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HOW THE LEVEL OF JOB COMPLEXITY IMPACTS THE GENDER WAGE GAP ACROSS OCCUPATIONS

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HOW THE LEVEL OF JOB COMPLEXITY IMPACTS THE GENDER WAGE GAP ACROSS OCCUPATIONS

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Zytlaly Magaña Corona

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ABSTRACT

The present study focused on unpacking the social and structural aspects of job complexity to better understand its effects on the gender wage gap. Previous research on the job complexity-compensation dynamic has primarily focused on cognitive complexity. Job complexity across occupations were examined using work activity data from O*NET and merging it with the Current Population Survey data sponsored by the U.S. Bureau of Labor Statistics (N=67,003). Results revealed that higher complexity jobs in this study yielded greater wage disparities across different occupations as predicted. Furthermore, physical activities and gaining knowledge from the Generalized Work Activities were the two most predictive subdimensions of occupational complexity with regard to the gender wage gap. The gender balance of occupations as a moderating variable were also examined and found that male-dominated occupations had larger wage gaps even when controlling for hours worked. Lastly, as hypothesized, the private sector yielded higher wage disparities among women and men compared to the public sector. Further research exploring elements of the job complexity-compensation dynamic are discussed.

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DEDICATION

This thesis is dedicated to my beloved parents Teresa Corona and Antonio Magaña, who have always taught me the value of giving it my best so that I can work smarter and not harder. If it weren't for my parents' struggle to come to the United States for a better life, I would not be the person I am today. I thank them for always giving me their never-ending love and support for my dreams and accomplishments. The opportunity to graduate with a master's degree will open doors for me that my parents always dreamed of. My accomplishments, my success, and my struggles are for you.

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CHAPTER ONE

INTRODUCTION

It is a well-known fact that gender wage discrimination is a phenomenon that is still prevalent worldwide. In fact, this phenomenon has been consistently documented for decades around the world (Kulich, et al., 2011). A study by Blau and Kahn (2007) claims that women's hourly wages are about 80% of that of men's hourly wages. However, women of color experience even greater disparities in pay compared to men (Auspurg, et al., 2017). Wage documentation has allowed researchers and analysts to learn that the gender wage gap ranges from 15 percent in the European Union, through 17 percent in the United Kingdom, to 23 percent in the United States. The gender wage gap is even wider in developing countries ranging from 35 percent in Asia, 46 percent in Africa, to 51 percent in Latin America (Kulich, et al., 2011). More recent data from the U.S. Bureau of Labor Statistics in 2019 found that full-time salaried women made 82% ($821) of men's median weekly earnings of $1,007. Asian women ($1,025) made the highest earnings following with White women ($840), Black women ($704), and Hispanic women ($642). Some sample highest-paying occupations also had notable wage differences between women and men such as Chief executives (M: $2,509, W: $2,019), Physicians and surgeons (M: $2,500, W: $1,878), and Lawyers (M: $2,202, W: $1,878) (U.S. Bureau of Labor Statistics, 2021). Although this gap is universal, researchers have learned that the drivers

of the gender wage gap differ across several contextual factors such as industry, occupation, level of seniority, age, practice setting, job complexity, and training experience (Kulich et al., 2011). However, researchers have continually demonstrated that wage discrepancies for women persist even after statistically controlling for factors such as age, occupation, seniority level, human capital, or job skills (Anderson & Tomaskovic-Devey, 1995).

Much of the existing literature on the gender wage gap focuses on reporting wage inequalities between women and men. More specifically, literature reviews on the gender wage gap tend to focus on women and men's salaries, ignoring several other pay elements (e.g., benefits, promotions, bonuses, etc.) that could meaningfully contribute to the literature (Kulich, et al.). While gender wage disparities are still persistent and undeniable, the underlying causes and mechanisms are still unclear (Spencer, et al., 2016). One primary concern of interest is that the literature lacks an in-depth analysis on why gender wage disparities exist. Therefore, there is a need for future researchers to compile underlying explanations for the gender-wage gap and explore them more fully. Compiling and exploring the underlying explanations will allow researchers to better understand compensation elements that are commonly ignored in the gender wage gap literature. Consequently, in the present proposed study, I will focus primarily on examining the role that various aspects of job complexity contribute to the gender wage gap. However, first I will review the social-based components that contribute to the persistence of the gender wage gap.

Theoretical Background

Gender-Wage Discrimination

Extensive study has allowed researchers to analyze how different contextual factors of compensation and reward allocation uphold, promote, or extend the gender wage gap. For the present review I will provide evidence for gender wage disparities across several contextual factors, such as industry, seniority level, occupation, and gender density of the occupation, before moving on to discuss why gender wage disparity is still so prominent and the specific role that job complexity may play in the gender wage gap.

Seniority Level

Over the past decades, the gender wage gap has decreased and the percentage of women occupying higher-paying jobs has increased. For example, women occupying management positions has increased 18% from the years 1980-2006 (Ren & Yunxia, 2010). Although the gender wage gap has narrowed over the years, unbalanced practices and patterns of compensation still persist. In fact, such disparities of compensation become more apparent when women occupy senior-level positions (Kulich et al., 2011). For example, it is reported that women in executive-level positions in the United Stated earn 45% less than men on average. Munoz-Bullon (2010) examined gender differences in compensation by addressing finer distinctions between several elements of *total compensation*. They clarified total compensation by distinguishing between base pay (i.e., fixed pay not dependent on job performance) and variable pay (i.e., rewards such as

cash bonuses, incentives, and stocks that are dependent of performance over time). Using data from Standard and Poor's ExecuComp database, Munoz-Bullon managed to gather sample data from over 2,000 public sector companies and found that women in executive-level positions earned nearly 50% less in total compensation than their male colleagues. After controlling for several contextual factors such as industry, occupation, and firm type, the gap narrowed by seven percent. A more telling finding from Munoz-Bullon's study was that a major factor that explained the wage gap was due to gender differences in variable pay (i.e., cash bonuses, incentives, stocks). This provides evidence of unequal distributions of rewards for women and men at the highest ranks in organizations.

Industry

Women face difficulties when working in certain industries over others, particularly in male-dominated fields. Some researchers argue that women's career choices help explain gender wage inequalities. However, even if women have comparable qualifications, experience, and maintenance of their careers as their male counterparts, researchers have consistently shown that women still receive lower rewards and compensation than their male counterparts. Therefore, consistent research findings of wage inequalities suggest that the wage gap is a result of discrimination, and not entirely from factors such as women's differential career choices (Kulich et al., 2011). For example, Spencer et al. (2016) conducted a study that measured gender differences in

compensation and practice patterns in the medical field of urology. And found that omen occupying jobs in the field of urology have increased from .05% to 10% since 1981. However, despite this 1000% increase of women in urology, women still remain compensated at lower levels, specifically $76,321 (adjusted salary) less on average than their male colleagues. It is no doubt that there are several factors that contribute to compensation. After controlling for age, practice setting, fellowship training, call frequency, and work hours, Spencer, et al. revealed that female gender was still a significant predictor of low compensation Additionally, they found that the compensation range for women was smaller, while the compensation range for men was more widely dispersed. What this study ultimately showed was that gender still persists as one of the strongest predictors of compensation despite controlling for numerous contextual factors of compensation. In other words, all the contextual factors of compensation did not explain the wage inequalities between women and men in the field of urology.

Performance and Pay

Some researchers claim that the relationship between pay and performance is not as direct as individuals believe. For example, the fact that compensation is negotiable and discretionary provides an opportunity for discrimination to occur (Kulich et al., 2011). Furthermore, Kulich et al. claim that the wage gap is a context-specific occurrence and explains that organizations' performance has a moderating impact on the way women and men are compensated and rewarded. Their study revealed that executive remuneration

for male leaders was not only higher than for female leaders, but compensation for male leaders was more performance-based than for female leaders. An organization's performance is generally attributed to the leaders of an organization, and thus consequently, it affects how women and men are evaluated for leadership positions.

Considering that male leaders are more recognized for their contribution in organizations than female leaders, it suggests that the pay-performance relationship may be stronger for male leaders (Kulich et al., 2011). According to Agency Theory on compensation, the relationship between pay and performance is strongest when a leader not only impacts organizational outcomes but is also perceived to be instrumental in helping the organization achieve its goals. When evaluating performance, evaluators' conceptions about an individual's role or group membership can influence the perceptions of competencies and abilities of whom they are evaluating. Therefore, if female leaders are not perceived by evaluators as being instrumental in achieving the goals of the organization, they may be subject to receiving less performance-based compensation (Kulich et al.). However, the pay-performance relationship is not clear-cut. A meta-analysis (Tosi, et al., 2000) revealed that the size of a firm accounted for most of the explained variance in the total compensation of chief executive officers, while performance of a company accounted for less than five percent of the total variance. Additional factors of executive compensation are political and social psychological (Devers, et al., 2008). Managerial pay appears to closely relate to

the relative power managers have, as a result of that influence, political factors rather than an organization's performance affect managerial remuneration (Kulich et al.).

Perceptions of Female Leadership and Pay

Society largely attributes communal traits, such as compassion and friendliness, to women and attributes agentic dominant traits for men, such as assertiveness and competitiveness, qualities that are commonly ascribed to leaders (Koenig et al.). Interestingly, the stereotypes that affect women as leaders are not rooted from negative beliefs about women, instead, they are rooted from communal beliefs about women being cooperative, the kinder sex, and nurturing (Koenig et al.). Thus, the perceived lack of fit for women in leadership roles can stem from the incongruity between women's gender role expectations and leadership fit expectations (Koenig et al.).

The question arises, can society's romanticized leadership perceptions contribute to our understanding of the gender wage gap? In the context of leadership for instance, Koenig, et al. explain that biased evaluations of female leaders result from a role incongruity between women and the perceived characteristics and expectations of leaders. Koenig, et al. further explains that the characteristics people often attribute to women and leaders represent the challenges women face in advancing to leadership positions and being successful in them. To give an insight of the sparse representation of women in elite leadership roles, it is reported that women make up 4% of the five highest

earning officers in Fortune 500 companies, 0.4% of the CEOs, 13% of senators, and 10% of state governors (Eagly & Karau, 2002).

In addition, female leaders are typically less trusted than male leaders to guide or manage an organization. Lee and James (2007) showed that appointments for a CEO position are received more favorably when male leaders are appointed. The lack of trust for female leaders may be a result of their actions and attitudes contradicting gender-role stereotypes, resultantly, such perceptions can have direct influence over performance-based compensation and evaluation decisions. For example, a study found that women were perceived as having more influence in a team-based task when exhibiting a cooperative style rather than a self-oriented style. Men, however, were perceived as influential in both style approaches (Ridgeway, 1982, as cited in Foschi, 2000).

One common issue women face in the business world is salary negotiation. For instance, one study found that 57% of male graduate-level students and 7% of female graduate-level students negotiate their starting salary. Women are seen to violate gender norms when attempting to negotiate their salary. Although no real social relationship is established upon being hired, this statistic highlights that wage disparities begin in early organizational practice (Spencer et al., 2016). Castilla (2010) conducted a longitudinal study that showed differences in wage increases among employees with the same job title, the same human capital, and with the same supervisor, based on employee gender, race, and nationality. Despite women’s higher performance ratings

compared to men, women's performance evaluations were discredited later in the salary-setting phase of the performance reward program, consequently leading to lower wages for women (Castilla, 2010). This longitudinal study concluded that employee factors such as gender, race, and nationality affect certain organizational practices that produce discrepancies in rewards.

Social Conformity and Values

Social conformity is a social phenomenon that occurs when individuals change their behavior to match that of others (Cialdini & Goldstein, 2004). Schwartz (1992) defines social conformity as a personal value that requires one to demonstrate self-restraint so as to uphold the norms of society. Individuals value and support social conformity by being consistent with the attitudes and behaviors from those around them. Research on social modeling has consistently shown that individuals change their attitudes and behaviors depending on who their audience is (Gilman, et al., 2015).

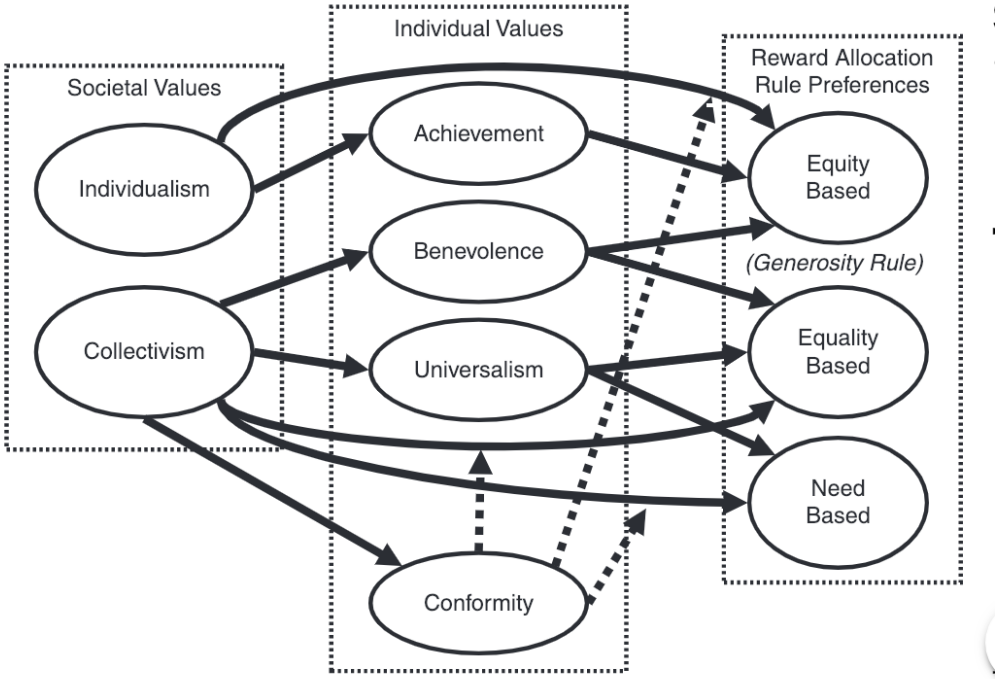
Culture also plays an important role in individuals' reward distribution preferences. Cross-cultural researchers explain that culture also influences whether individuals perceive their organization's reward distribution systems as being fair and just (Day, et al., 2014). Culture also influences reward distribution rules of equity, equality, or need (Olsen, 2015). The reward allocation rule for equity, grounded from Adam's (1963) Equity Theory, involves distribution of rewards based on individual effort. That is, employees with the highest level of performance are distributed the highest level of rewards. The reward allocation

rule for equality involves equal distribution of rewards across all contributing members. Lastly, the reward allocation rule based on need, involves providing the greatest rewards for the least fortunate individuals or individuals with the highest need (Olsen).

In order to capture a comprehensive understanding of how employees perceive the rewards they receive, it is important to understand societal values and individual level values distinctively from one another. Olsen explains that both societal and individual values mutually assist the creation and development of individuals' preferences for the different rules they apply for the distribution of rewards (e.g., salary, benefits, retirement). Although societal values manage to influence individual values, individual values are more predictive of reward allocation preferences and those same preferences serve as indirect effects of societal values. Furthermore, Olsen proposes that both societal and individual values have direct effects on reward distribution rule preferences and societal values also serve as determinants of individual values. They also explain that in addition to societal values' direct effect on reward distribution rule preferences, societal values also have an indirect effect on reward distribution rule preferences via their influence on individual values. Thus, as can be seen in Figure 1, it is suggested that individual values partially mediate the relationship between societal values and reward distribution rule preferences.

Figure 1.

Societal and Individual Values on Reward Allocation Rule Preferences



Note. Figure from Olsen, 2015.

Social exchange theory explains that behavior is motivated by the expectation for an individual to reciprocate back an action that was given. This expectation creates a sense of conformity and obligation for recipients, causing recipients to respond to this obligation by reciprocating the action received (Blau, 1964; Olsen, 2015). The social exchange theory also explains that in individualistic societies, individuals contribute to the goals of the organization with an expectation that the organization will reciprocate in the form of rewards. On

the other hand, in collectivistic societies, individuals expect reciprocation from their organization in the form of group cohesion, inclusion, and leadership and peer support (Olsen, 2015). Furthermore, justice and fairness researchers have come to learn that justice perceptions are highly culture-dependent (Fisek & Hysom, 2008). Justice researchers are also highly interested in the cultural differences of individualistic and collectivistic societies seeing that societies do tend to have different justice judgements. Particularly, individualistic cultures tend to prefer norms consistent with equity, while collectivistic cultures tend to prefer norms consistent with equality (Fisek & Hysom).

