higher wages with less education may induce women into these occupations, especially as education costs increase or if low-paid service occupations are the alternative (Sutton et al. 2016). The Equal Employment Opportunity Commission (EEOC) looks at the craft occupations as a positive alternative occupational group for women that has traditionally had a low representation of women (U.S. Equal Employment Opportunity Commission 2015).

Skilled blue-collar occupations are one of a few occupational groups that are expected to show labor shortages over the next few years (Levanon et al. 2014). Due to a rising number of retirees in blue-collar industries and the increasing push for college education, those firms looking to replace employees may have to look outside normal labor pools to fill skilled-labor positions. If the normal labor pools are men, firms may look to recruit women.

The labor shortage in skilled blue-collar labor lends itself to the investigation of the effect of tight labor markets (as shown by the low unemployment rates and the projected labor shortage) on the presence and pay of women in those occupations. Previous literature shows that tight labor markets can influence employers to lower barriers to entry as their "tastes for discrimination" (Becker 1971) become too costly for firms to support (Boulware and Kuttner 2019; Holzer et al. 2006). This paper contributes to discrimination literature and occupational segregation literature as they relate to women. This paper extends the literature on women in blue-collar work.

Using Integrated Public Use Microdata Survey (IPUMS) data, I construct index measures of local area occupational segregation and the wage gains/losses due to occupational segregation (Alonso-Villar and del Río 2017) for each metropolitan statistical area (MSA) represented in the IPUMS data. Findings of this paper suggest that tight labor markets have modest positive effects on the representation of women in skilled blue-collar labor but do not lead to decreases in wage losses due to segregation or any significant changes in wages as a proportion of average MSA wage.

Section 2 provides the background for changes in women's wages and women's presence in blue-collar occupations. Section 3 outlines the methodology and model used in

this paper. Section 4 gives an overview of the data used. Sections 5 and 6 present the results and some limitations of the data. Section 7 concludes.

1.2 Literature Review

The next section provides the background and prior literature for reasons for the persistence of the gender wage gap, what defines skilled blue-collar labor, women's experiences in men-concentrated blue-collar occupations, and the shortages in skilled blue-collar labor.

Much of the research into gender wage gaps centers around high-status or high-paying occupations. For these occupations, wage gaps have been contributed to the barriers to women in leadership positions (Kricheli-Katz 2019; Cohen and Huffman 2007), the preferences of women for trade-offs between flexibility in work hours and wages (Le Barbanchon, Rathelot, & Roulet 2019; Lewis and Humbert 2010; Polachek 1976), and education choices (Bronson 2014; Dey and Hill 2007). However, another contributor to occupational wage gaps is the concentration of women in that occupation, known as the feminization of wages (Gradín 2020; Addison, Ozturk, & Wang 2018). The concentration of women in particular occupational groups (such as education or service occupations) and men in other occupational groups (such as construction or engineering occupations) leads to differing valuation systems, where a higher concentration of women in an occupation is associated with lower wages (Murphy and Oesch 2016) though the direction of the effect on wages (e.g., low wages cause more women to be in an occupation versus more women in an occupation cause lower wages) continues to be contested (Busch 2018; Mandel 2018; Mandel 2013; England, Allison, & Wu 2007). Feminized occupations often stay feminized, as men associate those occupations with non-masculine skills or are not willing to accept

the lower wages (Yavorsky and Dill 2020). The concentration of women in occupations is a positive indicator of gender hiring bias in Germany (Kübler et al., 2018). I highlight feminization to show the adverse effects of occupational segregation for women in those occupations. Though occupations are also segregated for men (or are men-concentrated), wage effects and scarring effects—a wage penalty occurring when a worker transfers to a men-concentrated industry from a women-concentrated one (Torre 2014)—do not occur because an occupation is men-concentrated.

One labor market area that has traditionally been men-concentrated is blue-collar work, which in this paper is defined as manual labor of two types: skilled and unskilled. See Table 1.1 for examples of blue-collar occupations and their educational requirements. Skilled blue-collar labor, also referred to as trade labor (Burner et al. 2019; Mansfield et al., 1991; Kissman, 1990), offers a wage advantage over unskilled blue-collar labor, with a training period of about two years for most trade programs. Examples of skilled blue-collar labor that appear often in the literature are electricians, plumbers, machinists, welders, and pipefitters. Skilled labor offers limited chances for upward mobility, and so has been seen as a less attractive alternative for other types of labor (Grubbs 2019). This is compounded by the widening wage gap between white-collar and (unskilled) blue-collar work (Wu, Miranda, & Yen 2021; Dögüs 2019; Lawrence 2008). Figure 1.1 shows the distribution of incomes by blue-collar, white-collar, and service occupations as ratios of the 2018 national average income ($51,960). As white-collar work becomes more attractive leading to increases in college enrollment, blue-collar firms may have difficulties in filling jobs.

Skilled labor shortages have had a large impact in particular on the construction industry (Kim et al. 2020; Karimi et al. 2018; Chini et al. 1999). Burner et al. (2019) report that 31% of firms in their survey reported a lack of trade skills in their job candidates. This is in line with the predictions of Lavanon, Cheng, & Paterra (2014), who expected that skilled blue-collar occupations would experience labor shortages. They in part attribute this to the large-scale retirement of current skilled blue-collar workers. Figure 1.2 shows the unemployment rate changes (a proxy for tightening labor markets) for occupational groups.

This paper proposes that hiring biases in part attribute to women's underrepresentation in blue-collar work, and research shows that tight labor markets have reduced hiring biases. Holzer et al. (2006) found that during the tight labor market of the 1990s (with the lowest unemployment rate during the period being 3.8 percent) employers were found to hire groups that they normally would not (e.g., minority groups or welfare recipients). Since employers do change their hiring behaviors (lessen bias) during tight labor markets, this paper explores the effects of a tight labor market on occupational gender gaps. Abraham et al. (2020) also state that in times of market tightness, employers look outside their normal pool of candidates to fill job vacancies. Boulware and Kuttner (2019) find that in periods of low unemployment, discrimination decreases. Boulware and Kuttner make the point that their findings "are consistent with employer's weighting Becker's (1971) 'tastes for discrimination' against the opportunity cost of indulging those tastes" (2019:169). Some evidence points to the presence of unions in industries to mitigate hiring bias for women (Picault 2014; Bamberger et al. 1995).

The barriers for women to entering blue-collar work include hiring biases based on suitability and productivity. Hedging against perceptions of women's future productivity

choices is a form of statistical discrimination on the part of the employer (Phelps 1972; Arrow 1973), which is distinct from "tastes for discrimination" (Becker, 1971) which are distastes for working with certain groups regardless of those groups' productivity (Hedegaard and Tyran 2018).

Regardless of hiring biases present in the labor market for blue-collar work, women have found employment in blue-collar industries (such as manufacturing) and even as skilled blue-collar laborers, but their presence in those industries and occupations has remained low. See Table 1.2 for blue-collar occupations by the highest and lowest concentration of women. The barriers to work entry described above may keep women from blue-collar work, but workplace hostility may force them out of their jobs once they get them. Women in men-concentrated blue-collar workplaces are likely to experience sexual harassment and fewer training opportunities (Krzywdzinski et al. 2019), leading to low job satisfaction and turnover (Mansfield et al. 1991; Kissman 1990; Padavic and Reskin 1990). For a review of literature on women in trade occupations and the external and internal barriers they face, see Ericksen and Schultheiss (2009). There is some evidence that women are the first to be let go when economic downturns occur in blue-collar industries (Bracke 2019), while women's employment has shown to increase in "female-friendly" industries (such as service industries) during economic recessions (Akitoby et al. 2019).

On the other hand, some research has found that women who gain "good" blue-collar work in some environments (such as large manufacturing sectors) are less likely than their men counterparts to quit, as the women perceive that their alternatives are not other manufacturers in the area but lower-paying service jobs (Krzywdzinski et al. 2019). For

those women who are likely to work in low-paying service jobs, skilled blue-collar work may be a path to higher wages. Figure 1.3 shows that for every education category, blue-collar occupations earn more than service occupations. Given that trades programs take less time to complete than bachelor's degrees, skilled blue-collar employment may be a viable alternative for those women unsure about college success and unwilling to take on debt as higher education becomes more expensive[*]. However, research suggests that trades are not likely to be presented to young women as a college alternative (Sutton et al. 2016).

As the literature above shows, much work has been done on women in high-status (e.g., lawyers) or high-paying occupations. I extend this literature on gender-based occupational segregation and its causes by examining women in blue-collar labor. I present skilled blue-collar labor (which is traditionally men-concentrated) as an alternative to service occupations for women who do not want the debt that may come with a four-year degree, and I point to the external labor market pressures that may lead to employers lowering barriers for women to enter skilled blue-collar occupations.

1.3 Methodology

Tight labor markets have been shown to lessen claims of discrimination (Boulware and Kuttner 2019) and to lead to companies looking outside normal hiring pools (Abraham et al. 2020). High levels of industry employment concentrations can affect high school class composition (namely toward classes that give students industry skills), which may affect students' future labor market choices. Since skilled blue-collar labor is forecasted to

[*] Froidevaux et al. (2020) report that 61% of college students in the United States had an average of over $28,000 dollars in debt.

experience labor shortages (Lavanon et al. 2014), this subsection of the labor market is a good fit for looking at the effects of tight labor markets on the presence and pay of women in skilled blue-collar occupations. The traditional low level of women in blue-collar employment could indicate that (1) employers do not actively recruit women to fill job openings or (2) that many women do not have the desire to gain blue-collar jobs. Under tight labor markets, employers may seek to recruit from labor pools they normally would not, leading to an increase of women in blue-collar jobs. If women do not want these jobs, there will be little to no increase of women in blue-collar jobs.

Given that increases in the concentration of women in an occupation tend to devalue wages in the long run (Mandel 2013), there is no expectation that women in blue-collar labor will experience pay increases under tight labor markets. Aaronson et al. (2019) show that employment experiences for disadvantaged groups (such as Hispanics, blacks, and women) improve in tight labor markets, but that wages are the most likely to increase for non-disadvantaged groups. Further, Leduc et al. (2019) comment that while wages may increase for some under low unemployment, large wage increases are unlikely. Given that, average wage changes are expected to be small or nonexistent for women in blue-collar occupations. Changes in the wage gain/loss index (described below) are expected to be caused by increases of women in either lower- or higher-paid blue-collar occupations and not changes in the wages themselves.

1.3.1 Measurements of Occupational Gender Gaps and Wage Effects

The two most important components of this paper are the measurements for occupational segregation and wage disparities. Alonso-Villar and del Río (2017) provide measurements

for both a "local segregation" index and what they call a "wage gain/loss" index. Both indices are at the MSA level and will be used as dependent variables, with unemployment and MSA characteristics as regressors. Since they are calculated as the sum of all occupations, these indices can easily be broken down by occupational group level. Both indices take total group representation (e.g., women) and occupational group (e.g., unskilled blue-collar women) representation into account, which is critical when using cross-sectional data.

The "local segregation" index is as follows:

$$\Phi_i^g(c;t) = \left(\frac{c_j^g}{C^g}\right) \ln\left(\frac{\frac{c_j^g}{C^g}}{\frac{t_j}{T}}\right) \tag{1}$$

The superscript *g* identifies the gender group and the subscript *j* identifies the occupational group (e.g. skilled blue-collar occupations). The total size of the MSA employment pool is T, and t_j is the number employed in occupational group *j*. C_g represents the total number of a selected gender group in an MSA (here, women), and $c_{g,j}$ is the number of the selected gender in occupational group *j*. Each occupational contribution is a ratio of a gender's share in an occupation divided by the occupation's share in the market, weighted by the group's share in the market. This index is used over an index of dissimilarity (such as in Taylor et al. 2019) because it controls for the total workforce and selected gender group size.

The "wage gain/loss" index follows a similar logic:

$$\Gamma_i^g = \left(\frac{c_j^g}{C^g} - \frac{t_j}{T}\right)\frac{w_j}{\overline{w}} \tag{2}$$

This index shows the occupational share gap between the selected gender group and the total market, weighted by that occupation's wage divided by the MSA's average wage.

Since wages are per capita measures, this index represents the "per capita loss or gain of each member of the group derived from the occupational segregation of the group" (Alonso-Villar and del Río 2015:971), where gamma can be interpreted as a percent. For example, if c_j^g/C^g is less than t_j/T and the occupational group's average wage is greater than the MSA average wage, the resulting gamma is the percentage wage loss to each individual due to occupational segregation (*under*representation). Conversely, if c_j^g/C^g is greater than t_j/T and the occupational group's average wage is less than the MSA average, gamma would represent the percentage wage loss to each individual due to *over*representation. The index ranges from -1 to 1.

As the wage gain/loss index measures the changes in wages weighted by the amount of segregation in each occupational group, another important measure is the effect of tight labor markets on the unweighted wage ratios for each occupational group. The wage ratio is simply

$$\frac{w_j^g}{\overline{w}}, \tag{3}$$

where $w_{g,j}$ is the average occupational wage for either women or men and $\overline{w}$ is the MSA average wage, including all occupational groups and both women and men. Where the wage ratio is measured for women and men, the local segregation and wage gain/loss indices are measured for women only.

1.3.2 Fixed Effect Model

To measure the effect of tight labor markets on the presence and pay of women in skilled blue-collar labor, this paper uses a two-way fixed-effect model, where the individual

differences of each MSA and year not otherwise measured are taken into account. This is useful in studying labor markets (the MSAs), as each labor market may have unique characteristics affecting the flows of labor that may not be measured by the model's variables (Taylor et al. 2019). The initial equation is as follows:

$$y_{i,j} = \beta_1 \cdot Unemp_i + \beta_2 Unemp2_i + \beta_3 Emp_i + \beta_4 Emp2_i + \beta_5 ServWage_i + \beta_6 ServWage2_i + \sum_i \alpha_{i,j} \cdot X_{i,j} + \sum_i \gamma_i \cdot M_i \quad (4)$$

where *i* is each MSA, *j* is each occupational group (e.g., skilled), and X is a vector of individual-level characteristics aggregated for each occupational group, such as age, education, and marital status averaged over each occupational group. Marital status will be presented as percentage married for each occupational group. M is a vector of MSA-level characteristics, such as population and union coverage of an MSA's employed. The model includes both same-year and two-year lagged variables for the unemployment rates, the blue-collar industry employment concentrations, and the average wage for those in unskilled service occupations (women's average wages for women's models and men's average wages for men's models). This is meant to capture the environment in which women make education decisions (i.e., it is 2012's unemployment rates that affect a woman's decision to enter into welding education in 2012 which would then lead to a welding job in 2014). Lagged variables should be significant for skilled occupations rather than for unskilled, given that education stalls entry into the labor market for skilled rather than unskilled labor. A two-year lag was selected due to the length of training for skilled blue-collar workers, as only two of the 25 skilled blue-collar occupations require a four-year degree (see Table 1.3).

1.4 Data

This paper uses Integrated Public Use Microdata Survey (IPUMS) 1% U.S. data samples for the years 2005-2018.[*] IPUMS data has been used in previous literature to measure changes in occupational gender segregation (Alonso-Villar and del Río 2017; Mandel 2013), and the effects on women's pay (Hall et al. 2020; Mandel 2018).

Raw individual-level IPUMS data were aggregated to metropolitan statistical area (MSA) levels to the measures outlined below. MSA-level unemployment data and industry data come from the Bureau of Labor Statistics (BLS). Union coverage rates come from Hirsch and Macpherson (2020), and resident population totals come from the Census Bureau. Table 1.4 shows summary statistics for selected IPUMS data as well as sample averages for unemployment, industry employment, resident population, and union coverage. All MSA characteristics except resident population are percentages. All wage data are shown in 2012 dollars, and wage outliers have been removed (following Alonso-Villar and del Río 2017). Before data were aggregated, samples were restricted to all employed, non-military individuals earning a non-zero wage. Samples were further restricted to represent full-time employment, where the average weekly hours worked was greater or equal to 35. In the initial models, this paper restricts the MSAs to those that had data for all 15 years of the study period, leaving 33 MSAs for the balanced fixed-effects models (see Appendix for additional information on MSAs used).

To determine which occupations are skilled, each occupation was matched with the typical entry-level education requirements based on the BLS 2018 Occupational

[*] Data prior to 2005 has different MSA coding and definitions.

Projections Data[*]. Table 1.3 shows the exhaustive list of typical education requirements and the number of occupations requiring each level of education. Blue-collar labor has a large portion of unskilled occupations. It should be noted that not every occupation listed in the BLS Projections data is represented in the IMPUS survey data every year.

The use of unemployment rates as a measure of tight labor markets has been well-documented (Aaronson et al. 2019; Boulware and Kuttner 2019). However, unemployment rates have also been shown to be too broad to measure the true condition of labor markets. Given the availability of the data and that this paper focuses on relative variations (and not levels) across labor markets, unemployment is an appropriate method for measuring labor market tightness, despite the fact it fails to capture changes in other non-employment groups.

For the measure of industry employment concentrations, BLS MSA-industry employment data was normalized by the total number of employed for each MSA. The industries with the highest numbers of blue-collar employment are construction, manufacturing, mining, and transportation and utilities (Sum et al. 2010). Since not every MSA reports these industries, the employment percentages of all industries considered to be blue-collar were aggregated to one total blue-collar employment concentration variable.

As shown in Table 1.4, the average number of women in our sample MSAs for both skilled and unskilled blue-collar labor is much lower than the average number of men in blue-collar labor. For both women and men, the average number of people in skilled labor has decreased from 2005 to 2019, while averages of unskilled labor have increased. The

[*] Data can be found at https://data.bls.gov/projections/occupationProj.

average ages for women and men in both types of blue-collar labor have increased over the 15 years, supporting the idea of an aging blue-collar labor force. Weekly hours worked are higher for men in both types of labor in 2005, but the average hours worked for women are higher in both types of labor in 2019. Women have a higher average of postsecondary education years in 2005 and 2019. The average number of children in a household is relatively similar for women and men, and men have higher rates of marriage than women. The highest percentages of race and ethnicity for blue-collar workers are white (omitted category), black, and Hispanic—except for men in skilled blue-collar labor, with a large percentage of Asian workers.

For the MSA-level variables (bottom panels of Table 1.4), average unemployment rates have declined, along with blue-collar employment concentration and union coverage of workers. Average residential populations have increased, and unskilled service wages for both women and men have increased (wages for 2005 and 2019 are reported in 2012 dollars).

Figure 1.4 shows the dependent variables by gender and occupation type (skilled or unskilled blue-collar labor). The local area segregation index is negative for women in both occupation types and is more negative for unskilled occupations (Figure 1.4, Panels I and II). This implies that skilled blue-collar labor makes up (on average) a smaller portion of total employment than unskilled blue-collar labor. Even though women are underrepresented in both skilled and unskilled blue-collar labor, the fewer skilled workers as a portion of total employment put women's skilled local area segregation above women's unskilled local area segregation measures. It should be noted that the index measures for local area segregation are very small, especially for women in skilled labor,

which indicates the small number of women in skilled blue-collar labor and the labor type's portion of the MSA's total employment.

Panels III and IV of Figure 1.4 show women's percentage wage gains or losses due to over- or underrepresentation in the two blue-collar occupational groups. Women's wage losses (as shown by a negative number) for unskilled labor are larger (more negative) than for skilled labor. This, like the local area segregation index, implies that women are far less represented in unskilled blue-collar labor (as a percent), which is a larger occupational group than skilled blue-collar labor. The wage losses for women in skilled labor seem to be trending upward (become less negative). The lower wage losses (higher negative number) for women in skilled labor imply that women are underrepresented in the occupational group. For men, the wage gains for unskilled labor are larger than for skilled labor, implying that men's overrepresentation in the occupation group drives the wage gains due to segregation. Table 1.4 confirms that unskilled income for men is less than the income average for the MSAs.

Panels V, VI, VII, and VIII of Figure 1.4 show women's and men's wage ratios for skilled and unskilled blue-collar labor. For both women and men, the skilled labor wage ratio (as a fraction of the MSA average wage) is higher than that of unskilled labor. The difference in wage ratios between skilled and unskilled labor for women is larger than for men, and the women's skilled wage ratio is much more volatile over time. This is likely due to the low number of women in skilled labor (i.e., an increase in one woman in skilled labor could dramatically change the wage ratio if there were only five women in skilled labor in the prior year).

1.5 Results

1.5.1 Local Area Segregation

Table 1.5 presents women's local area segregation index regression results, by time period and by labor type. The time periods are the full time period (2005-2019), all years except Great Recession years (2005-2007, 2011-2019), and years after and including 2011 (2011-2019). I expect the years after 2011 to have the strongest results, as this time period has the lowest unemployment rates. Table 1.5 presents the current year and lagged variables for the average unemployment rate, the blue-collar industry employment concentration, and women's unskilled service wages. For average unemployment, results are not consistent (positive and negative coefficients) and are generally not significant. For the two-year lag of average unemployment, I find no significant or negative effects on the local area segregation index for women in skilled labor, in any of the three time periods. Results are negative for the all labor category but are not significant.

For blue-collar industry employment concentration, I find negative relationships and general significance. This implies that as the employment concentration increases, women's presence (as measured by local area segregation) in blue-collar labor in general and in unskilled blue-collar labor decreases. The higher the employment concentration, the less pressure on blue-collar firms to seek out women as an alternative labor source. Skilled labor shows the same pattern but is only significant in the years after 2011 model. The two-year lagged employment concentration shows mixed results, especially in the model excluding recession years and the after 2011 model. The lagged employment concentration coefficient is positive for skilled labor and significant. This implies the concentration of blue-collar industry in an MSA two years prior leads to an increase in women in skilled

labor in the current period and may imply that strong industry concentration could have led women to choose to enter into skilled labor.

Service wages in the current period show a positive and generally significant relationship with women's presence in all types of blue-collar labor. This could capture the relationship between an MSA's willingness to increase minimum wage jobs (often unskilled service jobs) and an MSA's willingness to accept women in blue-collar work, where both are moving in the same direction. However, the two-year lagged service wage variable shows a negative relationship with women's presence in skilled labor. This is a modest, though insignificant, confirmation of the theory that service wages act as a trade-off measure for women making furthering education decisions. The coefficient implies that as service wages for women decrease, the presence of women in skilled blue-collar labor increases.

To put the very small service wages coefficient into context, the city of Charlotte, North Carolina had a local area segregation index of -0.0031 and -0.0033 for women in skilled labor in 2005 and 2006, respectively. This represents an increase of women in skilled labor from 4 to 5. The coefficient for lagged service wages for skilled labor is -0.000000046377; this represents only 0.04% of the change in one woman in skilled labor for Charlotte. Since the service wage units are dollars, a decrease of 100 dollars for service wages would increase skilled women's presence by 4.43%. Even then, the numbers for skilled blue-collar labor for women are so small, that a four percent increase would not likely lead to another woman entering skilled labor.

Increases in residential populations generally have small negative effects on the presence of women in all types of blue-collar occupations. Meaning that as MSAs decrease

in size, women are more likely to find employment in blue-collar work. Increases in union coverage (percent of employees in an MSA covered by a union) are generally associated with decreases in women's presence in all types of blue-collar work, and the results are significant for skilled labor.

Age, average weekly hours worked, and years of postsecondary education all have positive relationships with the presence of women in all types of blue-collar work and few results are significant at the 10 percent level. Number of children in the household and percent married have mixed relationships with women's presence in blue-collar work and no results are significant at the 10 percent level. Race and ethnicity variables are generally positive, with some significance. This implies that as more workers in blue-collar labor are not white, the presence of women in all types of blue-collar work increases.

1.5.2 Per Capita Wage Gains/Losses

Table 1.6 presents results for women's per capita wage gain/loss index. In general, average unemployment rates, for both the current year and the two-year lag variables, have mixed relationships with the wage gain/loss index, and there is no significant relationship. The two-year lag variable shows a negative relationship only with unskilled labor, implying that decreasing unemployment rates are associated with increases in unskilled blue-collar women's wage gains (or smaller wage losses). This result is consistent across the three time periods.

The current year's blue-collar industry employment concentration results show mixed relationships with the wage gain/loss index. Results are positive only for skilled labor in the time period excluding recession years and the years after 2011, but neither of

these relationships is significant. These results imply that skilled labor experiences wage gains (smaller losses) as the employment concentration increases. For the two-year lag of employment concentration, relationships with the wage gain/loss indices for the labor types are generally negative, with some significance. Skilled labor results are positive for the all years model and the after 2011 model, but neither relationship is significant at the 10 percent level.

For the current year and two-year lag women's service wage variables, results are generally positive with some significance. The skilled labor wage gain/loss index consistently has a negative relationship with service wages for both the current year and lagged variables and in all three time periods, though no relationship is significant. This implies that as service wages for women decrease, the wage gains (smaller wage losses) for women in skilled labor increase. As the wage gain/loss index shows the wage gains or losses due to occupational under- or overrepresentation, an increase in the wage gain/loss index for women in skilled labor implies that women are relatively more represented in skilled labor or that skilled labor wages have increased, all relative to MSA labor market size, the MSA average wages, and the number of all skilled laborers. The negative relationship of the index with service wages implies that women are moving into skilled labor or are being paid higher wages as service wages decrease.

Residential population and union coverage results are generally positive and not significant. Age, average weekly hours worked, and years of postsecondary education are generally positively related to the wage gain/loss index, and the relationships are generally not significant. Number of children and percent married generally are negatively related to women's wage gain/loss index, and results are generally not significant. Race and ethnicity

percentages are generally positively related to the wage gain/loss index for all occupation types and time periods.

1.5.3 Wage Ratios

Table 1.7 presents the results for women's wage ratios for the three time periods and the three blue-collar labor categories. The current year's average unemployment rate shows significant positive relationships with women's wage ratios for the all labor and unskilled categories. This implies that as the unemployment rate decreases, women's wages in general blue-collar labor and unskilled labor decrease in relation to the MSA average wage for all workers. However, for the two-year lag average unemployment rate, the relationships are generally negative. The skilled labor wage ratio shows negative relationships with the lagged average unemployment rate with a 5 percent level significance. This implies that the average unemployment rate two years prior is related to increases in women's skilled labor wage ratio in the current year. This result could be driven by the large changes in skilled women's wage ratios (shown in Figure 1.4, Panel E), which as discussed earlier could be explained by the presence of one more woman in an MSA's skilled labor pool dramatically changing the average wage for skilled blue-collar women in that MSA. The relationship between skilled labor and the two-year lagged average unemployment rate could pick up the decision of a woman two years before entering into skilled blue-collar education and then entering into the labor market in the current year, changing the wage ratio substantially.

For the current year's blue-collar employment concentration, skilled labor wage ratios show negative relationships across the three time periods, while the other occupation

categories show positive relationships. This implies that as current employment concentrations increase, wage ratios for women in skilled labor decrease. This may imply that the size of the industry could increase the power of the firms in the industry to keep wages lower, or conversely, the loss of size in blue-collar industry could decrease the power the firms have over wages. However, no results are significant. The two-year lagged employment concentration shows similar results for skilled labor's wage ratio, with significance in the years after 2011 model. The all labor and unskilled labor categories are also negative for the years excluding recession years and years after 2011 model, but no results are significant.

For the current year's service wages for women, skilled labor only shows a negative relationship, though none of the three time periods show significance. This implies that women's skilled labor wage ratio increases as the service wage in the current year decreases, which, following the unemployment rate results above, could imply a change in the number of women in skilled labor. For the two-year lagged service wage variable, all time periods and labor categories show negative relationships, meaning that all wage ratios increase as service wages decrease.

Residential population and union coverage variables show generally positive and insignificant relationships with women's wage ratios for all labor categories and time periods. Age, average weekly hours worked, years of postsecondary education, and number of children in household have generally positive and significant relationships with women's wage ratios in all labor categories and time periods. Percent married has negative insignificant relationships with women's wage rations for all labor categories and time

periods. Race and ethnicity variables are generally significantly and positively related to women's wage ratios for the labor categories and time periods.

Table 1.8 shows the results for men's wage ratios for all, unskilled, and skilled labor categories for the three time periods shown in Table 1.7. For the men's wage ratio results, the current year average unemployment rate shows mixed and insignificant relationships with men's wages. For the two-year lagged average unemployment variable, the men's wage ratio shows again mixed results with no significance. These results confirm the idea that it is women's wages in blue-collar occupations that fluctuate significantly with unemployment rates (shown in Table 1.7). For the current year employment concentration, relationships with men's wage ratio show mixed results and no significance. For the two-year employment concentration variable, results show positive relationships, with significant results for unskilled labor. This is the opposite result of the one found for women with lagged employment concentrations, which was mostly negative. This implies that higher blue-collar employment concentrations two years prior lead to higher men's wages (significant for unskilled labor) and lower women's wages as a portion of the MSA average wage.

For both men's current year and two-year lagged unskilled service wages, results in Table 1.8 show generally negative, insignificant relationships with men's wage ratios across labor categories and time periods. These results are similar to those found for women in Table 1.7. This implies that as service wages for men and women decrease, blue-collar labor wages increase. If the general upward trend for skilled wages is taken into account (Table 1.4), this leads to the conclusion that blue-collar wages in all categories decrease as service wages for both women and men increase.

Age, average weekly hours worked, years of postsecondary education, and percent married are all positively and generally significantly related to men's wage ratios for all blue-collar labor categories. Number of children has a mixed relationship with men's wage ratios, with little significance. The race and ethnicity variables are generally negatively related to men's wage ratios, with some significance.

1.5.4 Robustness Test: MSA Full Sample

As a robustness test of the reliability of results, this paper uses the full unbalanced sample of MSAs for models for the local area segregation index, the wage gain/loss index, and the wage ratio. Table 1.9 shows the local area segregation index results for women, following the same organization as the initial models. For average unemployment, the relationship continues to be mixed (both positive and negative relationships) and no results for skilled labor are significant. However, for the two-year lag of the average unemployment rate, the relationship is negative and significant for all time periods. This implies that in the larger MSA sample, lower average unemployment rates are associated with increases in women's presence in skilled blue-collar labor. This result was not found in the initial model results.

Employment concentration results for current year and two-year lag variables generally confirm initial results. For women's service wages, the current year variable loses significance in the full-sample model, but the two-year lag variable confirms the initial results of the modest negative relationship between women's service wages and women's presence in all types of blue-collar work.

Table 1.10 shows the wage gain/loss index results for women for the full sample of MSAs. In the full sample models, the two-year lag of unemployment rates does have a

negative relationship with the skilled labor wage gain/loss index across the three time periods, but none of the relationships are significant at the 10 percent level. For the current year and two-year lag employment variables, relationships are generally negative and do not confirm initial model results for skilled labor. The full model confirms the negative relationship between the two-year lag service wage variable and the skilled wage gain/loss index, with 5 percent level significance for the years excluding recession and years after 2011 models.

Table 1.11 shows the wage ratio results for women for the full samples of MSAs. In the full sample model, the two-year lagged average unemployment results show a negative (with significance in the all years model) relationship with women's skilled wage ratios, confirming results from Table 1.7. Similarly, the two-year lagged employment concentration results show negative relationships in the skilled labor model, which is consistent with restricted sample results. Unlike the results in Table 1.7, the relationship with both current year and two-year lagged service wages are generally positive, with some significance. This means that in the full-sample model the wage ratio for women in blue-collar work moves with women's service wages.

The takeaway of this paper's results is that women's presence in skilled blue-collar work is more likely to be influenced by the blue-collar employment concentration in an MSA than by the unemployment rates in the MSA. This is shown by the positive relationship between the two-year lagged employment concentration and skilled women's local area segregation index (Table 1.7) and the positive relationship between the employment concentration and skilled women's wage gain/loss index (Table 1.8). The general downward trend of blue-collar's employment share shown in Table 1.4 obscures

the non-linear trend for blue-collar employment in many cities. Many cities (e.g., Atlanta, Georgia; Chicago, Illinois; Cincinnati, Ohio; Dallas, Texas) hit a low point for blue-collar employment around 2016 when the blue-collar employment concentrations began to rise. The positive relationship between the employment concentration and women's presence in skilled labor implies women are increasing in skilled labor due to the increasing strength of blue-collar industries.

However, blue-collar employment concentrations do not have the same positive effect on women's wages, as shown by the negative relationship between skilled women's wage ratios and employment concentrations (Table 1.9). For women in skilled labor, the decreasing unemployment rate is associated with increases in the wage ratio, though the opposite is found for women in unskilled labor (Table 1.9). Men's wages (Table 1.12) do show a positive relationship with employment concentrations, confirming that men in blue-collar employment experience different patterns in increases and decreases in wages than women.

Women's unskilled service wage results generally support the theory that service occupations represent a trade-off for women considering entering into skilled blue-collar labor. The negative results for the local area segregation and wage gain/loss indices are largely for skilled labor, and while the coefficients are small and insignificant in the restricted model, the full-MSA models show similar results with significance. As expected, service wages do not have significant results for skilled women's wages.

1.6 Limitations and Future Research

Using cross-sectional IPUMS data involves the use of person-level observations. Given that IPUMS data have been used to measure women's representation in occupations using the indices laid out in this paper (Alonso-Villar and del Río 2017; Del Río and Alonso-Villar 2015), using IPUMS data is appropriate and generally accepted to study occupational segregations.

Using the MSA-level total unemployment rate masks the internal variations of unemployment rates by industry. MSA-level unemployment rates by occupation and industry would be the best measure of the actual labor market tightness experienced by employees. However, MSA-level total unemployment does indicate the availability of external labor pools for employers to use to fill job openings, assuming employers look within their own MSA to fill jobs, which may not always be the case.

An interesting avenue for future research will be the effects of COVID-19 on the presence of women both in blue-collar occupations and other occupations. In the 2020 economic recession, service occupations, which are typically women-concentrated, saw a peak unemployment rate of 27.1 percent in April, versus an 18.9 percent rate for construction, 8.8 for professional occupations, and 6.2 for managerial and business occupations[*]. Concentration in service industries, as well as childcare needs, led to women's disproportionate unemployment rates during this time (Alon et al. 2020). Will current high service unemployment rates shift future women workers to other occupations?

[*] Data found on the FRED database: data series LNU0432218, LNU04032224, LNU04032217, and LNU04032216, respectively.

Another avenue of interest is in how tight labor markets affect women in blue-collar management. It may be true that many of the projected retiring blue-collar workers are in management or supervisory roles, giving women already in blue-collar work (either skilled or unskilled) the opportunity to move up. Here, employer discrimination is also at play; as shown by (Krzywdzinski et al. 2019) women may get jobs in blue-collar work without being allowed to gain upward mobility within the company.

1.7 Conclusion

Women's presence in blue-collar work is more likely to be affected by an MSA's concentration of blue-collar employment (as a percentage of total employment) than by the local area unemployment rate. Blue-collar employment concentration in many MSAs experiences a turning point in the years of this paper (2005-2019), meaning that blue-collar employment decreased and then began to increase in the last few years of the time period. As blue-collar employment concentrations are positively related to women's presence in skilled labor, growth in the blue-collar industries could give women more opportunities for employment in skilled labor.

Wage ratio results show that increases in blue-collar employment concentrations are actually associated with decreases in skilled women's wages, while the local area unemployment rate is associated with increases in skilled women's wages. The wage ratio results for men show that men's wages do show differing patterns of influence than women's wages.

Finally, women's unskilled service wages are shown to be negatively related to women's presence in skilled blue-collar labor (Tables 1.7 and 1.8), confirming the trade-

off theory for women considering skilled blue-collar labor. The coefficient results imply very modest changes in women in skilled labor, with some significance.

As more women enter into non-typical occupations, it may positively affect the number of women in these occupations in the future (Ericksen and Schultheiss, 2009), but tight labor markets alone have not undone the occupational gender-typing common in some industries.

1.8 Chapter 1 Tables

Table 1.1: Examples of Typical Entry-Level Educational Requirements for Blue Collar Jobs (2018)

	OCCSOC	NAME	TYPICAL ENTRY LEVEL EDUCATION REQUIREMENT
UNSKILLED	45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	No formal educational credential
	45-2099	Agricultural Workers, All Other	No formal educational credential
	47-2041	Carpet Installers	No formal educational credential
	47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	No formal educational credential
	47-2043	Floor Sanders and Finishers	No formal educational credential
	47-2044	Tile and Marble Setters	No formal educational credential
	47-2051	Cement Masons and Concrete Finishers	No formal educational credential
	47-2061	Construction Laborers	No formal educational credential
	47-2081	Drywall and Ceiling Tile Installers	No formal educational credential
	53-3099	Motor Vehicle Operators, All Other	No formal educational credential
	53-5011	Sailors and Marine Oilers	No formal educational credential
	53-6021	Parking Lot Attendants	No formal educational credential
	53-6031	Automotive and Watercraft Service Attendants	No formal educational credential
	53-7011	Conveyor Operators and Tenders	No formal educational credential
	53-7033	Loading Machine Operators, Underground Mining	No formal educational credential
	53-7041	Hoist and Winch Operators	No formal educational credential
	49-3092	Recreational Vehicle Service Technicians	High school diploma or equivalent
	49-3093	Tire Repairers and Changers	High school diploma or equivalent
	49-9011	Mechanical Door Repairers	High school diploma or equivalent
	49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	High school diploma or equivalent
	49-9031	Home Appliance Repairers	High school diploma or equivalent
	49-9041	Industrial Machinery Mechanics	High school diploma or equivalent
	47-4061	Rail-Track Laying and Maintenance Equipment Operators	High school diploma or equivalent
	47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	High school diploma or equivalent
	47-4090	Miscellaneous Construction and Related Workers	High school diploma or equivalent
	47-5021	Earth Drillers, Except Oil and Gas	High school diploma or equivalent
	47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	High school diploma or equivalent
	47-5042	Mine Cutting and Channeling Machine Operators	High school diploma or equivalent
	53-3022	Bus Drivers, School or Special Client	High school diploma or equivalent
	53-3031	Driver/Sales Workers	High school diploma or equivalent
	53-3033	Light Truck or Delivery Services Drivers	High school diploma or equivalent
	53-4011	Locomotive Engineers	High school diploma or equivalent
	53-4012	Locomotive Firers	High school diploma or equivalent
	53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	High school diploma or equivalent
	53-4021	Railroad Brake, Signal, and Switch Operators	High school diploma or equivalent
	53-4031	Railroad Conductors and Yardmasters	High school diploma or equivalent
	53-4041	Subway and Streetcar Operators	High school diploma or equivalent
SKILLED	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	Postsecondary nondegree award
	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary nondegree award
	49-2097	Electronic Home Entertainment Equipment Installers and Repairers	Postsecondary nondegree award
	49-3011	Aircraft Mechanics and Service Technicians	Postsecondary nondegree award
	49-3023	Automotive Service Technicians and Mechanics	Postsecondary nondegree award
	49-3052	Motorcycle Mechanics	Postsecondary nondegree award
	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Postsecondary nondegree award
	49-9081	Wind Turbine Service Technicians	Postsecondary nondegree award
	49-9092	Commercial Divers	Postsecondary nondegree award
	51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	Postsecondary nondegree award
	51-4111	Tool and Die Makers	Postsecondary nondegree award
	51-5111	Prepress Technicians and Workers	Postsecondary nondegree award
	53-3032	Heavy and Tractor-Trailer Truck Drivers	Postsecondary nondegree award
	53-5021	Captains, Mates, and Pilots of Water Vessels	Postsecondary nondegree award
	53-5022	Motorboat Operators	Postsecondary nondegree award
	53-5031	Ship Engineers	Postsecondary nondegree award
	49-2011	Computer, Automated Teller, and Office Machine Repairers	Some college, no degree
	49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	Associate's degree
	49-2091	Avionics Technicians	Associate's degree
	49-9062	Medical Equipment Repairers	Associate's degree
	53-2021	Air Traffic Controllers	Associate's degree
	45-2011	Agricultural Inspectors	Bachelor's degree
	53-2011	Airline Pilots, Copilots, and Flight Engineers	Bachelor's degree

Source: BLS 2018 Occupational Projections Data at https://data.bls.gov/projections/occupationProj.

Table 1.2: Blue-Collar Occupations: Lowest and Highest Percentages of Women (2018)

Blue-Collar Occupation	Percent of Women	Typical Entry-Level Education Requirement	Average National Wage
Lowest Percentages of Women			
Cement masons, concrete finishers, and terrazzo workers	0.0	No formal educational credential	$47,350
Security and fire alarm systems installers	0.7	High school diploma or equivalent	$48,540
Heavy vehicle and mobile equipment service technicians and mechanics	0.8	High school diploma or equivalent	$53,370
Bus and truck mechanics and diesel engine specialists	0.9	High school diploma or equivalent	$49,150
Stationary engineers and boiler operators	1.3	High school diploma or equivalent	$63,690
Heating, air conditioning, and refrigeration mechanics and installers	1.4	Postsecondary nondegree award	$50,160
Drywall installers, ceiling tile installers, and tapers	1.6	No formal educational credential	$49,170
Automotive body and related repairers	1.8	High school diploma or equivalent	$46,460
Brickmasons, blockmasons, and stonemasons	1.9	High school diploma or equivalent	$54,430
Carpet, floor, and tile installers and finishers	1.9	No formal educational credential	$44,550
Operating engineers and other construction equipment operators	2.0	High school diploma or equivalent	$53,030
Automotive service technicians and mechanics	2.1	Postsecondary nondegree award	$43,730
Carpenters	2.2	High school diploma or equivalent	$51,120
Structural iron and steel workers	2.2	High school diploma or equivalent	$58,170
Electricians	2.4	High school diploma or equivalent	$59,190
Highest Percentages of Women			
Miscellaneous assemblers and fabricators	36.6	High school diploma or equivalent	$34,270
Inspectors, testers, sorters, samplers, and weighers	36.6	High school diploma or equivalent	$42,010
Food processing workers, all other	37.0	No formal educational credential	$27,590
Bus drivers	43.8	High school diploma or equivalent	$44,650
Electrical, electronics, and electromechanical assemblers	49.2	High school diploma or equivalent	$35,880
Medical, dental, and ophthalmic laboratory technicians	54.2	High school diploma or equivalent	$34,490
Packers and packagers, hand	54.5	No formal educational credential	$26,490
Packaging and filling machine operators and tenders	55.8	High school diploma or equivalent	$32,740
Graders and sorters, agricultural products	57.8	No formal educational credential	$26,510
Bakers	61.1	No formal educational credential	$28,660
Food batchmakers	63.3	High school diploma or equivalent	$32,090
Laundry and dry-cleaning workers	71.5	No formal educational credential	$24,480
Sewing machine operators	73.4	No formal educational credential	$26,990
Flight attendants	74.9	High school diploma or equivalent	$56,630
Tailors, dressmakers, and sewers	75.1	No formal educational credential	$34,330

Source: BLS Occupational Projections Data (2018) (https://data.bls.gov/projections/occupationProj).

Table 1.3: Typical Entry-Level Education Requirements and Counts of Occupations (2018)

		BLUE COLLAR	ALL OTHER
UNSKILLED			
No formal educational credential	104	62	42
High school diploma or equivalent	333	194	139
SKILLED			
Postsecondary nondegree award	46	18	28
Some college, no degree	6	1	5
Associate's degree	47	4	43
Bachelor's degree	172	2	170
Master's degree	37		37
Doctoral or professional degree	63		63
Grand Total	808	281	527

Source: BLS 2018 Occupational Projections Data (https://data.bls.gov/projections/occupationProj).

Table 1.4: Summary Statistics: Averages for Sample

	2005				2019			
	Women		Men		Women		Men	
	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled
NUMBER OF WORKERS	7.88	150.88	153.39	988.09	5.42	176.03	145.94	1037.42
	7.26	*133.35*	*118.77*	*812.09*	*4.12*	*150.76*	*113.81*	*877.70*
INCOME (Thousands of 2012 Dollars)	$32.05	$23.86	$34.80	$32.85	$51.53	$41.23	$68.30	$56.86
	$10.06	*$2.62*	*$3.50*	*$3.60*	*$15.34*	*$6.02*	*$6.15*	*$6.80*
AGE (Years)	41.54	42.99	40.25	40.69	43.98	44.06	42.83	43.13
	5.99	*1.81*	*1.58*	*1.01*	*6.14*	*1.80*	*1.89*	*1.34*
WEEKLY HOURS OF WORK	41.69	41.91	43.79	43.85	41.90	42.34	43.86	43.61
	2.60	*0.90*	*0.89*	*0.74*	*2.22*	*0.77*	*1.12*	*0.80*
YEARS OF POSTSECONDARY EDUCATION	1.27	0.67	0.86	0.61	1.19	0.95	0.86	0.72
	0.84	*0.28*	*0.19*	*0.11*	*0.80*	*0.22*	*0.18*	*0.10*
NUMBER OF CHILDREN	0.73	0.90	0.91	0.88	0.66	0.78	0.76	0.79
	0.48	*0.15*	*0.11*	*0.11*	*0.49*	*0.14*	*0.13*	*0.09*
MARRIED (%)	40.92	51.30	65.56	61.42	49.59	45.78	59.71	55.12
	25.40	*4.83*	*6.29*	*3.14*	*29.56*	*6.14*	*5.87*	*2.88*
HISPANIC (%)	4.30	12.58	6.18	12.42	6.36	11.94	8.00	12.58
	8.80	*13.36*	*7.77*	*13.18*	*16.53*	*11.75*	*10.09*	*13.80*
BLACK (%)	20.33	16.61	5.85	9.94	12.03	17.48	5.36	10.64
	28.43	*13.71*	*4.57*	*7.41*	*16.10*	*13.99*	*4.18*	*7.58*
ASIAN (%)	5.39	7.24	40.58	2.55	9.18	8.85	63.18	3.70
	12.27	*9.56*	*65.77*	*4.05*	*21.23*	*10.54*	*96.62*	*5.29*
OTHER RACES (%)	0.70	1.76	1.27	1.61	3.45	2.42	2.12	2.21
	0.70	*1.46*	*1.33*	*1.09*	*3.45*	*1.64*	*2.15*	*1.76*
UNEMPLOYMENT RATE (%)	4.97				3.40			
	0.80				*0.52*			
EMPLOYMENT CONCENTRATION (%)	16.51				14.97			
	4.14				*4.00*			
RESIDENTIAL POPULATION (Hundreds of Thousands)	3.43				3.90			
	3.32				*3.42*			
UNION COVERAGE (%)	12.27				10.54			
	5.84				*4.69*			
WOMEN SERVICE WAGES (Thousands of 2012 Dollars)	$17.91				$33.89			
	$2.00				*$4.54*			
MEN SERVICE WAGES (Thousands of 2012 Dollars)	$31.13				$47.99			
	$3.56				*$5.17*			

Source: IPUMS American Community Survey Data 2005-2019, Author's calculations

Note: Standard deviations are presented in italics.

Table 1.5: Local Area Segregation Index

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	0.0004 .	0.0002	-0.0001	0.0000	-0.0001	-0.0000	-0.0002	-0.0002	-0.0000
	0.0002	*0.0001*	*0.0001*	*0.0003*	*0.0002*	*0.0001*	*0.0004*	*0.0002*	*0.0001*
Lag of Average Unemployment Rate	-0.0002	-0.0000	0.0001	-0.0000	0.0001	0.0001	-0.0000	0.0001	0.0001
	0.0002	*0.0001*	*0.0001*	*0.0003*	*0.0002*	*0.0001*	*0.0003*	*0.0002*	*0.0001*
Employment Concentration	-0.0013 ***	-0.0008 ***	-0.0001	-0.0017 ***	-0.0012 ***	-0.0002	-0.0021 ***	-0.0012 ***	-0.0003 .
	0.0004	*0.0002*	*0.0001*	*0.0004*	*0.0003*	*0.0001*	*0.0005*	*0.0003*	*0.0002*
Lag of Employment Concentration	-0.0005 .	-0.0002	0.0001	-0.0002	0.0001	0.0002 .	0.0003	0.0004	0.0003 *
	0.0003	*0.0002*	*0.0001*	*0.0004*	*0.0003*	*0.0001*	*0.0005*	*0.0003*	*0.0001*
Residential Population (100,000)	-0.0003 **	-0.0002 **	0.0000	-0.0003 **	-0.0002 **	0.0000	-0.0005 **	-0.0003 **	-0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Percent Union Coverage	-0.0001	-0.0001	-0.0001 **	0.0000	0.0000	-0.0001 *	0.0000	-0.0001	-0.0001 *
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Unskilled Women's Service Wages ($1,000)	0.0002 **	0.0001 *	0.0000	0.0002 *	0.0001 .	0.0000	0.0002 **	0.0001	0.0001 *
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Lag of Unskilled Women's Service Wages ($1000)	0.0002 **	0.0001 .	-0.0000	0.0001	0.0000	-0.0001 .	0.0001	0.0000	-0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Age	0.0002	0.0000	0.0000	0.0002	0.0000	0.0000	0.0002	-0.0000	0.0000
	0.0002	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*
Weekly Hours Worked	0.0002	0.0001	0.0000 .	0.0002	0.0002	0.0000	0.0001	0.0002 .	0.0000
	0.0003	*0.0001*	*0.0000*	*0.0003*	*0.0001*	*0.0000*	*0.0003*	*0.0001*	*0.0000*
Number of Postsecondary Years	0.0030 *	0.0008	0.0000	0.0026 .	0.0008	0.0000	0.0019	0.0005	0.0001
	0.0012	*0.0006*	*0.0000*	*0.0013*	*0.0007*	*0.0001*	*0.0013*	*0.0007*	*0.0001*
Number of Children in Household	-0.0007	-0.0007	0.0000	-0.0006	-0.0010	-0.0000	0.0003	-0.0007	-0.0000
	0.0018	*0.0009*	*0.0001*	*0.0019*	*0.0010*	*0.0001*	*0.0020*	*0.0010*	*0.0001*
Percent Hispanic	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Percent Black	0.0001	0.0001 *	0.0000	0.0001	0.0001 *	0.0000	0.0001	0.0001 *	-0.0000
	0.0000	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Percent Asian	0.0001	0.0000	0.0000 *	0.0000	0.0000	0.0000 **	0.0000	0.0000	0.0000 **
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Percent Other	0.0003 **	0.0000	0.0000	0.0004 **	0.0000	0.0000 .	0.0004 **	0.0000	0.0000 .
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Percent Married	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Fixed Effect Test	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***

Note: Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

Table 1.6: Per Capita Wage Gains/Losses due to Segregation

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	0.0002	0.0004	-0.0001	0.0005	0.0006	0.0000	-0.0002	0.0002	0.0001
	0.0004	*0.0003*	*0.0001*	*0.0007*	*0.0004*	*0.0002*	*0.0007*	*0.0005*	*0.0002*
Lag of Average Unemployment Rate	0.0005	-0.0001	0.0000	0.0003	-0.0003	0.0001	0.0005	0.0000	0.0001
	0.0004	*0.0003*	*0.0001*	*0.0006*	*0.0004*	*0.0002*	*0.0006*	*0.0004*	*0.0002*
Employment Concentration	-0.0010	-0.0004	-0.0002	-0.0013	-0.0007	0.0001	-0.0016 .	-0.0004	-0.0000
	0.0007	*0.0004*	*0.0002*	*0.0009*	*0.0006*	*0.0002*	*0.0009*	*0.0006*	*0.0003*
Lag of Employment Concentration	-0.0012 *	-0.0010 *	0.0001	-0.0012	-0.0009 .	-0.0002	0.0001	-0.0001	0.0000
	0.0006	*0.0004*	*0.0002*	*0.0008*	*0.0005*	*0.0002*	*0.0009*	*0.0006*	*0.0003*
Residential Population (100,000)	-0.0002	-0.0002 .	0.0000	-0.0004	-0.0003 .	-0.0000	-0.0004	-0.0002	-0.0000
	0.0002	*0.0001*	*0.0001*	*0.0002*	*0.0001*	*0.0001*	*0.0003*	*0.0002*	*0.0001*
Percent Union Coverage	-0.0000	-0.0001	0.0000	-0.0000	-0.0000	0.0000	0.0001	0.0000	0.0000
	0.0002	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0001*	*0.0002*	*0.0001*	*0.0001*
Unskilled Women's Service Wages ($1,000)	0.0004 *	0.0002 .	-0.0000	0.0003 .	0.0001	-0.0001	0.0004 *	0.0001	-0.0000
	0.0001	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*
Lag of Unskilled Women's Service Wages ($1000)	0.0003 .	0.0002 *	-0.0000	0.0001	0.0002 .	-0.0000	0.0002	0.0002 *	-0.0000
	0.0002	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*
Age	-0.0000	0.0002 .	0.0000	0.0000	0.0002	-0.0000	-0.0001	0.0002	0.0000
	0.0003	*0.0001*	*0.0000*	*0.0003*	*0.0001*	*0.0000*	*0.0003*	*0.0002*	*0.0000*
Weekly Hours Worked	0.0003	-0.0002	-0.0000	0.0001	0.0001	-0.0000	0.0002	0.0002	-0.0000
	0.0005	*0.0003*	*0.0000*	*0.0006*	*0.0003*	*0.0000*	*0.0006*	*0.0003*	*0.0000*
Number of Postsecondary Years	0.0022	0.0017	-0.0000	0.0002	0.0009	-0.0000	-0.0014	0.0007	-0.0000
	0.0023	*0.0012*	*0.0001*	*0.0027*	*0.0013*	*0.0001*	*0.0027*	*0.0014*	*0.0001*
Number of Children in Household	0.0016	-0.0019	0.0000	0.0006	-0.0015	-0.0001	0.0021	-0.0011	-0.0001
	0.0034	*0.0017*	*0.0001*	*0.0039*	*0.0019*	*0.0002*	*0.0040*	*0.0020*	*0.0002*
Percent Hispanic	0.0003 **	0.0002 ***	0.0000	0.0003 *	0.0002 **	0.0000	0.0003 .	0.0002 **	0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Percent Black	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Percent Asian	0.0002 *	0.0002 **	0.0000	0.0001	0.0002 *	0.0000	0.0001	0.0002 .	0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Percent Other	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000
	0.0002	*0.0001*	*0.0000*	*0.0003*	*0.0001*	*0.0000*	*0.0003*	*0.0001*	*0.0000*
Percent Married	0.0001	0.0000	0.0000	0.0002 .	0.0000	0.0000	0.0001	0.0000	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Fixed Effects Test	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***

Note: Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

Table 1.7: Blue Collar Women's Wage Ratios

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	0.0059 *	0.0073 .	0.0042	0.0094 *	0.0083	0.0452	0.0099 *	0.0120 .	0.0296
	0.0029	*0.0040*	*0.0225*	*0.0047*	*0.0062*	*0.0352*	*0.0050*	*0.0068*	*0.0384*
Lag of Average Unemployment Rate	0.0008	0.0006	-0.0243	-0.0008	-0.0001	-0.0592 *	-0.0017	-0.0040	-0.0726 *
	0.0028	*0.0039*	*0.0215*	*0.0039*	*0.0051*	*0.0285*	*0.0041*	*0.0055*	*0.0305*
Employment Concentration	0.0047	0.0055	-0.0192	0.0098	0.0076	-0.0003	0.0091	0.0056	-0.0245
	0.0044	*0.0060*	*0.0334*	*0.0060*	*0.0080*	*0.0435*	*0.0068*	*0.0090*	*0.0495*
Lag of Employment Concentration	0.0004	0.0008	-0.0362	-0.0040	-0.0003	-0.0649	-0.0066	-0.0049	-0.0955 *
	0.0040	*0.0054*	*0.0310*	*0.0055*	*0.0073*	*0.0405*	*0.0064*	*0.0087*	*0.0481*
Residential Population (100,000)	0.0002	0.0022	-0.0029	0.0005	0.0038 .	-0.0008	0.0011	0.0032	0.0056
	0.0012	*0.0017*	*0.0096*	*0.0016*	*0.0021*	*0.0120*	*0.0021*	*0.0028*	*0.0155*
Percent Union Coverage	0.0006	-0.0003	0.0108	0.0003	-0.0007	0.0156	0.0002	-0.0005	0.0184
	0.0011	*0.0016*	*0.0087*	*0.0014*	*0.0019*	*0.0102*	*0.0015*	*0.0021*	*0.0114*
Unskilled Women's Service Wages ($1,000)	0.0007	0.0012	-0.0029	0.0010	0.0023	-0.0037	0.0010	0.0026 .	-0.0027
	0.0007	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*
Lag of Unskilled Women's Service Wages ($1000)	-0.0006	-0.0011	-0.0030	-0.0004	-0.0005	-0.0006	-0.0006	-0.0005	-0.0022
	0.0007	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*	*0.0007*
Age	0.0091 ***	0.0068 ***	0.0067 **	0.0098 ***	0.0081 ***	0.0074 **	0.0100 ***	0.0088 ***	0.0064 *
	0.0019	*0.0018*	*0.0021*	*0.0022*	*0.0021*	*0.0025*	*0.0023*	*0.0023*	*0.0025*
Weekly Hours Worked	0.0040	0.0083 *	0.0090 *	0.0037	0.0085 *	0.0113 *	0.0052	0.0085 .	0.0128 **
	0.0033	*0.0036*	*0.0036*	*0.0038*	*0.0041*	*0.0045*	*0.0041*	*0.0043*	*0.0048*
Number of Postsecondary Years	0.0975 ***	0.0897 ***	0.0633 ***	0.1015 ***	0.0832 ***	0.0749 ***	0.1054 ***	0.0817 ***	0.0671 ***
	0.0151	*0.0159*	*0.0146*	*0.0184*	*0.0193*	*0.0175*	*0.0190*	*0.0204*	*0.0182*
Number of Children in Household	0.0551 *	0.0489 *	0.0095	0.0610 *	0.0569 *	0.0176	0.0622 *	0.0633 *	-0.0015
	0.0219	*0.0232*	*0.0243*	*0.0264*	*0.0268*	*0.0296*	*0.0285*	*0.0290*	*0.0316*
Percent Hispanic	-0.0026 ***	-0.0029 ***	-0.0011	-0.0021 *	-0.0022 *	-0.0018	-0.0018 .	-0.0021 *	-0.0018
	0.0008	*0.0008*	*0.0010*	*0.0009*	*0.0009*	*0.0012*	*0.0010*	*0.0010*	*0.0013*
Percent Black	-0.0003	-0.0005	-0.0001	-0.0004	-0.0007	0.0001	0.0002	-0.0004	-0.0001
	0.0006	*0.0006*	*0.0008*	*0.0007*	*0.0007*	*0.0010*	*0.0008*	*0.0008*	*0.0010*
Percent Asian	-0.0029 ***	-0.0031 ***	-0.0001	-0.0021 *	-0.0034 **	-0.0009	-0.0022 *	-0.0030 *	-0.0015
	0.0008	*0.0009*	*0.0010*	*0.0010*	*0.0011*	*0.0012*	*0.0010*	*0.0013*	*0.0012*
Percent Other	-0.0010	-0.0029 .	-0.0021 .	-0.0009	-0.0027	-0.0004	-0.0010	-0.0026	-0.0007
	0.0015	*0.0016*	*0.0013*	*0.0018*	*0.0019*	*0.0014*	*0.0018*	*0.0019*	*0.0014*
Percent Married	-0.0003	-0.0005	-0.0003	-0.0004	-0.0005	-0.0004	-0.0003	-0.0008	-0.0003
	0.0005	*0.0005*	*0.0005*	*0.0006*	*0.0006*	*0.0006*	*0.0006*	*0.0006*	*0.0006*
Fixed Effects Test	0.0000 ***	0.0000 ***	0.0352 *	0.0000 ***	0.0000 ***	0.1774	0.0000 ***	0.0000 ***	0.0864 .