Societal values greatly influence and motivate the behaviors and preferences of individuals who place strong values on conformity (Olsen, 2015). Those with high levels of authority and leadership carry a greater responsibility to conform and meet the expectations of not only society, but organizations as well. Thus, leaders who manage reward allocation systems will put forward the preferences and/or rules that are consistent with the societies they belong to. It is imperative to understand how social-based differences of conformity and values shape or structure gender-wage disparities in the workplace. As previously mentioned, individuals value and support social conformity by being consistent with the attitudes and behaviors from those around them. Considering how less than three percent of top executive-level positions are occupied by women, male leaders will primarily be influenced and determined to meet the expectations of

other male leaders and thus conform to the reward allocation preferences of their peers (Kulich et al., 2011).

The dearth of female leaders in high executive-level positions also introduces another issue, that is the values of women and men tend to socially differ. Understanding individual and societal values can assist researchers in better analyzing the social-based differences seen in gender-wage disparities. From previous studies, researchers have learned that men tend to be more individualistic, while women tend to be more collectivistic. Therefore, since men occupy most of the high executive-level positions around the world, their values will reflect on how they allocate rewards. Thus, in order to better understand social conformity and values relating to compensation, it is essential to understand the standards and barriers that constrain or reinforce gender wage disparities.

Social Barriers Contributing to the Gender Wage Gap

Patriarchal Pressures

Gender-wage distinctions are in part, determined by societies' persisting patriarchal beliefs (Rimashevskaia, 2008). Patriarchy enforces masculinity and femininity character stereotypes, as well as gender roles in societies, where such societal influence reinforces unfair power relations between women and men (Semali & Shakespeare, 2014). Patriarchal views persist through organizational practices such as gender segregation, occupational segregation, and practices

that preserve men's privilege (Anderson & Tomaskovic-Devey,1995). Gendered privilege is said to be a social construct created and fostered by patriarchal ideologies that serve masculinity over femininity in several workplace contexts (Semali & Shakespeare, 2014). In the context of workplace settings, male privilege is said to be developed through the common practice of excluding women from reputable occupations, as well as through practices that continually validate and define whatever contributions men put forth as more valuable to the organization (Anderson &Tomaskovic-Devey,1995). Additionally, patriarchal workplaces institutionalize masculine principles and preferences into everyday neutral organizational practices. Such principles and preferences could be engraved into several key components of an organizations' culture, structure, or way of operating. For example, patriarchal principles may be reflected in organization's wage-setting practices or performance evaluation practices. Therefore, considering that patriarchal workplaces aim to preserve men's privilege, compensation systems may compensate men with higher rewards than those from devalued/lower status groups, such as women (Anderson & Tomaskovic-Devey, 1995). Thus, it could be concluded that the reward allocation based on patriarchal views or male-constructed stereotypes affect women by compensating them with lower rewards than men, for otherwise equal work and effort (Semali & Shakespeare, 2014).

Nevertheless, researchers also argue that patriarchy is not a fixed system of privilege because women also have the potential to mobilize and resist gender

inequality (Anderson & Tomaskovic-Devey, 1995). Instead, they explain that patriarchy is subject to exacerbation and erosion depending on the organization's desirability of rewards, the political capacity of women and men, and the occurrences of gender-inequality practices elicited from organizations and managers. Researchers have documented that a common process that occurs inside organizations is the ongoing attempt from men to monopolize job rewards. It is believed that patriarchal pressures for the advantage of men is greatest when organizations' resources and high-wage job opportunities are greater. Gender politics is said to occur in any establishment in which there are desirable and reputable rewards to compete for. Thus, organizations who have high-paying jobs or wages for employees to compete or struggle for, it is expected to be accompanied with higher gender earning inequalities.

Standards

The process of comparison generally consists of individuals assessing distinctions by rank/order (e.g., "my test score was better than yours"), attributes, and actions (Foschi, 2000). Another universal method of comparison is by holding someone against a social standard. A standard is defined as norms that define requirements for inferences made of attributes, abilities, or behavior. In fact, standards have important social components that wholly makes understanding them more complex. Individuals are not always treated according to the same standards, as often, standards are dependent on an individual's/groups' identity (e.g., gender, ethnicity, nationality, socioeconomic

status). This unequal application of standards is commonly known as the usage of “double standards”, which are defined as the usage of different requirements for interpretation of evidence (Foschi). Double standards may involve the use of stricter/harsher requirements against members of a devalued group; this practice results in individuals making inferences about a devalued group-member’s attributes, and ultimately affiliating the perceived attributes with an individual’s membership (Foschi).

Standards have important implications for individuals’ inferences of another member’s competence (Foschi). According to “Expectation States theory”, individuals have a tendency to assign levels of competence to other members according to the expectations individuals hold for other members. In organizational settings, those deemed to come from a devalued category (e.g., women) may experience performance scrutiny and may be subject to stricter standards. On the other hand, when individuals from a valued category (e.g., men) fail, often times they are given the benefit of the doubt and evaluated against a more lenient standard. The usage of lenient standards for those with higher status results in women reporting that they try harder and are held to a standard of making fewer mistakes than men for the same level of work. Interestingly, Foddy and Graham (1987) found that women are also subject to creating strict standards for themselves. This is valuable to better understand because it shows that status beliefs are shared, and such beliefs have the power to influence and shape expectations and standards (Foschi).

Social Perceptions of Gender Wage Disparities

Gender wage disparities remain persistent in part, due to women and men's justice perceptions of women's lower wages (Auspurg, et al., 2017). One question that stands out is, why then would women perceive lower wages for women as fair? Auspurg et al. explain that women might perceive lower wages as fair due to gender-specific referents. There is a human tendency (i.e., social comparison processes) for one to compare oneself with other similar individuals, or other individuals in a similar situation. Accordingly, women may compare themselves with other unfairly compensated women, or that of other unfairly compensated workers. Auspurg et al. claim that women may find themselves using reference groups to make comparisons and develop conclusions or inferences of their situations.

Additionally, gender may be perceived as a variable in itself for women by creating a justification or legitimization for men's higher wages due to their social status in society and culture. For instance, unequal compensation or reward allocations may cause women to conclude that the reward/compensation differences are a result of performance differences (Berger et al., 1985). Such conclusions may be motivated by three types of social comparison processes: the first being that conclusions may be developed by comparing one's abilities, second- performance, and third- status membership. A harmful perception (in line with rewards expectation theory) that impacts wage disparities for women is through societies' gender status belief that women are deemed less valuable

than men (Auspurg, et al., 2017). Correl and Ridgeway (2003) claim that a consequence of socially shared status beliefs is that individuals who are disadvantaged by them (e.g., women) come to accept the status beliefs.

Occupational Segregation

Joshi, et al. (2015) explain the notion of occupations having a demographic make-up that suggests the suitability or fit an occupation has for women and men. Occupations' demographic compositions are based on cultural factors such as norms, stereotypes, and status cues, all factors that shape administrative decisions, advancement opportunities, compensation, and evaluations for women. Gender-typing of an occupation drives stereotypic beliefs, normative role expectations, status cues, and stereotypic expectations of the functions and competencies associated with an occupation. For instance, occupations such as day care providers are deemed an appropriate fit for women, while occupations such as security officers are deemed an appropriate fit for men.

Today, women are increasingly entering male-dominated occupations. Considering this fact, women are still perceived as not being a great fit for certain occupations over others due to the stereotypic expectations and beliefs about the roles and competencies expected of those who work in an occupation. Consequently, women experience a higher level of bias and discrimination from performance evaluators, leaders, and peers. Role congruity theory supports this occurrence by explaining that the efforts of women are often discredited or

undervalued by their own peers and managers, despite women's high-performance levels (Joshi et al.). They conducted a meta-analysis to test whether contextual factors such as occupation, industry, and job-level factors altered performance evaluations and distribution of rewards for women and men. The meta-analysis revealed that gender differences in rewards were 14 times greater than gender differences in performance evaluations. The meta-analysis also revealed that the percentage of men in an occupation exacerbated the gender gap in both performance and rewards. The ongoing practice of segregating women in the workplace contributes to the lack of progress in narrowing and closing the gender wage gap (Semali & Shakespeare, 2014). The lack of progress is explained in part by two primary reasons: discrimination and segregation; that is, individuals use gender to classify other individuals and gender is also one of the primary bases for which individuals discriminate and treat others unfairly and unequally (Semali & Shakespeare).

Researchers have shown that women who work in male-dominated occupations or settings experience discrimination and bias at two different levels. The first being that women are perceived to lack male-typical abilities and traits (e.g., leading, being assertive and influential). The second level being that women who are perceived to have male-typical traits and abilities are deemed less effective than men who have the same traits and abilities. Women experience a social barrier that permits them from behaving in ways that are not socially acceptable, and when they are perceived to cross or break the social

barrier, they are compared to those who do not experience this social barrier. A result of this bias and discrimination is that women are penalized for behaving against the norms and expectations. A consequence of this is that women may experience harsh evaluations, denied/limited advancement opportunities, and receive lower compensation (Joshi et al.). Ren and Yunxia (2010) suggest one reason why female executives may earn less in total compensation compared to men is due to women moving into smaller industries of businesses due to occupational segregation. In addition, several studies have demonstrated that pay for both women and men decrease as more women enter occupations or positions (Anderson & Tomaskovic-Devey, 1995).

Occupational Prestige

Occupational prestige is defined as the socioeconomic value that a job or field has (Joshi et al., 2015). An occupation's prestige has important implications for employment outcomes and job mobility (Joshi et al.). Occupational prestige is in part related to, as well as dependent on, the demographic composition of an occupation in forecasting wage disparities between women and men. Additionally, social hierarchies of prestige exist within societies for occupations. Highly prestigious occupations (e.g., surgeons) generally represent higher social classes and involve higher investments in human capital. Women may experience several barriers when entering highly prestigious occupations, such as barriers to entry and limited access to advancement. Furthermore, Joshi et al. explain that an occupation's prestige can function as a hierarchy-enhancing

agent, such that it supports the distribution of favorable rewards to dominant social groups (i.e., men) instead of subordinate groups (i.e., women). Past research has also demonstrated that performance evaluators, managerial practices, and wage-setting determinations function as instruments of control by maintaining the male-dominant status quo and dominance of men in high prestige occupations. Thus, hierarchy-enhancing agents can also function through reward distribution practices by awarding more promising rewards to men than to women (Joshi et al.).

Unpacking Job Complexity

So far, I have discussed the different social factors that affect the gender wage gap. A critical job-related factor to consider when attempting to understand the gender wage gap is to explore job complexity. Specifically, it is important to explore what specific aspects of job complexity are most important in influencing the gender wage gap. Job complexity reflects the nature and magnitude of responsibility a job possesses (Agarwal, 1981). More specifically, job complexity is the extent to which a job is difficult and complex, requires a greater degree of mental demands, and higher-level skills (Zacher & Frese, 2011). Other ways of defining job complexity involve physical or cognitive demands necessary for a job's fulfillment (London & Klimoski, 2006). However, the concept of job complexity is difficult to understand and operationalize.

By the same token, characterizing a job by its complexity introduces difficulty with measurement (Ophem, et al., 1993). For instance, individuals' satisfaction with their job can have confounding effects on their perceptions of their job's complexity (London & Klimoski, 2006). That is, individuals with high levels of job satisfaction may view their job as less complex than someone with lower levels of job satisfaction. In addition, from a social standpoint, job complexity is multidimensional. For example, London and Klimoski examined job complexity perceptions of nurses and found that there were interhospital differences in how nurses perceived job complexity across hospitals.

Despite these challenges, examining job complexity with more depth is important for better understanding a variety of workplace behaviors and attitudes (London & Klimoski). The job enrichment literature highlights that jobs should be designed for full-capacity to provide individuals the opportunity to satisfy their need of fulfillment. London and Klimoski share that individuals who occupy low-complexity jobs can become frustrated and individuals who occupy high-complexity jobs can become motivated.

Jobs can be conceptualized by the structural characteristics their job entails. According to Agarwal (1981), in turn, the structural characteristics of a job influence individuals' perceptions of the relative worth of a job. The more differentiated functionally, vertically, and spatially an organizational structure becomes, the more complex patterns of interactions and interpersonal relationships employees must engage in. Agarwal also notes that large

organizations are typically more structurally differentiated than smaller organizations. Thus, large companies typically are more structurally complex, resulting in a greater development of complex jobs.

Fedorets (2014) conducted a study that analyzed gender-specific task inputs to better analyze the gender pay gap. Specifically, they analyzed how job tasks are related to the shaping of the gender pay gap and how job contents between women and men compare. The study's findings highlighted that the gender pay gap formation is attributed to the prices for non-routine cognitive tasks (Fedorets). They note that a job's task contents affect women's labor market participation and wages. In fact, several empirical studies suggest there is a close association between gender-specific pay and changes in task contents (Fedorets). Empirical studies have also shown that non-routine cognitive tasks are correlated with higher wages, however, non-routine cognitive task profiles for women are not directly translated into higher wages.

Regarding executive compensation, Agarwal (1981) shares that there is a close relationship between job complexity and executive compensation. Large organizations typically have complex executive jobs involving a greater responsibility and a higher authority over others. Accordingly, researchers may expect a greater executive job complexity as company size increases. Agarwal's study measured three organization determinants of executive compensation: job complexity, employer's ability to pay, and executive human capital. The study's measure for job complexity consisted of "span of control" (number of employees

supervised), “functional divisions” (number of divisions responsible for), “management levels” (number of lower management levels indirectly supervised), and “geographical diversity” (number of different states in which the executive operates). Collectively, the three variables accounted for 80% of the variance in executive compensation. Specifically, job complexity and employer’s ability to pay were the most important determinants of executive compensation. Agarwal found that as executive job complexity increased, the higher the compensation.

The job complexity-compensation dynamic presents itself as a potentially rewarding opportunity for those who seek to advance their careers. However, we know from the gender wage discrimination literature that women experience several barriers to advancement to executive positions. Executive jobs are generally assessed uniquely and are less likely subject to a systematic study and evaluation. As a result, this presents consequences for salary determination and implies that the salary determination process for executives can be highly subjective (Agarwal). Boye and Grönlund (2018) found that early career gender wage gaps were due to men’s likelihood of taking on higher complexity jobs than women. Jobs with high initial training requirements have direct effects on wages, such that employee access to training opportunities gives employees bargaining power (Boye & Grönlund). They found that workplace skill investments impacted the gender wage gap, such that men were more often appointed to higher complexity jobs that required substantive training. By the same token, Bechara

(2012) notes that women typically prefer to work in jobs that require lower investments in job-specific training. Ultimately, women typically have less access to jobs that require high responsibilities and costly training compared to men.

Regarding job mobility, female employees are typically compensated lower than men when attempting to move onto better, higher complexity jobs. Thus, job mobility has an influential role for shaping employees' wage profiles (Bechara, 2012). They found that men's entry wages for job changes were higher than women's entry wages. Similarly, men also received smaller wage losses compared to women when such losses were attributed by an employer change. Campos-Soria and Ropero-Garcia (2012) found that a factor that greatly contributed to wage differentials between women and men was that men occupied the best paying jobs in four high status levels related to supervisory tasks. Women on the other hand, held the best paying jobs related to lower prestige university degrees and for unskilled jobs related to areas of services (Campos-Soria & Ropero-Garcia). Ultimately, they found that women were best represented in best paying jobs that required intermediate levels of responsibilities at the lower status levels. This may explain why women face challenges for being promoted to jobs with greater levels of responsibility at higher status levels.

The segmented labor market theory for earning differences highlights that market imperfections prohibit individuals with disadvantageous characteristics from collecting a maximum return from their productivity. In other words, because

the labor market impacts individuals' earnings, the characteristics of a job become an important factor for explaining compensation (Ophem et al., 1993). One issue with assignment or allocation of employees to jobs is characterizing individuals by their abilities to handle jobs that differ in complexity. The major issue becomes present when employers realize there is a comparative advantage is assigning or allocating certain individuals over others to particular jobs (Ophem et al.). Because jobs vary in complexity, employees may be characterized by their capability of handling complex jobs, such that the greater the perceived capability, the higher the pay. Furthermore, Ophem et al. found that the higher job level employees had, the more they expected to be compensated for increased job complexity. However, for budgetary reasons, this longitudinal study only surveyed men. Correspondingly, male participants expected a large percent of additional wage to move on to higher complexity jobs. On account of education and sex, the study found that better qualified individuals were likely to demand higher compensation in order to move up to higher complex jobs (Ophem et al.). Of course, this compensation-job complexity dynamic may be different for women because negotiating salary is perceived to be against the gender norm, particularly at lower job levels. Thus, at lower job levels women have larger gender wage disparity, but due to steeper wage profiles across job levels for women, the earnings disadvantage of women decreases as the job level increases (Ophem et al.).