Note: Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

Table 1.8: Blue Collar Men's Wage Rate

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	0.0013	0.0018	0.0009	-0.0044	0.0017	-0.0049	-0.0074	0.0008	-0.0065
	0.0045	*0.0020*	*0.0044*	*0.0067*	*0.0032*	*0.0066*	*0.0074*	*0.0035*	*0.0073*
Lag of Average Unemployment Rate	-0.0014	-0.0013	-0.0005	0.0014	-0.0006	0.0023	0.0013	-0.0004	0.0019
	0.0043	*0.0020*	*0.0042*	*0.0055*	*0.0026*	*0.0053*	*0.0059*	*0.0028*	*0.0058*
Employment Concentration	0.0036	-0.0025	0.0044	-0.0030	-0.0020	-0.0019	-0.0093	-0.0043	-0.0077
	0.0067	*0.0031*	*0.0066*	*0.0085*	*0.0040*	*0.0083*	*0.0098*	*0.0046*	*0.0097*
Lag of Employment Concentration	0.0069	0.0077 **	0.0071	0.0076	0.0085 *	0.0082	0.0063	0.0060	0.0063
	0.0060	*0.0028*	*0.0059*	*0.0078*	*0.0038*	*0.0076*	*0.0093*	*0.0045*	*0.0092*
Residential Population (100,000)	0.0015	-0.0000	0.0018	0.0041 .	-0.0000	0.0044 .	0.0061 .	-0.0010	0.0063 *
	0.0019	*0.0009*	*0.0019*	*0.0024*	*0.0011*	*0.0023*	*0.0031*	*0.0014*	*0.0031*
Percent Union Coverage	0.0001	0.0016 *	0.0006	0.0017	0.0012	0.0022	0.0022	0.0007	0.0029
	0.0017	*0.0008*	*0.0017*	*0.0020*	*0.0009*	*0.0019*	*0.0022*	*0.0011*	*0.0022*
Unskilled Women's Service Wages ($1,000)	-0.0013	-0.0005	-0.0014 .	-0.0011	-0.0006	-0.0010	-0.0012	-0.0006	-0.0011
	0.0008	*0.0004*	*0.0008*	*0.0009*	*0.0004*	*0.0009*	*0.0010*	*0.0005*	*0.0010*
Lag of Unskilled Women's Service Wages ($1000)	-0.0003	-0.0005	-0.0004	-0.0001	-0.0006	-0.0002	0.0002	-0.0006	0.0002
	0.0008	*0.0004*	*0.0008*	*0.0009*	*0.0004*	*0.0009*	*0.0009*	*0.0004*	*0.0009*
Age	0.0096 ***	0.0017	0.0073 ***	0.0095 ***	0.0038	0.0072 **	0.0095 ***	0.0032	0.0078 ***
	0.0019	*0.0022*	*0.0020*	*0.0021*	*0.0026*	*0.0022*	*0.0022*	*0.0027*	*0.0023*
Weekly Hours Worked	0.0053 .	0.0115 **	0.0043	0.0030	0.0132 **	0.0019	0.0051	0.0158 ***	0.0040
	0.0030	*0.0036*	*0.0030*	*0.0033*	*0.0043*	*0.0033*	*0.0036*	*0.0046*	*0.0036*
Number of Postsecondary Years	0.0617 **	0.0342	0.0573 **	0.0689 **	0.0397	0.0635 **	0.0464 .	0.0403	0.0461 .
	0.0199	*0.0211*	*0.0196*	*0.0230*	*0.0247*	*0.0226*	*0.0245*	*0.0260*	*0.0243*
Number of Children in Household	0.0509 *	-0.0437	0.0228	0.0458 .	-0.0402	0.0161	0.0485 .	-0.0374	0.0237
	0.0223	*0.0268*	*0.0232*	*0.0252*	*0.0313*	*0.0261*	*0.0270*	*0.0330*	*0.0288*
Percent Hispanic	-0.0014	-0.0018 *	-0.0014 .	-0.0016	-0.0021 .	-0.0016	-0.0016	-0.0016	-0.0017
	0.0009	*0.0009*	*0.0009*	*0.0011*	*0.0011*	*0.0011*	*0.0011*	*0.0012*	*0.0011*
Percent Black	-0.0027 **	0.0003	-0.0026 **	-0.0029 **	0.0001	-0.0027 **	-0.0028 *	-0.0007	-0.0028 *
	0.0010	*0.0008*	*0.0009*	*0.0011*	*0.0010*	*0.0010*	*0.0011*	*0.0011*	*0.0011*
Percent Asian	-0.0002	-0.0010	-0.0002	-0.0002	-0.0017	-0.0002	-0.0002	-0.0013	-0.0002
	0.0001	*0.0013*	*0.0001*	*0.0002*	*0.0015*	*0.0002*	*0.0002*	*0.0018*	*0.0002*
Percent Other	0.0017	-0.0020	0.0018	-0.0003	-0.0028	-0.0001	-0.0009	-0.0024	-0.0006
	0.0017	*0.0019*	*0.0017*	*0.0020*	*0.0022*	*0.0020*	*0.0021*	*0.0022*	*0.0021*
Percent Married	0.0002	0.0036 ***	0.0019 ***	0.0006	0.0032 ***	0.0020 ***	0.0004	0.0033 ***	0.0016 *
	0.0013	*0.0006*	*0.0005*	*0.0015*	*0.0008*	*0.0006*	*0.0017*	*0.0008*	*0.0007*
Fixed Effects Test	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***

Note: Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

Table 1.9: Local Area Segregation: Full, Unbalanced Model

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	0.0005 *	0.0003 *	0.0000	0.0000	-0.0001	0.0001	0.0001	-0.0001	0.0000
	0.0002	*0.0001*	*0.0000*	*0.0003*	*0.0002*	*0.0001*	*0.0003*	*0.0002*	*0.0001*
Lag of Average Unemployment Rate	-0.0001	-0.0001	-0.0001 **	0.0002	0.0003 *	-0.0002 **	0.0002	0.0003 .	-0.0001 *
	0.0002	*0.0001*	*0.0000*	*0.0002*	*0.0002*	*0.0001*	*0.0003*	*0.0002*	*0.0001*
Employment Concentration	-0.0007 *	0.0000	-0.0001 *	-0.0004	0.0000	-0.0001 .	-0.0004	0.0002	-0.0002 *
	0.0003	*0.0002*	*0.0001*	*0.0003*	*0.0002*	*0.0001*	*0.0004*	*0.0003*	*0.0001*
Lag of Employment Concentration	0.0001	-0.0002	0.0000	-0.0001	-0.0001	0.0001	0.0002	-0.0001	0.0001
	0.0002	*0.0002*	*0.0001*	*0.0003*	*0.0002*	*0.0001*	*0.0004*	*0.0003*	*0.0001*
Residential Population (100,000)	-0.0001	-0.0001	0.0000	-0.0001	0.0000	0.0001	-0.0002	-0.0001	0.0001
	0.0002	*0.0001*	*0.0000*	*0.0002*	*0.0002*	*0.0000*	*0.0003*	*0.0002*	*0.0001*
Percent Union Coverage	-0.0001 *	-0.0001 .	0.0000	-0.0001 **	-0.0001 *	0.0000	-0.0001	-0.0001 *	0.0000
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Unskilled Women's Service Wages ($1,000)	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0035	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Lag of Unskilled Women's Service Wages ($1000)	0.0003	-0.0001	0.0000	-0.0009 *	-0.0009 **	-0.0002 .	-0.0013 **	-0.0011 ***	-0.0003 *
	0.0003	*0.0002*	*0.0001*	*0.0004*	*0.0003*	*0.0001*	*0.0004*	*0.0003*	*0.0001*
Age	0.0003 ***	0.0001 **	0.0000	0.0003 ***	0.0001 *	0.0000	0.0003 ***	0.0001	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Weekly Hours Worked	-0.0001	0.0001 .	0.0000	0.0000	0.0002 *	0.0000 .	0.0000	0.0002 **	0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Number of Postsecondary Years	0.0016 *	0.0003	0.0000	0.0010	0.0000	0.0000	0.0007	0.0000	0.0000
	0.0007	*0.0003*	*0.0000*	*0.0008*	*0.0004*	*0.0000*	*0.0008*	*0.0004*	*0.0000*
Number of Children in Household	-0.0002	0.0009 *	0.0000	-0.0004	0.0008 .	0.0000	0.0003	0.0011 *	0.0000
	0.0008	*0.0004*	*0.0000*	*0.0009*	*0.0004*	*0.0000*	*0.0010*	*0.0005*	*0.0000*
Percent Hispanic	0.0000	0.0000 **	0.0000	0.0000	0.0000	0.0000 *	0.0000	0.0000	0.0000
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Percent Black	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000 .
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Percent Asian	0.0000	0.0000 .	0.0000 .	0.0000	-0.0001 *	0.0000	0.0000	-0.0001 **	0.0000
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Percent Other	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Percent Married	0.0000	0.0000	0.0000 *	0.0000	0.0000 *	0.0000	0.0000	0.0000 .	0.0000
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Fixed Effect Test	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***

Note: Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

Table 1.10: Wage Gain/Loss Index: Full, Unbalanced Model

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	0.0004	0.0005	-0.0001	0.0014 *	0.0010 *	0.0002	0.0017 **	0.0010 *	0.0002
	0.0004	*0.0003*	*0.0001*	*0.0006*	*0.0005*	*0.0002*	*0.0007*	*0.0005*	*0.0002*
Lag of Average Unemployment Rate	0.0011 **	0.0005 .	-0.0001	0.0003	0.0001	-0.0001	0.0000	-0.0002	-0.0001
	0.0004	*0.0003*	*0.0001*	*0.0005*	*0.0004*	*0.0001*	*0.0005*	*0.0004*	*0.0002*
Employment Concentration	-0.0010 .	-0.0004	-0.0001	-0.0010	-0.0004	0.0000	-0.0007	0.0001	-0.0001
	0.0006	*0.0004*	*0.0002*	*0.0007*	*0.0005*	*0.0002*	*0.0008*	*0.0006*	*0.0002*
Lag of Employment Concentration	0.0001	0.0000	-0.0001	0.0002	0.0000	-0.0003	0.0001	-0.0006	-0.0001
	0.0005	*0.0004*	*0.0002*	*0.0007*	*0.0005*	*0.0002*	*0.0008*	*0.0006*	*0.0002*
Residential Population (100,000)	0.0006	0.0005 .	0.0001	0.0004	0.0004	0.0000	0.0001	0.0000	0.0001
	0.0004	*0.0003*	*0.0001*	*0.0005*	*0.0004*	*0.0001*	*0.0007*	*0.0005*	*0.0001*
Percent Union Coverage	-0.0001	-0.0001	0.0000	-0.0002 .	-0.0001	0.0000	-0.0002	-0.0001	0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Unskilled Women's Service Wages ($1,000)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0001	-0.0001	0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Lag of Unskilled Women's Service Wages ($1000)	0.0001	-0.0001	-0.0001	-0.0011	-0.0004	-0.0007 *	-0.0005	0.0003	-0.0008 *
	0.0007	*0.0005*	*0.0002*	*0.0009*	*0.0006*	*0.0004*	*0.0009*	*0.0007*	*0.0004*
Age	0.0000	0.0001	0.0000 *	-0.0002	0.0000	0.0000 **	-0.0002	0.0000	0.0000 *
	0.0001	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*	*0.0002*	*0.0001*	*0.0000*
Weekly Hours Worked	-0.0002	-0.0002	0.0000	-0.0003	-0.0003	0.0000	-0.0004	-0.0002	0.0000
	0.0003	*0.0001*	*0.0000*	*0.0003*	*0.0002*	*0.0000*	*0.0003*	*0.0002*	*0.0000*
Number of Postsecondary Years	0.0018	-0.0004	-0.0003 ***	-0.0004	-0.0011	-0.0002 **	-0.0004	-0.0010	-0.0002 .
	0.0015	*0.0007*	*0.0001*	*0.0017*	*0.0008*	*0.0001*	*0.0018*	*0.0009*	*0.0001*
Number of Children in Household	0.0010	0.0004	-0.0002	-0.0005	0.0013	-0.0002 .	0.0019	0.0013	-0.0003 *
	0.0017	*0.0008*	*0.0001*	*0.0019*	*0.0010*	*0.0001*	*0.0020*	*0.0010*	*0.0001*
Percent Hispanic	0.0000	0.0000	0.0000	-0.0001 .	0.0000	0.0000	-0.0001	-0.0001	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Percent Black	-0.0001 *	0.0000	0.0000	-0.0001	0.0000	0.0000	-0.0001	0.0000	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0001*	*0.0000*	*0.0000*
Percent Asian	-0.0001	0.0000	0.0000	-0.0001	0.0001	0.0000	-0.0002 *	0.0000	0.0000
	0.0001	*0.0000*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Percent Other	0.0002	0.0001	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
	0.0001	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*	*0.0001*	*0.0001*	*0.0000*
Percent Married	0.0000	0.0000 *	0.0000 *	0.0000	0.0000	0.0000 .	0.0000	0.0000 .	0.0000 .
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Fixed Effect Test	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***

Note: Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

Table 1.11: Wage Ratio: Full, Unbalanced Model

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	-0.0017	-0.0035	0.0227	0.0027	0.0043	0.0096	-0.0029	-0.0024	-0.0030
	0.0025	*0.0033*	*0.0205*	*0.0037*	*0.0048*	*0.0250*	*0.0042*	*0.0053*	*0.0283*
Lag of Average Unemployment Rate	0.0034	0.0006	-0.0383 *	0.0014	-0.0049	-0.0007	0.0049	-0.0030	-0.0071
	0.0022	*0.0029*	*0.0187*	*0.0029*	*0.0037*	*0.0206*	*0.0033*	*0.0042*	*0.0238*
Employment Concentration	-0.0015	0.0020	-0.0051	-0.0049	-0.0027	0.0106	-0.0053	-0.0045	0.0060
	0.0034	*0.0045*	*0.0275*	*0.0043*	*0.0054*	*0.0283*	*0.0050*	*0.0062*	*0.0351*
Lag of Employment Concentration	0.0040	0.0035	-0.0238	0.0072 .	0.0062	-0.0114	0.0068	0.0028	-0.0154
	0.0031	*0.0041*	*0.0256*	*0.0041*	*0.0052*	*0.0271*	*0.0049*	*0.0061*	*0.0326*
Residential Population (100,000)	-0.0029	-0.0019	0.0128	-0.0021	0.0001	0.0181	-0.0029	-0.0004	0.0217
	0.0023	*0.0032*	*0.0143*	*0.0029*	*0.0038*	*0.0145*	*0.0041*	*0.0051*	*0.0202*
Percent Union Coverage	-0.0004	-0.0001	0.0032	-0.0007	-0.0002	0.0031	-0.0008	-0.0004	0.0028
	0.0005	*0.0007*	*0.0046*	*0.0006*	*0.0008*	*0.0044*	*0.0007*	*0.0009*	*0.0052*
Unskilled Women's Service Wages ($1,000)	0.0002	0.0005	0.0020	0.0003	0.0006	0.0035	0.0003	0.0008	0.0044
	0.0004	*0.0006*	*0.0040*	*0.0005*	*0.0006*	*0.0036*	*0.0005*	*0.0007*	*0.0038*
Lag of Unskilled Women's Service Wages ($1000)	0.0037	0.0129 *	-0.0403	0.0072	0.0119 .	0.0276	0.0050	0.0163 *	0.0269
	0.0039	*0.0053*	*0.0393*	*0.0052*	*0.0066*	*0.0487*	*0.0058*	*0.0074*	*0.0522*
Age	0.0068 ***	0.0056 ***	0.0088 ***	0.0062 ***	0.0063 ***	0.0089 ***	0.0063 ***	0.0063 ***	0.0082 ***
	0.0009	*0.0008*	*0.0015*	*0.0010*	*0.0009*	*0.0014*	*0.0011*	*0.0009*	*0.0016*
Weekly Hours Worked	0.0088 ***	0.0125 ***	0.0157 ***	0.0084 ***	0.0117 ***	0.0167 ***	0.0090 ***	0.0120 ***	0.0182 ***
	0.0015	*0.0015*	*0.0030*	*0.0018*	*0.0017*	*0.0029*	*0.0019*	*0.0018*	*0.0033*
Number of Postsecondary Years	0.0757 ***	0.0782 ***	0.0491 ***	0.0876 ***	0.0872 ***	0.0549 ***	0.0905 ***	0.0822 ***	0.0497 ***
	0.0086	*0.0078*	*0.0115*	*0.0102*	*0.0087*	*0.0110*	*0.0109*	*0.0092*	*0.0122*
Number of Children in Household	0.0134	0.0042	-0.0230	0.0281 *	0.0017	-0.0184	0.0332 **	0.0049	-0.0328 .
	0.0097	*0.0089*	*0.0184*	*0.0114*	*0.0101*	*0.0173*	*0.0125*	*0.0109*	*0.0191*
Percent Hispanic	-0.0013 ***	-0.0015 ***	-0.0016 *	-0.0006	-0.0014 ***	-0.0020 **	-0.0005	-0.0014 ***	-0.0019 *
	0.0003	*0.0003*	*0.0008*	*0.0004*	*0.0004*	*0.0007*	*0.0004*	*0.0004*	*0.0008*
Percent Black	-0.0001	0.0000	-0.0003	-0.0003	-0.0003	-0.0003	-0.0005	-0.0002	-0.0001
	0.0003	*0.0003*	*0.0007*	*0.0004*	*0.0004*	*0.0007*	*0.0004*	*0.0004*	*0.0008*
Percent Asian	-0.0014 **	-0.0027 ***	-0.0011	-0.0010 .	-0.0024 ***	-0.0023 **	-0.0012 .	-0.0023 ***	-0.0021 *
	0.0005	*0.0005*	*0.0009*	*0.0006*	*0.0006*	*0.0008*	*0.0006*	*0.0006*	*0.0009*
Percent Other	0.0006	0.0008	0.0005	0.0014 .	0.0017 *	0.0013	0.0012	0.0013	0.0012
	0.0007	*0.0007*	*0.0010*	*0.0008*	*0.0008*	*0.0010*	*0.0009*	*0.0008*	*0.0012*
Percent Married	0.0000	0.0004 .	0.0004	0.0000	0.0003	0.0004	-0.0002	0.0002	0.0004
	0.0002	*0.0002*	*0.0004*	*0.0002*	*0.0002*	*0.0004*	*0.0003*	*0.0002*	*0.0004*
Fixed Effect Test	0.0000 ***	0.0000 ***	0.3563	0.0000 ***	0.0000 ***	0.0111 **	0.0000 ***	0.0000 ***	0.1187

Note: Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

Table 1.12: Men's Wage Ratio Full, Unbalanced Model

	All Years			Excluding Recession Years			After 2011		
	All	Unskilled	Skilled	All	Unskilled	Skilled	All	Unskilled	Skilled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Unemployment Rate	-0.0055	0.0033 *	-0.0058	-0.0092	0.0055 *	-0.0100	-0.0156 *	0.0036	-0.0161 *
	0.0044	*0.0017*	*0.0044*	*0.0068*	*0.0025*	*0.0067*	*0.0071*	*0.0027*	*0.0071*
Lag of Average Unemployment Rate	-0.0018	-0.0059 ***	-0.0021	0.0006	-0.0055 **	0.0003	-0.0039	-0.0031	-0.0038
	0.0038	*0.0015*	*0.0038*	*0.0052*	*0.0019*	*0.0052*	*0.0057*	*0.0022*	*0.0057*
Employment Concentration	-0.0119 *	0.0050 *	-0.0116 .	-0.0154 *	0.0013	-0.0151 .	-0.0139	-0.0019	-0.0132
	0.0060	*0.0023*	*0.0059*	*0.0078*	*0.0029*	*0.0077*	*0.0085*	*0.0033*	*0.0084*
Lag of Employment Concentration	0.0101 .	-0.0025	0.0100 .	0.0121	0.0008	0.0117	0.0088	0.0011	0.0086
	0.0054	*0.0021*	*0.0054*	*0.0074*	*0.0027*	*0.0074*	*0.0084*	*0.0032*	*0.0083*
Residential Population	-0.0021	-0.0043 **	-0.0024	0.0010	-0.0039 *	0.0008	0.0003	-0.0034	0.0007
	0.0041	*0.0016*	*0.0041*	*0.0053*	*0.0019*	*0.0052*	*0.0069*	*0.0026*	*0.0068*
Percent Union Coverage	-0.0010	0.0006 .	-0.0008	-0.0019 .	0.0005	-0.0018	-0.0018	0.0002	-0.0016
	0.0009	*0.0003*	*0.0009*	*0.0011*	*0.0004*	*0.0011*	*0.0012*	*0.0005*	*0.0012*
Unskilled Women's Service Wages	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	-0.0001	0.0000	-0.0001
	0.0004	*0.0002*	*0.0004*	*0.0005*	*0.0002*	*0.0005*	*0.0005*	*0.0002*	*0.0005*
Lag of Unskilled Women's Service Wages	-0.0002	-0.0013	0.0003	0.0002	-0.0009	0.0007	-0.0001	-0.0010	0.0003
	0.0045	*0.0017*	*0.0045*	*0.0052*	*0.0019*	*0.0051*	*0.0052*	*0.0020*	*0.0051*
Age	0.0096 ***	0.0067 ***	0.0083 ***	0.0093 ***	0.0063 ***	0.0081 ***	0.0098 ***	0.0065 ***	0.0085 ***
	0.0009	*0.0011*	*0.0010*	*0.0011*	*0.0012*	*0.0011*	*0.0011*	*0.0013*	*0.0011*
Weekly Hours Worked	0.0103 ***	0.0138 ***	0.0102 ***	0.0115 ***	0.0167 ***	0.0114 ***	0.0119 ***	0.0172 ***	0.0114 ***
	0.0016	*0.0015*	*0.0016*	*0.0019*	*0.0017*	*0.0019*	*0.0019*	*0.0018*	*0.0019*
Number of Postsecondary Years	0.0388 ***	0.0575 ***	0.0386 ***	0.0443 ***	0.0493 ***	0.0436 ***	0.0447 ***	0.0409 **	0.0447 ***
	0.0101	*0.0110*	*0.0100*	*0.0117*	*0.0127*	*0.0116*	*0.0119*	*0.0137*	*0.0118*
Number of Children in Household	0.0470 ***	0.0055	0.0263 *	0.0439 ***	0.0132	0.0228 .	0.0460 ***	0.0144	0.0237 .
	0.0105	*0.0123*	*0.0112*	*0.0124*	*0.0143*	*0.0132*	*0.0125*	*0.0156*	*0.0133*
Percent Hispanic	-0.0005	-0.0012 **	-0.0005	-0.0007	-0.0007	-0.0006	-0.0008	-0.0008	-0.0008
	0.0004	*0.0004*	*0.0004*	*0.0005*	*0.0005*	*0.0005*	*0.0005*	*0.0005*	*0.0005*
Percent Black	-0.0016 **	-0.0015 **	-0.0014 *	-0.0016 *	-0.0013 *	-0.0014 *	-0.0017 *	-0.0015 *	-0.0015 *
	0.0006	*0.0005*	*0.0006*	*0.0007*	*0.0006*	*0.0007*	*0.0007*	*0.0006*	*0.0007*
Percent Asian	-0.0001	-0.0005	-0.0001	-0.0003 *	-0.0001	-0.0003 *	-0.0003 .	0.0008	-0.0003 .
	0.0001	*0.0011*	*0.0001*	*0.0002*	*0.0012*	*0.0002*	*0.0002*	*0.0013*	*0.0002*
Percent Other	-0.0014	-0.0020 *	-0.0014	-0.0009	-0.0026 *	-0.0009	-0.0002	-0.0024 *	-0.0003
	0.0009	*0.0009*	*0.0009*	*0.0011*	*0.0010*	*0.0011*	*0.0011*	*0.0011*	*0.0011*
Percent Married	0.0000	0.0023 ***	0.0013 ***	-0.0005	0.0022 ***	0.0012 ***	-0.0002	0.0021 ***	0.0013 ***
	0.0007	*0.0003*	*0.0003*	*0.0009*	*0.0004*	*0.0003*	*0.0009*	*0.0004*	*0.0003*
Fixed Effect Test	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***	0.0000 ***

Note: Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1. Fixed effects tests are run using the test function in R using the pooled model and the two-way FE model.

1.9 Chapter 1 Figures

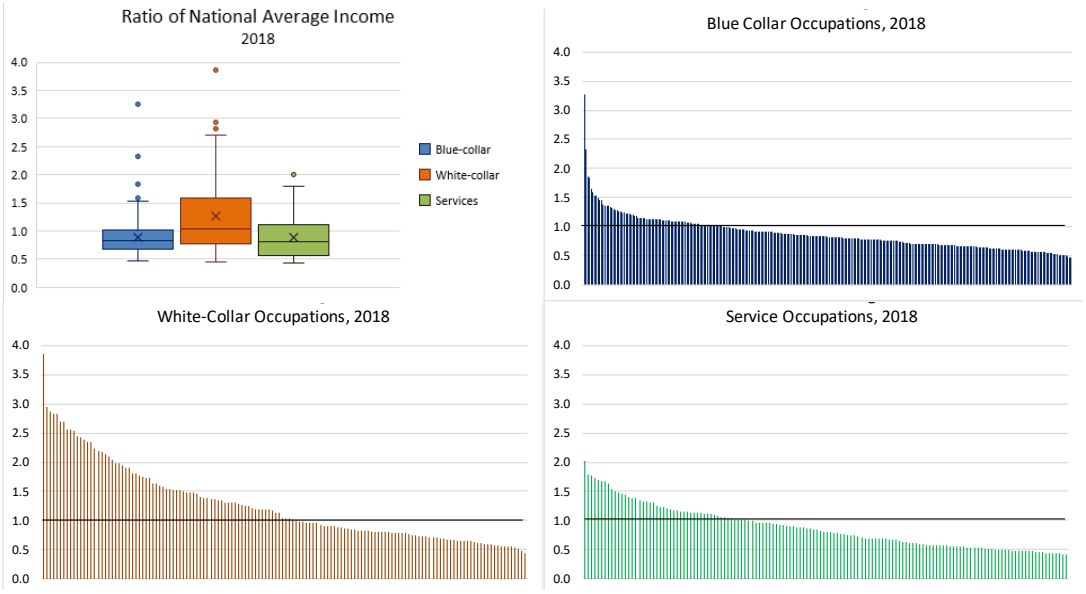

Figure 1.1: Ratio to National Average Income (2018) by Occupational Group

Source: BLS

Note: The BLS defines white-collar occupations as management, business, and financial; professional and related; sales and related; and office and administrative support. Service producing industries are wholesale trade; retail trade; transportation and warehousing; utilities; information; finance and insurance; real estate and rental and leasing; professional and technical services; management of companies and enterprises; administrative and waste services; health care and social assistance; arts, entertainment, and recreation; accommodation and food services, educational services; and other services, except public administration. Blue-collar occupations are farming, fishing, and forestry; construction and extraction; installation, maintenance, and repair; production; and transportation and material moving. The ratio equation is national *occupation* average income divided by national *total* average income.

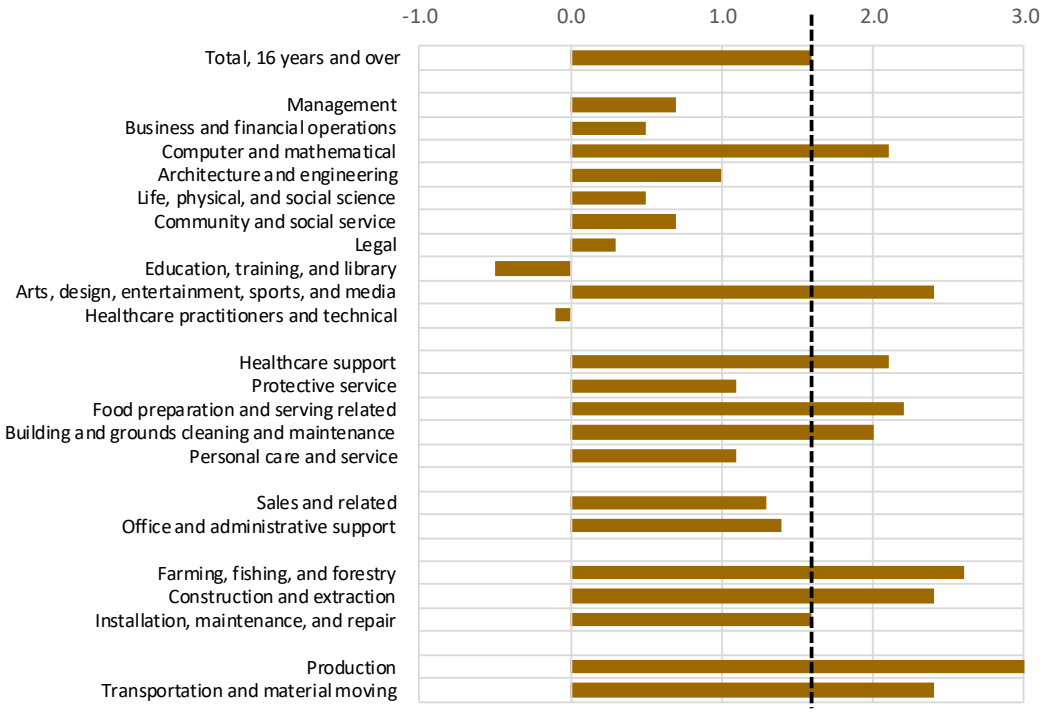

Figure 1.2: Labor Market Tightening (2004 Unemployment Minus 2018 Unemployment)

Source: Levanon et al. (2014 and BLS

Note: Figure is an updated recreation from Lavanon et al. (2014) using BLS unemployment by occupation data. Larger differences (larger percentages) between 2004 unemployment and 2018 unemployment represent tighter labor markets for an occupational group. The dotted black line marks the total labor market tightening.