Yin, et al. (2012) studied the effects of job complexity on chief financial officer's (CFO) compensation. They found that job complexity measures were not only related to fixed pay (e.g., salary), but also variable components (e.g., bonuses) of CFO compensation. Yin, et al. explained that the fixed component (i.e., base salary) is a function of the scope, job complexity, and overall responsibility of the job. Bonuses (i.e., variable component) however, are also a function of job complexity because they are related to determinants of salary. In executive positions, bonuses are generally contingent on performance, thus, the responsibility and demands of executive positions add to the job complexity, ultimately reflecting performance (Yin, et al.) Gender discrimination literature shows that women are often subject to stricter standards and harsher performance evaluation, thus, if job complexity is associated with both fixed and variable components of compensation, it has important and impactful implications for the gender wage gap.

The extent to which employees believe their individual future at work consists of new goals, options, and possibilities is known as "focus on opportunities" (Zacher & Frese, 2011). Furthermore, the authors introduced the selection, optimization, and compensation (SOC) model by sharing that SOC behaviors foster the allocation of personal resources, maintenance, and functioning in light of facing challenges or loss of resources. Zacher and Frese explored how age, job complexity, and the use of SOC strategies predicted focus on opportunities. They found that job complexity was positively associated with

focus on opportunities, such that higher-complexity jobs involve job factors related to setting work goals, planning, and greater feedback signals, while low-complexity jobs involve narrow tasks with a short-term perspective and do not promote expectations of future work opportunities. Zacher and Frese also noted that higher complex jobs involve more collaboration and transfer of experience and knowledge among co-workers. Women who occupy executive positions (i.e., jobs which are deemed more complex and prestigious) may face issues with perceptions of competence or glass cliff, thus having implications for women's focus on opportunities. The work concepts of focus on opportunities and job complexity can have a meaningful impact on the gender wage gap such that highly complex jobs may involve workplace beliefs and practices which impede women from advancing onto prestigious jobs. Researchers have shown occupational segregation is greater when women climb the corporate ladder. It is a common tendency to make inferences about one's opportunities in the future based on perceptions of one's current occupation standing or situation (Zacher & Frese).

There is in part, a self-selection and an employer-selection component to an individual's job mobility history (Wilk & Sackett, 1996). Individuals typically sort into jobs that reflect their ability level and cognitive complexity, and then employers select individuals according to the anticipated job fit and dismiss individuals who challenge or oppose the initial projection. Wilk and Sackett (also explained that jobs can be ranked by the cognitive ability required for the job and

that individuals with high cognitive ability tend to gravitate towards jobs that are more complex, while individuals with a lower cognitive ability tend to gravitate towards jobs that are less complex. Wilk, et al. (1995) explored job gravitation and found that an individual's cognitive ability predicted job complexity level five years down the line.

According to Korkeamäki and Kyyrä (2006), lower wages in female-dominated jobs can be evaluated by exploring job complexity (e.g., responsibility, skills, and effort). How job complexity is scaled or ranked for salary determination is important for understanding wage variations between jobs. Wages are said to be closely matched to job characteristics. Jobs typically have a minimum wage rate and are evaluated according to the responsibilities, skills, and efforts required from a job. Wages can be determined by job complexity scales such that basic wage rates are associated with specific levels of complexity (Korkeamäki & Kyyrä). However, they note that the total wages for employees often exceed basic wage rates because employers also allocate rewards based on individual qualifications and performance. This information can explain how women's contributions are often over-looked or subject to scrutiny, therefore, this can have an effect on the degree to which total wages for women are justifiable and advantageous.

Korkeamäki and Kyyrä (2006) attempted to examine wage discrepancies among jobs and found that female-dominated jobs with low wages were attributed to lower skill requirements and job complexity. The highlight in this

study was that workers in female-dominated jobs received lower wages than male-dominated jobs with the same level of education, seniority, and job complexity. Ultimately, jobs of similar equivalence were rewarded differently depending on whether the jobs were occupied by women or men. Lastly, after this study controlled for job complexity and several other factors, wages remained negatively associated with female variables used in the study. According to the Current Population Survey: ASEC (Bureau of Labor Statistics, 2017), several of the female-dominated jobs in the United State are associated with the following industries: education and training, community and social service, personal health care, administrative support, and human resources. Some of the occupations that were highly female-dominated in the Current Population Survey were: human resource workers (74.5%), counselors (70.4%), social workers (83.9%), Pre-kindergarten (98.5%) and elementary school teachers (79.8%), home health aides (87.4%), and childcare workers (95.1%). The Bureau of Labor Statistics (2019) reports the median annual pay for the following female-dominated occupations: Human Resource Specialists ($60,880); Kindergarten and Elementary School teachers ($57,980); Social Workers ($49,470); Childcare workers ($23,240).

Joshi et al. (2015) proposed that sex differences in rewards can be a function of the nature of the job, such as the job's structure, span of control, authority, ambiguity, and status; all factors that drive the definition and weighting of criteria for reward allocation. As such, there are several mechanisms by which

job complexity may influence gender inequality in the workplace (Joshi et al.). A job's complexity can be associated with a greater status and authority over others. Thus, the prestige of a job level can have impactful implications for women's advancement to higher-status positions. Joshi, et al. also note that in the context of complex job settings, cognitive biases can play an important role in supervisory jobs that are responsible for allocating rewards. When information from a job evaluation cannot be easily collected or documented, subjective/ambiguous performance criteria can lead evaluators to using stereotypes against women, this may explain why job complexity may enhance sex differences in performance evaluations and rewards (Joshi et al.). In other words, higher complexity jobs may introduce a higher likelihood of a biased evaluations and wage determination decisions. For instance, Mobley (1982) found that systematic gender bias was less present for women's nonprofessional and nonmanagerial job evaluations as a result of the job's lower complexity nature. They further claim that job complexity may take the role of shaping subtler forms of bias that result in systematic sex-related differences in employment outcomes. Furthermore, higher complexity jobs are less generalizable across incumbents. As a result, Joshi, et al. note that incumbents may likely overlook or fail to detect unequal treatment.

Joshi et al.'s meta-analysis explored whether occupation, industry, and job-level factors lessen or worsen performance evaluations and rewards. Specifically, one of the factors they explored was job complexity and found that

the percentage of men in a job augmented the female-male gap in both performance and rewards. They obtained job complexity scores by using the Occupational Information Network (O*Net) database. The skill variable the researchers used for job complexity in their study was “complex problem-solving”. Joshi et al. found a positive relationship between job complexity and sex differences in rewards, such that as job complexity increased, reward differences between women and men also increased. Overall, this study revealed that job complexity and occupations with a greater percentage of men enhanced the gender wage gap and women who performed equally in prestigious occupations with high job complexity were rewarded significantly lower than men. However, their definition of job complexity was extremely limited, in that they only looked at one rating of complex problem solving.

Present Study

Gender continues to serve as a status cue and determinant for fair allocation of rewards, fair performance evaluations, and career advancement opportunities. The patriarchal ideologies, as well as the socially constructed perceptions of women’s role and status in societies and cultures, contribute to the persistence of gender wage discrimination all over the world. Additionally, social conformity and societal values play an important role in the exacerbation of gender wage inequality practices. Researchers continue to demonstrate that occupational segregation practices, as well as the gendered politics that exist in

organizations, continue to affect women's opportunities to climb up the corporate ladder. A common inequality-producing practice in patriarchal organizations is for male leaders and employees to form coalitions amongst each other with the intention of excluding women from opportunities of advancement of desirable and reputable, high-status jobs (Anderson & Tomaskovic-Devey, 1995). The ongoing practice of segregating women in the workplace contributes to the lack of progress in narrowing and closing the gender wage gap (Semali & Shakespeare, 2014). Gender segregation in the workplace ultimately affects and influences wage-setting practices and preferences. Altogether, the social-based evidence is suggestive that the gender wage gap has significant barriers to overcome before the gender wage gap substantially narrows.

However, for the present study I will focus on the complexity of a job in order to more fully explore its contribution to the gender wage gap. Specifically, I will extend Joshi et al. (2015), who only defined job complexity as "complex problem-solving". Therefore, in the present study I will provide a more detailed and nuanced examination of job complexity by further exploring other key variables of job complexity from the ONET data base in order to better understand its contribution to the gender wage gap. Therefore, it is hypothesized that:

H_1: The more complex the occupation, the larger the size of the gender wage gap across occupations (this is in line with Joshi et al, 2015, H_{4b}).

Additionally, I am going to go a step further and examine generalized work activities as suggested in Alterman et al. (2008), who conducted an Exploratory Factor Analysis (EFA) of ONET occupational characteristics. Their goal was to determine whether ONET can be used to identify job dimensions that would serve as measures for workplace psychosocial factors, work organization, and select environmental factors. Factor analyses were performed on job descriptors in three domains (generalized work activities, work context, and occupational values) of the ONET 98. Thus, I predict that each subdimension (Gaining knowledge and information processing; Interpersonal relationships, assisting, and guiding the work of others; Physical activities, repairing, and maintaining equipment) of the subdomain: Generalized Work Activities, will show wage discrepancies to a varying degree. By examining the effect sizes, I will identify which subdimension of Generalized Work Activities has a bigger impact on the gender wage gap. Additionally, I will examine whether the effects of job complexity differ depending on which subdimension I address. Therefore, it is hypothesized that:

H_2: The interpersonal dimension of job complexity will be most predictive of the gender wage gap (i.e., the interpersonal dimension will have a largest effect size compared to the other two subdimensions).

Interpersonal aspect of a job's complexity has to do with directing, persuading, negotiating, influencing, and guiding the work of others, factors that women experience difficulty seeming credible or competent at. Especially higher

up in the corporate ladder, women may not have the credibility for influencing others and forming strong relationships. Women are disadvantaged in accessing positions of leadership in which they ‘supervise’ or ‘control’ men (Dämmrich & Blossfeld, 2017). As a result, women may be rarely considered for opportunities in which they supervise or manage what is believed to be the “stronger sex”. Another contributing factor in occupational segregation is employers’ beliefs that investing in women for leadership roles is risky, since women are expected to have lower job commitment compared to men (Dämmrich & Blossfeld).

H_3: It is predicted that the correlation between job complexity and wage gap will be larger in male-dominated occupations, compared to female-dominated occupations or gender balanced occupations.

Women face difficulties when working in certain industries over others, particularly in male-dominated fields. Even if women have comparable qualifications, experience, and maintenance of their careers as their male counterparts, researchers have consistently shown that women still receive lower rewards and compensation than their male counterparts (Joshi, et al, 2015). Although the gender wage gap has narrowed over the years, unbalanced practices and patterns of compensation still persist. In fact, such disparities of compensation become more apparent when women occupy senior-level positions (Kulich, et al., 2011). Ren and Yunxia (2010) suggest one reason why female executives may earn less in total compensation compared to men is due to women moving into smaller industries of businesses due to occupational

segregation. Several studies have also demonstrated that pay for both women and men decrease as more women enter those occupations or positions (Anderson & Tomaskovic-Devey, 1995). A particular occurrence in male-dominated industries or occupations is men unionizing together to protect their best interests for desirable positions. Men may engage in behaviors or practices that may disadvantage or challenge women's' accessibility to advancement opportunities (Dämmrich & Blossfeld, 2017).

H_4: It is predicted that occupations from the private sector will have a larger gender wage gap compared to those from the public sector.

Compared to the private sector, the public sector does not have to deal with profit constraints, has stricter pay scales to abide by, and has equal pay and affirmative action policies that are enforced (Zweimuller & Winter-Ebmer, 1994). According to Zweimuller and Winter-Ebmer, experience is not rewarded the same in the public sector as it is in the private sector, especially for women. They found that wage discrimination was highest in the private sector compared to the public sector and that such gender wage discrepancies were attributed to unequal promotion practices. Additionally, Zweimuller and Winter-Ebmer found that women in the private sector were boxed into lower ranks of the job hierarchy while women in the public sector experienced a career halt in middle management positions.

Similarly, a study by Mandel and Semyonov (2014) found that the gender wage gap was notably larger in the private sector compared to the public sector

in the United States. These researchers found that working hours was one of the most important factors for explaining gender wage discrepancies in both private and public sectors, however, the effect of working hours was much greater in the private sector. Lastly, another interesting point to note is that most pay scales or actual pay rates are made available for most public sector jobs. For instance, in California, *https://transparentcalifornia.com* allows prospective job applicants to search pay rates or pay scales for a position of interest by examining the current pay of individual incumbents. Considering how this is publicly available, it puts applicants in a better position to negotiate outstanding offers, which may help to contribute to a lower gender wage gap in the public sector. On the other hand, in the private sector, there is no real way for applicants to know the pay rates or pay scales of specific individuals, thus affecting applicant's ability to successfully negotiate a fair offer, a challenge especially known for women.

CHAPTER TWO

METHODOLOGY

Sample

The Bureau of Labor Statistics' (2017) ASEC supplemental survey was used to test the proposed hypotheses. According to the Bureau of Labor Statistics, this supplemental survey is part of the Current Population Series (CPS). CPS is a labor force survey that is administered monthly and provides the official government statistics and current estimates of the economic status and activities of the United States population. More specifically, CPS provides estimates of total employment (both farm and non-farm), non-farm self-employed persons, domestics, and unpaid helpers in non-farm family enterprises, wage, and salaried employees, and estimates of total unemployment.

The ASEC supplemental survey also provides data on poverty, geographic mobility/migration, and work experience. Comprehensive work experience information was given on the employment status, occupation, and industry of persons aged 15 and over. Additional data for persons aged 15 and older were available concerning weeks worked and hours per week worked, reason not working full-time, total income and supplemental income components. Demographic variables included age, sex, race, Hispanic origin, marital status, veteran status, educational attainment, occupation, and income. Data on employment and income refer to the previous calendar year, although

demographic data refer to the time of the survey. The sample was based on the results of the decennial Census, with coverage in all 50 states and the District of Columbia. The ASEC was also supplemented with a sample of Hispanic households. In the original sample (N = 185,914), men comprised 48.5% and women comprised 51.5%. The original sample's demographics consisted of 77% White, 12% Black, 6.7% Asian/Pacific Islander, 1.6% American Indian Alaskan Native. The majority of the participants were non-Hispanic, Spanish or Latinx, and 20% of the survey respondents reported being Hispanic/Spanish/Latinx. The final number of respondents was based on the topmost frequent 97 occupations, therefore, the final sample size was reduced (N = 67,003).

Measures

Predictor Variables

Demographic Variables. Age, sex, marital status, education, industry, job class (sector). Refer to Appendix A for details.

Occupation. In order to further unpack how job complexity impacts the gender wage gap, I explored survey respondent's occupation and referred to the O*NET to replicate Joshi et. al.'s (2015) finding regarding complex problem solving and also look at Alterman et al.'s (2008) scale to examine generalized work activities. There are 485 unique jobs listed in the CPS data set. The most frequent job being *Managers, all other* (N = 2,539) and the least frequent jobs being *Cleaning, Washing, and Metal Cleaning Pickling Equipment Operators and*

Tenders (N = 2) and *Motion Picture Projectionist* (N = 1). It was unrealistic, unwieldy, and unnecessary to code all 485 unique jobs in terms of the job complexity and gender balance. Thus, I coded the top 100 most frequently reported jobs which ranged in frequency from N = 2,539 (*Managers, all other*) to N = 700 (*Lawyers, Judges, Magistrates, and other judicial workers*). Group level scores for each occupation were used for the analyses. These 100 jobs vary widely in both job complexity and gender balance. See Appendix B for an example breakdown of the generalized work activity ratings for a given job. To see a full list of the 100 most frequent occupations, refer to Appendix C.

Alterman et al.'s (2008) findings consisted of three domains: Generalized Work Activities, Work Context, and Occupational Values (see Appendix D). Generalized Work Activities further consists of three subdomains: *Gaining knowledge and information processing* (n = 17; Cronbach's α = 0.98), *Interpersonal relationship, assisting and guiding the work of others* (n = 13; Cronbach's α = 0.96), and *Physical activities, repairing and maintaining equipment* (n = 5; Cronbach's α = 0.81). The Work Context also consists of three subdomains*: Hazardous work exposures* (n = 18; Cronbach's α = 0.95), *Dealing with people and diversity of tasks*, (n = 15; Cronbach's α = 0.93), and *Competitive work context and importance of being precise* (n = 4; Cronbach's α = 0.82). Lastly, Occupational Values consists of the following domains: *Psychosocial work environment* (n = 10; Cronbach's α = 0.97), *Working with*

others (n = 3; Cronbach's α = 0.77), and *Worker and management relations* (n = 3; Cronbach's α = 0.86).