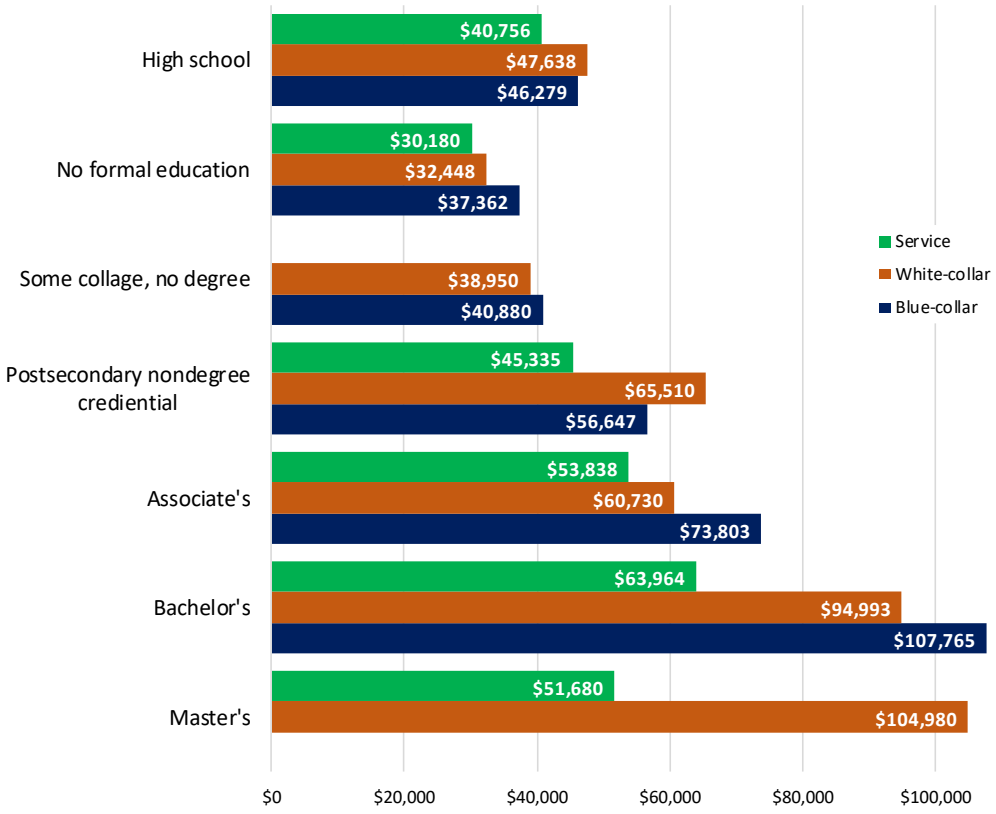

Figure 1.3 Average Income by Occupational Group and Education (2018)

Source: BLS May 2018 Occupational Employment Statistics (OES) Survey (national level)

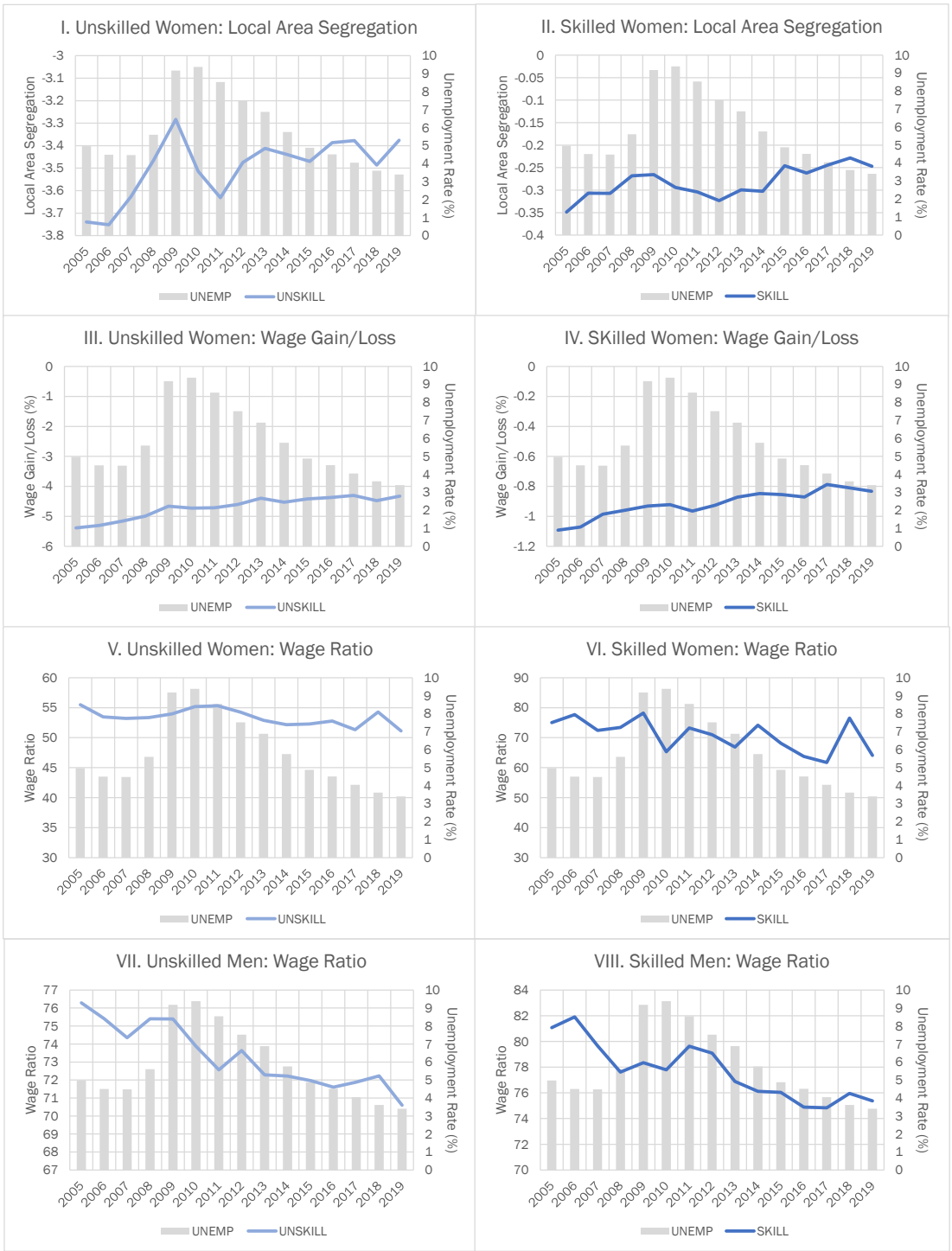

Figure 1.4: Dependent Variables by Year and Occupation Type (Unskilled or Skilled)

Source: IPUMS American Community Survey Data 2005-2019, Author's calculation

APPENDIX 1

Table A1.1: Mean Variables (2005-2019) for MSAs Used in Models

MSA	UNEMPLOYMENT RATE	EMPLOYMENT CONCENTRATION	RESIDENTIAL POPULATION	UNION COVERAGE	SERVICE WAGES FOR MEN	SERVICE WAGES FOR WOMEN
Atlanta-Sandy Springs-Roswell, GA	6.43%	15.98%	5,514,957	5.21%	$36,318	$24,099
Austin-Round Rock, TX	4.50%	8.59%	1,845,838	3.88%	$36,713	$22,745
Baltimore-Columbia-Towson, MD	5.44%	8.36%	2,739,070	13.07%	$46,277	$28,817
Charlotte-Concord-Gastonia, NC-SC	6.75%	14.57%	2,169,550	3.97%	$35,866	$23,099
Chicago-Naperville-Elgin, IL-IN-WI	6.79%	18.23%	9,497,488	15.93%	$40,460	$26,535
Cincinnati, OH-KY-IN	6.06%	14.94%	2,165,761	12.29%	$37,690	$23,292
Cleveland-Elyria, OH	5.95%	15.26%	2,075,820	15.33%	$37,071	$23,522
Columbus, OH	5.62%	12.39%	1,929,138	12.69%	$37,412	$23,726
Dallas-Fort Worth-Arlington, TX	5.24%	13.60%	6,701,021	6.41%	$37,514	$23,040
Denver-Aurora-Lakewood, CO	5.14%	9.10%	2,665,183	9.29%	$38,659	$26,151
Detroit-Warren-Dearborn, MI	8.12%	15.45%	4,356,855	17.85%	$39,887	$23,379
Houston-The Woodlands-Sugar Land, TX	5.58%	23.54%	6,227,492	5.65%	$36,247	$21,062
Jacksonville, FL	5.97%	16.26%	1,392,644	9.03%	$37,435	$23,889
Kansas City, MO-KS	5.64%	11.90%	2,059,470	10.50%	$38,297	$23,205
Louisville/Jefferson County, KY-IN	6.21%	19.09%	1,238,071	15.00%	$36,490	$23,624
Memphis, TN-MS-AR	6.76%	17.89%	1,318,163	7.37%	$36,089	$22,732
Miami-Fort Lauderdale-West Palm Beach, FL	5.91%	12.77%	5,772,747	7.15%	$39,416	$24,876
Milwaukee-Waukesha-West Allis, WI	5.71%	21.36%	1,562,642	10.87%	$38,259	$24,554
Minneapolis-St. Paul-Bloomington, MN-WI	4.56%	13.95%	3,394,430	15.34%	$38,913	$27,484
Nashville-Davidson--Murfreesboro--Franklin, TN	5.28%	13.57%	1,699,674	6.23%	$35,747	$22,241
New York-Newark-Jersey City, NY-NJ-PA	6.04%	8.09%	19,111,176	22.95%	$46,069	$29,664
Oklahoma City, OK	4.28%	16.43%	1,290,612	9.21%	$36,358	$20,456
Orlando-Kissimmee-Sanford, FL	5.98%	12.90%	2,253,218	6.17%	$36,132	$24,503
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	6.02%	10.44%	6,000,591	15.51%	$43,280	$27,127
Phoenix-Mesa-Scottsdale, AZ	5.76%	16.80%	4,416,352	6.99%	$36,935	$25,164
Pittsburgh, PA	5.75%	17.22%	2,350,165	15.11%	$36,328	$22,643
Portland-Vancouver-Hillsboro, OR-WA	6.30%	20.32%	2,298,965	15.98%	$37,731	$25,710
San Francisco-Oakland-Hayward, CA	5.58%	14.39%	4,459,918	17.20%	$43,983	$31,129
San Jose-Sunnyvale-Santa Clara, CA	5.87%	22.58%	1,889,144	13.74%	$38,385	$28,594
Seattle-Tacoma-Bellevue, WA	5.50%	19.48%	3,579,351	18.90%	$41,703	$27,628
St. Louis, MO-IL	6.06%	12.58%	2,801,971	14.42%	$37,347	$22,750
Tampa-St. Petersburg-Clearwater, FL	6.15%	13.63%	2,883,630	6.52%	$36,017	$24,063
Virginia Beach-Norfolk-Newport News, VA-NC	5.02%	10.41%	1,721,558	6.29%	$37,986	$23,450

	UNEMPLOYMENT RATE	EMPLOYMENT CONCENTRATION	RESIDENTIAL POPULATION	UNION COVERAGE	SERVICE WAGES FOR MEN	SERVICE WAGES FOR WOMEN
Average for MSAs Not in Initial Sample	6.61%	14.28%	452,011	12.59%	$36,287	$22,387

Source: IPUMS American Community Survey Data, Author's calculations

Note: SERVICE WAGES FOR WOMEN and SERVICE WAGES FOR MEN are average wages for unskilled service occupations in 2012 dollars, transformed by CPI.

CHAPTER 2: WOMEN IN MANAGEMENT: THE EFFECT OF TIGHT LABOR MARKETS IN BLUE-COLLAR INDUSTRIES

2.1 Introduction

While there are researched individual benefits for women in managerial positions (Reskin & McBrier 2000; Reskin & Ross 1992), studying women in management is important as a broader labor market topic as women in management can make hiring and pay decisions for their workers as well as set the tone for workplace culture and corporate social responsibility (Monteiro, García-Sánchez, & Aibar-Guzmán 2021). In this paper, I specifically explore changes in women in management in blue-collar industries. When blue-collar industries face labor shortages, such as the shortages that occurred in 2022 following the COVID pandemic, blue-collar industries could benefit from alternative hiring and job promotion strategies. Determining when barriers to women managers are lowered in industries with a lower concentration of women workers and managers could help us better understand the nature and effect of those barriers. It would also help us advance our understanding of the potential role that women can play in alleviating labor market shortages in blue-collar industries.

Patterns of gender segregation occur by type of manager, just as certain occupations and industries show women- or men-concentration (Haveman and Beresford 2012; Atwater et al. 2004). For example, human resources managers and administrative services managers are women-concentrated (76.8% and 71.7% in 2020, respectively),

while facilities managers and sales managers are men-concentrated (75.0% and 69.1% in 2020, respectively).[*]

Some managerial positions can exist across industries (such as financial managers in both construction and health care industries), with differing concentrations of women. As the concentration of women in an occupation is associated with lower wages (Yavorsky and Dill 2020; Addison, Ozturk, and Wang 2018; Mandel, 2013), understanding the factors that lead to more or fewer women in the same managerial roles in different industries can help to inform gender-based pay gaps.

Women in blue-collar industries face a unique set of circumstances that prevent ascension to management. Women in blue-collar industries (such as construction) and blue-collar occupations (such as welding) often have less job satisfaction due to workplace harassment or hostility (Hegewisch and O'Farrell 2015; Mansfield et al. 1991; Kissman 1990; Padavic and Reskin 1990), which lead to job exit. Women are less likely to have training and experience opportunities, which inhibits their suitability for supervisory roles (Krzywdzinski et al. 2019). Increasing women's presence in blue-collar management could involve increasing and retaining the number of women in blue-collar occupations as jobs open and increasing the advancement opportunities.

Broadly, there exists a "think manager-think male" (Schein 2001) perception that represents one barrier to the presence and success of women in management occupations. Additional perceptions and biases of women in management are stronger in workplaces with more men employees (Pan 2015), and industry type, organizational structure, and

[*] Bureau of Labor Statistics, Current Population Survey: https://www.bls.gov/cps/cpsaat11.htm

firm type have been shown to affect the presence of women in management (Meroño-Cerdán & López-Nicolás 2017; Blum, Fields, & Goodman 1994). Type of organization and industry also affects if women in managerial positions can reduce gender bias in the workplace (Penner, Toro-Tulla, & Huffman 2012; Cohen & Huffman 2007). Barriers for women in management also exist for women-concentrated firms. In some workplaces that are women-concentrated, men are more likely to become managers (Busch 2018) or are more likely to fill occupations within the organization that the men themselves consider to be "masculine" in nature (Snyder & Green 2008), implying that men may have a "greater ability or preference" to advance within firms (Goldin et al. 2017, p. 114).

In this paper, I examine the effect of tight labor markets, such as increases in retirements and lower unemployment rates, on women in blue-collar management and industry. Tight labor markets have the potential to lower the bias that may exist in men-concentrated occupations and industries, and literature suggests that blue-collar industries and occupations, including blue-collar managers, will experience higher levels of labor market tightness due to retirements than other industries (Lavanon, Cheng, & Paterra 2014). This is important because blue-collar work consistently represents a quarter of employment in the U.S. (27% and 25% in 2005 and 2019, respectively).[*]

This paper adds to the literature on women in management by exploring the conditions under which more women enter blue-collar industries as blue-collar and non-blue-collar managers. This paper further adds to the literature by comparing effects by type of industry, to determine where the effects of tight labor markets are strongest. This

[*] CPS Table 17 from 2005 (https://www.bls.gov/cps/aa2005/cpsaat17.pdf) and 2019 (https://www.bls.gov/cps/aa2019/cpsaat17.pdf).

paper uses industry-occupation analysis to analyze differing effects for pay and presence of women in managerial occupations by type of industry (blue-collar versus non-blue-collar). The rest of the paper is as follows. Sections 2.2 and 2.3 present the models, indices, and data used. Section 2.4 presents results, Section 2.5 concludes.

2.2 Methodology

This paper uses a two-way fixed-effect panel model to determine the effect of tight labor markets on the presence and pay of women managers in blue-collar industries and non-blue-collar industries. Given the expected shortages in blue-collar management positions, there should be a greater effect of labor market changes in blue-collar industries than in other types of industries. For each regression, results will be reported for (1) blue-collar management in blue-collar industries (BC-BC), (2) non-blue-collar management in blue-collar industries (BC-NBC), and (3) non-blue-collar management in non-blue-collar industries (NBC-NBC). Figure 1 presents examples. All models will be run separately for women and men. The fixed-effect equation is as follows:

$$y_{i,j,h} = \beta_1 Unemp_i + \beta_2 Emp_i + \beta_3 Retire1_{i,j,h} + \beta_4 WomenRetire1_{i,j,h} + \beta_5 WomenIndustry_{i,h} + \sum \alpha_{i,j,h} X_{i,j,h} + \sum \gamma_i M_i + \tau + \sigma_i , \quad (1)$$

where *i* represents the MSA, j represents the occupational group (e.g., blue-collar managers), and h represents the type of industry (e.g., blue-collar or non-blue-collar). $Unemp_i$ is the unemployment rate in the MSA, Emp_i is the percent of total employment in an MSA that is blue-collar, and $Retire1_{i,j,h}$ is the one-year lag of the number of managers aged 60 or over in a management group within an MSA-industry group.

$WomenRetire1_{i,j,h}$ is the percentage of the near-retirement managers who are women, and $WomenIndustry_{i,h}$ is the percent of women workers in an industry group. $X_{i,j,h}$ represents the aggregated individual control variables (e.g., average age, average number of children), and M_i represents the MSA-level control variables (e.g., union coverage). τ and σ_i are time and MSA fixed effects, respectively.

The dependent measures used are outlined below. The first two measures are taken from Alonso-Villar and del Río (2017), who use the measures to assess changes in women's employment over decades, controlling for changes in the local labor market.

2.2.1 Presence: Local Segregation Index

The Local Segregation Index measures the relationship between a group's (here, women) representation in a local labor market (here, an industry within an MSA) and the occupation's representation in a local labor market. The index will be negative if a group is underrepresented in an occupation and positive if a group is overrepresented in an occupation based on the local labor market. The formula is given below.

$$\Phi_{i,h}^{g}(c;t) = \left(\frac{c_{j,h}^{g}}{C^{g}}\right) \ln\left(\frac{\frac{c_{j,h}^{g}}{C^{g}}}{\frac{t_{j,h}}{T}}\right) \quad (2)$$

The superscript *g* identifies the gender group (men or women), the subscript *j* identifies the management group, and the subscript *h* identifies the industry group. The total size of the MSA employment pool is T, and $t_{j,h}$ is the total number employed in the management group *j* in industry group *h*. C_g represents the total number of a selected gender in an MSA-industry group, and $c_{g,j,h}$ is the number of the selected gender in management group

j in industry group *h*. Each gender's occupational contribution is a ratio of the gender's share in a management group divided by the management group's share in the market, weighted by the gender's share in the market. This index is used over an index of dissimilarity because it controls for changes over time in the size of the occupation and the labor market workforce.

2.2.2 Pay: Wage Gain/Loss Index

The Wage Gain/Loss Index similarly accounts for MSA-industry level changes in wages over time. This index shows how the gender gap in occupational share informs the wage gain or loss for the occupation (Alonso-Villar and del Río 2017) and gamma can be interpreted as a percent. The sub- and superscripts are the same as in Eq. 1. The average wage for everyone in the MSA-industry group is represented by $\overline{w}$.

$$\Gamma_{i,h}^{g} = \left(\frac{c_{j,h}^{g}}{C^{g}} - \frac{t_{j,h}}{T}\right)\frac{w_h}{\overline{w}} \tag{3}$$

There are two ways for a gender group to experience a wage loss. One is if the gender has an *over*representation (shown by $c_{j,h}^{g}/C^{g} > t_{j,h}/T$) in an occupation with a wage lower than the MSA-industry average wage. The other is if the gender group is *under*represented ($c_{j,h}^{g}/C^{g} < t_{j,h}/T$) in a management group with a higher wage than the MSA-industry average. In either case, gamma shows the percentage wage loss due to a gender group's over- or under-representation in various types of management.

2.2.3 Wage Ratio

The simple wage ratio shown below is used as a dependent variable to measure how labor market changes affect the unweighted (by occupational concentration) wages for the gender group in management group *j* in industry group *h*, controlling for the average wage in the MSA-industry.

$$\frac{w_{j,h}^{g}}{\overline{w}} \tag{4}$$

2.3 Data

Data for this paper are primarily from the Census Bureau's Integrated Public Use Microdata Survey (IPUMS) American Community Survey (ACS) annual 1% data files for the years 2005-2019. Data is aggregated to the MSA-industry level for each managerial occupation for each year. Number of women (or men) by occupation group and their corresponding average wages are used in the dependent variable indices outlined in the Methodology section. Independent variables include age, number of own children, years of education, marital status, hours worked, and race. Also included in the model is the average number of managers aged 60 or over in that occupation group as a measure of the tightness of the market due to upcoming retirements. MSA-level variables included in the model are unemployment rates and blue-collar industry employment concentration from the Bureau of Labor Statistics (both annual averages). Union coverage rates are from Hirsch and Macpherson (2020). Data has been restricted to civilians earning a non-zero wage and who work at least 35 hours a week (a proxy for

full-time). Income outliers have been removed, following Alonso-Villar and del Río (2017).

Cohen and Huffman (2007) use both local industry analysis (industry by MSA) and IPUMS data to determine the effects of the presence of women in management. Hall et al. (2020); Mandel (2018); Alonso-Villar and del Río (2017); and Mandel (2013) also use IPUMS data to determine quality and quantity of women's employment dynamics over time.

Table 2.1 presents the descriptive statistics for women and men in the sample by industry type, managerial type, and year (2006 and 2019, 2005 data is used for lags). Descriptive statistics in Table 2.1 represent data used in the balanced panel model, restricted to 28 MSAs having a non-zero number of women in BC-BC management. Restrictions allow for equal comparison across management types.

Table 2.1 shows that women's presence in all three management types has increased over time but remains smaller than men's presence in management. Women's presence in BC-NBC and NBC-NBC management has doubled from 2006 to 2019. Most in parity is NBC-NBC management, with about 673 women and 724 men managers in 2019. Least in parity is BC-BC management, with about 13 women and 102 men managers in 2019. Despite BC-NBC employment consisting of management occupations that exist in blue-collar and non-blue-collar industries, women are underrepresented in BC-NBC management. This may imply some additional industry-level barriers for women in management in blue-collar industries.

The data presented in Table 2.1 shows that BC-NBC management has the highest wages (for women and men) and that the average age for women managers has increased

from 2006 to 2019, except in the BC-BC management category. This may mean that barriers to women are being lowered in BC-BC management, with firms beginning to hire or promote existing women to management. Women in all management categories show lower average wages than men, fewer average weekly hours worked, more years of education, and fewer children. As shown in Table 2.1, there have been changes in demographics for women managers in all categories and that differences persist between women and men managers.

Figure 2.2 presents the dependent variables for the three management types, plotted in comparison to average unemployment rates across time. All constructed measures have been multiplied by 100. Looking at all four panels of Figure 2.2, the three management types show differing patterns in dependent variables over time. As shown in Figure 2.2, Panel I, women have been steadily increasing their presence in NBC-NBC management (increasing local area segregation measure) and decreasing their presence in both types of blue-collar industry management. This implies that women may see decreased barriers to NBC-NBC management due to tight labor markets (decreases in unemployment rates) but that barriers may persist for blue-collar industry management. The Panel II of Figure 2.2 shows a similar pattern for wage gains/losses for women over time. Since BC-NBC management has, on average, the highest wages of the three management types, it makes sense that women's underrepresentation in that type of management would lead to the greatest (most negative) wage losses. In Panels III and IV, men's wage ratios are higher than women's for every management type. Women's and men's wage ratios also show differing patterns over time, which may mean differing market influences.

2.4 Results

2.4.1 Local Area Segregation

Table 2.2 presents the local area segregation results for the most restricted MSA model (28 MSAs that allow for analysis of balanced panels of the same MSAs across types of industry-management pairs). The first column in Table 2.2 shows results for blue-collar managers in blue-collar industries (BC-BC), the second column shows results for non-blue-collar managers in blue-collar industries (BC-NBC), and the third column shows results for non-blue-collar managers in non-blue-collar industries (NBC-NBC). As the means for each dependent variable for each model differ, the model estimates are presented with the related percentage change from the mean dependent variable. For example, for BC-BC management in Table 2.2, the 0.0135 coefficient for the same-year unemployment rate represents a 5.60% change from the mean of the local area segregation measure (mean is -0.2419).

As shown in Table 2.2, the unemployment rate does affect the presence of women in BC-BC management. Same-year average unemployment decreases lead to decreases in the presence of women in BC-BC management by about 5.60%, while the lagged variable of average unemployment suggests that decreases lead to increases in the presence of women in this type of management by about 4.11%. This means that the one-year lagged unemployment rate acts to lower barriers to employment for women in BC-BC management but that the effects are mitigated by the countereffects of the same-year unemployment rate. However, only the same-year rate is significant at the 10% level. Holding labor force changes constant, the same-year result for unemployment rates implies an average decrease of about one-half women in BC-BC management in an

MSA*. Results are similar for women's employment in BC-NBC management, where the effects of same-year and one-year-lagged unemployment rates move in different directions. The absolute coefficient for both variables for BC-NBC management is larger than for BC-BC management, but the percentage effects are smaller. Both unemployment variables in the BC-NBC model are significant at the 10% level, and the net effect of the same-year and the lagged variable suggest a net change of about zero women on average for an MSA as unemployment rates decrease. These results suggest that countervailing results exist between the same-year and the one-year-lagged variables. For NBC-NBC management, both unemployment variables move in the same direction, meaning that as unemployment rates decrease, so does women's presence in NBC-NBC management. This highlights the difference between BC and NBC industries.

The concentration of blue-collar employment results shows a similar countereffect for all models, meaning that the same-year and one-year-lagged results move in opposite directions. This means that as the concentration of blue-collar employment one year prior increases, the presence of women in BC-BC and BC-NBC management decreases. None of the models' employment concentration variables are significant.

The same-year variable for those within the industry near retirement is a modest negative indicator of women's presence in BC-BC and BC-NBC management, indicating decreases of -0.91% ($p < 0.01$) and -0.13% ($p < 0.10$) for BC-BC and BC-NBC

* This estimate uses the average number of women in BC-BC management for an MSA for all years: 9. Estimates for changes in BC-NBC management use the MSA average of 50 women, and estimates for NBC-NBC management use the MSA average of 424. These estimates assume no other labor market changes in the MSA that would affect the local area segregation measure.

management, respectively. These changes translate to a decrease of about nine women in BC-BC management and seven women in BC-NBC management on average for an MSA. This implies that increases in those nearing retirement leads to decreases in women's management employment and suggests that tightness of labor markets due to retirements does not lower barriers to women in blue-collar industry management. The near-retirement lagged variable moves in the same direction with smaller effects in the BC-BC model but moves in the opposite direction for the BC-NBC model. The percentage change results for near-retirement variables are smallest in the NBC-NBC model, and none of the lagged near-retirement variables are significant.

However, there is a different pattern of results for the variables of women's share of near-retirements. For the BC-BC model, both the same-year (-0.27%, $p < 0.05$) and the lagged women's share of near-retirements variables (-0.22%, $p < 0.10$) show a significant negative relationship with the presence of women in BC-BC management. This means that as there is a greater percentage of women in the near-retirement age group in BC-BC management, women's presence in this type of management decreases, by less than one woman between the same-year and the lagged results. There are opposite results for both the BC-NBC and NBC-NBC models. For the BC-NBC model, the same year and the lagged year variables are both positively related to women's presence in that type of management, again with modest changes. Results are strongest for the NBC-NBC model, where a same-year increase of one percent in women's share of near-retirements leads to a 5.48% ($p < 0.01$) increase in women's presence in NBC-NBC management. Given that, on average, an MSA in this sample has almost 424 women NBC-NBC managers, this translates to an increase of about 23 women in NBC-NBC management. This could be a

product of the fact that NBC-NBC management has a higher concentration of women (see Table 2.1), but the results underscore the differing effects for BC and NBC industries.

The percent of women in NBC-type industry is a negative indicator of women's presence in NBC-NBC management, with large changes in the same-year variable (-16.70%, $p < 0.05$). This translates to a decrease of about 71 women in NBC management on average for an MSA. This implies that as women have a greater share in NBC industries, women in NBC-NBC management decrease. This finding aligns with the "glass elevator" effect (Yavorsky and Dill 2020; Busch 2018).

Increases in age are negatively related to women's presence in NBC-NBC management (-18.41%, $p < 0.01$). These results imply that age is a significant factor for the presence of women in NBC-NBC management, but the results are not similar for blue-collar management. Number of years of education is positively related to women's presence in BC-BC and BC-NBC management but is negatively and significantly related to women's presence in NBC-NBC management (-79.03%, $p < 0.05$). This result could be driven by service industries, which have women-concentrated management and no college education requirements.

Number of own children is negatively related to women's presence in BC-BC management (-8.45%) but positively related to women's presence in both BC-NBC and NBC-NBC management (3.71% and 158.56%, respectively). The BC-BC and NBC-NBC models are significant at the 5% level. This result implies that family care expectations may be different within BC-BC management than in NBC-NBC management.

2.4.2 Wage Gains/Losses

Table 2.3 presents results for wage gains/losses for the three industry-management groups. The wage gains/losses measure shows the percentage wage gain or loss for an individual's over- or underrepresentation in a certain management group. Same-year and lagged unemployment variables show a similar countervailing pattern as in the results for the local area segregation. In this set of models, the negative effect of the lagged unemployment variable outweighs the positive effect of the same-year variable. This means that as unemployment rates in the year prior decrease, women's presence in BC-BC and BC-NBC management increase, by -13.15% ($p < 0.05$) and -5.62% ($p < 0.10$), respectively. This implies that wage losses increase by less than one percentage point. Since the local area segregation results above indicate that the lagged unemployment variable is associated with increases in women's presence in blue-collar industry management, part of the wage gain/loss result is a product of an increase in women's presence, but the greater magnitude in the wage gain/loss models implies positive changes to wages as well. Unemployment rates are positively related to the wage gain/loss measure for NBC-NBC management and are not significant.