Gender Balance of Jobs

In order to designate the gender balance of the occupations, each of the top 97 occupations were calculated by dividing the female frequency by the total frequency to obtain a ratio between 0.00 and 1.00. Gender balanced occupations were coded as three categories based on this ratio: Male-dominated occupations (ratio $\leq$ .40), Gender-balanced occupations (ratio between .41 through .59), and Female-dominated occupations (ratio $\geq$ .60).

Control Variables

Hours Worked Per Week. Number of hours worked served as a control variable for hypotheses one, two and three.

Number of Children. Number of children served as a control variable for hypotheses one, two and three. Supplemental analyses was conducted for hypotheses one through three in order to assess the effects of children on the gender wage gap.

Criterion Variables

Wage and Salary. In order to examine the gender wage gap, respondent wage and salary was assessed in the present study. This continuous variable consists of survey respondents indicating their wage and salary for the last year. According to the respondent data for the top 97 occupations, the average salary was $58,234. In order to estimate the gender wage gap, I examined the average

wage/salary for women and men, computing the difference score (men mean salary minus women mean salary) in order to measure the gender wage gap. As a supplemental analysis, all analyses were also conducted with a wage ratio (women mean salary divided by men mean salary). Specifically, because of the nature of the wage ratio, ratios closer to 1.00 imply greater wage parity between women and men and ratios closer to 0.00 imply a larger wage gap.

Procedure

To begin, because the sample population included respondents younger than 15 years of age and respondents with no income, I set respondents with zero income and respondents younger than 15 years of age as “missing”. Additionally, survey respondents with an annual salary of less than $10,000 (conservative minimum wage estimate) were set as missing. Survey respondents who reported less than 35 hours per week and more than 80 hours per week were also set as missing. In order to estimate the gender wage gap, I computed the average wage/salary for women and men within each of the 100 most frequent occupations and examined the difference score for those most frequent occupations. However, the list of top 100 occupations was reduced to 97 most frequent occupations because occupations such as “armed forces” were too broad and did not yield any work activity data from O*NET.

To create the job complexity dimensions, I used the generalized work activities from O*Net using Alterman et al.’s (2008) categorization as noted

above for the top 97 most frequent occupations from the CPS dataset. The top 97 occupations consist of female-dominated, male-dominated, and gender-balanced occupations, as well as a good distribution of job complexity. Each of the 97 occupations were coded in terms of their O*Net job complexity. For each occupation 1 went to the ONET website to look at the ratings of importance for work activities and input these rating across all of Alterman's dimensions in order to create the variables. Specifically, each subdimension had a different number of work activity items: Gaining knowledge (I = 17), Interpersonal (I = 13), Physical (I = 5). Therefore, four variables were created for job complexity consisting of average importance ratings for items under each subdimension. The four variables created were Gaining Knowledge (mean of all 17 items), Interpersonal (mean of 13 items), Physical (mean of 5 items), and Generalized Work Activities encompassing all items from the three subdimensions (mean of 35 items).

CHAPTER THREE

RESULTS

Overview

All hypotheses were tested using IBM SPSS version 26. The starting sample consisted of a total of 185,914 survey respondents in which men comprised 48.5% of the sample and women comprised 51.5%. The original sample's demographics consisted of 77% White, 12% Black, 6.7% Asian/Pacific Islander,1.6% American Indian Alaskan Native. The majority of the participants were non-Hispanic, Spanish or Latino, and 20% of the survey respondents reported being Hispanic/Spanish/Latino. The final number of respondents was based on the topmost frequent 97 occupations, therefore, the final sample size was reduced to N = 67,003. The final sample's race breakdown consisted of 78% White, 12% Black, 6.9% Asian/Pacific Islander, 1.3% American Alaskan Native. For list of demographics variables, refer to Table 1.

The gender-balance breakdown for occupations consisted of 44 male dominated occupations (N = 27,123, or 41%), 35 female-dominated occupations (N = 27,240, or 41%) and 18 gender-balanced occupations (N = 12,640, or 19%). In order to designate the gender balance of the occupations, each of the top 97 occupations was calculated by dividing the female frequency by the total frequency to obtain a ratio between 0.00 and 1.00. Gender balanced occupations were coded into three categories based on this ratio: Male-dominated

occupations (ratio ≤ .40), gender-balanced occupations (ratio between .41 through .59), and female-dominated (ratio ≥ .60).

Table 1

Demographic Variables

Variable		*N*	(%)	Missing
	Total	67,003		
Sex				0 (0%)
	Female	33,903	(50.6%)	
	Male	33,100	(49.4%)	
Race/Ethnicity				0 (0%)
	Caucasian/White	52,437	(78.3%)	
	African-American/Black	7,754	(11.6%)	
	Asian/ Pacific Islander	4,291	(6.4%)	
	Bi-Racial/ Multi-racial	1,275	(1.9%)	
	American Indian Alaskan Native	891	(1.3%)	
	Hawaiian/ Pacific Islander	355	(0.5%)	
Spanish/ Hispanic/ Latinx				
	No	54,415	(81.2%)	
	Yes	12,588	(18.8%)	
Education				0 (0%)
	Less than highschool	1,946	(2.9%)	
	Some high school	4,669	(7.0%)	
	High school / GED	17,837	(26.6%)	
	Some college, no degree	12,326	(18.4%)	
	Associate's degree	6,937	(10.4%)	
	Bachelor's degree	14,735	(22.0%)	
	Master's degree	6,219	(9.3%)	
	Doctoral degree	1,198	(1.8%)	
	Professional School degree	1,136	(1.7%)	
Sector				0 (0%)
	Private	53,453	(79.8%)	
	Government	9,537	(14.2%%)	
	Self-employed	3,933	(5.9%%)	
Occupation Gender Balance				0 (0%)
	Female-Dominated	27,240	(40.7%)	
	Male-Dominated	27,123	(40.5%)	
	Gender-Balanced	12,640	(18.9%)	
Age				0 (0%)

	15-17	1,175	(1.8%)	
	18-25	8,594	(12.8%)	
	26-35	14,141	(21.1%)	
	36-45	15,166	(22.6%)	
	46-55	14,339	(21.4%)	
	56-65	9,891	(14.8%)	
	66-75	3,027	(4.5%)	
	76 +	670	(1.0%)	
Number of Children				38,150 (56.9%)
	1 child	12,527	(43.4%)	
	2 children	10,764	(37.3%)	
	3 children	3,953	(13.7%)	
	4 children	1,162	(4.0%)	
	5+ children	447	(1.5%)	

Prior to testing all hypotheses, variables were screened; particularly, survey respondents younger than 15 years of age and respondents with no income and respondents with an annual salary less than $10,000 were set as missing. Additionally, respondents who reported working less than 35 hours or more than 80 hours per week at their job were also set as missing. Hypotheses 1, 2, and 3 were tested without control variables, controlling for hours worked, and controlling for both hours worked and number of children. All four hypotheses were tested using weighted data at the individual level-all cases and with both wage difference and wage ratio as the dependent variable. Wage ratio was conducted as a supplemental analysis in order to reflect the relative wage gap between women and men across occupations, compared to the absolute wage difference represented by the wage difference outcome criterion variable. Doing so provided a more complete picture on how men’s and women’s wage

differs. Table 2 provides the means, standard deviations, and inter-correlations among the key variables used to test Hypothesis 1-4.

Table 2

Correlation Table – Main Variables

Variable	*M* (*SD*)	1	2	3	4	5	6	7	8
Age	42.24 (14.47)	--							
Hours Worked (N=44444)	42.99 (6.78)	.09*	--						
Wage/Salary (N=54933)	58,234.02 (76751.62)	.12*	.18*	--					
Job Complexity	52.58 (8.75)	.07*	.09*	.19*	--				
Gaining Knowledge	59.90 (10.81)	.11*	.09*	.27*	.91*	--			
Interpersonal	49.96 (11.79)	.06*	.09*	.15*	.91*	.78*	--		
Physical Activities	34.53 (16.36)	-.07*	-.02*	-.16*	-.01	-.28*	-.21*	--	
# of Children (N=28853)	1.84 (0.95)	-.05*	.05*	.04*	.01	-.00	.01	.03*	--

Notes. $*p < .001$.(N=67003)

Hypothesis 1: Wage Difference

In order to test Hypothesis 1 (the more complex the occupation, the larger the size of the gender wage gap across occupations in favor of men), a linear

regression was conducted with no controls using wage difference as the dependent variable and job complexity as the independent variable. Hypothesis 1 was supported as expected (N = 67,003, r = .075, r^2 = .006, standardized β = .075, p < .001); this suggests that as job complexity increases by one standardized unit, the wage difference between women and men increases by .075 in favor of men. However, the effect size was very small with job complexity only accounting for six tenths on one percent of the variability in gender wage differences.

Hypothesis 1 was also tested controlling for hours as a two-step linear regression and it also yielded significance, however with a substantially higher effect size estimate: (N = 44,444, r = .056, r^2 = .022, R = .147, standardized β = .044, p < .001). This suggests that when I control for hours worked, for every one standardized unit increase in job complexity, the gender wage difference significantly increases by .044 in favor of men. With the sr_i^2 = .002 (semi-partial correlations) indicating that 0.2% of the variance in the gender wage gap was accounted for by job complexity once hours worked was controlled for. With the r^2 = .022 indicating that 2.2% of the variance in the gender wage gap was accounted for by the entire model including the hours worked control variable.

Hypothesis 1 was also tested controlling for hours worked and number of children as a supplemental analysis using a two-step linear regression. The results also yielded significance and again there was a substantial increase in the effect size estimate compared to the model with no control variables: (N =

19,330, r = .038, r^2 = .021, R = .144, standardized β = .025, p. = 001). This suggests that when I control for hours worked and number of children, for every one unit increase in job complexity, the gender wage gap significantly increases by .025 favor of men. With the sr_i^2 = .001 (semi-partial correlations) indicating that .01% of the variance in the gender wage gap was accounted for by job complexity once hours worked and number of children were controlled for. With the r^2 = .021 indicating that 2.1% of the variance in the gender wage gap was accounted for by the entire model that included the hours worked and number of children control variables.

Hypothesis 1: Wage Ratio

Hypothesis 1 was also tested with no controls using wage ratio as the dependent variable. Hypothesis 1 was supported as expected, (N = 67,003, r = .220, r^2 = .048, standardized β = .220, p < .001), this suggests that as job complexity increases by one standardized unit, the wage ratio between women and men significantly increases by .220 in favor of men. While the effect size was relatively small with job complexity only accounting for 4.8% of the variability in the wage ratio of men to women, this is substantially higher than when the absolute wage difference was used as the criterion variable.

Hypothesis 1 was also tested controlling for hours as a two-step linear regression and it also yielded significance, with a somewhat higher effect size estimate: (N = 44,444, r = .233, r^2 =.057, R =.239, standardized β = .238, p <. 001). This suggests that when I control for hours worked, for every one

standardized unit increase in job complexity, the gender wage ratio significantly increases by .238 in favor of men. With the $sr_i^2 = .056$ (semi-partial correlations) indicating that 5.6% of the variance in the gender wage gap was accounted for by job complexity once hours worked was controlled for. With the $r^2 = .057$ indicating that 5.7% of the variance in the gender wage ratio was accounted for by the entire model that included the hours worked control variable.

Hypothesis 1 was also tested controlling for hours worked and number of children as a supplemental analysis using a two-step linear regression. The results also yielded significance and again there was a substantial increase in the effect size estimate compared to the model with no control variables: ($N = 19,330$, $r = .239$, $r^2 = .060$, $R = .246$, standardized $\beta = .244$, $p < .001$). This suggests that when I control for hours worked and number of children, for every one unit increase in job complexity, the gender wage gap significantly increases by .244 in favor of men. With the $sr_i^2 = .059$ (semi-partial correlations) indicating that 5.9% of the variance in the gender wage gap was accounted for by job complexity once hours worked and number of children were controlled for. With the $r^2 = .060$ indicating that 6.0% of the variance in the gender wage ratio was accounted for by the entire model that included the hours worked and number of children control variables.

Hypothesis 2: Wage Difference

In order to test whether the interpersonal dimension of job complexity was most predictive of the gender wage gap, a multiple regression with no controls

was conducted using wage difference as the dependent variable in which all three effects of the subdimensions of job complexity were compared. The three subdimensions of job complexity all significantly predicted the wage difference (N = 67,003, R = .392, R^2 = .154, F(3,66999) = 4063.76, p < .001). Of the three subdimensions of job complexity, physical was the strongest predictor of the gender wage gap (r = -.377, standardized B = -.348, p < .001), the next second strongest predictor was gaining knowledge, (r = .197, standardized B = .166, p < .001), the weakest predictor was the interpersonal subdimension, (r = .114, standardized B = -.088, p < .001). Therefore, Hypothesis 2 was not supported.

An additional two-step multiple regression was conducted for Hypothesis 2 to control for hours worked in which hours worked was Step 1 and Step 2 was all three subdimensions of job complexity. The three subdimensions of job complexity all significantly predicted the wage difference (N=44,444, R=.433, R^2= .188, F(3,44439) = 3061.515, p < .001). Of the three subdimensions of job complexity, physical was the strongest predictor of the gender wage gap (r = -.402, standardized B = -.377, p < .001), the next second strongest predictor was gaining knowledge, (r = .196, standardized B = .144, p<.001), the weakest predictor was the interpersonal subdimension, (r = .103, standardized B = -.100, p < .001). Therefore, Hypothesis 2 was not supported.

An additional two-step multiple regression was conducted for Hypothesis 2 to control for hours worked and number of children in which hours worked and number of children was Step 1 and Step 2 was all three subdimensions of job

complexity. The three subdimensions of job complexity all significantly predicted the wage difference (N = 19,330, R = .436, R^2 = .190, F(3,19324) = 1353.920, p < .001). Of the three subdimensions of job complexity, physical was the strongest predictor of the gender wage gap (r = -.406, standardized B = -.387, p < .001), the second strongest predictor was gaining knowledge, (r = .182, standardized B = .125, p < .001), the weakest predictor was the interpersonal subdimension, (r = .091, standardized B = -.097, p < .001). Therefore, Hypothesis 2 was not supported.

Hypothesis 2: Wage Ratio

In order to test whether the interpersonal dimension of job complexity was most predictive of the gender wage gap, a multiple regression with no controls was conducted using wage ratio as the dependent variable in which all three effects of the subdimensions of job complexity were compared. The three subdimensions of job complexity all significantly predicted the wage ratio (N = 67,003, R = .303, R^2 = .092, F(3,66999) = 2252.53, p < .001). Of the three subdimensions of job complexity, gaining knowledge was the strongest predictor of the gender wage gap (r = .201, standardized B = .345, p < .001), the second strongest predictor was physical, (r = .150, standardized B = .227, p < .001), the weakest predictor was the interpersonal subdimension, (r = .118 standardized B = -.102, p < .001). Therefore, Hypothesis 2 was not supported.

An additional two-step multiple regression was conducted for Hypothesis 2 to control for hours worked in which hours worked was Step 1 and Step 2 was all

three subdimensions of job complexity. The three subdimensions of job complexity all significantly predicted the wage ratio (N = 44,444, R = .332, R^2 = .110, F(3,44439) = 1822.087, p < .001). Of the three subdimensions of job complexity, gaining knowledge was the strongest predictor of the gender wage gap (r = .218, standardized B = .391, p < .001), the second strongest predictor was physical, (r = .154 standardized B = .248, p<.001), the weakest predictor was the interpersonal subdimension, (r = .118, standardized B = -.121, p < .001). Therefore, Hypothesis 2 was not supported.

An additional two-step multiple regression was conducted for Hypothesis 2 to control for hours worked and number of children in which hours worked and number of children was Step 1 and Step 2 was all three subdimensions of job complexity. The three subdimensions of job complexity all significantly predicted the wage ratio (N = 19,330, R = .347, R^2 = .121, F(3,19324) = 874.885, p < .001). Of the three subdimensions of job complexity, gaining knowledge was the strongest predictor of the gender wage gap (r = .231, standardized B = .422, p < .001), the second strongest predictor was physical, (r = .152 standardized B = .25, p < .001), the weakest predictor was the interpersonal subdimension, (r = .114, standardized B = -.147, p < .001). Therefore, Hypothesis 2 was not supported.