Blue-collar employment concentration is negatively associated with BC-BC management but positively associated with BC-NBC and NBC-NBC management, with no statistical significance. The effects are opposite for the lagged employment concentration variable for BC-BC and BC-NBC management but continue to be positive for NBC-NBC management, again with no significance.

Number of managers near retirement is modestly and negatively associated with BC-BC and BC-NBC wage gains/losses in the same year and is positively associated in

the lagged year. Both the same-year and the lagged year results are positive for NBC-NBC management. None of the model results for number of managers near retirement are significant.

As with local area segregation results, results for those near retirement are strongest for the variables of women's percentage of those near retirement. The same-year results are positively related to all three models, with the strongest results in the NBC-NBC model (5.37%, $p < 0.001$). Despite the relatively large percentage change, the impacts for the NBC-NBC model imply an increase in wage gains of less than one percentage point. All same-year results are significant, but the magnitude of results for the BC-BC and BC-NBC models is less than 1%. This implies that as women's share of those nearing retirement increases, the measure for women's wage gains/losses also increases, though with differing magnitudes, for all three types of management.

As the percentage of women working in an industry increases, the wage gains/losses for women in BC-BC and NBC-NBC decreases in both the same-year and the lagged year variables, with significance only in the same-year variable for NBC-NBC management (-16.74%, $p < 0.05$). The construction of the wage gains/losses measurement indicates that the measurement changes with both wages and with local area segregation. The negative relationship in the BC-BC model implies that the change in the percentage of women may affect either wages or local area segregation of BC-BC women managers. However, as women are often well-represented in NBC-NBC industry and management, the negative relationship between the percentage of women in the industry and the wage gain/loss measure implies an effect on wages in NBC-NBC management rather than local area segregation. For BC-NBC management, the same-year

effect is positive (2.97%, $p < 0.05$) and the lagged year effect is negative (-0.78%, $p > 0.10$), with significance in the same-year result. Using the results from Table 2.2 for local area segregation, one can assume that this result stems from changes in the number of women in BC-NBC management.

Age has a significant and negative relationship with the wage gains/loss measure in all three models (all models at least $p < 0.10$). Years of education are negatively correlated with the wage gains/losses measure and the variable is significant for the BC-BC model (-10.77%, $p < 0.001$) and the NBC-NBC model (-68.28%, $p < 0.05$). The result in the NBC-NBC model is driven by the result in Table 2.2, that years of education are negatively related to women's presence in NBC-NBC management.

Number of children shows a negative relationship with the wage gains/losses measure for BC-BC management but shows a positive relationship with the measure for BC-NBC and NBC-NBC management, with significance in the NBC-NBC model (182.11%, $p < 0.01$).

2.4.3 Wage Ratio

Table 2.4 presents the results for the determinates of changes in the wage ratio. The wage ratio measures the wages of the selected group (e.g., women in blue-collar industry and blue-collar management) as a ratio of the average wage of the MSA in that year. As with the two previous results sections, the unemployment rate variables show a countervailing pattern between same-year unemployment and lagged unemployment. For all three management groups, the same-year unemployment variable is negative and has a smaller magnitude than the positive lagged variable. This implies that the total effect is positive, meaning as unemployment rates decrease, women in all three types of management see

decreases in wages. However, no unemployment rate variable in any model is statistically significant.

Blue-collar employment concentration shows differing directions of effect for the same-year and lagged variables for the BC-BC and NBC-NBC models. Both same-year and lagged variables are positive for BC-NBC management, with a combined magnitude of a little more than 1%. However, no blue-collar employment concentration variable is statistically significant for any of the three management types.

Number of managers nearing retirement has modest net negative effects for all management types, with no statistical significance for any management type. The magnitudes are strongest for BC-BC management but are less than have a percent. The negative relationship of wages with number of managers nearing retirement implies that as more managers near retirement, wages show slight decreases.

For women's share of managers nearing retirement, there is a combined positive effect for the same-year and lagged variables for BC-BC management (4.41% for same-year and 4.39% for lagged year, both $p < 0.05$), and there is a net positive effect for BC-NBC and net negative effects for NBC-NBC management. Statistical significance is only found for BC-BC management. These results imply that as women's share of those nearing retirement increases, wages increase for BC-BC management, translating into a combined same-year and lagged year effect of about $5,500 for women in BC-BC management in an MSA on average.

Women's share of total industry employment has a net positive relationship with wages for all management types, with at least 1% statistical significance for all lagged variables. The effects are strongest for NBC-NBC management (net 0.91%) and imply an

average increase of about $750 for women in NBC-NBC management. The positive finding for BC-BC management could be due to the decrease of women in BC-BC management as women's share of employment increases (see results for local area segregation), which would increase men's relative presence in BC-BC management and could positively influence wages.

Percent union coverage has a small, positive effect on wages in BC-BC (1.25%, $p < 0.01$) and BC-NBC (0.79%, $p < 0.10$) management models but not NBC-NBC management. Age has a positive, significant (at $p < 0.001$) effect of around 10% to 14% magnitude for all management types. Similarly, average hours worked has a positive effect on wages for BC-BC (7.63%, $p < 0.10$) and NBC-NBC (15.32%, $p < 0.001$) management. Years of education have a modest negative effect on wages for all management types (at least $p < 0.10$ for all models). Percent married has small effects on wages for BC-NBC (0.50%, $p < 0.10$) and NBC-NBC management (-0.45%, $p < 0.01$), but the effects have little practical significance.

2.4.4 Men's Wage Ratio

Table 2.5 presents the results for men's wages as a percentage of MSA average wages. These results are presented as a comparison with how women's wages change as labor markets tighten. For BC-BC management, both women's and men's wages show about the same magnitude of net negative effects for unemployment rates, though men's BC-BC management does not exhibit countervailing effects between the same-year and the lagged variables. In BC-NBC management, the effects of unemployment rates on women are greater in magnitude and positive, whereas BC-NBC for men shows a small, negative

effect. For NBC-NBC management, men's wages show a negative effect with greater magnitude than women's wages. None of the unemployment results are significant.

For the effects of the concentration of blue-collar employment on wages, women's BC-BC management shows greater positive effects of blue-collar employment than men's wages. This may imply that as blue-collar employment increases, more men work in blue-collar employment, and wages for blue-collar work as a whole rise, increasing women's wages. The impact of blue-collar concentration is about the same for BC-NBC management for women's and men's wages. The impacts on NBC-NBC management are also similar in magnitude for women and men, though men's wages show a net positive effect and women's wages show a net negative effect. None of the results are significant.

Results for the impact of number of managers near retirement are similar in magnitude and direction for women and men in all management types, and results for men's BC-NBC management are significant though net impact is small (-0.09%, $p < 0.05$). For women's share of managers nearing retirement, men's BC-BC wages are net positive, and smaller in magnitude in comparison to women's BC-BC wages. However, for BC-NBC management, men's wages are net negatively (0.59% net, $p < 0.05$ for lagged variable) associated with the increased share of women managers nearing retirement, with about the same magnitude of the negative effect of women's BC-NBC wages. This effect also exists for men's NBC-NBC wages, where men's results are negative and significant (-1.27% net, $p < 0.05$ for lagged variable)

For women's share of total industry employment, men's wages are positively related but at a smaller magnitude than women's wages for BC-BC management. For all

three types of management, men's wages are significantly (at least $p < 0.01$ for lagged variables) and positively related to women's share of the industry, with greater magnitude than women's wages. This implies that for all management types, men's wages increase with increases in women's representation in those industries.

In comparison to women's wages, men's wages show greater returns to age in BC-BC and NBC-NBC management and show slightly greater returns to hours worked in BC-NBC and NBC-NBC management. Men's wages show lesser returns to education in all models and greater returns to number of children for BC-NBC management.

2.4.5 Robustness Checks

This paper aims to show that blue-collar and non-blue-collar industries and management show differing patterns of effects for our environmental labor market variables. In the previous models, panels are balanced and restricted to the observations of women in BC-BC management (about 28 MSAs) so that results are comparable. To test for the generalizability of the small sample results, I will present and compare results for unbalanced panels, still restricted so that every management model has the same number of observations across the same MSAs and years, to determine the reliability of our original results. I will detail results for environmental labor market variables (e.g., unemployment rate, number of managers nearing retirement), but all results are reported in Tables 2.6-2.8.

For local area segregation results (Table 2.6), unbalanced results generally support the findings for the unemployment rate, blue-collar employment concentration, and the number of managers nearing retirement for BC-BC and BC-NBC management.

Additionally, for BC-NBC management, percent of women in the industry has a stronger, positive effect on women in that type of management. Unbalanced results are the most different from balanced results for NBC-NBC management, and estimates are generally larger in the unbalanced model. There is support for the positive impact of the concentration of blue-collar industry on women in NBC-NBC management (though same-year and lagged results switch signs). The results for women's share of managers nearing retirement are supported for NBC-NBC management. Generally, results of NBC-NBC management are least similar to the original results in terms of magnitude and direction of effect.

For wage gains/losses results (Table 2.7), unbalanced results support the findings for BC-NBC management for unemployment rates, blue-collar employment concentration, the number of managers nearing retirement, women's share of managers nearing retirement, and women's share of total industry employment. Unbalanced results for NBC-NBC management generally support the same-year findings for unemployment rates, blue-collar employment concentration, women's share of managers nearing retirement, and women's share of total industry employment. For BC-BC management, unbalanced results support original findings for number of managers near retirement, same-year women's share of managers near retirement, and same-year women's share of total industry employment. As with local area segregation results, results for NBC-NBC management are most dissimilar to original results in terms of magnitude and direction.

For wage ratio results for BC-BC management, unbalanced results support the original findings for lagged-year blue-collar employment concentration, number of managers nearing retirement, women's share of managers nearing retirement, and same-

year women's share of total industry employment (Table 2.8). For BC-NBC management, results support original findings for unemployment rates, lagged-year of blue-collar employment concentration, and women's share of those nearing retirement. For NBC-NBC management, unbalanced results support the original findings for unemployment rates, number of managers nearing retirement, women's share of managers nearing retirement, and lagged year of women's share of total industry employment.

As an additional robustness check, the regressions using restricted (28 MSAs) and person-weighted data (using person weights given in the ACS data) were run. The findings generally support the main findings, and in most cases for BC-BC and BC-NBC management, the magnitudes of results are larger. As with the unbalanced robustness models above, results for NBC-NBC are least supported by weighted robustness models.

2.5 Conclusion

Determining the influences of women in management is an important step to increasing women's promotion in the workplace, which could serve as a path to greater hiring equality in the future (Goldin et al. 2017). This paper looks at the environmental labor market effects of women's presence and pay in three different types of management groups: blue-collar managers in blue-collar industry, non-blue-collar managers in blue-collar industry, and non-blue-collar managers in non-blue-collar industries. Broadly, findings show that those three different management groups have differing effects of labor market variables, meaning that there are different influences on women's pay and presence in management dependent on their type of management. An example of this is

the positive effect of those nearing retirement on the presence of women in NBC-NBC management that is not found for either type of blue-collar management.

For blue-collar management, unemployment rates are shown to influence the presence (dependent variable: local area segregation) of women in management, and countervailing effects between the current year and the lagged year show the complexity of measuring the effects of tight labor markets. Our measures of a tight labor market (unemployment rates, number of managers nearing retirement) do not positively influence the presence of women in blue-collar industry management for blue-collar and non-blue-collar managers. A strong indicator of both the presence and pay of women in blue-collar industry management is the concentration of blue-collar employment as a percent of total MSA employment. As blue-collar industries gain labor market share, the presence of women in blue-collar management decreases and their pay increases.

There is evidence of the "glass elevator" effect (Yavorsky and Dill 2020; Busch 2018) in that as the percentage of women in an industry increases, women's presence in management decreases, implying that men are more likely to become managers when more women are present in an industry. Tight labor market effects do not lead to reduced barriers for women in blue-collar management, with blue-collar employment's share of the labor market being a predictive indicator of the lack of women in blue-collar management.

A limitation of this paper is the small sample size, due to the low number of women in blue-collar management. I account for the small sample size by running robustness checks using unbalanced panel models and models with person-weighted data. Robustness results show that the results are generally consistent with the main findings.

The results of this paper imply that policies hoping to increase the number of women in management should take into consideration the industrial context of the policy. Factors that influence the presence of women in men-concentrated industries may be different than those for women-concentrated industries. Given the importance of context, an important next step in research of women in blue-collar management is to explore the factors that would influence young women's interest in blue-collar work at the pre-college level.

2.6 Chapter 2 Figures

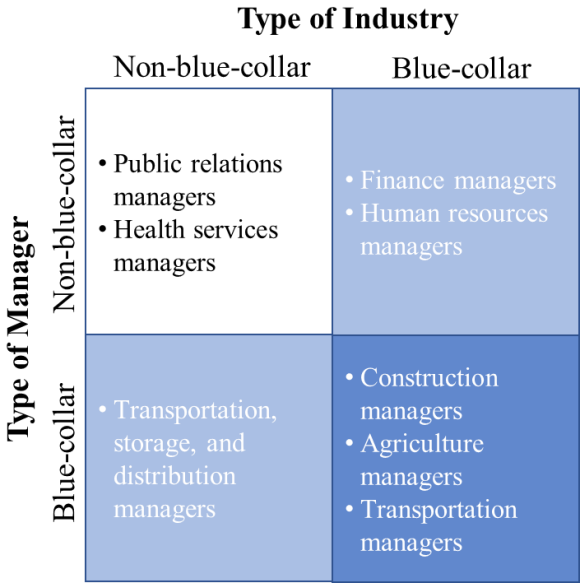

Figure 2.1: Examples of Managers by Manager Type and Industry Type

Source: Author's analysis of ACS Data 2019

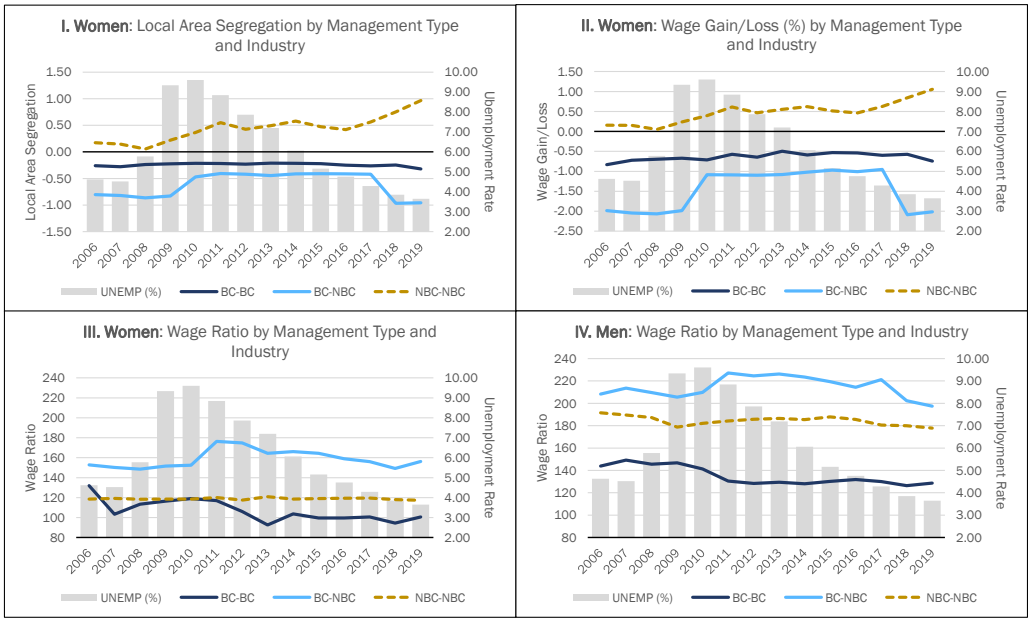

Figure 2.2: Dependent Variables Compared to Unemployment Rate over Time

Source: ACS 2006-2019, Author's calculations

2.7 Chapter 2 Tables

Table 2.1: Descriptive Statistics

	BC-BC			BC-NBC			NBC-NBC		
	Women	Women	Men	Women	Women	Men	Women	Women	Men
	2006	**2019**	**2019**	**2006**	**2019**	**2019**	**2006**	**2019**	**2019**
Number in management	8.71	12.96	102.07	52.79	109.04	300.86	391.93	672.68	724.39
	7.12	*12.80*	*78.34*	*54.98*	*102.97*	*254.38*	*413.18*	*720.92*	*805.48*
Income (2012 Dollars)	$57,792.56	$77,678.52	$99,659.56	$68,162.42	$120,876.21	$153,168.98	$53,054.41	$91,462.61	$138,789.17
	$25,231.07	*$18,780.39*	*$13,656.91*	*$10,489.37*	*$20,508.19*	*$15,135.40*	*$6,654.03*	*$11,397.47*	*$19,911.76*
Age	44.28	42.84	46.76	44.74	46.24	48.88	44.00	44.92	46.42
	5.65	*5.71*	*1.68*	*1.73*	*1.85*	*1.13*	*1.13*	*1.05*	*0.96*
Average Hours of Work per Week	44.69	45.81	47.89	46.39	45.50	47.88	45.15	44.47	46.87
	3.72	*5.22*	*1.96*	*1.42*	*1.18*	*0.69*	*0.85*	*0.59*	*0.66*
Number of Years of Education	2.39	2.52	1.87	2.62	3.13	2.89	2.65	3.03	3.18
	1.04	*0.79*	*0.34*	*0.46*	*0.32*	*0.24*	*0.28*	*0.27*	*0.26*
Number of Children	0.72	0.87	0.93	0.78	0.81	0.98	0.76	0.78	0.94
	0.38	*0.52*	*0.16*	*0.19*	*0.16*	*0.10*	*0.06*	*0.08*	*0.12*
Number of Managers Near Retirement	5.46	17.46	17.46	20.43	57.00	57.00	61.50	170.79	170.79
	6.16	*14.00*	*14.00*	*20.12*	*54.20*	*54.20*	*77.85*	*190.11*	*190.11*
Women's Share of Managers Near Retirement (%)	6.82	7.01	7.01	12.42	17.70	17.70	39.35	44.29	44.29
	19.72	*9.47*	*9.47*	*9.95*	*8.14*	*8.14*	*8.23*	*4.27*	*4.27*
Women's Share of Total Employment in Industry (%)	22.32	22.84	22.84	22.32	22.84	22.84	51.97	52.26	52.26
	2.12	*1.99*	*1.99*	*2.12*	*1.99*	*1.99*	*1.80*	*1.62*	*1.62*
Percent White (%)	87.31	85.26	90.67	87.84	84.79	88.51	81.63	81.04	85.23
	16.29	*14.94*	*5.89*	*8.48*	*8.22*	*6.05*	*7.61*	*7.83*	*5.38*
Percent Black (%)	6.23	4.37	4.15	6.81	6.79	3.68	11.38	10.39	6.36
	13.81	*8.82*	*2.94*	*7.47*	*6.77*	*3.12*	*8.04*	*7.22*	*4.15*
Percent Hispanic (%)	2.49	6.61	5.41	1.53	3.78	3.44	3.60	4.89	3.96
	6.76	*10.74*	*6.52*	*2.84*	*6.28*	*4.63*	*6.32*	*6.38*	*6.03*
Percent Asian (%)	2.59	4.49	1.41	2.72	5.02	4.27	2.71	3.82	4.84
	6.44	*7.06*	*2.11*	*3.30*	*3.90*	*3.82*	*1.81*	*2.64*	*2.78*
Percent Other (%)	3.86	5.88	3.77	2.64	3.40	3.54	4.28	4.75	3.56
	7.95	*8.01*	*4.36*	*2.92*	*3.13*	*2.73*	*4.34*	*3.28*	*2.95*
Percent Married (%)	59.10	58.83	74.09	64.43	67.49	80.07	59.77	60.26	73.73
	21.01	*19.41*	*5.85*	*7.28*	*9.39*	*3.24*	*4.07*	*3.82*	*3.45*
	2006	**2019**							
Unemployment Rate (%)	4.62	3.65							
	1.12	*0.93*							
Union Coverage of Total Employment (%)	11.11	10.00							
	5.93	*4.70*							
Blue-Collar Employment Concentration (%)	16.09	14.48							
	4.10	*4.04*							

Note: Data from ACS 2006-2019.

Table 2.2: Local Area Segregation Results: Restricted

	BC-BC			BC-NBC			NBC-NBC		
MEAN:	**-0.2419**			**-0.6164**			**0.4410**		
	ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN	
Unemployment Rate (%)	0.0135 *0.0069*	5.60%	^	0.0222 *0.0113*	3.60%	^	0.0194 *0.0468*	4.39%	
Lag of Unemployment Rate (%)	-0.0099 *0.0067*	-4.11%		-0.0208 *0.0109*	-3.37%	^	0.0031 *0.0464*	0.71%	
Blue-Collar Employment Concentration (%)	0.0013 *0.0109*	0.55%		0.0167 *0.0181*	2.71%		-0.0132 *0.0748*	-3.00%	
Lag of Blue-Collar Employment Concentration (%)	-0.0158 *0.0107*	-6.55%		-0.0293 *0.0178*	-4.75%		0.0217 *0.0736*	4.92%	
Number of Managers Near Retirement	-0.0022 *0.0008*	-0.91%	**	-0.0008 *0.0004*	-0.13%	.	-0.0001 *0.0012*	-0.03%	
Lag of Number of Managers Near Retirement	-0.0001 *0.0010*	-0.05%		0.0003 *0.0006*	0.06%		0.0003 *0.0014*	0.07%	
Women's Share of Managers Near Retirement (%)	-0.0006 *0.0003*	-0.27%	*	0.0012 *0.0005*	0.20%	**	0.0242 *0.0029*	5.48%	***
Lag of Women's Share of Managers Near Retirement (%)	-0.0005 *0.0003*	-0.22%	^	0.0007 *0.0004*	0.11%		-0.0025 *0.0027*	-0.56%	
Women's Share of Total Employment in Industry (%)	-0.0020 *0.0030*	-0.84%		0.0044 *0.0050*	0.72%		-0.0736 *0.0338*	-16.70%	*
Lag of Women's Share of Total Employment in Industry (%)	-0.0034 *0.0030*	-1.40%		-0.0031 *0.0050*	-0.51%		-0.0121 *0.0336*	-2.75%	
Union Coverage of Total Employment (%)	0.0004 *0.0019*	0.16%		-0.0042 *0.0032*	-0.67%		-0.0053 *0.0132*	-1.21%	
Age	-0.0009 *0.0006*	-0.39%		0.0013 *0.0023*	0.21%		-0.0812 *0.0262*	-18.41%	**
Average Hours of Work per Week	0.0000 *0.0007*	0.01%		0.0006 *0.0026*	0.10%		0.0147 *0.0400*	3.34%	
Number of Years of Education	0.0003 *0.0033*	0.12%		0.0054 *0.0107*	0.88%		-0.3485 *0.1458*	-79.03%	*
Number of Children	-0.0204 *0.0067*	-8.45%	**	0.0229 *0.0234*	3.71%		0.6993 *0.2873*	158.56%	*
Percent Married (%)	0.0003 *0.0001*	0.12%	*	0.0001 *0.0005*	0.02%		-0.0028 *0.0061*	-0.63%	
Percent Hispanic (%)	-0.0013 *0.0004*	-0.54%	***	-0.0014 *0.0012*	-0.23%		0.0025 *0.0117*	0.56%	
Percent Black (%)	0.0004 *0.0003*	0.17%		0.0011 *0.0009*	0.18%		-0.0098 *0.0092*	-2.22%	
Percent Asian (%)	-0.0004 *0.0004*	-0.17%		-0.0020 *0.0011*	-0.32%	.	-0.0126 *0.0178*	-2.87%	
	n = 392			*n = 392*			*n = 392*		
Two-Way Fixed Effects	Yes			Yes			Yes		

Note: Signif. Codes are *** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1

Table 2.3: Wage Gain/Loss Results: Restricted

	BC-BC			BC-NBC			NBC-NBC		
MEAN:	**-0.6376**			**-1.4636**			**0.4820**		
	ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN	
Unemployment Rate (%)	0.0515 *0.0366*	8.08%		0.0675 *0.0470*	4.61%		0.0337 *0.0525*	7.00%	
Lag of Unemployment Rate (%)	-0.0838 *0.0357*	-13.15%	*	-0.0822 *0.0454*	-5.62%	^	0.0048 *0.0520*	0.99%	
Blue-Collar Employment Concentration (%)	-0.0650 *0.0575*	-10.19%		0.0728 *0.0750*	4.98%		0.0142 *0.0839*	2.95%	
Lag of Blue-Collar Employment Concentration (%)	0.0093 *0.0567*	1.45%		-0.0808 *0.0738*	-5.52%		0.0029 *0.0826*	0.61%	
Number of Managers Near Retirement	-0.0039 *0.0044*	-0.61%		-0.0013 *0.0018*	-0.09%		0.0000 *0.0013*	0.00%	
Lag of Number of Managers Near Retirement	0.0017 *0.0051*	0.27%		0.0008 *0.0023*	0.06%		0.0004 *0.0016*	0.09%	
Women's Share of Managers Near Retirement (%)	0.0039 *0.0015*	0.61%	*	0.0095 *0.0019*	0.65%	***	0.0259 *0.0033*	5.37%	***
Lag of Women's Share of Managers Near Retirement (%)	-0.0001 *0.0014*	-0.02%		0.0025 *0.0018*	0.17%		-0.0022 *0.0030*	-0.45%	
Women's Share of Total Employment in Industry (%)	-0.0166 *0.0161*	-2.61%		0.0435 *0.0209*	2.97%	*	-0.0807 *0.0380*	-16.74%	*
Lag of Women's Share of Total Employment in Industry (%)	-0.0098 *0.0161*	-1.54%		-0.0114 *0.0208*	-0.78%		-0.0110 *0.0377*	-2.28%	
Union Coverage of Total Employment (%)	-0.0084 *0.0102*	-1.32%		0.0026 *0.0133*	0.17%		-0.0079 *0.0148*	-1.65%	
Age	-0.0085 *0.0031*	-1.33%	**	-0.0181 *0.0096*	-1.24%	^	-0.0818 *0.0294*	-16.98%	**
Average Hours of Work per Week	-0.0066 *0.0037*	-1.03%	^	-0.0094 *0.0107*	-0.64%		0.0273 *0.0449*	5.67%	
Number of Years of Education	-0.0687 *0.0172*	-10.77%	***	-0.0570 *0.0442*	-3.89%		-0.3291 *0.1635*	-68.28%	*
Number of Children	-0.0570 *0.0353*	-8.93%		0.0313 *0.0970*	2.14%		0.8777 *0.3223*	182.11%	**
Percent Married (%)	-0.0017 *0.0007*	-0.26%	*	-0.0035 *0.0019*	-0.24%	^	-0.0035 *0.0069*	-0.72%	
Percent Hispanic (%)	0.0002 *0.0020*	0.04%		-0.0056 *0.0050*	-0.39%		0.0028 *0.0131*	0.58%	
Percent Black (%)	0.0031 *0.0014*	0.49%	*	0.0016 *0.0035*	0.11%		-0.0110 *0.0103*	-2.27%	
Percent Asian (%)	-0.0039 *0.0021*	-0.61%	^	-0.0029 *0.0046*	-0.20%		-0.0112 *0.0200*	-2.32%	
	n = 392			*n = 392*			*n = 392*		
Two-Way Fixed Effects	Yes			Yes			Yes		

Note: Signif. Codes are *** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1

Table 2.4: Women's Wage Ratio: Restricted

	BC-BC			BC-NBC			NBC-NBC		
MEAN:	**107.0299**			**158.7373**			**118.7916**		
	ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN	
Unemployment Rate (%)	-3.2333 *4.4334*	-3.02%		-1.2667 *3.1230*	-0.80%		-0.3419 *0.7974*	-0.29%	
Lag of Unemployment Rate (%)	5.0646 *4.3172*	4.73%		1.9027 *3.0199*	1.20%		0.4228 *0.7898*	0.36%	
Blue-Collar Employment Concentration (%)	10.4904 *6.9575*	9.80%		0.8495 *4.9852*	0.54%		0.8989 *1.2749*	0.76%	
Lag of Blue-Collar Employment Concentration (%)	-6.1593 *6.8633*	-5.75%		1.3003 *4.9073*	0.82%		-1.3359 *1.2546*	-1.12%	
Number of Managers Near Retirement	-0.3652 *0.5328*	-0.34%		0.0123 *0.1199*	0.01%		0.0130 *0.0197*	0.01%	
Lag of Number of Managers Near Retirement	-0.1152 *0.6224*	-0.11%		-0.0400 *0.1536*	-0.03%		-0.0288 *0.0241*	-0.02%	
Women's Share of Managers Near Retirement (%)	4.7234 *1.9477*	-0.41%	*	0.5127 *1.3883*	-0.16%	^	-0.2348 *0.5767*	-0.07%	^
Lag of Women's Share of Managers Near Retirement (%)	4.6964 *1.9495*	-0.06%		0.0025 *1.3841*	0.02%		-0.5089 *0.5728*	0.00%	
Women's Share of Total Employment in Industry (%)	-0.6648 *1.2322*	4.41%	*	-0.7429 *0.8836*	0.32%		-0.0956 *0.2251*	-0.20%	
Lag of Women's Share of Total Employment in Industry (%)	1.2915 *0.3760*	4.39%	*	1.9607 *0.6406*	0.00%		1.1713 *0.4459*	-0.43%	
Union Coverage of Total Employment (%)	1.3404 *0.4466*	-0.62%		1.2508 *0.7129*	-0.47%		1.0534 *0.6815*	-0.08%	
Age	12.2917 *2.0851*	1.21%	***	16.4788 *2.9401*	1.24%	**	17.0437 *2.4837*	0.99%	**
Average Hours of Work per Week	8.1612 *4.2754*	1.25%	**	-3.1448 *6.4484*	0.79%	^	18.1985 *4.8952*	0.89%	
Number of Years of Education	-0.4408 *0.1862*	11.48%	***	-0.2471 *0.1291*	10.38%	***	-0.0877 *0.0501*	14.35%	***
Number of Children	-0.0597 *0.1745*	7.63%	^	0.0276 *0.1183*	-1.98%		-0.0035 *0.0462*	15.32%	***
Percent Married (%)	-0.3904 *0.2438*	0.31%	***	0.7957 *0.3321*	0.32%	***	-0.5298 *0.1990*	0.00%	
Percent Hispanic (%)	-0.2596 *0.1738*	-0.36%		-0.1512 *0.2358*	0.50%	*	-0.4669 *0.1565*	-0.45%	**
Percent Black (%)	0.0763 *0.2498*	-0.24%		-0.3119 *0.3035*	-0.10%		0.0529 *0.3041*	-0.39%	**
Percent Asian (%)	0.3285 *0.0843*	0.07%		0.5131 *0.1285*	-0.20%		-0.0038 *0.1041*	0.04%	
	n = 392			*n = 392*			*n = 392*		
Two-Way Fixed Effects	Yes			Yes			Yes		