Hypothesis 3: Wage Difference

In order to test the prediction that the correlation between job complexity and wage gap will be larger in male-dominated occupations, compared to

female-dominated occupations or gender balanced occupations, a moderation analysis using Hayes' Process macro was conducted using wage difference as the dependent variable, job complexity as the independent variable, and gender balance as the moderating variable with no control variables. Wage difference and job complexity were standardized before running the analysis in order to ensure better interpretation of the beta coefficients and effect sizes. The total sample size for this analysis was N = 67,003. Job complexity had a significant linear relation with the gender wage difference and explained 2.31% of the variance in the wage difference between women and men, $R = .152$, $R^2 = .023$. $F(3,66999) = 529.039$, $P < .001$. There was a significant interaction effect between job complexity and gender balance in predicting the wage difference, standardized $\beta = .121$, $t(66999) = 28.755$, $p < .001$. For female dominated jobs, standardized $\beta = -.071$, $t(66999) = -11.381$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For gender balanced jobs, standardized $\beta = .049$, $t(66999) = 12.653$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For male dominated jobs, standardized $\beta = .170$, $t(66999) = 33.058$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. Figure 2 in Appendix E depicts for male-dominated occupations, as job complexity increases, wage difference increases, for gender balanced occupations, as job complexity increases, wage difference also increases but with a much smaller slope, and for female dominated occupations, as job complexity increases, the wage difference

decreases. Because male-dominated occupations had the largest effect, this hypothesis was supported.

Hypothesis 3 was also tested controlling for hours worked. Wage difference, job complexity, and hours worked were standardized before running the analysis in order to ensure better interpretation of the beta coefficients and effect sizes. The sample size for this analysis was N = 44,444. Job complexity had a significant linear relation with the gender wage difference when controlling for hours worked and explained 3.6% of the variance in wage difference between women and men, $R = .190$, $R^2 = .036$. $F(4,44439) = 416.578$, $p < .001$. There was a significant interaction effect between job complexity and gender balance in predicting the wage difference when controlling for hours worked, standardized $\beta = .113$, $t(444439) = 21.762$, $p < .001$. For female dominated, standardized $\beta = -.099$, $t(44439) = -12.196$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For gender balanced, standardized $\beta = .015$, $t(44439) = 2.979$, $p = .003$, there is a significant relationship between job complexity and gender wage gap. For male dominated, standardized $\beta = .128$, $t(44439) = 21.057$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. Figure 3 in Appendix E depicts for male-dominated occupations, as job complexity increases, wage difference increases, for gender balanced occupations, there was a slight relationship between job complexity and wage difference, and for female dominated occupations, as job complexity increases, the wage difference decreases. Male-dominated

occupations had the largest effect; therefore this hypothesis is still supported when controlling for hours worked.

Hypothesis 3 was also tested controlling for hours worked and number of children. Wage difference, job complexity, hours worked, and number of children were standardized before running the analysis in order to ensure better interpretation of the beta coefficients and effect sizes. The sample size for this analysis was N = 19,330. Job complexity had a significant linear relation with the gender wage difference when controlling for hours worked and explained 3.75% of the variance in wage difference between women and men, $R = .194$, $R^2 = .038$, $F(5,19324) = 150.394$, $p < .001$. There was a significant interaction effect between job complexity and gender balance in predicting the wage difference when controlling for hours worked and number of children, standardized $\beta = .110$, $t(19324) = 13.464$, $p < .001$. For female dominated, standardized $\beta = -.113$, $t(19324) = -8.912$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For gender balanced, standardized $\beta = -.003$, $t(19324) = -0.422$, $p = .673$, there is not a significant relationship between job complexity and gender wage gap. For male dominated, standardized $\beta = .107$ $t(19324) = 11.199$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For male-dominated occupations, Figure 4 in Appendix E depicts as job complexity increases, wage difference increases, for gender balanced occupations, it depicts no relationship between job complexity and wage difference, and for female dominated occupations, as job complexity

increases, the wage difference decreases. Female-dominated occupations had the largest effect; therefore this hypothesis is not supported when controlling for hours worked and number of children.

Hypothesis 3: Wage Ratio

In order to test the prediction that the correlation between job complexity and wage gap will be larger in male-dominated occupations, compared to female-dominated occupations or gender balanced occupations, a moderation analysis using Hayes' Process macro was conducted using wage ratio as the dependent variable, job complexity as the independent variable, and gender balance as the moderating variable with no control variables. Wage ratio and job complexity were standardized before running the analyses. The total sample size for this analysis was N = 67,003. Job complexity had a significant linear relation with the gender wage ratio and explained 6.54% of the variance in the wage ratio between women and men, $R = .256$, $R^2 = .065$. $F(3,66999) = 1563.390$, $p < .001$. There was a significant interaction effect between job complexity and gender balance in predicting the wage ratio, standardized $\beta = -.141$, $t(66999) = -34.365$, $p < .001$. For female dominated jobs, standardized $\beta = .385$, $t(66999) = 62.998$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For gender balanced jobs, standardized $\beta = .245$, $t(66999) = 64.143$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For male dominated jobs, standardized $\beta = .104$, $t(66999) = 20.636$, $p < .001$, there is a significant relationship between job complexity and gender

wage gap. For male-dominated occupations, Figure 5 in Appendix E depicts as job complexity increases, wage ratio increases, for gender balanced occupations, as job complexity increases, wage ratio also increases, and for female dominated occupations, as job complexity increases, the wage ratio increases. Because of the nature of the wage ratio (women mean salary divided by men mean salary), ratios closer to 1.00 imply greater wage parity between women and men and ratios closer to 0.00 imply a larger wage gap. Because male-dominated occupations had the smallest effect (i.e. flattest incline), this hypothesis was supported.

Hypothesis 3 was also tested controlling for hours worked. Wage ratio, job complexity, and hours worked were standardized before running the analysis in order to ensure better interpretation of the beta coefficients and effect sizes. The sample size for this analysis was N = 44,444. Job complexity had a significant linear relation with the gender wage ratio when controlling for hours worked and explained 7.4% of the variance in wage ratio between women and men, $R = .271$, $R^2 = .074$. $F(4,44439) = 883.403$, $p < .001$. There was a significant interaction effect between job complexity and gender balance in predicting the wage ratio, standardized $\beta = -.140$, $t(44439) = -27.861$, $p < .001$. For female dominated, standardized $\beta = .412$, $t(44439) = 52.862$ $p < .001$, there is a significant relationship between job complexity and gender wage gap. For gender balanced, standardized $\beta = .272$, $t(44439) = 57.603$, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For male dominated,

standardized β = .133, t(44439) = 22.655, p < .001, there is a significant relationship between job complexity and gender wage gap. For male-dominated occupations, Figure 6 in Appendix E depicts as job complexity increases, wage ratio increases, for gender balanced occupations, as job complexity increases, wage ratio also increases, and for female dominated occupations, as job complexity increases, the wage ratio increases. Male-dominated occupations had the smallest effect (suggesting a larger wage gap); therefore this hypothesis was supported when controlling for hours worked.

Hypothesis 3 was also tested controlling for hours worked and number of children. Wage ratio, job complexity, hours worked, and number of children were standardized before running the analysis in order to ensure better interpretation of the beta coefficients and effect sizes. The sample size for this analysis was N = 19,330. Job complexity had a significant linear relation with the gender wage ratio when controlling for hours worked and explained 7.8% of the variance in wage ratio between women and men, R = .279, R^2 = .078, F(5,19324) = 326.538 p < .001. There was a significant interaction effect between job complexity and gender balance in predicting the wage ratio, standardized β = -.147, t(19324) = -19.160, p < .001. For female dominated, standardized β = .412, t(19324) = 36.094, p < .001, there is a significant relationship between job complexity and gender wage gap. For gender balanced, standardized β = .284, t(19324) = 39.196, p < .001, there is a significant relationship between job complexity and gender wage gap. For male dominated, standardized β = .137, t(19324) =

15.276, $p < .001$, there is a significant relationship between job complexity and gender wage gap. For male-dominated occupations, Figure 7 in Appendix E depicts as job complexity increases, wage ratio increases, for gender balanced occupations, as job complexity increases, wage ratio also increases, and for female dominated occupations, as job complexity increases, the wage ratio increases. Considering that male-dominated occupations had the smallest effect (suggesting a larger wage gap), therefore this hypothesis was supported when controlling for hours worked and number of children.

Hypothesis 4: Wage Difference

Lastly, to test whether occupations from the private sector will have a larger gender wage gap compared to those from the public sector, an Independent Groups t-test, with follow-up effect size estimate, was conducted with wage difference as the dependent variable. The results were significant suggesting that the gender wage gap was larger in the private sector (N = 53,453, M = $15,879.62, SD = 14,150.822) than the public sector (N = 9,537, M = $13,236.92, SD =1 3,544.796), $t(62,988) = 16.908$, $p < .001$, Cohen's D = .191 The mean wage difference for private sector occupations was larger on average, with the wage gap was $2,642.70 larger in private sector occupations than public sector occupations. Therefore, Hypothesis 4 was supported. Based on the Cohen's D, this is a small effect size.

Hypothesis 4: Wage Ratio

Lastly, this hypothesis was also conducted with wage ratio as the dependent variable. The results were significant suggesting that the gender wage gap was larger in the private sector (N = 53,453, M = .761, SD = .130) than the public sector (N = 9,537, M = .809, SD = .121), $t(62988) = -33.466$, $p < .001$, Cohen's D = .382. The mean ratio for private sector occupations is farther away from 1, suggesting that the gap is larger in private sector occupations than public sector occupations. Therefore, hypothesis four was also supported when using wage ratio as the dependent variable. Based on the Cohen's D, this is a small to medium effect size and approximately twice as large compared to the wage difference criterion.

CHAPTER FOUR

DISCUSSION

Introduction

The primary purpose of this present study was to unpack the social and structural aspects of job complexity in order to better understand its effects on the gender wage gap across occupations. More specifically, job complexity was assessed by exploring survey respondent's occupation and referring to the O*NET to replicate and expand on Joshi et. al.'s (2015) finding regarding complex problem solving and using Alterman et al.'s (2008) scale to examine generalized work activities.

In line with Alterman et al.'s assessment of generalized work activities, the three subdimensions were as follows: Gaining Knowledge and Information Processing; Interpersonal Relationships, Assisting, and Guiding the Work of Others; and Physical Activities, Repairing, and Maintaining Equipment. Overall, three of the four hypotheses were supported when using wage difference as the outcome variable and two out of the four hypotheses were supported when using wage ratio was the outcome variable.

Hypothesis 1

In the present study, the first hypothesis, which tested whether the more complex the occupation, the larger the size of the gender wage gap across occupations, was confirmed statistically significant using both the wage

difference (men's mean salary minus women's mean salary) and wage ratio (women's mean salary divided by men's mean salary) as the outcome variable even when controlling for hours worked, controlling for hours worked and number of children, and with no controls. Prior research has suggested that the gender pay gap formation is attributed to the prices for non-routine cognitive tasks (Fedorets, 2014). Empirical studies have also shown that non-routine cognitive tasks are correlated with higher wages, however, non-routine cognitive task for women are not directly translated into higher wages. The findings from Fedorets support my findings because it suggests there is a subjective element to how jobs are created and perceived when women and men occupy them.

Early research has similarly stated that structural characteristics of a job influence individuals' perceptions of the relative worth of a job (Agarwal, 1981). Furthermore, when it comes to career advancement, the job complexity-compensation dynamic is experienced differently among women and men. Regarding job mobility, female employees are typically compensated lower than men when attempting to move onto better, higher complexity jobs. Bechara's (2012) study found that men's entry wages for job changes were higher than women's entry wages. In addition, Campos-Soria and Ropero-Garcia (2012) found that women were best represented in best paying jobs that required intermediate levels of responsibilities at the lower status levels; more specifically, women were best represented in jobs related to lower prestige university degrees and jobs in the areas of services. These findings further support my predicted

relationship because as job complexity increased in the present study, the wage difference between my sample of women and men increased in favor of men.

The notion that the first hypothesis was also supported when controlling for hours worked highlights the need to further explore women's life cycle of hours worked to better understand why wage disparities persist. Women experience several barriers to career advancement or accessibility for training to higher-status jobs with greater responsibility or management of others. Women typically have less access to jobs that require high responsibilities and costly training compared to men (Bechara, 2012). A reality that can explain women's barriers or inaccessibility to training opportunities might be explained by the gender norms and perceptions of women being less available to work due to family or child-rearing expectations. Erosa, et al. (2016) state that the gender wage gap over the life cycle is attributed to women working fewer hours than men. For example, in their simulated analysis, Erosa et al. found that non-college men worked 46% more hours than non-college women and college men worked 33% more hours than college women. Similarly, a Danish study found that the decline in the wage gap for women was driven by the incline of women's work hours (Gallen, et al., 2019). All this being said, the prior research supports the present study hypothesis by suggesting that women's accessibility to higher complexity jobs may be limited by a combination of gender norm expectations, part-time status, the introduction of a new child, and motherhood wage penalties, all factors that may widen the wage gap for a woman's work life cycle.

Hypothesis 2

Hypothesis 2, which tested whether the interpersonal subdimension of job complexity was most predictive of the gender wage gap compared to gaining knowledge and physical activities, was not significant with neither the wage difference nor wage ratio as the criterion variable. As previously stated, this hypothesis further examined Alterman et al.'s (2008) study and explored the following three subdomains under Generalized Work Activities: Gaining Knowledge and Information Processing; Interpersonal Relationships, Assisting, and Guiding the Work of Others; and Physical Activities, Repairing, and Maintaining Equipment. Of the three subdomains of Generalized Work Activities, I predicted a varying degree of wage discrepancies. The prediction of the interpersonal subdimension being the strongest predictor of the wage gap did not only prove untrue, but it was also the weakest predictor out of the other subdimensions (gaining knowledge and physical) for both outcome variables.

More specifically, when using wage difference as the outcome variable, physical activities was the most predictive of the gender wage gap. Joshi, et al. (2015) explain the notion of occupations having a demographic make-up that suggests the suitability or fit an occupation has for women and men. Occupations' demographic compositions are based on cultural factors such as norms, stereotypes, and status cues, all factors that shape administrative decisions, advancement opportunities, compensation, and evaluations for women. Gender-typing of an occupation drives stereotypic beliefs, normative role

expectations, status cues, and stereotypic expectations of the functions and competencies associated with an occupation. Physically intensive jobs are generally male dominated. Women in a physical characterized occupation such as construction or engineering are notably perceived as women in the field and not necessarily as construction workers or engineers. Thus, women working in physical characterized jobs (e.g., mechanical engineering) may be judged for lacking male-typical abilities and traits or if they are perceived to have male-typical traits and abilities, they are deemed less effective than men who have the same traits and abilities (Segovia-Perez, et al., 2020). Dämmrich and Blossfeld (2017) note that when employers cannot predict the success of individual employees, they may rely on stereotypes commonly associated with the individuals' group membership in which they belong. As a result, this may have impacted the lack of support for Hypothesis 2.

Additionally, when using wage ratio as the outcome variable, gaining knowledge was the most predictive of the gender wage gap. Interestingly, the job enrichment literature highlights that jobs should be designed for full capacity to provide individuals the opportunity to satisfy their need of fulfillment. For instance, individuals' satisfaction with their job can influence their perceptions of their job's complexity (London & Klimoski, 2006). Thus, jobs that largely involve routine tasks versus jobs with various cognitive demands and learning opportunities can yield different experiences in satisfaction from employees and different evaluations of the relative worth of the job. Because jobs vary in

complexity, employees may be characterized by their capability of handling complex jobs, such that the greater the perceived capability, the higher the pay. Wilk and Sackett (1996) explain that jobs can be ranked by the cognitive ability required for the job and that individuals with high cognitive ability tend to gravitate towards jobs that are more complex, while individuals with a lower cognitive ability tend to gravitate towards jobs that are less complex. Given this literature, it is not surprising that cognitive complexity was the most predictive of wage ratio in the present study.

Hypothesis 3

Hypothesis 3, which tested the moderation between job complexity, the gender wage gap and gender balance of occupations and predicted the wage gap would be larger in male-dominated occupations compared to female-dominated occupations or gender balanced occupations, yielded significant for both the wage difference outcome variable and wage ratio as the outcome variable. Additionally, the analysis resulted significance with no controls and when controlling for hours worked suggesting that as job complexity increases, wage difference increases in male-dominated occupations. Segovia-Perez, et al. (2020) highlight that women's' presence in male-dominated fields exacerbate gender stereotypes that consequently introduces barriers for women's professional development, which in turns supports the findings of the present study. Furthermore, gender stereotypes notably reinforce occupational segregation of women. Working women in male-dominated sectors are perceived

as intruders and their presence reinforces the establishment of power-differentials including the protection of maintaining a male-dominated culture, which is likely to also lead to a higher gender wage gap as found in this study. The association of hiring women in male-dominated jobs are often characterized as an inconvenience, psychologically costly, and at the expense of less productivity (Segovia-Perez, et al.). There is substantial research evidence that suggests an increased exposure of female leaders changes individuals' perceptions of leadership. Studies have shown that when settings have a higher presence of female leaders, it reduces individuals' implicit bias towards associating men with leadership and reduces individuals' implicit association of leadership traits with men and communal traits with women (Koenig, et al., 2011). In light of this exposure effect, it is important for male-dominated industries to be conscious of how their leadership role appointments affect the perceptions of their employees.