Note: Signif. Codes are *** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1

Table 2.5: Men's Wage Ratio: Restricted

	BC-BC			BC-NBC			NBC-NBC		
MEAN:	**135.0158**			**214.5002**			**184.5134**		
	ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN	
Unemployment Rate (%)	-1.5458 *2.0787*	-1.14%		-0.9760 *2.3271*	-0.46%		1.1097 *1.2913*	0.60%	
Lag of Unemployment Rate (%)	-0.6548 *2.0175*	-0.48%		0.4365 *2.2549*	0.20%		-1.6425 *1.2580*	-0.89%	
Blue-Collar Employment Concentration (%)	1.5692 *3.2485*	1.16%		1.2929 *3.7462*	0.60%		1.8787 *2.0185*	1.02%	
Lag of Blue-Collar Employment Concentration (%)	-2.0028 *3.2114*	-1.48%		1.1333 *3.6508*	0.53%		-1.3128 *2.0073*	-0.71%	
Number of Managers Near Retirement	-0.4301 *0.2630*	-0.32%		-0.2028 *0.0905*	-0.09%	*	-0.0010 *0.0317*	0.00%	
Lag of Number of Managers Near Retirement	-0.0592 *0.2934*	-0.04%		0.2325 *0.1152*	0.11%	*	0.0122 *0.0387*	0.01%	
Women's Share of Managers Near Retirement (%)	0.7027 *0.9151*	0.52%		1.3969 *1.0455*	0.65%		-0.5233 *0.9119*	-0.28%	
Lag of Women's Share of Managers Near Retirement (%)	0.1016 *0.9180*	0.08%		-2.6497 *1.0480*	-1.24%	*	-1.8234 *0.9195*	-0.99%	*
Women's Share of Total Employment in Industry (%)	-0.7498 *0.5848*	-0.56%		-1.4821 *0.6532*	-0.69%	*	0.4519 *0.3677*	0.24%	
Lag of Women's Share of Total Employment in Industry (%)	3.0456 *0.5133*	2.26%	***	2.3594 *0.8357*	1.10%	**	5.2921 *0.8018*	2.87%	***
Union Coverage of Total Employment (%)	1.0479 *0.5157*	0.78%	*	2.5124 *1.0339*	1.17%	*	3.4662 *0.8336*	1.88%	***
Age	13.3543 *3.0768*	9.89%	***	8.8071 *4.7015*	4.11%	^	18.5224 *4.9324*	10.04%	***
Average Hours of Work per Week	8.5405 *5.1012*	6.33%	^	26.7065 *8.2390*	12.45%	**	1.0391 *7.6832*	0.56%	
Number of Years of Education	0.0900 *0.0817*	0.07%		0.1127 *0.0901*	0.05%		0.1726 *0.0790*	0.09%	*
Number of Children	-0.0599 *0.0803*	-0.04%		0.2430 *0.0880*	0.11%	**	0.1339 *0.0741*	0.07%	^
Percent Married (%)	-0.6724 *0.2709*	-0.50%	*	-0.3236 *0.4832*	-0.15%		-0.3680 *0.3902*	-0.20%	
Percent Hispanic (%)	-0.1837 *0.3464*	-0.14%		-1.3383 *0.4863*	-0.62%	**	-1.4146 *0.3365*	-0.77%	***
Percent Black (%)	-1.1581 *0.5002*	-0.86%	*	-0.6504 *0.4524*	-0.30%		-0.3489 *0.4095*	-0.19%	
Percent Asian (%)	0.0086 *0.1576*	0.01%		0.2642 *0.2646*	0.12%		-0.0535 *0.2109*	-0.03%	
	n = 392			*n = 392*			*n = 392*		
Two-Way Fixed Effects	Yes			Yes			Yes		

Note: Signif. Codes are *** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1

Table 2.6: Local Area Segregation Results: Unbalanced

	BC-BC			BC-NBC			NBC-NBC		
MEAN:	**-0.2585**			**-0.5837**			**0.6678**		
	ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN	
Unemployment Rate (%)	0.0101 *0.0052*	3.90%	^	0.0008 *0.0087*	0.14%		0.1160 *0.0388*	17.38%	**
Lag of Unemployment Rate (%)	-0.0027 *0.0052*	-1.05%		-0.0100 *0.0087*	-1.71%		-0.0626 *0.0384*	-9.37%	
Blue-Collar Employment Concentration (%)	0.0059 *0.0064*	2.26%		0.0133 *0.0107*	2.28%		0.2154 *0.0472*	32.26%	***
Lag of Blue-Collar Employment Concentration (%)	-0.0145 *0.0063*	-5.62%	*	-0.0240 *0.0106*	-4.12%	*	-0.1900 *0.0469*	-28.45%	***
Number of Managers Near Retirement	-0.0050 *0.0009*	-1.94%	***	-0.0015 *0.0005*	-0.25%	**	0.0005 *0.0014*	0.07%	
Lag of Number of Managers Near Retirement	-0.0003 *0.0011*	-0.12%		0.0013 *0.0006*	0.22%	*	-0.0005 *0.0017*	-0.08%	
Women's Share of Managers Near Retirement (%)	0.0000 *0.0002*	0.01%		0.0004 *0.0003*	0.06%		0.0168 *0.0018*	2.52%	***
Lag of Women's Share of Managers Near Retirement (%)	-0.0002 *0.0002*	-0.08%		0.0002 *0.0003*	0.04%		0.0011 *0.0017*	0.16%	
Women's Share of Total Employment in Industry (%)	-0.0004 *0.0018*	-0.14%		0.0109 *0.0031*	1.86%	***	-0.0196 *0.0200*	-2.94%	
Lag of Women's Share of Total Employment in Industry (%)	0.0011 *0.0018*	0.41%		0.0011 *0.0031*	0.19%		0.0087 *0.0204*	1.30%	
Union Coverage of Total Employment (%)	0.0012 *0.0011*	0.46%		-0.0038 *0.0018*	-0.65%	*	0.0037 *0.0081*	0.55%	
Age	0.0000 *0.0004*	0.02%		-0.0011 *0.0012*	-0.18%		-0.0538 *0.0168*	-8.05%	**
Average Hours of Work per Week	0.0001 *0.0004*	0.04%		-0.0002 *0.0016*	-0.04%		-0.0061 *0.0228*	-0.91%	
Number of Years of Education	-0.0001 *0.0022*	-0.04%		-0.0104 *0.0063*	-1.78%	^	-0.1445 *0.0951*	-21.64%	
Number of Children	-0.0048 *0.0043*	-1.87%		-0.0247 *0.0132*	-4.23%	^	0.3391 *0.1899*	50.78%	^
Percent Married (%)	0.0000 *0.0001*	0.01%		0.0005 *0.0003*	0.09%	^	0.0053 *0.0040*	0.79%	
Percent Hispanic (%)	0.0002 *0.0002*	0.06%		-0.0004 *0.0005*	-0.07%		-0.0034 *0.0075*	-0.51%	
Percent Black (%)	0.0002 *0.0002*	0.07%		-0.0001 *0.0006*	-0.01%		0.0053 *0.0070*	0.79%	
Percent Asian (%)	0.0004 *0.0003*	0.15%		-0.0011 *0.0007*	-0.19%		-0.0174 *0.0110*	-2.61%	
	n = 1055			*n = 1055*			*n = 1048*		
Two-Way Fixed Effects	Yes			Yes			Yes		

Note: Signif. Codes are *** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1

Table 2.7: Wage Gain/Loss Results: Unbalanced

	BC-BC			BC-NBC			NBC-NBC		
MEAN:	**-0.6158**			**-1.4156**			**0.7081**		
	ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN	
Unemployment Rate (%)	0.0175 *0.0271*	2.85%		0.0206 *0.0357*	1.46%		0.1138 *0.0420*	16.07%	**
Lag of Unemployment Rate (%)	-0.0021 *0.0271*	-0.34%		-0.0560 *0.0358*	-3.95%		-0.0513 *0.0417*	-7.25%	
Blue-Collar Employment Concentration (%)	0.0232 *0.0330*	3.76%		0.0914 *0.0437*	6.46%	*	0.2253 *0.0512*	31.81%	***
Lag of Blue-Collar Employment Concentration (%)	-0.0028 *0.0327*	-0.46%		-0.1361 *0.0434*	-9.61%	**	-0.1810 *0.0508*	-25.56%	***
Number of Managers Near Retirement	-0.0104 *0.0047*	-1.69%	*	-0.0024 *0.0021*	-0.17%		0.0008 *0.0015*	0.11%	
Lag of Number of Managers Near Retirement	0.0014 *0.0055*	0.23%		0.0028 *0.0027*	0.20%		-0.0006 *0.0019*	-0.09%	
Women's Share of Managers Near Retirement (%)	0.0023 *0.0009*	0.38%	*	0.0052 *0.0012*	0.37%	***	0.0173 *0.0020*	2.44%	***
Lag of Women's Share of Managers Near Retirement (%)	0.0007 *0.0008*	0.12%		-0.0002 *0.0011*	-0.01%		0.0008 *0.0018*	0.11%	
Women's Share of Total Employment in Industry (%)	-0.0205 *0.0095*	-3.33%	*	0.0506 *0.0125*	3.57%	***	-0.0152 *0.0217*	-2.15%	
Lag of Women's Share of Total Employment in Industry (%)	0.0106 *0.0094*	1.72%		-0.0128 *0.0125*	-0.91%		0.0170 *0.0221*	2.40%	
Union Coverage of Total Employment (%)	-0.0088 *0.0057*	-1.43%		-0.0088 *0.0075*	-0.62%		0.0040 *0.0088*	0.56%	
Age	-0.0069 *0.0020*	-1.12%	***	-0.0266 *0.0048*	-1.88%	***	-0.0391 *0.0182*	-5.53%	*
Average Hours of Work per Week	-0.0099 *0.0023*	-1.60%	***	-0.0208 *0.0064*	-1.47%	**	0.0023 *0.0247*	0.32%	
Number of Years of Education	-0.0520 *0.0112*	-8.44%	***	-0.1406 *0.0258*	-9.93%	***	-0.0715 *0.1031*	-10.10%	
Number of Children	-0.0139 *0.0223*	-2.26%		-0.1504 *0.0539*	-10.62%	**	0.4814 *0.2058*	67.97%	*
Percent Married (%)	-0.0008 *0.0004*	-0.13%	^	-0.0002 *0.0011*	-0.01%		0.0045 *0.0043*	0.63%	
Percent Hispanic (%)	-0.0002 *0.0010*	-0.03%		-0.0043 *0.0021*	-0.30%	*	-0.0021 *0.0082*	-0.29%	
Percent Black (%)	0.0008 *0.0011*	0.14%		-0.0002 *0.0025*	-0.01%		0.0048 *0.0076*	0.68%	
Percent Asian (%)	0.0031 *0.0014*	0.51%	*	0.0003 *0.0027*	0.02%		-0.0155 *0.0119*	-2.18%	
	n = 1055			*n = 1055*			*n = 1048*		
Two-Way Fixed Effects	Yes			Yes			Yes		

Note: Signif. Codes are *** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1

Table 2.8: Women's Wage Ratio: Unbalanced

	BC-BC			BC-NBC			NBC-NBC		
MEAN:	**103.5696**			**157.3713**			**118.0397**		
	ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN		ESTIMATE (ST ERROR)	% MEAN	
Unemployment Rate (%)	2.4972 *3.4267*	2.41%		-3.0058 *2.9814*	-1.91%		-1.1944 *0.6186*	-1.01%	^
Lag of Unemployment Rate (%)	-2.6100 *3.4174*	-2.52%		2.7364 *2.9867*	1.74%		0.9099 *0.6135*	0.77%	
Blue-Collar Employment Concentration (%)	1.2455 *4.1659*	1.20%		-2.5607 *3.6435*	-1.63%		-0.8883 *0.7536*	-0.75%	
Lag of Blue-Collar Employment Concentration (%)	-4.7937 *4.1292*	-4.63%		4.5361 *3.6209*	2.88%		1.1603 *0.7479*	0.98%	
Number of Managers Near Retirement	-0.0301 *0.5880*	-0.03%		0.0177 *0.1752*	0.01%		0.0012 *0.0226*	0.00%	
Lag of Number of Managers Near Retirement	-0.3610 *0.6921*	-0.35%		0.0474 *0.2211*	0.03%		-0.0234 *0.0277*	-0.02%	
Women's Share of Managers Near Retirement (%)	-0.1551 *0.1146*	-0.15%		-0.3178 *0.1005*	-0.20%	**	-0.1120 *0.0294*	-0.09%	***
Lag of Women's Share of Managers Near Retirement (%)	-0.0094 *0.0997*	-0.01%		0.0483 *0.0936*	0.03%		0.0063 *0.0264*	0.01%	
Women's Share of Total Employment in Industry (%)	3.1994 *1.1957*	3.09%	**	-0.4248 *1.0432*	-0.27%		0.5348 *0.3192*	0.45%	^
Lag of Women's Share of Total Employment in Industry (%)	0.9249 *1.1915*	0.89%		0.6587 *1.0467*	0.42%		-0.2032 *0.3252*	-0.17%	
Union Coverage of Total Employment (%)	0.9673 *0.7179*	0.93%		0.6277 *0.6293*	0.40%		0.0248 *0.1298*	0.02%	
Age	1.1866 *0.2551*	1.15%	***	2.6685 *0.4032*	1.70%	***	1.7253 *0.2678*	1.46%	***
Average Hours of Work per Week	1.4222 *0.2859*	1.37%	***	2.5872 *0.5370*	1.64%	***	1.1613 *0.3638*	0.98%	**
Number of Years of Education	9.7302 *1.4101*	9.39%	***	17.8437 *2.1523*	11.34%	***	14.2057 *1.5178*	12.03%	***
Number of Children	3.4407 *2.8126*	3.32%		1.8732 *4.4995*	1.19%		4.0049 *3.0311*	3.39%	
Percent Married (%)	0.1618 *0.0555*	0.16%	**	0.2672 *0.0937*	0.17%	**	0.0189 *0.0636*	0.02%	
Percent Hispanic (%)	-0.0448 *0.1292*	-0.04%		0.3215 *0.1783*	0.20%	^	-0.0083 *0.1201*	-0.01%	
Percent Black (%)	0.0024 *0.1373*	0.00%		0.0121 *0.2125*	0.01%		-0.2775 *0.1116*	-0.24%	*
Percent Asian (%)	-0.2951 *0.1750*	-0.28%	^	-0.7140 *0.2280*	-0.45%	**	0.1227 *0.1749*	0.10%	
	n = 1055			*n = 1055*			*n = 1048*		
Two-Way Fixed Effects	Yes			Yes			Yes		

Note: Signif. Codes are *** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1

CHAPTER 3: PREFERENCES FOR PRESTIGE: DO TIGHT LABOR MARKETS LEAD TO MORE WOMEN IN HIGH PRESTIGE OCCUPATIONS?

3.1 Introduction

Though women during the past century have made progress toward equality in the labor market in terms of employment, pay, and status, many consider the years since the 1970s to be a period of equality slowdown (England, Privalko, & Levine 2020; Scarborough, Sin, & Risman 2019; Cotter, Hermsen, & Vanneman 2011; England and Li 2006). Therefore, exploring labor market outcomes for women can help to inform the types of barriers that persist and what can be done to lower them. This paper aims to measure the effects of tight labor markets on women's presence in high-prestige occupations. Specifically, I determine if low unemployment rates influence the number of women in high-prestige occupations, conditional on the concentration of men in that occupation.

Women face barriers as they try to enter men-concentrated occupations and industries, regardless of prestige level. These barriers may be social influences that impact a woman's own choice of occupation, and barriers may be imposed by employers as they evaluate candidates for suitability. Barriers can appear as low hiring rates for qualified women and sorting into different occupational tasks and training by gender (Barron, Black, and Loewenstein 1993).

Literature suggests that women are more likely than men to place a higher value on occupations that contribute positively to society and a lower value on monetary compensation (Kleinjans, Krassel, and Dukes 2017; Fortin 2008; Eccles 1994). This preference has been cited as one explanation for national gender wage gaps. Assuming women prefer jobs with high social contributions, a conclusion can be drawn that women

would be more concentrated in occupations with higher prestige, as prestige is a measure of the social impact of a job. However, this is not always the case. High prestige occupations are associated with a wide range of salaries, and women and men experience different compensations for high prestige occupations, with women more likely to be in high prestige-low pay occupations (Magnusson 2009). Benevolent or paternalistic sexism (Valentino 2020; Heilman 2001) coupled with devaluation theory (Magnusson 2009; England and Browne 1992) may explain why some women-concentrated occupations have a high social standing without a high wage, and if women do have preferences for high prestige work, they may be willing to accept a lower wage (Eccles 1994).

Following devaluation theory, a connection exists between occupational prestige and women's occupational share. Valentino (2020) finds that the two exhibit a U-shaped relationship, where occupations with low and high shares of women workers have higher prestige than occupations with more equal shares of women and men workers, and the findings imply a prestige reward for those in "gender appropriate" work in the U.S. This finding may be less likely to be found in cultures with more egalitarian views on gender and work, and research in other countries finds an inverted U-shaped relationship between an occupation's prestige and women's share of employment in that occupation (García-Mainar, Montuenga, and García-Martín 2018; Magnusson 2009).

Occupational prestige is largely held to measure the social contribution and social standing of a job, usually measured by a composite rating of individuals (Kleinjans, Krassel, and Dukes 2017; Hauser and Warren 1997). Occupational prestige ratings were created because they are thought to be a better measure of the usefulness and status of someone in an occupation than a socio-economic index (Trieman 1977). In early studies

of occupational prestige ratings, some research concluded that within a single occupation, the occupation is rated differently based on if the occupation-holder is a woman or a man (Guppy and Siltanen 1977), and prestige penalties were found in early ratings for women in a men-concentrated occupation or men and a women-concentrated occupation (Powell and Jacobs 1984). Updated versions of prestige ratings have accounted for within-person differences in ratings (Hout, Smith, and Marsden 2015).

Women are more likely to seek employment in a men-concentrated occupation or industry than men are to seek employment in work that is women-concentrated (England 2011; England 2010), as men view women-concentrated work as undesirable (Yavorsky and Dill 2020). Women have an incentive to enter men-concentrated occupations for access to better pay and upward mobility (England 2010). Additionally, tight labor markets have been shown to lower barriers to employment in cases of employer discrimination (Boulware and Kuttner 2019). Tight labor markets may also push employers to change hiring and promotion strategies (Abraham et al. 2020).

As with increasing women's presence in managerial roles, increasing women's presence in high-prestige occupations has important implications for the future valuation of work done by women. As the above literature shows, work done by women is often valued lower than work done by men, in terms of pay and prestige, and this paper adds to the literature on women and prestige by examining if environmental labor market forces can influence women's presence in high-status occupations. The rest of the paper is as follows: Section 3.2 outlines the model and methods used in this paper. Section 3.3 details the data used. Section 3.4 presents the findings of the main model and the robustness models. Section 3.5 concludes.

3.2 Methodology

3.2.1 Occupational Prestige

Prestige has been used often as an outcome variable when measuring gender changes in status over time (Valentino 2020; García-Mainar, Montuenga, and García-Martín 2018; Magnusson 2009). In this paper, I define high prestige as a prestige rating above a certain level, where individuals are assigned 1 if they are in an occupation above this level and 0 if they are not. The source for occupational prestige ratings is the National Opinion Research Center (NORC), and prestige ratings are on a scale from 1-100 from the General Social Survey. Using the 2010 updated prestige rating data from NORC (535 civilian occupations; Hout, Smith, and Marsden 2015), I create cutoff thresholds at the seventy-fifth, eighty-fifth, and ninety-fifth percentiles. In the data for this paper, 248 unique occupations are present. Occupations above the thresholds are considered high prestige. Initial analysis is done using the seventy-fifth percentile as the cutoff, with robustness tests for the eighty-fifth and ninety-fifth percentile cutoffs. Table 3.1 presents examples of high prestige occupations according to the above definition.

The NORC ratings include a variable of occupational prestige where individual rater bias has been removed. This measure is used as a robustness check.

3.2.2 Model

In this paper, I analyze the contributing factors of a woman being employed in a high prestige occupation conditional on an occupation's concentration of men. Based on the literature outlined previously, women have a preference for occupations that have a high contribution to society (Fortin 2008), shown here as a high level of prestige, and I aim to

show the impacts of tight labor markets on women's entrance into high-prestige occupations.

The base model for this paper is the logit regression outlined below, where $y_{i,j,k}$ is 1 when a woman is occupied in a high-prestige occupation and 0 if she is not. The regression includes individual-level demographic variables, occupation characteristics, year controls, region controls, and MSA-level variables.

$$\Pr\left(y_{i,j,k} = 1 \,\middle|\, UNEMP_j, X_{1i}, \ldots, X_{ni}, X_{1j}, \ldots, X_{oj}, X_{1k}, \ldots, X_{pk}\right) = \frac{1}{1 + e^{-(\beta_1 UNEMP_j + \sum_n \beta_n X_{ni} + \sum_o \beta_o X_{oj} + \sum_p \beta_p X_{pk})}}, \quad (1)$$

where i represents the individual, j represents the MSA, and k represents the occupation. $UNEMP_j$ is the two-year lagged unemployment rate for each MSA. As a robustness check, I use an OLS model with the prestige rating as the dependent variable, with all explanatory variables the same as the logit model detailed above.

I include demographic measures for marital status, number of children, education level, race, and age as determinants of women's choice of occupation (Magnusson 2010). Following Magnusson (2009), I also include occupation characteristics, such as amount of training and education required for the job (characterized as a job zone) and if the occupation is categorized as care- or service-oriented.

Literature points to the background of an individual's family's (namely her father's) occupational prestige as a positive indicator of the individual's prestige (García-Mainar and Montuenga 2020; Hout 2018). Although those variables are available in the

data used in this paper, the variables are not present for all observations. Tests between the observations with and without the family prestige variable show that the two samples are significantly different in nearly every demographic variable (e.g., those with the family prestige variable are younger and more educated). Therefore, models are run without family prestige variables.

3.3 Data

This paper uses individual-level American Community Survey 1% annual data for 2006 through 2019 and randomly selected observations from each year, with a total of 229,936 usable observations for women and 222,563 for men over the fourteen years. Random selection was used to overcome computational limitations, and randomly-subsetted datasets are statistically the same as the population dataset (two-way means tests show no statistical difference for variables used in regressions, $p > 0.05$). Before random selection, data were restricted to those in the labor force, non-military, earning a non-zero wage and who work at least 35 hours a week (a proxy for full-time). Income outliers have been removed, following Alonso-Villar and del Río (2017). Prestige ratings are from NORC's General Social Survey (detailed above) and have been used in previous literature (Hout 2018; Hout and Hastings 2016)

Occupational characteristics are taken from the Bureau of Labor Statistics (BLS) Community Population Survey (CPS) summary tables[*] (occupational concentration of men/women, care/service orientation) and O*NET[†] (job zone of education and training

[*] Table 11 from https://www.bls.gov/cps/tables.htm for 2006-2019.
[†] Job Zone search "all" from https://www.onetonline.org/find/zone?z=0&g=Go.

requirements for occupation). Unemployment rates are from the BLS and are annual, MSA-level averages over the twelve months of the given year. The Job Zone (O*Net) variable and the variable for if an occupation requires post-secondary training or education (Skilled) are both used in the models, as the Job Zone variable also incorporates the intensity of on-the-job training and required skills besides education.

Data used as independent variables were inspected for multicollinearity, and no variables showed significant correlations ($p > 0.10$) greater than 0.60.

Table 3.2 presents the descriptive statistics for data used in this paper. The averages for both prestige ratings for women and men show that women are in occupations with higher prestige levels. About a third of women (as compared to a fifth of men) are in high-status occupations using the seventy-fifth percentile as the cut-off. One can see that this may not translate to higher wages as women's wages, on average, are less than men's. This supports the idea that women may value the prestige of an occupation over its wage. About 13% of women are in blue-collar industry, compared to about 36% of men, and about a third of women work in a men-concentrated occupation.

The two-year lag of unemployment rates is used following the idea that women make decisions about their future jobs, which include education decisions, in the years prior to getting a job. Tests of unemployment rate impacts show the same-year unemployment rate has little to no impact on whether a woman has a high-prestige occupation.

Appendix tables A2.1 and A2.2 show the occupations designated care work and interpersonal service work, respectively.

3.4 Results

Tables 3.3 and 3.4 present results for the logit models for women in high-prestige occupations using the seventy-fifth percentile cut-off as the definition of high-prestige. For the logit models, average marginal effect (AME) is reported instead of coefficients. Table 3.3 presents results for all years, and Table 3.4 presents results for the years after 2011 when unemployment rates showed the strongest rates of decline. For both result tables, results are organized into a full model using all observations available, a model using only those in blue-collar industries, a model using those in all other industries, a model using men-concentrated occupations (men greater than 50%), and a model using women-concentrated occupations (men less than 50%). I separate the models because women in men-concentrated industries and occupations face different challenges to employment and promotion than women in other types of industries and occupations (Pan 2015).

In Table 3.3, lowering unemployment rates do not lead to an increased chance that a woman will be employed in a high-prestige occupation, with results showing a positive sign and low magnitude (less than half a percent) across all models. Age is a positive indicator of the likelihood of being in a high-status occupation, and an increase of ten years implies a 3.6% increase in the likelihood of being in a high-status occupation (full model, $p < 0.01$). Years of education are positively related to the likelihood a woman is in a high-status occupation, and the marginal effect for the full model implies that four years of education is related to a 6.17% increase in the likelihood of high-status occupation ($p < 0.01$).

Being married and number of children have little effect (both less than 1%) on the likelihood of being in a high-status occupation for all models. Interestingly, the models for blue-collar industries and men-concentrated occupations show differing directions of influence than the models for other industries and women-concentrated occupations (e.g., being married is a positive indicator for high-status in blue-collar industries but a negative indicator for other industries), however, results have little economic significance due to low magnitude. Being Hispanic leads to a lower chance of a high-status occupation (all models less than 1%), and being Black or Asian is generally associated with increased chances of a woman being in a high-status occupation (e.g., Asian women are 3.70% more likely than white women to be in a high-status occupation in a blue-collar industry, $p < 0.01$).

If a woman's occupation is designated as care work, she has about a 20% greater chance of being in a high-status occupation ($p < 0.01$ for all models). An outlier is for the blue-collar industries model, where a woman in care work is 41% ($p < 0.01$) more likely than those not in care work to be in a high-status occupation. If a women's occupation is designated as interpersonal service work, she has a 2% to 4% greater likelihood of being in a high-status occupation ($p < 0.01$ for all models). For this variable, the model for men-concentrated occupations shows a much higher magnitude (27.4%, $p < 0.01$). Not surprisingly, an increase in the job zone level (increase in training, education, and skills requirements) of an occupation is generally positively associated with high-status occupations (all models $p < 0.01$). However, this is not the case for men-concentrated occupations, which shows a 5.8% decrease ($p < 0.01$) in high-status occupation likelihood with each increase in job zone level. This implies that for men-concentrated

occupations, occupations with higher levels of training are less likely to be considered high-status. Examples of men-concentrated occupations that are low prestige but require greater levels of training are photographers, tour guides, and chefs. The percentage of men in an occupation is associated with increases in the likelihood of high-status occupation, though magnitudes are small. Whether an occupation requires postsecondary training at the entry-level (Skilled = 1) is positively associated with high-prestige, with increases in high-prestige likelihood in the range of 13% to 46% ($p < 0.01$ for all models). Results for this variable are strongest for blue-collar industries and men-concentrated occupations (39.7% and 46.5%, respectively). Increases in union coverage and increases in MSA population have little to no effect on the likelihood of a woman being in a high-status occupation.

For 2011 and later (Table 3.4), results show that decreases in the unemployment rate are associated with increases in the likelihood a woman is in a high-prestige occupation. However, result magnitudes are small, with the smallest influence for the blue-collar industries model (-0.01%, not significant) and the largest influence for the model of men-concentrated occupations (-0.30%, $p < 0.05$). The men-concentrated occupations model result implies that over the 2011 to 2019 period (when unemployment rates decreased an average of about 5 points in the sample used), the impact of decreasing unemployment rates on the likelihood of a woman being in a high-prestige occupation is an increase of about 1.5%, which is a little less than the impact of an additional year of education (1.85%). For the other models, the effect is smaller, with an implied impact of 0.51% for the full model, 0.06% for the blue-collar industries model, 0.60% for the other industries model, and 0.47% for the women-concentrated occupations model. I find the

remainder of the results for the years 2011 to 2019 to be similar in sign and magnitude to the initial results presented in Table 3.3.

As a test of the seventy-fifth percentile cut-off definition of high prestige, I ran logit regressions using the eighty-fifth and ninety-fifth percentile cut-offs as the definitions of high prestige. As the definition of high prestige gets more restrictive, the effect of the unemployment rate on the likelihood a woman will be in a high-status occupation dissipates. For the eighty-fifth percentile in the models using all years (Appendix Table A2.3), the effect of unemployment rates is about the same as the results in Table 3.3, with small magnitudes and not the expected direction. For the eighty-fifth percentile using the years 2011 to 2019 (Appendix Table A2.4), the effects generally show a negative relationship (similar to Table 3.4), but the magnitude of effects is much smaller, implying little economic significance.

For the ninety-fifth percentile (Appendix Table A2.5), the effect of unemployment rates on the likelihood of a woman being in a high prestige occupation is much smaller than the results in Table 3.3. In fact, all variable results are either smaller or not statistically significant for the most restrictive definition of high prestige, for models using all years (Appendix Table A2.5) and models using years 2011 and later (Appendix Table A2.6). The cut-off tests results point to the fact that while unemployment rate decreases have a small impact on whether a woman is in a high-status occupation, the higher the prestige cut-off the less the initial results hold.

Given the results above, I then tested the impact of unemployment rates on the prestige ratings of women's occupations, with no restriction on high prestige. This idea follows the finding of García-Mainar, Montuenga, and García-Martín (2018), where more

women can be found in mid-prestige occupations than high-prestige occupations. Therefore, it may be the case that unemployment rates nudge women into *relatively higher* prestige occupations, not simply high prestige occupations. Tables 5 and 6 present the OLS results for all years and the years 2011 through 2019, respectively. Variables and model data subsets are in the same format as Tables 3.3 and 3.4.

In Table 3.5, results for unemployment rates generally show a negative association between unemployment rates and prestige, a result not found in the all-years models presented in Table 3.3. However, the magnitude of results is small. A 5-point decrease in the unemployment rate implies a 0.08 prestige ranking (0.17%) change for the full model ($p < 0.01$) and a 0.21 prestige ranking (0.50%) change for the blue-collar industries model ($p < 0.05$). These results are economically negligible. The results for 2011 and later (Table 3.6) show a similar result. Unemployment rates are negatively associated with women's occupational prestige with higher magnitudes than all years models, but results have no practical significance.

In Table 3.5, results for care work are similar to the results for the logit model: an occupation being designated as care work increases the prestige (for logit, the likelihood of high prestige) of a woman's occupation. However, OLS results show a different pattern of results for occupations that are designated as interpersonal service work. In the logit model for all years (Table 3.3), an occupation being designated as interpersonal service work is associated with increases in the likelihood of a woman being in a high-prestige occupation, for all models except the women-concentrated occupations model which shows a negative relationship. In the OLS all years models (Table 3.5), interpersonal service work designation is negatively associated with prestige for the full

model, the other industries model, and the women-concentrated occupations model (six to seven percent decrease in prestige, all models $p < 0.01$). These results hold in the models using the years 2011 through 2019 (Table 3.6). This implies that as a general statement, being in interpersonal service work means a woman's occupational prestige is lower than in other types of work. However, some threshold exists where being in interpersonal service work leads to a greater likelihood of high prestige. Appendix Table A2.2 shows a list of interpersonal service work occupations with their concentrations of women.

As an additional test of the reliability of the dependent variable, I ran logit models using the prestige rating with the rater effect removed (Hout, Smith, and Marsden 2015). Model results for both all years models and the 2011 and after models show similar results for the effect of unemployment rates on the likelihood of a woman being in a high prestige occupation. Results can be found in Appendix Tables A2.7 and A2.8.

As a final test of the results above, I ran logit models for men using the same methodology as above. Tables 7 and 8 present the results for the models for men where the seventy-fifth percentile is the cut-off definition of high prestige. Men's results for both the all years models and the 2011 and after models show that results for unemployment rates are similar to those for women. In the all years models, unemployment rates have a positive relationship to the likelihood that a man will be in a high-prestige occupation, and in the 2011 and after set of models, unemployment shows a negative relationship, with relationships slightly lower for men than for women.

3.5 Conclusion

In this paper, I explore the effect of lowering unemployment rates on women's presence in high-prestige occupations, using the cut-off threshold of the seventy-fifth percentile as my definition of a high-prestige occupation. I find that unemployment rates have a small effect on the likelihood that a woman will be in a high-prestige occupation, with the strongest results in the years after 2011. The results are also strongest for the model using men-concentrated occupations (men more than 50% share of occupation). The results for this model imply that the impact of decreasing unemployment rates on the likelihood that a woman will be in a high-prestige occupation is about the same as the effect of an additional year of higher education.

An additional finding is that interpersonal work is valued differently at different levels of the prestige scale. Logit models show a positive relationship between an occupation's designation as interpersonal work and the likelihood that a woman will be in a high-prestige occupation. However, OLS models show a negative relationship between prestige and interpersonal work. Since interpersonal work generally has a high concentration of women workers, this pattern implies a prestige threshold for interpersonal work may exist for women.

A limitation of this paper may be in the use of subsets of observations from ACS rather than the entire files, and I attempt to account for possible differences between the full files and the subset files by confirming no significant differences between the two datasets on all variables used in this paper. An extension of this paper will use the full ACS dataset. Prestige, wages, and occupational segregation have been, and continue to be, important topics for literature on the equality of women in the labor market. Another

extension of this paper will be to examine the effect of parental occupation and background on the individual.

3.6 Chapter 3 Tables

Table 3.1: Examples of Occupations Based on Percentile Prestige Thresholds

Occupation Title	Care Work	Interpersonal Service Work	Percent Women	Prestige Rating
75th Percentile				
Aircraft Mechanics and Service Technicians	No	No	3.32	56.38
Child, Family, and School Social Workers	Yes	No	81.76	53.92
Dental Hygienists	Yes	No	97.20	55.70
Editors	No	Yes	46.07	54.08
Firefighters	No	Yes	4.15	59.13
85th Percentile				
Chiropractors	Yes	No	22.52	60.64
Clergy	Yes	No	17.59	66.01
Emergency Medical Technicians and Paramedics	Yes	No	32.10	62.34
Licensed Practical and Licensed Vocational Nurses	Yes	No	91.13	69.18
Veterinarians	Yes	No	62.24	68.11
95th Percentile				
Aerospace Engineers	No	No	11.28	74.52
Architects, Except Landscape and Naval	No	No	26.83	72.89
Chemical Engineers	No	No	16.92	70.58
Mechanical Engineers	No	No	7.19	70.31

Note: Prestige ratings are from NORC GSS (2010), and occupation titles are from the American Community Survey.

Table 3.2: Descriptive Statistics

	Women		Men	
	2006-2019	2011-2019	2006-2019	2011-2019
Prestige Rating	45.97	46.11	43.74	43.89
	12.67	*12.69*	*12.04*	*12.06*
Prestige Rating (Person Effect Removed)	52.33	52.64	48.64	49.03
	25.08	*25.04*	*23.97*	*24.00*
High Prestige				
High-Prestige - 75th Percentile (%)	29.24	29.61	18.70	18.99
	45.49	*45.65*	*38.99*	*39.22*
High-Prestige - 75th Percentile Using Person Effect Removed Rating (%)	26.36	26.61	20.89	20.98
	44.06	*44.19*	*40.66*	*40.72*
High-Prestige - 85th Percentile (%)	18.00	18.19	9.48	9.76
	38.42	*38.57*	*29.30*	*29.68*
High-Prestige - 85th Percentile Using Person Effect Removed Rating (%)	21.03	21.15	13.04	13.25
	40.75	*40.84*	*33.68*	*33.90*
High-Prestige - 95th Percentile (%)	3.91	4.08	1.90	1.90
	19.39	*19.77*	*13.64*	*13.66*
High-Prestige - 95th Percentile Using Person Effect Removed Rating (%)	2.60	2.73	1.96	2.02
	15.91	*16.28*	*13.85*	*14.06*
Unemployment Rate				
Average Unemployment Rate (Two-Year Lag, %)	6.36	7.04	6.36	7.02
	2.30	*2.44*	*2.26*	*2.40*
Individual Variables				
Age	43.51	43.87	43.09	43.47
	12.80	*12.96*	*12.88*	*13.07*
Years of Higher Education	2.17	2.26	1.82	1.86
	2.01	*2.01*	*1.92*	*1.93*
Married (1 = Yes)	54.42	54.02	63.49	62.47
	49.80	*49.84*	*48.14*	*48.42*
Number of Children	0.79	0.79	0.87	0.86
	1.04	*1.04*	*1.15*	*1.15*
Hispanic (%)	27.42	28.68	30.22	31.39
	84.29	*85.95*	*87.11*	*88.68*
Black (%)	12.32	12.31	8.57	8.72
	32.86	*32.86*	*27.99*	*28.22*
Asian (%)	5.59	5.93	5.22	5.55
	22.98	*23.61*	*22.24*	*22.90*
Other (%)	5.91	5.94	6.57	6.51
	23.59	*23.64*	*24.77*	*24.67*
Income (2012 Dollars)	$47,758	$52,586	$64,943	$69,951
	$45,590	*$50,150*	*$68,118*	*$73,051*
Occupation Variables				
BC Industry (%)	12.95	12.89	36.31	35.98
	33.58	*33.51*	*48.09*	*47.99*
Care Work (%)	8.78	9.10	3.68	3.90
	28.31	*28.76*	*18.82*	*19.35*
Interpersonal Service Work (%)	26.00	26.08	10.45	10.70
	43.86	*43.91*	*30.59*	*30.92*
Men-Concentrated Occupation (1 = Yes) (%)	30.94	31.91	75.27	75.32
	46.22	*46.61*	*43.15*	*43.11*
Job Zone	3.05	3.07	2.86	2.88
	1.12	*1.12*	*0.98*	*0.99*
Men's Share of Occupation (%)	36.88	37.44	68.16	67.71
	24.23	*23.92*	*24.62*	*24.70*
Skilled (1 = Yes)	36.98	36.99	34.54	34.59
	0.48	*0.48*	*0.48*	*0.48*
MSA Variables				
Union Coverage of MSA (%)	12.43	12.05	12.46	12.05
	6.88	*6.69*	*6.86*	*6.68*
Residential Population of MSA (100,000s)	44.51	45.61	46.80	47.30
	54.46	*54.87*	*55.23*	*55.18*
Regions				
Northeast (%)	16.54	16.56	17.05	16.92
	37.15	*37.17*	*37.61*	*37.49*
Midwest (%)	21.09	20.91	21.82	21.44
	40.80	*40.66*	*41.30*	*41.04*
South (%)	42.11	42.14	40.98	41.11
	49.37	*49.38*	*49.18*	*49.20*
West (%)	20.26	20.39	20.15	20.53
	40.19	*40.29*	*40.11*	*40.39*

Note: Data from ACS 2006-2019 using randomly-selected observations shown to be statistically the same as full sample observations (two-way t-tests $p > 0.05$). Prestige data from NORC GSS (2010).

Table 3.3: Logit Results with High-Prestige Cut-Off at Seventy-Fifth Percentile – All Years

Dependent Var: High Prestige - 75th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME	AME	AME	AME	AME
	Std Error	*Std Error*	*Std Error*	*Std Error*	*Std Error*
Average Unemployment Rate (Two-Year Lag)	0.1142% ***	0.0974%	0.1179% ***	0.0094%	0.1107% ***
	0.0003	*0.0006*	*0.0003*	*0.0005*	*0.0003*
Age	0.0364% ***	-0.0011%	0.0435% ***	0.0185% *	0.0198% ***
	0.0000	*0.0001*	*0.0001*	*0.0001*	*0.0001*
Years of Education	1.5432% ***	2.0485% ***	1.4476% ***	1.6900% ***	1.0578% ***
	0.0003	*0.0008*	*0.0003*	*0.0005*	*0.0004*
Married (1 = YES)	-0.0830%	0.3999%	-0.1854%	0.5392% *	-0.2865% *
	0.0012	*0.0030*	*0.0013*	*0.0021*	*0.0013*
Number of Children	0.1446% *	-0.3696% *	0.2356% ***	-0.1681%	0.1941% **
	0.0006	*0.0015*	*0.0006*	*0.0011*	*0.0006*
Hispanic	-0.2996% ***	-0.2109%	-0.2907% ***	-0.2954% *	-0.4000% ***
	0.0008	*0.0021*	*0.0008*	*0.0014*	*0.0008*
Black	1.3908% ***	1.4571% **	1.4572% ***	-0.2032%	1.5053% ***
	0.0018	*0.0056*	*0.0019*	*0.0036*	*0.0019*
Asian	1.8661% ***	3.6973% ***	1.5447% ***	1.2337% ***	2.8106% ***
	0.0023	*0.0053*	*0.0025*	*0.0036*	*0.0025*
Other	0.2716%	-0.1924%	0.3393%	-0.9262%	0.3650%
	0.0028	*0.0077*	*0.0031*	*0.0052*	*0.0031*
Care Work	21.4263% ***	40.9290% ***	22.7703% ***	28.9440% ***	18.7543% ***
	0.0016	*0.0323*	*0.0017*	*0.0131*	*0.0018*
Interpersonal Service Work	3.2915% ***	2.3323% **	3.9887% ***	27.3091% ***	-2.0036% ***
	0.0019	*0.0077*	*0.0020*	*0.0068*	*0.0022*
Job Zone	8.5976% ***	4.0172% ***	9.0388% ***	-5.7778% ***	15.0222% ***
	0.0009	*0.0033*	*0.0010*	*0.0020*	*0.0014*
Men in Occupation (%)	0.1172% ***	0.0304% ***	0.1474% ***	0.3023% ***	-0.0084%
	0.0000	*0.0001*	*0.0000*	*0.0001*	*0.0001*
Skilled Occupation (1 = YES)	18.7295% ***	39.6740% ***	18.0460% ***	46.4796% ***	13.3607% ***
	0.0021	*0.0237*	*0.0021*	*0.0066*	*0.0026*
Union Coverage (%)	0.0045%	0.0291%	0.0023%	-0.0003%	-0.0054%
	0.0001	*0.0003*	*0.0001*	*0.0002*	*0.0001*
Population of MSA (100,000s)	-0.0050% ***	-0.0154% ***	-0.0038% **	0.0095% ***	-0.0068% ***
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Year Controls	Yes	Yes	Yes	Yes	Yes
Region Controls	Yes	Yes	Yes	Yes	Yes
	n=229,936	n=31,854	n=198,082	n=65,525	n=164,411

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table 3.4: Logit Results with High-Prestige Cut-Off at Seventy-Fifth Percentile – 2011 through 2019

Dependent Var: High Prestige - 75th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*
Average Unemployment Rate (Two-Year Lag)	-0.1022% * *0.0005*	-0.0123% *0.0012*	-0.1203% * *0.0005*	-0.2981% ** *0.0009*	-0.0946% ^ *0.0005*
Age	0.0347% *** *0.0001*	0.0002% *0.0002*	0.0412% *** *0.0001*	0.0340% ** *0.0001*	0.0151% * *0.0001*
Years of Education	1.5187% *** *0.0004*	2.0053% *** *0.0009*	1.4231% *** *0.0004*	1.8466% *** *0.0007*	0.9822% *** *0.0005*
Married (1 = YES)	-0.1947% *0.0015*	0.3197% *0.0037*	-0.2982% ^ *0.0016*	0.4977% ^ *0.0026*	-0.4180% ** *0.0016*
Number of Children	0.1850% ** *0.0007*	-0.4762% * *0.0019*	0.2953% *** *0.0008*	-0.1159% *0.0013*	0.2149% ** *0.0008*
Hispanic	-0.2281% * *0.0009*	-0.0791% *0.0025*	-0.2309% * *0.0010*	-0.2062% *0.0017*	-0.3527% *** *0.0010*
Black	1.5417% *** *0.0023*	1.5279% * *0.0070*	1.6098% *** *0.0024*	0.1414% *0.0044*	1.5572% *** *0.0024*
Asian	1.8020% *** *0.0027*	3.5546% *** *0.0063*	1.4758% *** *0.0030*	1.5502% *** *0.0042*	2.5878% *** *0.0031*
Other	0.5822% ^ *0.0035*	0.4977% *0.0092*	0.5621% *** *0.0037*	-0.7087% *0.0062*	0.6031% *0.0038*
Care Work	21.0730% *** *0.0019*	42.0689% *** *0.0390*	22.2816% *** *0.0020*	23.9997% *** *0.0133*	17.5646% *** *0.0022*
Interpersonal Service Work	3.0716% *** *0.0023*	2.1181% * *0.0089*	3.6644% *** *0.0024*	25.9553% *** *0.0079*	-2.1377% *** *0.0026*
Job Zone	8.4809% *** *0.0011*	3.9721% *** *0.0041*	8.9093% *** *0.0012*	-5.8206% *** *0.0025*	14.3035% *** *0.0015*
Men in Occupation (%)	0.1098% *** *0.0000*	0.0294% *** *0.0001*	0.1364% *** *0.0000*	0.3299% *** *0.0001*	-0.0225% ** *0.0001*
Skilled Occupation (1 = YES)	18.6063% *** *0.0024*	40.6855% *** *0.0312*	17.9531% *** *0.0025*	45.8267% *** *0.0076*	13.2354% *** *0.0029*
Union Coverage (%)	0.0347% *0.0002*	0.0468% *0.0004*	0.0360% * *0.0002*	0.0422% *0.0003*	0.0187% *0.0002*
Population of MSA (100,000s)	-0.0057% *** *0.0000*	-0.0206% *** *0.0000*	-0.0037% * *0.0000*	0.0088% ** *0.0000*	-0.0066% *** *0.0000*
Year Controls Region Controls	Yes Yes n=153,735	Yes Yes n=21,106	Yes Yes n=132,629	Yes Yes n=44,263	Yes Yes n=109,472

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table 3.5: OLS Results for Prestige Rating – All Years

Dependent Var: Prestige Rating	Full		Blue-Collar		All Other Industries		Men-Concentrated Occupations		Women-Concentrated Occupations	
	Mean:	45.97	Mean:	42.10	Mean:	46.55	Mean:	45.90	Mean:	46.00
	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean
Average Unemployment Rate (Two-Year Lag)	-0.0159 *0.0059*	-0.035% **	-0.0426 *0.0166*	-0.101% *	-0.0120 *0.0063*	-0.026% ^	0.0000 *0.0108*	0.000%	-0.0090 *0.0066*	-0.020%
Age	0.0187 *0.0011*	0.041% ***	0.0253 *0.0033*	0.060% ***	0.0176 *0.0011*	0.038% ***	-0.0059 *0.0020*	-0.013% **	0.0191 *0.0012*	0.041% ***
Years of Education	0.2822 *0.0081*	0.614% ***	0.6389 *0.0247*	1.518% ***	0.2273 *0.0086*	0.488% ***	0.5014 *0.0139*	1.092% ***	0.1467 *0.0096*	0.319% ***
Married (1 = YES)	0.3404 *0.0281*	0.740% ***	0.3976 *0.0800*	0.945% ***	0.3270 *0.0298*	0.703% ***	0.4158 *0.0506*	0.906% ***	0.2122 *0.0319*	0.461% ***
Number of Children	0.0747 *0.0132*	0.162% ***	-0.1442 *0.0378*	-0.343% ***	0.1132 *0.0140*	0.243% ***	0.0066 *0.0239*	0.014%	0.0907 *0.0150*	0.197% ***
Hispanic	-0.2720 *0.0164*	-0.592% ***	-0.5352 *0.0476*	-1.271% ***	-0.2223 *0.0174*	-0.478% ***	-0.3035 *0.0308*	-0.661% ***	-0.2095 *0.0184*	-0.456% ***
Black	0.0859 *0.0408*	0.187% *	-0.3928 *0.1228*	-0.933% **	0.1388 *0.0430*	0.298% **	-0.4354 *0.0784*	-0.949% ***	0.3368 *0.0453*	0.732% ***
Asian	-0.2316 *0.0586*	-0.504% ***	0.5404 *0.1594*	1.284% ***	-0.3707 *0.0627*	-0.796% ***	0.1082 *0.0999*	0.236%	0.0361 *0.0683*	0.079%
Other	-0.3373 *0.0581*	-0.734% ***	-0.6470 *0.1630*	-1.537% ***	-0.2447 *0.0618*	-0.526% ***	-0.5128 *0.1095*	-1.117% ***	-0.1586 *0.0649*	-0.345% *
Care Work	4.7772 *0.0482*	10.391% ***	2.3901 *0.6211*	5.677% ***	4.7695 *0.0485*	10.246% ***	7.6832 *0.1713*	16.737% ***	3.0080 *0.0499*	6.539% ***
Interpersonal Service Work	-2.7464 *0.0385*	-5.974% ***	0.6770 *0.2094*	1.608% **	-2.9660 *0.0392*	-6.372% ***	2.8470 *0.0932*	6.202% ***	-3.2767 *0.0413*	-7.123% ***
Job Zone	5.5934 *0.0232*	12.167% ***	6.9696 *0.0851*	16.555% ***	5.4837 *0.0240*	11.780% ***	3.5033 *0.0387*	7.632% ***	7.1497 *0.0286*	15.542% ***
Men in Occupation (%)	0.0087 *0.0006*	0.019% ***	0.0074 *0.0016*	0.018% ***	0.0072 *0.0007*	0.016% ***	0.0541 *0.0020*	0.118% ***	-0.0923 *0.0012*	-0.201% ***
Skilled Occupation (1 = YES)	7.4042 *0.0469*	16.106% ***	4.6437 *0.1565*	11.031% ***	7.6618 *0.0491*	16.460% ***	9.2536 *0.0898*	20.158% ***	5.8306 *0.0547*	12.674% ***
Union Coverage (%)	0.0131 *0.0030*	0.028% ***	0.0212 *0.0086*	0.050% *	0.0121 *0.0031*	0.026% ***	0.0038 *0.0054*	0.008%	0.0124 *0.0034*	0.027% ***
Population of MSA (100,000s)	-0.0008 *0.0003*	-0.002% *	0.0010 *0.0009*	0.002%	-0.0010 *0.0003*	-0.002% **	0.0005 *0.0006*	0.001%	-0.0013 *0.0004*	-0.003% ***
Year Control	Yes		Yes		Yes		Yes		Yes	
Region Control	Yes		Yes		Yes		Yes		Yes	
	n=229,936		n=31,854		n=198,082		n=65,525		n=164,411	

Note: Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table 3.6: OLS Results for Prestige Rating – 2011 through 2019

Dependent Var: Prestige Rating	Full		Blue-Collar		All Other Industries		Men-Concentrated Occupations		Women-Concentrated Occupations	
	Mean:	46.11	Mean:	42.14	Mean:	46.70	Mean:	45.57	Mean:	46.36
	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean	Coeff *Std Error*	% Mean
Average Unemployment Rate (Two-Year Lag)	-0.0407 *0.0113*	-0.09% ***	-0.0103 *0.0313*	-0.02%	-0.0407 *0.0121*	-0.09% ***	-0.0516 *0.0207*	-0.11% *	-0.0403 *0.0128*	-0.09% **
Age	0.0204 *0.0013*	0.04% ***	0.0284 *0.0040*	0.07% ***	0.0187 *0.0014*	0.04% ***	-0.0053 *0.0024*	-0.01% *	0.0214 *0.0015*	0.05% ***
Years of Education	0.2719 *0.0100*	0.59% ***	0.6269 *0.0302*	1.49% ***	0.2142 *0.0105*	0.46% ***	0.5282 *0.0170*	1.16% ***	0.1226 *0.0117*	0.26% ***
Married (1 = YES)	0.3298 *0.0349*	0.72% ***	0.3993 *0.0990*	0.95% ***	0.3151 *0.0370*	0.67% ***	0.3943 *0.0622*	0.87% ***	0.1964 *0.0398*	0.42% ***
Number of Children	0.0856 *0.0164*	0.19% ***	-0.1167 *0.0470*	-0.28% *	0.1224 *0.0174*	0.26% ***	0.0546 *0.0294*	0.12% ^	0.0961 *0.0187*	0.21% ***
Hispanic	-0.2755 *0.0200*	-0.60% ***	-0.5251 *0.0587*	-1.25% ***	-0.2252 *0.0211*	-0.48% ***	-0.3112 *0.0368*	-0.68% ***	-0.2249 *0.0225*	-0.49% ***
Black	0.0298 *0.0505*	0.06%	-0.4488 *0.1526*	-1.06% **	0.0870 *0.0532*	0.19%	-0.4947 *0.0959*	-1.09% ***	0.2453 *0.0564*	0.53% ***
Asian	-0.2749 *0.0709*	-0.60% ***	0.3606 *0.1940*	0.86% ^	-0.3730 *0.0757*	-0.80% ***	0.0858 *0.1184*	0.19%	-0.0431 *0.0833*	-0.09%
Other	-0.3222 *0.0714*	-0.70% ***	-0.5297 *0.2012*	-1.26% **	-0.2362 *0.0759*	-0.51% **	-0.4422 *0.1315*	-0.97% ***	-0.1947 *0.0805*	-0.42% *
Care Work	4.1689 *0.0590*	9.04% ***	1.5301 *0.7114*	3.63% *	4.1819 *0.0594*	8.96% ***	7.1529 *0.2271*	15.70% ***	2.4052 *0.0611*	5.19% ***
Interpersonal Service Work	-2.8576 *0.0481*	-6.20% ***	1.7026 *0.2348*	4.04% ***	-3.1668 *0.0492*	-6.78% ***	3.1292 *0.1153*	6.87% ***	-3.4142 *0.0520*	-7.36% ***
Job Zone	5.7535 *0.0283*	12.48% ***	7.4160 *0.1028*	17.60% ***	5.6107 *0.0293*	12.01% ***	3.5221 *0.0481*	7.73% ***	7.3320 *0.0348*	15.81% ***
Men in Occupation (%)	-0.0005 *0.0008*	0.00%	-0.0049 *0.0020*	-0.01% *	-0.0014 *0.0009*	0.00%	0.0750 *0.0024*	0.16% ***	-0.1029 *0.0015*	-0.22% ***
Skilled Occupation (1 = YES)	6.9398 *0.0576*	15.05% ***	3.7475 *0.1891*	8.89% ***	7.2646 *0.0603*	15.56% ***	9.4390 *0.1109*	20.71% ***	5.1959 *0.0666*	11.21% ***
Union Coverage (%)	0.0171 *0.0038*	0.04% ***	0.0213 *0.0112*	0.05% ^	0.0166 *0.0040*	0.04% ***	0.0119 *0.0069*	0.03% ^	0.0158 *0.0043*	0.03% ***
Population of MSA (100,000s)	-0.0010 *0.0004*	0.00% *	-0.0010 *0.0012*	0.00%	-0.0010 *0.0004*	0.00% *	-0.0012 *0.0007*	0.00% ^	-0.0009 *0.0004*	0.00% *
Year Controls	Yes		Yes		Yes		Yes		Yes	
Region Controls	Yes		Yes		Yes		Yes		Yes	
	n=153,735		n=21,106		n=132,629		n=44,263		n=109,472	

Note: Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table 3.7: Men's Logit Results with High-Prestige Cut-Off at Seventy-Fifth Percentile – All Years

Dependent Var: High Prestige - 75th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*
Average Unemployment Rate (Two-Year Lag)	0.1558% *** *0.0003*	0.1701% *** *0.0004*	0.1316% *** *0.0004*	0.1252% *** *0.0003*	0.1099% * *0.0006*
Age	-0.0167% *** *0.0001*	-0.0099% *0.0001*	-0.0128% *0.0001*	-0.0131% * *0.0001*	-0.0171% ^ *0.0001*
Years of Education	2.7234% *** *0.0003*	2.2718% *** *0.0004*	2.8597% *** *0.0004*	2.9735% *** *0.0003*	1.7577% *** *0.0008*
Married (1 = YES)	0.4645% *0.0015*	-0.2333% *0.0022*	0.8569% *** *0.0019*	0.9810% *** *0.0016*	-1.3087% *** *0.0030*
Number of Children	-0.0202% *0.0005*	-0.4218% *** *0.0008*	0.2188% ** *0.0007*	0.0745% *0.0006*	-0.4635% *** *0.0012*
Hispanic	-0.3274% *** *0.0008*	0.1300% *0.0013*	-0.5520% *** *0.0011*	-0.4420% *** *0.0009*	-0.2825% *0.0018*
Black	-0.3074% *0.0025*	1.3236% ** *0.0043*	-0.9492% ** *0.0032*	-1.8870% *** *0.0030*	0.0725% *0.0047*
Asian	1.2603% *** *0.0023*	3.9718% *** *0.0037*	-0.0059% *0.0030*	1.0071% *** *0.0025*	2.0589% *** *0.0049*
Other	-0.7242% * *0.0031*	0.7155% *0.0047*	-1.4671% *** *0.0041*	-0.9279% ** *0.0034*	-0.4836% *0.0069*
Care Work	22.9412% *** *0.0033*	22.2869% *** *0.0503*	26.4920% *** *0.0038*	37.4063% *** *0.0143*	12.3982% *** *0.0046*
Interpersonal Service Work	19.4085% *** *0.0021*	9.1073% *** *0.0081*	20.5062% *** *0.0025*	29.5357% *** *0.0040*	0.0576% *0.0042*
Job Zone	4.8338% *** *0.0011*	-0.2371% *0.0019*	6.9357% *** *0.0014*	1.9918% *** *0.0014*	17.2952% *** *0.0031*
Men in Occupation (%)	0.1024% *** *0.0000*	0.0068% *0.0000*	0.1753% *** *0.0000*	0.1153% *** *0.0001*	-0.3825% *** *0.0001*
Skilled Occupation (1 = YES)	26.4930% *** *0.0022*	42.1722% *** *0.0151*	26.1887% *** *0.0025*	34.0736% *** *0.0041*	18.7906% *** *0.0057*
Union Coverage (%)	0.0273% * *0.0001*	0.0341% ^ *0.0002*	0.0155% *0.0002*	0.0345% * *0.0001*	-0.0273% *0.0003*
Population of MSA (100,000s)	0.0037% *0.0000*	-0.0045% * *0.0000*	0.0055% ** *0.0000*	0.0070% *** *0.0000*	0.0001% *0.0000*
Year Controls Region Controls	Yes Yes n=222,563	Yes Yes n=80,813	Yes Yes n=141,750	Yes Yes n=167,516	Yes Yes n=55,047