As for the result for this hypothesis that did not yield significance when controlling for hours worked and number of children, female dominated occupations had the largest effect and the relationship was such that as job complexity increased, the wage difference decreased. Research over the recent years has documented the gender-specific impact of children have on the gender wage gap. Weeden, et al., (2016) highlight that working mothers experience what is called a "motherhood wage penalty" and fathers experience a "fatherhood wage premium" in which mothers typically enter part-time status after childbirth

and experience a wage penalty of 6% - 15% per child and fathers experience an increase of about forty hours per child per year with a pay increase of about 4% per child. Kleven, et al. (2019) note that “child penalties” have increased over time twofold from 40% in 1980 to about 80% in 2013. Interestingly, Kleven, et al. studied Danish survey data to assess the impact of child penalties on the gender wage gap and found that the earning for women and men evolved similarly until women and men have children. More specifically, the introduction of a first child diverged women and men’s earning evolvement paths in that men’s earnings were unaffected and women’s earnings declined by almost 30%. They also found that the presence of children for women showed their earnings never climbing back up to their original amount. The study also showed long-term effects of child penalties in that ten years after the introduction of a first child, the earnings for women plateaued about 20% below the original pre-child earning amount (Kleven, et al.). Unfortunately, the “child penalty” effect was not borne out in the present study. This could be due in part to not knowing and then controlling for age of the child(ren).

Hypothesis 4

The final hypothesis which tested whether occupations from the private sector had a larger gender wage gap compared to occupations from the public sector yielded statistical significance as predicted for both the wage difference and wage ratio outcome variable. However, the effect sizes were small (wage differences) to moderate (wage ratio) when assessing Cohen’s D effect size

statistic. Research consistently documents the gender wage gap being notably larger in the private sector compared to the public sector. In the present study, the gender wage gap was $2,642.70 larger in the private sector occupations compared to the public sector occupations. When analyzing gender differences, women in this study earned $23,645 less than men on average per year in the private sector, while they earned $17,796 less than men on average in the public sector. Interestingly, men in the present study benefited more working in the private sector compared to the public sector because they made $1,682 more on average and women benefited more in the public sector compared to the private sector because they made $4,166 more on average.

In terms of the wage ratio, women earned 76% of what men earned in the private sector, while women in the public sector earned approximately 81% of what men reported earning. This trend is recorded consistently not only in the United States but also in European countries and other developing countries. Baron and Cobb-Clark (2010) found that women who worked in the public sector earned $3.00 less per hour than men, while in the private sector, women earned $3.62 less per hour than men. More specifically, they found that men employed for the public sector made 12.5% more than women for both high and low-wage jobs. The largest wage gap was found for high-wage workers in the private sector. This is a substantially higher discrepancy than the approximate 5% difference found between the private and public sector gender wage ratio in the present study.

Lastly, Baron and Cobb-Clark (2010) analyzed segregation (i.e., the difference in proportion of women and men in specific jobs) and found segregation to be higher for women in the private sector; in fact, men were 2.5 times likelier to occupy managerial positions compared to women. Working women in this sample were best represented in clerical and service jobs, this was true in light of this study's sample consisting of almost half of women categorized as professionals (e.g., nurses, teachers) as opposed to 33% of men being categorized as professionals in this study. Additionally, during the past four decades, the effect of working hours on the pay gap has doubled in the public sector and has increased fourfold in the private sector (Mandel & Semyonov, 2014). Mandel and Semyonov found that working hours was one of the most important factors for explaining gender wage discrepancies in both private and public sectors, however, the effect of working hours was much greater in the private sector. The effects of hours worked was also borne out when controlled for in the present study. Mandel and Semyonov also support this claim by further explaining that the public sector generally has a more limited wage determination system and is less capable of enforcing long working hours as opposed to the private sector.

Theoretical Implications

This study builds on and contributes to existing research on job complexity in relation to the gender wage gap by further unpacking social and structural

aspects of job complexity to understand its contribution to the gender wage gap. Understanding job complexity on a deeper level poses positive theoretical implications to the scientific research community. The results of this study further support and add on to previous research that explores social and structural elements that contribute to gender wage discrimination. Previous research exploring organizational reward outcomes in relation to job complexity have primarily examined job complexity at a cognitive level as seen in Joshi et al.'s (2015) finding regarding complex problem solving. Further exploring specific dimensions of job complexity will allow the scientific community to add on to existing empirical findings related to job complexity.

In addition, the results of this research also explored other potential contributors to the gender wage gap such as the gender balance of the job and whether it is in the private or public sector, allowing me to examine the relative effects of each of these potentially explanatory variables for the gender wage gap. While the different dimensions of job complexity were not supported in the present study, this is the first test of the finer grained analysis of job complexity. Hopefully, future researchers can build on this work to further explore various dimensions of job complexity. Ultimately the goal of the present study was to inspire other promising areas for researchers to explore and contribute to better understanding the gender wage gap and its causes.

Practical Implications

Further examining job complexity in relation to the gender wage gap will also serve beneficial for practitioners, organizations, and society. Exploring elements of job complexity in compensation/reward systems may allow practitioners to become more well-informed of the structural and social components that shape the monetary worth of their organization's jobs.

Considering the findings of the present study in which the private sector wage gap was $2,642.70 larger compared to the public sector, research findings that have also documented that women who worked in the public sector earned $3.00 less per hour than men and $3.62 less per hour than men in the private sector (Baron & Cobb-Clark, 2010). The present study also found that women benefited more working in the public sector because they experienced less of a wage disparity. This makes sense due to the fact that the public sector generally has stricter enforcement of legislation and anti-discrimination laws.

Although the public sector yielded less of a wage disparity among women and men, there is still work to do in terms of narrowing the wage gap. Baron and Cobb-Clark also found that men employed for the public sector made 12.5% more than women for both high and low-wage jobs. Furthermore, large organizations are typically more structurally differentiated compared to smaller organizations. Thus, large companies typically are more structurally complex, resulting in a greater development of complex jobs (Agarwal, 1981). Thus, the findings of this study suggest the importance of organization officials reflecting on

their organization's compensation/reward systems and reflecting on the jobs that are created and developed, especially large private sector organizations. Lastly, this thesis will also provide implications to society in that it may allow readers to become more mindful on why gender disparities and discrimination in the workplace persist worldwide today.

Limitations

The primary limitations regarding this present study involves the use of archival economic survey data. One limitation revolves around the absence of control over how the data was collected and the fact the study was limited to the variables available under the survey dataset. Searching for an appropriate archival dataset that would speak to my research questions did in fact involve creativity and time to identify. Another potential limitation of this study is the nature in which the completed data was merged. The present study's data analysis involved occupational work activity "importance" data from O*NET and was merged with the Current Population Survey (CPS) data.

An advantage of using CPS data for my present study involve the use of a very large sample size with data for various economic and demographic variables, some of which was not originally meant to be considered or analyzed (e.g., number of children). A disadvantage however of using archival data was the time and effort spent on preparing before the merging of data between the CPS data and occupational work activity data from O*NET. Additionally, another

limitation in this present study involved the use of control variables such as hours worked and number of children because the sample size was substantially reduced. Most notably, the sample size for the control variable: Number of children was reduced by more than half the starting sample size due to the removal of survey respondents with no children.

Lastly, a limitation of this present study involves the use of job complexity as an outcome variable. Because research shows that a portion of job complexity can be subjective, such that employers can introduce bias in their perceptions of the relative worth of a job or that individuals' satisfaction levels affect their perceptions of the complexity of their jobs, thus, the concept of job complexity is difficult to understand and operationalize and introduces difficulty with measurement (Ophem, et al., 1993).

Directions for Future Research

Directions for future research involve further unpacking of the subdimensions (Gaining knowledge and information processing; Interpersonal relationships, assisting, and guiding the work of others; and Physical activities, repairing, and maintaining equipment) of generalized work activities from O*NET as also done in Alterman et al.'s (2008) study. More specifically, there is a lack in research for the physical subdimension relating to the gender wage gap and job complexity. Suggested future research should focus on occupations or industries

that are heavily physically characterized and have a gender balance or presence of women.

Additionally, future research should also unpack the job complexity-pay gap dynamic specific to race and gender. For instance, research consistently highlights that women of color experience greater disparities in pay compared to men (Auspurg, et al., 2017). Hispanics in general experience the largest wage disparities even after statistically controlling for various factor such as hours, age, and seniority level. The wage discrimination is even higher for Hispanic working women. In 2019, the Bureau of Labor Statistics found that the highest median-weekly full-time salary was for Asian women ($1,025), following with White women ($840), Black women ($704), and Hispanic women ($642). Due to patriarchal and cultural role expectations common to Hispanic women, it may be enlightening to assess the role of number of children on the wage gap. Thus, future researchers can work to explore these relationships within various demographic groups even further.

Conclusion

The purpose of this present study was to uncover the socially constructed ideologies that affect women's earning outcomes and uncover the patriarchal system that contributes to the gender wage gap. This present study also focused on unpacking the social and structural aspects of job complexity to understand its effects on the gender wage gap. Overall, the hypotheses were primarily

supported especially when dealing with both wage difference and wage ratio as the outcome variable. However, the effect sizes were generally small. Higher complexity jobs in this study yielded greater wage disparities across different occupations. The subdimensions: Physical Activities and Gaining Knowledge from the Generalized Work Activities from O*NET were the two most predictive of the gender wage gap. Male-dominated occupations had larger wage gaps even when controlling for hours worked. Lastly, the private sector continues to yield higher wage disparities among women and men compared to the public sector. Public sector wage disparities although better in light of stricter enforcement of legislation, also continues to highlight the occurrence of wage discrimination and gender segregation.

APPENDIX A

CURRENT POPULATION SURVEY: ANNUAL SOCIAL AND ECONOMIC (ASEC) SUPPLEMENTAL SURVEY, 2017

United States. Bureau of the Census, and United States. Bureau of Labor Statistics. Current Population Survey: Annual Social and Economic (ASEC) Supplement Survey, United States, 2017. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2018-05-31. https://doi.org/10.3886/ICPSR37075.v1

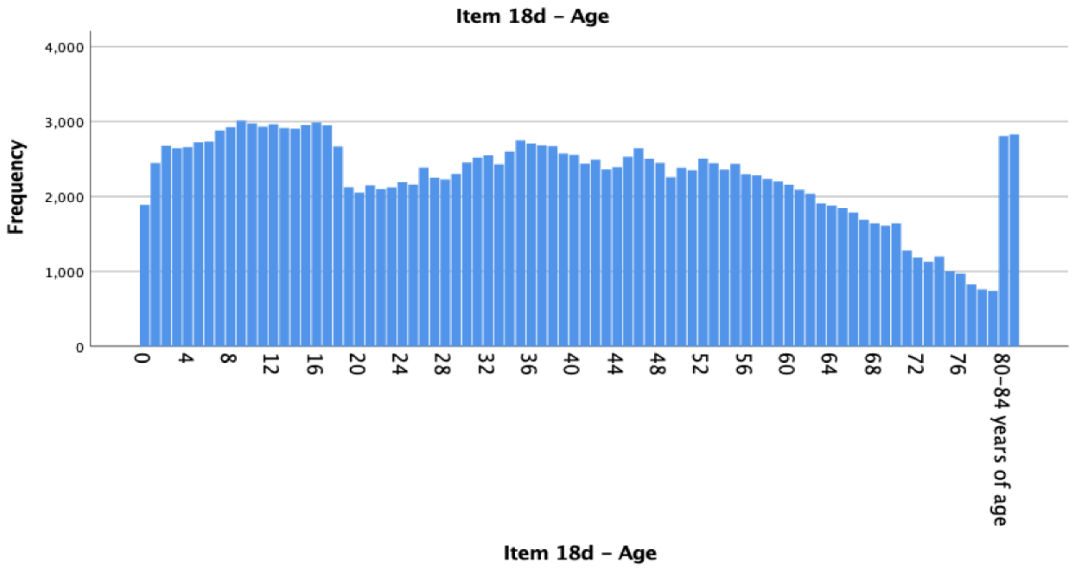
Variables Used in Present Study:

Variable label: Item 18d -Age

Variable name: A_AGE

Page # in code book: 146

NOTE: Age values less than 15 years old will be set to missing. In addition, note that the table below only includes the first 50 ages. The top category of age is 85+.



Value	Label	Unweighted Frequency	%
0	-	1889	1.0 %
1	-	2445	1.3 %
2	-	2676	1.4 %
3	-	2645	1.4 %

4	-	2658	1.4 %
5	-	2722	1.5 %
6	-	2733	1.5 %
7	-	2880	1.5 %
8	-	2924	1.6 %
9	-	3013	1.6 %
10	-	2974	1.6 %
11	-	2931	1.6 %
12	-	2964	1.6 %
13		2915	1.6 %
14	-	2905	1.6 %
15	-	2954	1.6 %
16	-	2985	1.6 %
17	-	2951	1.6 %
18	-	2666	1.4 %
19	-	2123	1.1 %
20	-	2050	1.1 %
21	-	2148	1.2 %
22	-	2097	1.1 %
23	-	2121	1.1 %

Value	Label	Unweighted Frequency	%
24	-	2189	1.2 %
25	-	2160	1.2 %
26	-	2385	1.3 %
27	-	2252	1.2 %
28	-	2227	1.2 %
29	-	2301	1.2 %
30	-	2452	1.3 %
31	-	2519	1.4 %
32	-	2549	1.4 %
33	-	2429	1.3 %
34	-	2600	1.4 %
35	-	2749	1.5 %
36	-	2706	1.5 %
37	-	2682	1.4 %
38	-	2670	1.4 %
39	-	2573	1.4 %
40	-	2556	1.4 %
41	-	2437	1.3 %
42	-	2490	1.3 %
43	-	2359	1.3 %

44	-	2391	1.3 %
45	-	2529	1.4 %
46	-	2646	1.4 %
47	-	2503	1.3 %
48	-	2448	1.3 %
49	-	2257	1.2 %
	Total	185,914	100%

Variable label: Item 18e -Marital Status

Variable name: A_MARITL

Page # in code book: 147

Value	Label	Unweighted Frequency	%
1	Married - civilian spouse present	73177	39.4 %
2	Married - AF spouse present	495	0.3 %
3	Married - spouse absent (exc. separated)	2134	1.1 %
4	Widowed	7687	4.1 %
5	Divorced	13939	7.5 %
6	Separated	2812	1.5 %
7	Never married	85670	46.1 %
	Total	185,914	100%

Variable label: Item 18g -Sex

Variable name: A_SEX

Page # in code book: 149

Value	Label	Unweighted Frequency	%

1	Male	90122	48.5 %
2	Female	95792	51.5 %
	Total	185,914	100%

Variable label: Item 18h -Educational attainment

Variable name: A_HGA

Page # in code book: 149

Value	Label	Unweighted Frequency	%
0	Children	41274	22.2 %
31	Less than 1st grade	483	0.3 %
32	1st,2nd,3rd, or 4th grade	968	0.5 %
33	5th or 6th grade	2029	1.1 %
34	7th and 8th grade	3620	1.9 %
35	9th grade	4550	2.4 %
36	10th grade	5213	2.8 %
37	11th grade	5488	3.0 %
38	12th grade no diploma	2478	1.3 %
39	High school graduate - high school diploma or equivalent	39419	21.2 %
40	Some college but no degree	25393	13.7 %
41	Associate degree in college - occupation/vocation program	5683	3.1 %
42	Associate degree in college - academic program	7629	4.1 %
43	Bachelor's degree (for example: BA,AB,BS)	26476	14.2 %

44	Master's degree (for example: MA,MS,MENG,MED,MSW, MBA)	11173	6.0 %
45	Professional school degree (for example: MD,DDS,DVM,LLB,JD)	1758	0.9 %
46	Doctorate degree (for example: PHD,EDD)	2280	1.2 %
	Total	185,914	100%

Variable label: Race

Variable name: PRDTRACE

Page # in code book: 150

Value	Label	Unweighted Frequency	%
1	White only	143286	77.1 %
2	Black only	22436	12.1 %
3	American Indian,Alaskan Native Only (AI)	2929	1.6 %
4	Asian only	11338	6.1 %
5	Hawaiian/Pacific Islander only (HP)	1094	0.6 %
6	White-Black	1437	0.8 %
7	White-AI	1568	0.8 %
8	White-Asian	865	0.5 %
9	White-HP	198	0.1 %
10	Black-AI	182	0.1 %
11	Black-Asian	53	0.0 %
12	Black-HP	23	0.0 %
13	AI-Asian	20	0.0 %
14	AI-HP	4	0.0 %

15	Asian-HP	115	0.1 %
16	White-Black-AI	173	0.1 %
17	White-Black-Asian	17	0.0 %
18	White-Black-HP	5	0.0 %
19	White-AI-Asian	27	0.0 %
20	White-AI-HP	5	0.0 %
21	White-Asian-HP	111	0.1 %
22	Black-AI-Asian	4	0.0 %
23	White-Black-AI-Asian	1	0.0 %
24	White-AI-Asian-HP	3	0.0 %
25	Other 3 race comb.	8	0.0 %
26	Other 4 or 5 race comb.	12	0.0 %
	Total	185,914	100%

Variable label: Are you Spanish, Hispanic, or Latino?