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table 3.8: Men's Logit Results with High-Prestige Cut-Off at Seventy-Fifth Percentile – 2011 through 2019

Dependent Var: High Prestige - 75th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*
Average Unemployment Rate (Two-Year Lag)	-0.1361% ** *0.0005*	0.0113% *0.0007*	-0.1897% ** *0.0007*	-0.2243% *** *0.0006*	-0.2243% *** *0.0006*
Age	-0.0122% *0.0001*	-0.0041% *0.0001*	-0.0095% *0.0001*	-0.0026% *0.0001*	-0.0026% *0.0001*
Years of Education	2.7304% *** *0.0004*	2.2105% *** *0.0005*	2.8910% *** *0.0006*	3.0266% *** *0.0004*	3.0266% *** *0.0004*
Married (1 = YES)	0.4201% * *0.0018*	-0.2384% *0.0027*	0.7971% *** *0.0024*	0.8240% *** *0.0020*	0.8240% *** *0.0020*
Number of Children	-0.0569% *0.0007*	-0.3966% *** *0.0010*	0.1361% *0.0009*	0.0752% *0.0007*	0.0752% *0.0007*
Hispanic	-0.3583% *** *0.0010*	0.1339% *0.0015*	-0.5998% *** *0.0013*	-0.4724% *** *0.0011*	-0.4724% *** *0.0011*
Black	-0.3205% *0.0031*	0.9384% ^ *0.0054*	-0.8092% * *0.0039*	-1.8640% *** *0.0037*	-1.8640% *** *0.0037*
Asian	1.2554% *** *0.0028*	4.1044% *** *0.0045*	-0.0257% *0.0037*	1.3381% *** *0.0030*	1.3381% *** *0.0030*
Other	-0.9162% * *0.0038*	0.8625% *0.0056*	-1.9360% *** *0.0050*	-1.0165% * *0.0042*	-1.0165% * *0.0042*
Care Work	22.3420% *** *0.0038*	20.0480% *** *0.0539*	25.8891% *** *0.0044*	33.9762% *** *0.0144*	33.9762% *** *0.0144*
Interpersonal Service Work	18.6326% *** *0.0026*	8.4173% *** *0.0096*	19.7263% *** *0.0031*	28.4503% *** *0.0048*	28.4503% *** *0.0048*
Job Zone	4.6153% *** *0.0014*	-0.1835% *0.0024*	6.5407% *** *0.0017*	1.8435% *** *0.0017*	1.8435% *** *0.0017*
Men in Occupation (%)	0.1063% *** *0.0000*	0.0123% * *0.0001*	0.1766% *** *0.0000*	0.1185% *** *0.0001*	0.1185% *** *0.0001*
Skilled Occupation (1 = YES)	26.8464% *** *0.0027*	42.9598% *** *0.0209*	26.7741% *** *0.0031*	34.0464% *** *0.0048*	34.0464% *** *0.0048*
Union Coverage (%)	0.0426% * *0.0002*	0.0150% *0.0002*	0.0439% ^ *0.0002*	0.0502% ** *0.0002*	0.0502% ** *0.0002*
Population of MSA (100,000s)	0.0037% * *0.0000*	-0.0017% *0.0000*	0.0036% *0.0000*	0.0072% *** *0.0000*	0.0072% *** *0.0000*
Year Controls	Yes	Yes	Yes	Yes	Yes
Region Controls	Yes	Yes	Yes	Yes	Yes
	n=146,929	n=52,861	n=94,068	n=110,673	n=36,256

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

APPENDIX 2

Table A2.1: Occupations Designated Care Work

Occupation Title	Percent Women in Occupation[1]	Prestige Rating[2]	Prestige Rating (Person Effect Removed)[2]
Dental Hygienists	97.20	55.70	77.57
Speech-Language Pathologists	96.52	58.60	80.95
Dental Assistants	96.08	48.01	55.55
Childcare Workers	94.55	35.26	27.99
Dietitians and Nutritionists	91.37	55.24	64.69
Licensed Practical and Licensed Vocational Nurses	91.13	69.18	88.19
Medical Records and Health Information Technicians	90.94	48.38	55.85
Occupational Therapists	89.50	60.90	83.40
Massage Therapists	83.41	35.60	28.93
Child, Family, and School Social Workers	81.76	53.92	67.97
Social and Human Service Assistants	81.76	53.92	67.97
Social Workers, All Other	81.75	53.92	67.97
Healthcare Social Workers	81.74	53.92	67.97
Mental Health and Substance Abuse Social Workers	81.72	53.92	67.97
Probation Officers and Correctional Treatment Specialists	81.66	53.92	67.97
Marriage and Family Therapists	74.26	50.96	64.50
Educational, Guidance, School, and Vocational Counselors	73.99	50.96	64.50
Rehabilitation Counselors	73.78	50.96	64.50
Counselors, All Other	73.71	50.96	64.50
Physician Assistants	69.30	62.99	89.77
Physical Therapists	67.89	65.00	91.46
Opticians, Dispensing	65.61	60.45	86.56
Respiratory Therapists	64.91	61.82	84.06
Residential Advisors	64.90	38.76	35.46
Religious Workers, All Other	64.27	31.41	27.77
Veterinarians	62.24	68.11	93.02
Recreation Workers	62.06	34.60	28.36
Fitness Trainers and Aerobics Instructors	61.81	34.60	28.36
Directors, Religious Activities and Education	60.37	37.36	36.55
Pharmacists	55.70	66.05	90.22
Optometrists	48.10	70.45	94.56
Emergency Medical Technicians and Paramedics	32.10	62.34	88.42
Chiropractors	22.52	60.64	83.40
Clergy	17.59	66.01	85.99

[1]CPS Table 11 (2019)

[2]General Social Survey from NORC

Table A2.2: Occupations Designated Interpersonal Service Work

Occupation Title	Percent Women in Occupation[1]	Prestige Rating[2]	Prestige Rating (Person Effect Removed)[2]
Hairdressers, Hairstylists, and Cosmetologists	92.74	35.69	26.54
Teacher Assistants	90.94	48.46	49.84
Maids and Housekeeping Cleaners	89.07	24.62	14.40
Manicurists and Pedicurists	84.67	30.16	24.13
Skincare Specialists	84.62	30.16	24.13
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	84.46	33.06	25.02
Librarians	83.70	55.22	73.43
Flight Attendants	76.90	44.16	53.01
Transportation Attendants, Except Flight Attendants	76.87	44.16	53.01
Nonfarm Animal Caretakers	73.92	33.03	27.77
Waiters and Waitresses	71.11	30.89	15.59
First-Line Supervisors of Personal Service Workers	70.98	41.75	46.71
Food Servers, Nonrestaurant	67.92	33.83	29.07
Library Technicians	67.80	36.30	23.57
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	66.65	23.65	12.80
Combined Food Preparation and Serving Workers, Including Fast Food	64.86	20.59	10.91
Public Relations Specialists	61.68	46.15	57.10
Crossing Guards	61.58	38.10	24.89
Writers and Authors	59.94	67.25	91.25
Food Preparation Workers	58.65	21.05	8.89
First-Line Supervisors of Food Preparation and Serving Workers	57.65	38.14	29.26
Animal Trainers	56.99	38.06	32.16
Bartenders	56.60	31.55	20.51
Technical Writers	55.00	55.18	66.89
Interior Designers	53.55	46.33	56.41
Fashion Designers	53.52	46.33	56.41
Graphic Designers	53.49	46.33	56.41
Floral Designers	53.38	46.33	56.41
Commercial and Industrial Designers	53.33	46.33	56.41
Merchandise Displayers and Window Trimmers	53.33	46.33	56.41
Photographers	47.44	48.37	55.55
Editors	46.07	54.08	70.20
Food Preparation and Serving Related Workers, All Other	45.70	15.87	5.24
First-Line Supervisors of Gaming Workers	45.28	29.30	15.11
Tour and Travel Guides	43.68	30.93	20.05
Dining Room and Cafeteria Attendants and Bartender Helpers	42.87	15.87	5.24
Ushers, Lobby Attendants, and Ticket Takers	41.38	22.95	11.02
Private Detectives and Investigators	41.12	49.84	65.75
First-Line Supervisors of Housekeeping and Janitorial Workers	39.93	36.55	28.86
Music Directors and Composers	36.19	50.89	65.63
Musicians and Singers	35.85	50.89	65.63
Coaches and Scouts	35.09	65.22	79.87
Athletes and Sports Competitors	34.90	65.22	79.87
Umpires, Referees, and Other Sports Officials	34.90	65.22	79.87
Judicial Law Clerks	34.38	69.25	88.53
Bailiffs	29.95	40.44	39.03
Correctional Officers and Jailers	29.85	40.44	39.03
First-Line Supervisors of Correctional Officers	29.48	47.52	54.71
First-Line Supervisors of Protective Service Workers, All Other	24.43	38.15	39.79
Detectives and Criminal Investigators	23.08	57.91	80.71
Radio and Television Announcers	22.46	40.28	41.96
Dishwashers	21.61	19.88	7.35
Chefs and Head Cooks	20.67	49.53	57.68
Barbers	19.99	36.37	29.02
First-Line Supervisors of Police and Detectives	14.91	65.76	87.26
Taxi Drivers and Chauffeurs	14.74	25.77	10.98
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	7.03	36.35	27.46
First-Line Supervisors of Fire Fighting and Prevention Workers	6.81	65.91	90.08
Landscaping and Groundskeeping Workers	6.56	37.36	33.45
Tree Trimmers and Pruners	6.43	37.36	33.45
Pest Control Workers	4.27	35.11	32.83
Firefighters	4.15	59.13	79.87

[1]CPS Table 11 (2019)

[2]General Social Survey from NORC

Table A2.3: Logit Results with High-Prestige Cut-Off at Eighty-Fifth Percentile – All Years

Dependent Var: High Prestige - 85th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*
Average Unemployment Rate (Two-Year Lag)	0.1434% *** *0.0002*	0.0817% ** *0.0003*	0.1527% *** *0.0002*	0.0627% ^ *0.0003*	0.1448% *** *0.0002*
Age	0.0308% *** 0.0039%	-0.0199% *** 0.0060%	0.0416% *** 0.0043%	-0.0162% * 0.0065%	0.0473% *** 0.0045%
Years of Education	-0.4518% *** *0.0003*	0.7498% *** *0.0005*	-0.6142% *** *0.0003*	1.0751% *** *0.0005*	-1.1758% *** *0.0003*
Married (1 = YES)	-0.0599% *0.0010*	0.1278% *0.0015*	-0.0945% *0.0011*	0.0633% *0.0016*	-0.1398% *0.0011*
Number of Children	0.2992% *** *0.0005*	-0.1541% * *0.0007*	0.3679% *** *0.0005*	-0.1550% ^ *0.0008*	0.4287% *** *0.0005*
Hispanic	-0.1882% ** *0.0007*	-0.1333% *0.0010*	-0.2250% ** *0.0007*	-0.0867% *0.0011*	-0.3024% *** *0.0008*
Black	2.0410% *** *0.0014*	0.1766% *0.0029*	2.1104% *** *0.0016*	0.8337% ** *0.0027*	2.2555% *** *0.0016*
Asian	1.2345% *** *0.0018*	1.0037% *** *0.0021*	1.1051% *** *0.0021*	1.2945% *** *0.0023*	0.8435% *** *0.0023*
Other	0.1778% *0.0024*	0.2334% *0.0035*	0.1026% *0.0027*	-0.4236% *0.0041*	0.2804% *0.0027*
Care Work	14.7810% *** *0.0011*	13.6750% *** *0.0096*	15.2353% *** *0.0011*	24.0829% *** *0.0073*	12.7109% *** *0.0012*
Interpersonal Service Work	2.2925% *** *0.0017*	5.0591% *** *0.0036*	1.8813% *** *0.0019*	5.0439% *** *0.0027*	0.1734% *0.0021*
Job Zone	4.3969% *** *0.0007*	2.4035% *** *0.0020*	4.8280% *** *0.0008*	3.1172% *** *0.0017*	6.3566% *** *0.0008*
Men in Occupation (%)	0.1229% *** *0.0000*	0.1739% *** *0.0000*	0.1222% *** *0.0000*	0.3880% *** *0.0001*	0.0631% *** *0.0000*
Skilled Occupation (1 = YES)	17.0290% *** *0.0035*	24.9899% *3.3437*	17.9905% *** *0.0038*	8.7022% *** *0.0033*	81.8945% *3.7339*
Union Coverage (%)	0.0122% *0.0001*	0.0365% * *0.0001*	0.0069% *0.0001*	0.0188% *0.0002*	0.0083% *0.0001*
Population of MSA (100,000s)	-0.0067% *** *0.0000*	-0.0058% *** *0.0000*	-0.0065% *** *0.0000*	-0.0039% * *0.0000*	-0.0058% *** *0.0000*
Year Controls Region Controls	Yes Yes n=229,936	Yes Yes n=31,854	Yes Yes n=198,082	Yes Yes n=65,525	Yes Yes n=164,411

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table A2.4: Logit Results with High-Prestige Cut-Off at Eighty-Fifth Percentile – 2011 through 2019

Dependent Var: High Prestige - 85th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME	AME	AME	AME	AME
	Std Error	*Std Error*	*Std Error*	*Std Error*	*Std Error*
Average Unemployment Rate (Two-Year Lag)	-0.0164%	0.0940%	-0.0251%	0.0113%	-0.0386%
	0.0004	*0.0007*	*0.0005*	*0.0007*	*0.0005*
Age	0.0205% ***	-0.0181% *	0.0299% ***	-0.0121%	0.0327% ***
	0.0000	*0.0001*	*0.0001*	*0.0001*	*0.0001*
Years of Education	-0.5520% ***	0.7868% ***	-0.7322% ***	1.1609% ***	-1.3524% ***
	0.0003	*0.0006*	*0.0004*	*0.0006*	*0.0004*
Married (1 = YES)	0.0756%	-0.0153%	0.0757%	0.0717%	0.0177%
	0.0012	*0.0019*	*0.0014*	*0.0020*	*0.0014*
Number of Children	0.3223% ***	-0.1525%	0.3834% ***	-0.0987%	0.4370% ***
	0.0006	*0.0010*	*0.0006*	*0.0010*	*0.0007*
Hispanic	-0.1522% ^	-0.0965%	-0.1946% *	-0.0595%	-0.2709% **
	0.0008	*0.0012*	*0.0009*	*0.0013*	*0.0010*
Black	2.0157% ***	0.0919%	2.0892% ***	0.9025% **	2.1874% ***
	0.0018	*0.0039*	*0.0020*	*0.0034*	*0.0020*
Asian	1.3711% ***	0.7941% **	1.3557% ***	1.3380% ***	1.0265% ***
	0.0022	*0.0027*	*0.0025*	*0.0028*	*0.0029*
Other	0.3398%	0.4016%	0.2525%	-0.4368%	0.4473%
	0.0029	*0.0043*	*0.0033*	*0.0050*	*0.0034*
Care Work	14.5734% ***	13.0095% ***	14.9994% ***	22.8607% ***	12.4201% ***
	0.0013	*0.0099*	*0.0014*	*0.0080*	*0.0015*
Interpersonal Service Work	2.5958% ***	5.1548% ***	2.2117% ***	5.6786% ***	0.3533%
	0.0022	*0.0045*	*0.0024*	*0.0034*	*0.0026*
Job Zone	4.5850% ***	2.6188% ***	5.0369% ***	3.0464% ***	6.7148% ***
	0.0009	*0.0026*	*0.0010*	*0.0021*	*0.0009*
Men in Occupation (%)	0.1290% ***	0.1792% ***	0.1280% ***	0.4178% ***	0.0634% ***
	0.0000	*0.0001*	*0.0000*	*0.0001*	*0.0001*
Skilled Occupation (1 = YES)	18.6096% ***	27.3126%	19.6488% ***	10.0711% ***	82.7001%
	0.0046	*4.5472*	*0.0049*	*0.0042*	*2.9455*
Union Coverage (%)	0.0241% ^	0.0447% *	0.0172%	0.0179%	0.0195%
	0.0001	*0.0002*	*0.0001*	*0.0002*	*0.0002*
Population of MSA (100,000s)	-0.0069% ***	-0.0074% ***	-0.0063% ***	-0.0042% ^	-0.0052% ***
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Year Controls	Yes	Yes	Yes	Yes	Yes
Region Controls	Yes	Yes	Yes	Yes	Yes
	n=153,735	n=21,106	n=132,629	n=44,263	n=109,472

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table A2.5: Logit Results with High-Prestige Cut-Off at Ninety-Fifth Percentile – All Years

Dependent Var: High Prestige - 95th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*	
Average Unemployment Rate (Two-Year Lag)	-0.0012% *0.0000*	0.0354% *0.0002*	-0.0059% *0.0000*	-0.0042% *0.0002*	
Age	-0.0056% *** *0.0000*	-0.0242% *** *0.0000*	-0.0025% *** *0.0000*	-0.0177% *** *0.0000*	
Years of Education	0.1016% *** *0.0001*	0.6181% *** *0.0004*	0.0247% *** *0.0001*	0.3483% *** *0.0003*	
Married (1 = YES)	0.0021% *0.0002*	0.1521% *0.0012*	-0.0254% *0.0002*	-0.0084% *0.0008*	
Number of Children	-0.0426% *** *0.0001*	-0.1538% ** *0.0006*	-0.0110% *0.0001*	-0.1420% *** *0.0004*	
Hispanic	-0.0176% *0.0002*	-0.2039% * *0.0009*	0.0017% *0.0001*	-0.0586% *0.0006*	
Black	-0.0435% *0.0005*	-0.2173% *0.0026*	-0.0298% *0.0003*	-0.1298% *0.0017*	
Asian	0.1436% *** *0.0003*	0.7867% *** *0.0016*	0.0472% * *0.0002*	0.5015% *** *0.0010*	
Other	0.0566% *0.0005*	0.4249% *0.0027*	-0.0263% *0.0004*	0.2095% *0.0019*	
Care Work	-0.8012% *** *0.0006*	-13.4713% *49.4184*	-0.3303% *** *0.0003*	-3.4296% *** *0.0030*	
Interpersonal Service Work	0.5590% *** *0.0004*	-16.2213% *14.7520*	0.3727% *** *0.0002*	1.9772% *** *0.0013*	
Job Zone	0.5258% *** *0.0003*	-0.2238% *0.0015*	0.3738% *** *0.0002*	1.8171% *** *0.0009*	
Men in Occupation (%)	0.0391% *** *0.0000*	0.1364% *** *0.0001*	0.0170% *** *0.0000*	0.1342% *** *0.0000*	
Skilled Occupation (1 = YES)	4.1943% *0.5481*	18.1215% *3.6992*	1.7801% *0.4018*	14.7475% *2.3043*	
Union Coverage (%)	0.0038% *0.0000*	0.0199% *0.0001*	0.0013% *0.0000*	0.0115% *0.0001*	
Population of MSA (100,000s)	-0.0003% *0.0000*	-0.0042% ** *0.0000*	0.0001% *0.0000*	-0.0011% *0.0000*	
Year Controls Region Controls	Yes Yes n=229,936	Yes Yes n=31,854	Yes Yes n=198,082	Yes Yes n=65,525	

Note: AME stands for average marginal effect and is calculated by 'margins' R package. Women-concentrated occupations model did not have enough variation to run results.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table A2.6: Logit Results with High-Prestige Cut-Off at Ninety-Fifth Percentile – 2011 through 2019

Dependent Var: High Prestige - 95th Percentile	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME *Std Error*	AME *Std Error*	AME *Std Error*	AME *Std Error*	
Average Unemployment Rate (Two-Year Lag)	0.0445% *** *0.0001*	0.1587% ** *0.0005*	0.0157% ^ *0.0001*	0.1513% *** *0.0003*	
Age	-0.0054% *** *0.0000*	-0.0195% *** *0.0001*	-0.0030% *** *0.0000*	-0.0162% *** *0.0000*	
Years of Education	0.1038% *** *0.0001*	0.5935% *** *0.0005*	0.0329% *** *0.0001*	0.3482% *** *0.0004*	
Married (1 = YES)	-0.0027% *0.0003*	0.1176% *0.0015*	-0.0205% *0.0002*	-0.0338% *0.0010*	
Number of Children	-0.0617% *** *0.0002*	-0.1834% * *0.0008*	-0.0240% ^ *0.0001*	-0.2012% *** *0.0006*	
Hispanic	-0.0146% *0.0002*	-0.1580% *0.0010*	0.0018% *0.0001*	-0.0494% *0.0007*	
Black	-0.0698% *0.0006*	-0.2471% *0.0034*	-0.0324% *0.0005*	-0.2067% *0.0022*	
Asian	0.1504% *** *0.0004*	0.7832% *** *0.0019*	0.0597% * *0.0003*	0.5205% *** *0.0013*	
Other	0.0797% *0.0007*	0.5726% ^ *0.0032*	-0.0296% *0.0006*	0.2926% *0.0022*	
Care Work	-0.7866% *** *0.0007*	-12.7263% *56.6483*	-0.3664% *** *0.0004*	-3.3768% *** *0.0032*	
Interpersonal Service Work	0.6920% *** *0.0005*	-16.1437% *16.0713*	0.4864% *** *0.0003*	2.4044% *** *0.0015*	
Job Zone	0.6511% *** *0.0003*	-0.1448% *0.0019*	0.4874% *** *0.0003*	2.2089% *** *0.0011*	
Men in Occupation (%)	0.0424% *** *0.0000*	0.1438% *** *0.0001*	0.0204% *** *0.0000*	0.1435% *** *0.0000*	
Skilled Occupation (1 = YES)	4.5138% *0.7172*	18.2748% *4.5482*	2.1629% *0.5989*	15.5046% *2.9005*	
Union Coverage (%)	0.0000% *0.0000*	0.0064% *0.0002*	0.0005% *0.0000*	-0.0031% *0.0001*	
Population of MSA (100,000s)	-0.0005% *0.0000*	-0.0047% ** *0.0000*	0.0001% *0.0000*	-0.0016% *0.0000*	
Year Controls Region Controls	Yes Yes n=153,735	Yes Yes n=21,106	Yes Yes n=132,629	Yes Yes n=44,263	

Note: AME stands for average marginal effect and is calculated by 'margins' R package. Women-concentrated occupations model did not have enough variation to run results.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table A2.7: Logit Results with High-Prestige Cut-Off at Seventy-Fifth Percentile (Person Effect Removed) – All Years

Dependent Var: Prestige Rating (Person Effect Removed)	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME	AME	AME	AME	AME
	Std Error	*Std Error*	*Std Error*	*Std Error*	*Std Error*
Average Unemployment Rate (Two-Year Lag)	0.1984%	0.0396% ***	0.2204% ***	-0.1826% ***	0.3199% ***
	0.0003	*0.0006*	*0.0003*	*0.0005*	*0.0003*
Age	0.0332% *	-0.0242% ***	0.0414% ***	0.0346% ***	0.0224% ***
	0.0000	*0.0001*	*0.0001*	*0.0001*	*0.0001*
Years of Education	1.1457% ***	1.2848% ***	1.0936% ***	1.2642% ***	0.6972% ***
	0.0003	*0.0007*	*0.0004*	*0.0006*	*0.0004*
Married (1 = YES)	-0.0457%	0.0355%	-0.0793%	0.4008%	-0.2758% *
	0.0012	*0.0028*	*0.0013*	*0.0022*	*0.0014*
Number of Children	0.2536% ^	-0.2617% ***	0.3222% ***	0.1135%	0.2637% ***
	0.0006	*0.0014*	*0.0007*	*0.0011*	*0.0007*
Hispanic	-0.2371%	-0.2925% **	-0.2311% **	0.1814%	-0.4437% ***
	0.0008	*0.0019*	*0.0009*	*0.0015*	*0.0009*
Black	1.2304% *	1.0737% ***	1.3252% ***	1.5068% ***	1.1553% ***
	0.0019	*0.0054*	*0.0020*	*0.0038*	*0.0021*
Asian	2.0619% ***	2.3652% ***	1.9534% ***	0.8925% *	3.2486% ***
	0.0023	*0.0053*	*0.0026*	*0.0039*	*0.0027*
Other	-0.1244%	-0.3193%	-0.0938%	-0.5739%	-0.0609%
	0.0030	*0.0072*	*0.0032*	*0.0055*	*0.0033*
Care Work	12.9486% ***	11.5461% ***	13.7254% ***	28.0644% ***	11.4103% ***
	0.0016	*0.0270*	*0.0017*	*0.0145*	*0.0019*
Interpersonal Service Work	-3.1621% ***	-11.2001% ***	-2.5697% ***	5.4225% ***	-5.7187% ***
	0.0020	*0.0084*	*0.0021*	*0.0042*	*0.0022*
Job Zone	5.8986% ***	4.7545% ***	6.2899% ***	-3.6913% ***	9.6442% ***
	0.0009	*0.0031*	*0.0010*	*0.0022*	*0.0011*
Men in Occupation (%)	0.1609% ***	0.1217% ***	0.1619% ***	0.3888% ***	0.1249% ***
	0.0000	*0.0001*	*0.0000*	*0.0001*	*0.0001*
Skilled Occupation (1 = YES)	28.3436% ***	40.3476% ***	27.2817% ***	37.3182% ***	27.7881% ***
	0.0029	*0.0251*	*0.0030*	*0.0039*	*0.0049*
Union Coverage (%)	0.0117%	-0.0010%	0.0150%	0.0508% *	-0.0095%
	0.0001	*0.0003*	*0.0001*	*0.0002*	*0.0001*
Population of MSA (100,000s)	-0.0073% *	-0.0080% ***	-0.0070% ***	0.0029%	-0.0081% ***
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Year Controls	Yes	Yes	Yes	Yes	Yes
Region Controls	Yes	Yes	Yes	Yes	Yes
	n=229,936	n=31,854	n=198,082	n=65,525	n=164,411

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

Table A2.8: Logit Results with High-Prestige Cut-Off at Seventy-Fifth Percentile (Person Effect Removed) – 2011 through 2019

Dependent Var: Prestige Rating (Person Effect Removed)	Full	Blue-Collar Industries	All Other Industries	Men-Concentrated Occupations	Women-Concentrated Occupations
	AME	AME	AME	AME	AME
	Std Error	*Std Error*	*Std Error*	*Std Error*	*Std Error*
Average Unemployment Rate (Two-Year Lag)	-0.1156% *	-0.0106%	-0.1400% *	-0.2825% **	-0.0959% ^
	0.0005	*0.0011*	*0.0006*	*0.0010*	*0.0006*
Age	0.0247% ***	-0.0264% ^	0.0320% ***	0.0508% ***	0.0076%
	0.0001	*0.0001*	*0.0001*	*0.0001*	*0.0001*
Years of Education	1.0482% ***	1.2489% ***	0.9869% ***	1.4708% ***	0.4471% ***
	0.0004	*0.0009*	*0.0005*	*0.0007*	*0.0005*
Married (1 = YES)	-0.1030%	-0.1620%	-0.1101%	0.3044%	-0.3231%
	0.0015	*0.0035*	*0.0017*	*0.0027*	*0.0017*
Number of Children	0.2663% ***	-0.3549%	0.3532% ***	0.1457%	0.2667% **
	0.0007	*0.0018*	*0.0008*	*0.0014*	*0.0008*
Hispanic	-0.1732% ^	-0.1327%	-0.1808% ^	0.2160%	-0.3638% **
	0.0010	*0.0024*	*0.0011*	*0.0017*	*0.0011*
Black	1.1845% ***	1.0561%	1.2607% ***	1.5577% ***	1.0806% ***
	0.0023	*0.0067*	*0.0025*	*0.0046*	*0.0026*
Asian	2.0759% ***	2.0399% **	2.0256% ***	1.2200% **	3.1527% ***
	0.0028	*0.0062*	*0.0031*	*0.0045*	*0.0033*
Other	0.0514%	0.0984%	0.0259%	-0.1764%	-0.0178%
	0.0036	*0.0087*	*0.0039*	*0.0065*	*0.0041*
Care Work	11.2267% ***	8.2947% **	11.9439% ***	22.2111% ***	9.1326% ***
	0.0020	*0.0269*	*0.0021*	*0.0145*	*0.0023*
Interpersonal Service Work	-3.6714% ***	-11.4693% ***	-3.1099% ***	5.7500% ***	-6.4375% ***
	0.0025	*0.0103*	*0.0026*	*0.0052*	*0.0027*
Job Zone	5.4646% ***	4.5215% ***	5.8567% ***	-4.6772% ***	9.2197% ***
	0.0011	*0.0038*	*0.0012*	*0.0026*	*0.0013*
Men in Occupation (%)	0.1599% ***	0.1198% ***	0.1596% ***	0.4115% ***	0.1217% ***
	0.0000	*0.0001*	*0.0000*	*0.0001*	*0.0001*
Skilled Occupation (1 = YES)	30.3414% ***	47.2626% ***	29.3453% ***	38.9949% ***	30.1746% ***
	0.0037	*0.0555*	*0.0039*	*0.0048*	*0.0065*
Union Coverage (%)	0.0508% **	0.0423%	0.0555% **	0.0899% **	0.0283%
	0.0002	*0.0004*	*0.0002*	*0.0003*	*0.0002*
Population of MSA (100,000s)	-0.0080% ***	-0.0129% **	-0.0070% ***	0.0013%	-0.0077% ***
	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Year Controls	Yes	Yes	Yes	Yes	Yes
Region Controls	Yes	Yes	Yes	Yes	Yes
	n=153,735	n=21,106	n=132,629	n=44,263	n=109,472

Note: AME stands for average marginal effect and is calculated by 'margins' R package.

Significance levels *** p < 0.001, ** p < 0.01, * p < 0.05, ^ p < 0.10

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