Variable name: PEHSPNON

Page # in code book: 151

Value	Label	Unweighted Frequency	%
1	Yes	36754	19.8 %
2	No	149160	80.2 %
	Total	185,914	100%

Variable label: Industry

Variable name: PEIOIND

Page # in code book: 179

Value	Label	Unweighted Frequency	%
170	Crop production	777	0.4 %
180	Animal production	698	0.4 %
190	Forestry except logging	56	0.0 %
270	Logging	75	0.0 %
280	Fishing, hunting, and trapping	41	0.0 %
290	Support activities for agriculture and forestry	121	0.1 %
370	Oil and gas extraction	59	0.0 %
380	Coal mining	72	0.0 %
390	Metal ore mining	42	0.0 %
470	Nonmetallic mineral mining and quarrying and not specified type of mining	81	0.0 %
490	Support activities for mining	381	0.2 %
570	Electric power generation, transmission and distribution	458	0.2 %
580	Natural gas distribution	74	0.0 %
590	Electric and gas, and other combinations	68	0.0 %
670	Water, steam, air-conditioning, and irrigation systems	140	0.1 %
680	Sewage treatment facilities	66	0.0 %
690	Not specified utilities	8	0.0 %
770	Construction	6413	3.4 %
1070	Animal food, grain and oilseed milling	89	0.0 %

1080	Sugar and confectionery products	60	0.0 %
1090	Fruit and vegetable preserving and specialty food manufacturing	123	0.1 %
1170	Dairy product manufacturing	104	0.1 %
1180	Animal slaughtering and processing	384	0.2 %
1190	Retail bakeries	162	0.1 %
1270	Bakeries, except retail	131	0.1 %
1280	Seafood and other miscellaneous foods, n.e.c.	131	0.1 %
1290	Not specified food industries	51	0.0 %
1370	Beverage manufacturing	142	0.1 %
1390	Tobacco manufacturing	9	0.0 %
1470	Fiber, yarn, and thread mills	8	0.0 %
1480	Fabric mills, except knitting	65	0.0 %
1490	Textile and fabric finishing and coating mills	8	0.0 %
1570	Carpet and rug mills	37	0.0 %
1590	Textile product mills, except carpets and rugs	44	0.0 %
1670	Knitting mills	12	0.0 %
1680	Cut and sew apparel manufacturing	136	0.1 %
1690	Apparel accessories and other apparel manufacturing	3	0.0 %

Value	Label	Unweighted Frequency	%
1770	Footwear manufacturing	23	0.0 %
1790	Leather tanning and products, except footwear manufacturing	14	0.0 %
1870	Pulp, paper, and paperboard mills	119	0.1 %
1880	Paperboard containers and boxes	59	0.0 %
1890	Miscellaneous paper and pulp products	43	0.0 %
1990	Printing and related support activities	260	0.1 %
2070	Petroleum refining	116	0.1 %
2090	Miscellaneous petroleum and coal products	5	0.0 %
2170	Resin, synthetic rubber and fibers, and filaments manufacturing	98	0.1 %
2180	Agricultural chemical manufacturing	21	0.0 %
2190	Pharmaceutical and medicine manufacturing	304	0.2 %
2270	Paint, coating, and adhesive manufacturing	23	0.0 %
2280	Soap, cleaning compound, and cosmetics manufacturing	84	0.0 %
	Missing Data		
0	Not in universe or children	95220	51.2 %
	Total	185,914	100%

Variable label: Longest Job Class of Worker recode
Variable name: CLWK
Page # in code book: 223

Value	Label	Unweighted Frequency	%
1	Private (includes self-employment, inc)	73248	39.4 %
2	Government	14032	7.5 %
3	Self-employed	5448	2.9 %
4	Without pay	90	0.0 %
5	Never worked	51822	27.9 %
	Missing Data		
0	Not in universe	41274	22.2 %
	Total	185,914	100%

Variable label: Occupation of longest job

Variable name: OCCUP

Page # in code book: 230

NOTE: This list only includes the first 50 of the 485 jobs in the data set.

Value	Label	Unweighted Frequency	%
-1	Not in universe or children	0	0.00%
10	Chief executives	929	0.50%
20	General and operations managers	614	0.30%
40	Advertising and promotions managers	28	0.00%
50	Marketing and sales managers	599	0.30%
60	Public relations managers	42	0.00%
100	Administrative services managers	91	0.00%

110	Computer and information systems managers	322	0.20%
120	Financial managers	698	0.40%
135	Compensation and benefits managers	6	0.00%
136	Human resources managers	192	0.10%
137	Training and development managers	46	0.00%
140	Industrial production managers	153	0.10%
150	Purchasing managers	113	0.10%
160	Transportation, storage, and distribution managers	163	0.10%
205	Farmers, ranchers, and other agricultural managers	640	0.30%
220	Construction managers	558	0.30%
230	Education administrators	548	0.30%
300	Engineering managers	74	0.00%
310	Food service managers	707	0.40%
330	Gaming managers	11	0.00%
340	Lodging managers	92	0.00%
350	Medical and health services managers	376	0.20%
360	Natural sciences managers	12	0.00%
410	Property, real estate, and community association managers	425	0.20%
420	Social and community service managers	298	0.20%
425	Emergency management directors	4	0.00%
430	Managers, all other	2633	1.40%
500	Agents and business managers of artists, performers, and athletes	23	0.00%
510	Purchasing agents and buyers, farm products	12	0.00%
520	Wholesale and retail buyers, except farm products	71	0.00%

530	Purchasing agents, except wholesale, retail, and farm products	261	0.10%
540	Claims adjusters, appraisers, examiners, and investigators	166	0.10%
565	Compliance officers	182	0.10%
600	Cost estimators	78	0.00%
630	Human resource workers	394	0.20%
640	Compensation, benefits, and job analysis specialists	39	0.00%
650	Training and development specialists	79	0.00%
700	Logisticians	42	0.00%
710	Management analysts	560	0.30%
725	Meeting, convention, and event planners	90	0.00%
726	Fundraisers	59	0.00%
735	Market research analysts and marketing specialists	170	0.10%
740	Business operations specialists, all other	174	0.10%
800	Accountants and auditors	1002	0.50%
810	Appraisers and assessors of real estate	55	0.00%
820	Budget analysts	43	0.00%
830	Credit analysts	19	0.00%
840	Financial analysts	166	0.10%
850	Personal financial advisors	276	0.10%

Variable label: Recode- Total Wage and Salary

Variable name: WSAL_VAL

Page # in code book: 241

Statistics

Recode - Total wage and salary earnings

N	Valid	87690
	Missing	98224
Mean		51267.12
Median		36000.00
Mode		30000
Std. Deviation		69743.979
Skewness		7.979
Std. Error of Skewness		.008
Minimum		2
Maximum		1299999

Variable label: How many hrs per week does ... usually work at this job?

Variable name: A_USLHRS

Page # in code book: 186

Value	Label	Unweighted Frequency	%
-4	Hours vary	5114	2.8 %
0	None, no hours	72	0.0 %
1	-	40	0.0 %
2	-	111	0.1 %
3	-	114	0.1 %
4	-	193	0.1 %
5	-	229	0.1 %
6	-	200	0.1 %

7	-	86	0.0 %
8	-	407	0.2 %
9	-	81	0.0 %
10	-	919	0.5 %
11	-	30	0.0 %
12	-	518	0.3 %
13	-	51	0.0 %
14	-	90	0.0 %
15	-	1026	0.6 %
16	-	446	0.2 %
17	-	71	0.0 %
18	-	232	0.1 %
19	-	77	0.0 %
20	-	3177	1.7 %
21	-	99	0.1 %
22	-	153	0.1 %
23	-	69	0.0 %
24	-	770	0.4 %
25	-	1613	0.9 %
26	-	108	0.1 %
27	-	114	0.1 %
28	-	287	0.2 %
29	-	84	0.0 %

30	-	2694	1.4 %

Variable label: Number of own never married children under 18

Variable name: FOWNU18

Page # in code book: 91

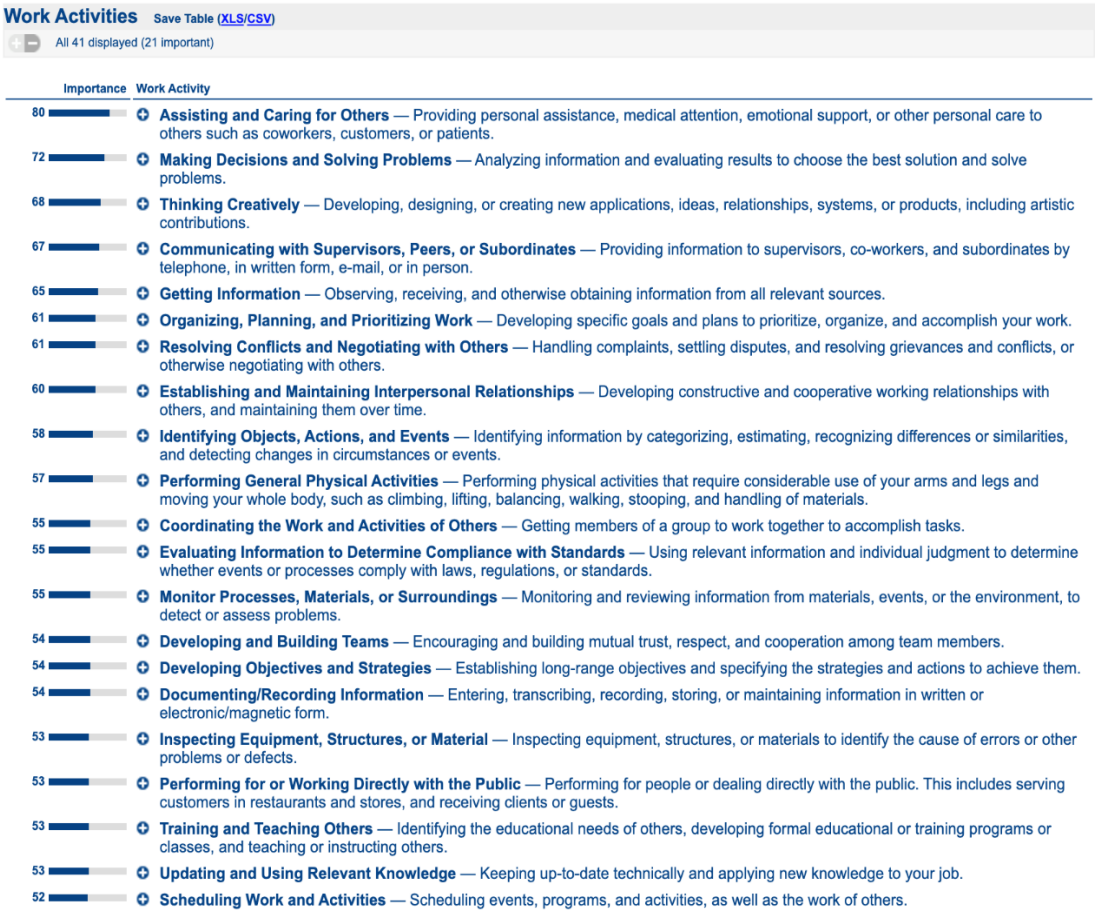
Value	Label	Unweighted Frequency	%
1	1	32752	17.6 %
2	-	36991	19.9 %
3	-	17737	9.5 %
4	-	6578	3.5 %
5	-	1990	1.1 %
6	-	698	0.4 %
7	-	229	0.1 %
8	-	72	0.0 %
9	9 or more	36	0.0 %
	Missing Data		
0	None, not in universe	88831	47.8 %
	Total	185,914	100%

APPENDIX B

EXAMPLE RATING OF SKILLS FROM

THE O*NET DATA BASE

Here is an example of how O*Net rates each job on the various work activities that could make-up job complexity – This is for Childcare Worker from O*Net



Work Activities Save Table (XLS/CSV)

All 41 displayed (21 important)

Importance	Work Activity
80	**Assisting and Caring for Others** — Providing personal assistance, medical attention, emotional support, or other personal care to others such as coworkers, customers, or patients.
72	**Making Decisions and Solving Problems** — Analyzing information and evaluating results to choose the best solution and solve problems.
68	**Thinking Creatively** — Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions.
67	**Communicating with Supervisors, Peers, or Subordinates** — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
65	**Getting Information** — Observing, receiving, and otherwise obtaining information from all relevant sources.
61	**Organizing, Planning, and Prioritizing Work** — Developing specific goals and plans to prioritize, organize, and accomplish your work.
61	**Resolving Conflicts and Negotiating with Others** — Handling complaints, settling disputes, and resolving grievances and conflicts, or otherwise negotiating with others.
60	**Establishing and Maintaining Interpersonal Relationships** — Developing constructive and cooperative working relationships with others, and maintaining them over time.
58	**Identifying Objects, Actions, and Events** — Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
57	**Performing General Physical Activities** — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.
55	**Coordinating the Work and Activities of Others** — Getting members of a group to work together to accomplish tasks.
55	**Evaluating Information to Determine Compliance with Standards** — Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.
55	**Monitor Processes, Materials, or Surroundings** — Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.
54	**Developing and Building Teams** — Encouraging and building mutual trust, respect, and cooperation among team members.
54	**Developing Objectives and Strategies** — Establishing long-range objectives and specifying the strategies and actions to achieve them.
54	**Documenting/Recording Information** — Entering, transcribing, recording, storing, or maintaining information in written or electronic/magnetic form.
53	**Inspecting Equipment, Structures, or Material** — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
53	**Performing for or Working Directly with the Public** — Performing for people or dealing directly with the public. This includes serving customers in restaurants and stores, and receiving clients or guests.
53	**Training and Teaching Others** — Identifying the educational needs of others, developing formal educational or training programs or classes, and teaching or instructing others.
53	**Updating and Using Relevant Knowledge** — Keeping up-to-date technically and applying new knowledge to your job.
52	**Scheduling Work and Activities** — Scheduling events, programs, and activities, as well as the work of others.

APPENDIX C

97 MOST FREQUENT GENDER BALANCED OCCUPATIONS

FROM THE CPS DATASET

Census Code	SOC-Code	Occupation	TOTAL	Male	Female	Balance	Balance Label
0800	13-2011	Accountants and auditors	1002	396	606	0.6048	Female Dominated
0430	11-3012	Administrative Service Managers	2633	1717	916	0.3479	Male Dominated
7200	49-3023	Automotive service technicians and mechanics	505	500	5	0.0099	Male Dominated
5110	43-3021	Billing and posting clerks	279	33	246	0.8817	Female Dominated
5120	43-3031	Bookkeeping, accounting, and auditing clerks	701	83	618	0.8816	Female Dominated
9120	53-3052	Bus drivers, Transit and Intercity	300	161	139	0.4633	Gender Balanced
6230	47-2031	Carpenters	839	822	17	0.0203	Male Dominated
4720	41-2011	Cashiers	2229	564	1665	0.7470	Female Dominated
4000	35-1011	Chefs and head cooks	272	217	55	0.2022	Male Dominated
0010	11-1011	Chief executives	929	649	280	0.3014	Male Dominated
4600	39-9011	Childcare workers	870	42	828	0.9517	Female Dominated
2010	21-1021	Child, Family, and School Social Workers	509	86	423	0.8310	Female Dominated
1360	17-2051	Civil engineers	249	213	36	0.1446	Male Dominated
0110	11-3021	Computer and information systems managers	322	241	81	0.2516	Male Dominated
1010	15-1251	Computer programmers	245	192	53	0.2163	Male Dominated
1050	15-1232	Computer support specialists	286	220	66	0.2308	Male Dominated
1006	15-1211	Computer systems analysts	308	176	132	0.4286	Gender Balanced
6660	47-4011	Construction and Building Inspectors	267	262	5	0.0187	Male Dominated
6260	47-2061	Construction laborers	1169	1126	43	0.0368	Male Dominated
0220	11-9021	Construction managers	558	510	48	0.0860	Male Dominated
4020	35-2011	Cooks, Fast food	1502	859	643	0.4281	Gender Balanced
5240	43-4051	Customer service representatives	1404	460	944	0.6724	Female Dominated

9130	53-3031	Driver/sales workers and truck drivers	2111	1978	133	0.0630	Male Dominated
0230	11-9033	Education administrators	548	178	370	0.6752	Female Dominated
2200	25-1081	Education Teachers, Postsecondary	893	447	446	0.4994	Gender Balanced
2000	21-1012	Educational, Guidence School Counselors	498	156	342	0.6867	Female Dominated
6355	47-2111	Electricians	535	515	20	0.0374	Male Dominated
5940	43-6011	Executive Secretaries and Executive Administrative Assistants	313	89	224	0.7157	Female Dominated
3060	29-1215	Family Medicine Physicians	538	336	202	0.3755	Male Dominated
0205	11-9013	Farmers, Ranchers, and Other Agricultural Managers	640	506	134	0.2094	Male Dominated
6050	45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	701	535	166	0.2368	Male Dominated
0120	11-3031	Financial managers	698	308	390	0.5587	Gender Balanced
6200	47-1011	First-line supervisors/managers of construction trades and extraction workers	427	416	11	0.0258	Male Dominated
4010	35-1012	First-line supervisors/managers of food preparation and serving workers	369	150	219	0.5935	Gender Balanced
4710	41-1012	First-line supervisors/managers of non-retail sales workers	695	473	222	0.3194	Male Dominated
5000	43-1011	First-line supervisors/managers of office and administrative support workers	782	231	551	0.7046	Female Dominated
7700	51-1011	First-line supervisors/managers of production and operating workers	446	366	80	0.1794	Male Dominated
4700	41-1011	First-line supervisors/managers of retail sales workers	2000	1049	951	0.4755	Gender Balanced

4030	35-2021	Food preparation workers	652	258	394	0.6043	Female Dominated
4130	35-3041	Food Servers, Nonrestaurant	243	130	113	0.4650	Gender Balanced
0310	11-9051	Food service managers	707	347	360	0.5092	Gender Balanced
0020	11-1021	General and operations managers	614	408	206	0.3355	Male Dominated
2630	27-1024	Graphic Designers	510	238	272	0.5333	Gender Balanced
4510	39-5012	Hairdressers, hairstylists, and cosmetologists	467	20	447	0.9572	Female Dominated
0630	13-1071	Human resource specialists	394	92	302	0.7665	Female Dominated
7330	49-9041	Industrial machinery mechanics	243	234	9	0.0370	Male Dominated
9600	53-7051	Industrial truck and tractor operators	335	308	27	0.0806	Male Dominated
8740	51-9061	Inspectors, testers, sorters, samplers, and weighers	472	296	176	0.3729	Male Dominated
4810	41-3021	Insurance sales agents	343	167	176	0.5131	Gender Balanced
4220	37-2011	Janitors and building cleaners	1550	986	564	0.3639	Male Dominated
2300	25-2012	Kindergarten teachers	477	9	468	0.9811	Female Dominated
9620	53-7062	Laborers and freight, stock, and material movers, hand	1228	989	239	0.1946	Male Dominated
2100	23-1011	Lawyers	635	406	229	0.3606	Male Dominated
8220	51-4192	Layout Workers, Metal and Plastic	257	190	67	0.2607	Male Dominated
3500	29-2061	Licensed practical and licensed vocational nurses	417	42	375	0.8993	Female Dominated
4230	37-2012	Maids and housekeeping cleaners	1011	109	902	0.8922	Female Dominated
7340	49-9071	Maintenance and Repair Workers, General	870	818	52	0.0598	Male Dominated
0710	13-1111	Management analysts	560	333	227	0.4054	Gender Balanced
0050	11-2021	Marketing managers	599	320	279	0.4658	Gender Balanced
1530	17-2141	Mechanical engineers	305	263	42	0.1377	Male Dominated
0350	11-9111	Medical and health services managers	376	109	267	0.7101	Female Dominated

3645	31-9092	Medical assistants	302	29	273	0.9040	Female Dominated
2310	25-2022	Middle school teachers	2089	410	1679	0.8037	Female Dominated
5860	43-9061	Office clerks, general	830	148	682	0.8217	Female Dominated
9640	53-7064	Packers and packagers, hand	376	160	216	0.5745	Gender Balanced
6420	47-2141	Painters, Construction and Maintenance	360	328	32	0.0889	Male Dominated
2145	23-2011	Paralegals and legal assistants	246	40	206	0.8374	Female Dominated
4610	31-1122	Personal Care Aides	931	143	788	0.8464	Female Dominated
0850	13-2052	Personal financial advisors	276	194	82	0.2971	Male Dominated
6440	47-2152	Plumbers, Pipefitters, and Steamfitters	343	340	3	0.0087	Male Dominated
3850	33-3051	Police and Sheriff's Patrol Officers	392	346	46	0.1173	Male Dominated
0410	11-9141	Property, real estate, and community association managers	425	225	200	0.4706	Gender Balanced
3600	31-1133	Psychiatric aides	1267	145	1122	0.8856	Female Dominated
3420	29-2053	Psychiatric Technicians	347	68	279	0.8040	Female Dominated
0530	13-1023	Purchasing agents, except wholesale, retail, and farm products	261	146	115	0.4406	Gender Balanced
4920	41-9021	Real estate brokers	521	234	287	0.5509	Gender Balanced
5400	43-4171	Receptionists and information clerks	729	81	648	0.8889	Female Dominated
4620	39-9032	Recreation workers	301	110	191	0.6346	Female Dominated
3255	29-1141	Registered nurses	1876	183	1693	0.9025	Female Dominated
4760	41-2031	Retail salespersons	2025	998	1027	0.5072	Gender Balanced
4850	41-4012	Sales representatives, wholesale and manufacturing	660	457	203	0.3076	Male Dominated
2320	25-2031	Secondary School Teachers, Except Special and Career/Technical Education	647	255	392	0.6059	Female Dominated

5700	43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1650	95	1555	0.9424	Female Dominated
3930	33-9032	Security Guards	527	387	140	0.2657	Male Dominated
2340	25-3021	Self-Enrichment Teachers	589	184	405	0.6876	Female Dominated
8965	51-9141	Semiconductor Processing Technicians	616	446	170	0.2760	Male Dominated
5610	43-5071	Shipping, Receiving, and Inventory Clerks	310	205	105	0.3387	Male Dominated
9140	53-3053	Shuttle drivers and chauffeurs	320	256	64	0.2000	Male Dominated
0420	11-9151	Social and community service managers	298	82	216	0.7248	Female Dominated
1020	15-1252	Software developers	837	686	151	0.1804	Male Dominated
2330	25-2057	Special education teachers, Middle School	243	43	200	0.8230	Female Dominated
5620	53-7065	Stockers and order fillers	985	600	385	0.3909	Male Dominated
2540	25-9042	Teacher assistants	636	68	568	0.8931	Female Dominated
7750	51-2092	Team Assemblers	613	377	236	0.3850	Male Dominated
4110	35-3031	Waiters and waitresses	1330	366	964	0.7248	Female Dominated
1107	15-1299.01	Web Administrators	353	266	87	0.2465	Male Dominated
8140	51-4121	Welders, Cutters, Solderers, and Brazers	380	354	26	0.0684	Male Dominated

APPENDIX D

ALTERMAN ET. AL.'S (2008) DIMENSIONS: GENERALIZED WORK ACTIVITIES, WORK CONTEXT, AND OCCUPATIONAL VALUES

Items, Factor Loadings, and Cronbach's Alpha Included in Factors of Generalized Work Activities, Work Context, and Occupational Values Subdomains, O*NET 98

Generalized Work Activities (Level Scale) (n = 42)		Work Context (Scales Vary)		Occupational Values (Extent Scale)	
Gaining knowledge and information processing (n= 17; Cronbach's α = 0.98)		Hazardous work exposures (n = 18; Cronbach's α = 0.95)		Psychosocial work environment (n = 10; Cronbach's α = 0.97)	
Processing information	94	Very hot	86	Ability utilization	98
Analyzing data or information	94	Outdoors	85	Autonomy	96
Updating and using job-relevant knowledge	94	Keeping or regaining balance	84	Creativity	93
Identifying objects, actions, and events	88	Kneeling, crouching or crawling	83	Responsibility	92
Getting information needed to do the job	86	Extremely bright or inadequate lighting	81	Recognition	91
Interacting with computers	84	Bending or twisting the body	81	Achievement	88
Evaluating info. against standards	83	Indoors – reversed	79	Social status	86
Documenting/recording information	83	Cramped work space, awkward positions	78	Variety	75
Making decisions and solving problems	81	Climbing ladders, scaffolds, poles, etc.	76	Compensation	74
Interpreting meaning of info. to others	80	Sitting*	73	Good working conditions	67
Judging qualities of things, services, people	76	Standing	66		
Implementing ideas, programs, etc.	75	High places	65		
Monitor processes, material, surroundings	69	Contaminants	64		
Estimating needed characteristics	68	Sounds, noise levels are distracting, etc.	64		
Provide consultation and advice to others	63	Hazardous situations	63		
Thinking creatively	58	Whole body vibration	58		
Communicating with other workers	57	Common protective or safety attire	56		
		Hazardous conditions	52		
Interpersonal relationship, assisting, guiding work of others (n = 13; Cronbach's α = 0.96)		Dealing with people, diversity of tasks (n = 15; Cronbach's α = 0.93)		Working with others (n = 3; Cronbach's α = 0.77)	
Developing and building teams	93	Job-required social interaction	86	Independence*	95
Guiding, directing, motivating subordinates	91	Deal with unpleasant/angry people	84	Co-workers	80
Coaching and developing others	89	Deal with external customers	80	Social service	69
Staffing organizational units	88	Frequency in conflict situations	80		
Coordinating work and activities of others	87	Persuade someone to a course of action	78		
Scheduling work and activities	83	Objective or subjective information	73		
Resolving conflict, negotiating w/others	78	Provide a service to others	69		
Monitoring and controlling resources	76	Using hands on objects, tools, controls*	68		
Establishing and maintaining relationships	68	Pace determined by speed of equipment*	66		
Teaching others	65	Take a position opposed to others	63		
Selling or influencing others	59	Coordinate or lead others	61		
Performing administrative activities	56	Making repetitive motions*	58		
Assisting and caring for others	46	Deal with physically aggressive people	56		
		Importance of repeating same tasks*	53		
		Supervise, coach, train others	52		
Physical activities, repairing and maintaining equipment (n = 5; Cronbach's α = 00.81)		Competitive work context, importance of being precise (n = 4; Cronbach's α = 0.82)		Worker and management relations (n = 3; Cronbach's α = 0.86)	
Inspecting equipment, structures, material	79	Consequence of error	80	Company policies and practices	89
Repairing and maintaining mechanical equipment	74	Importance of being sure all is done	71		
Controlling machines and processes	73	Importance of being exact or accurate	69	Supervision, human relations	88
Handling and moving objects	55	Frustrating circumstances	53	Advancement	72
Repairing and maintaining electrical equipment	52				

APPENDIX E

FIGURES

Figure 2

Interaction Between Wage Difference, Job Complexity, and Gender Balance (No Control)

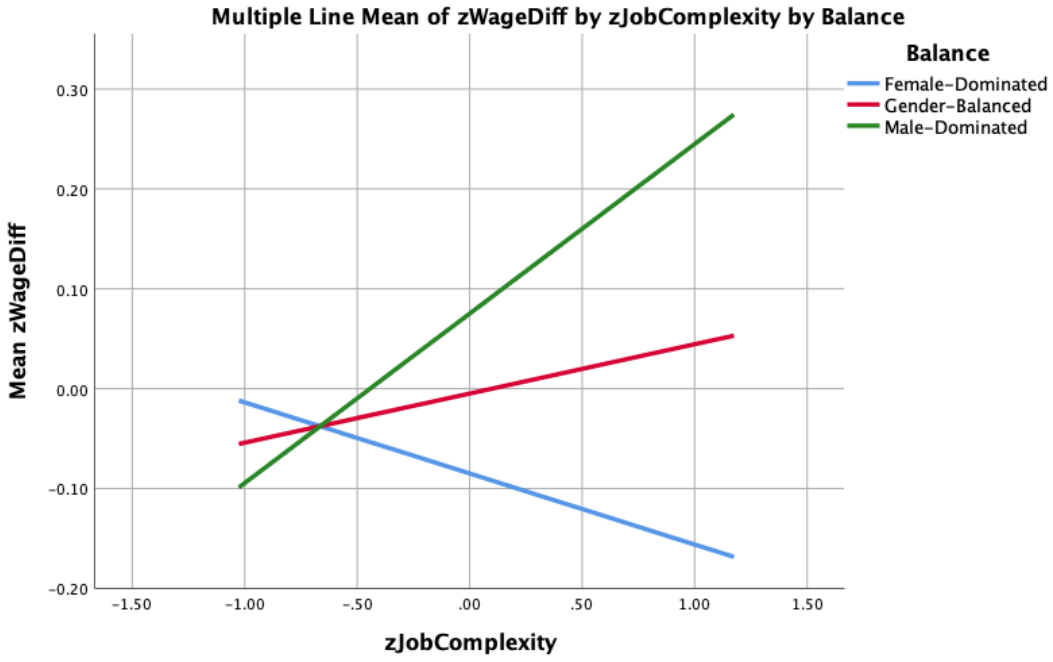


Figure 3

Interaction between Wage Difference, Job Complexity, and Gender Balance (Controlling for Hours Worked)

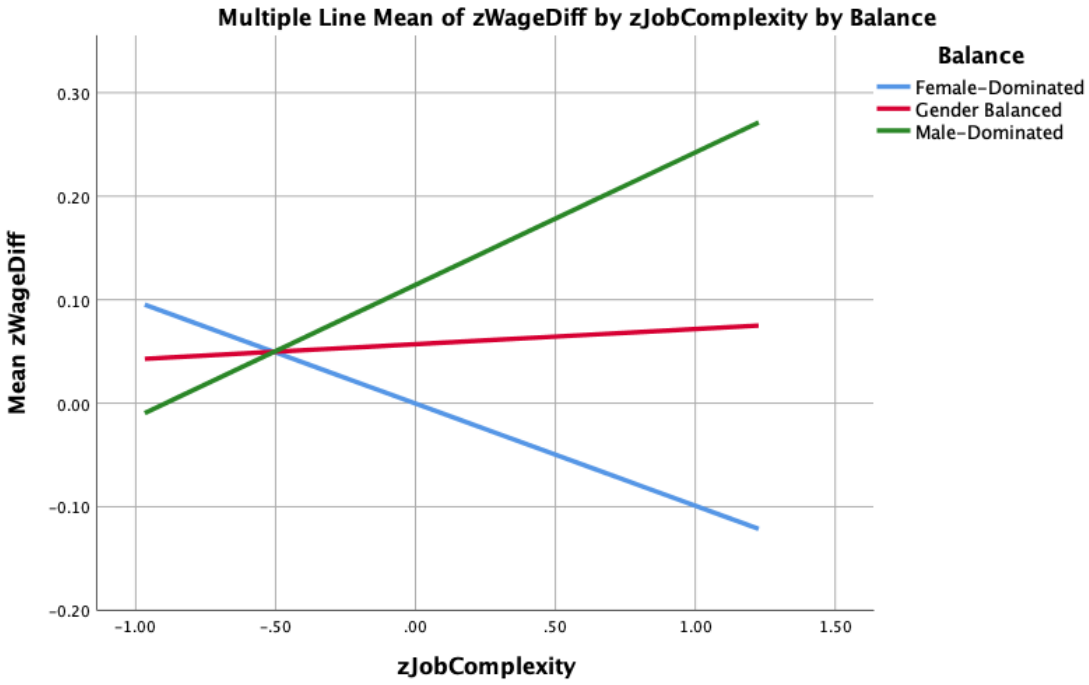


Figure 4

Interaction between Wage Difference, Job Complexity, and Gender Balance (Controlling for Hours Worked and Number of Children)

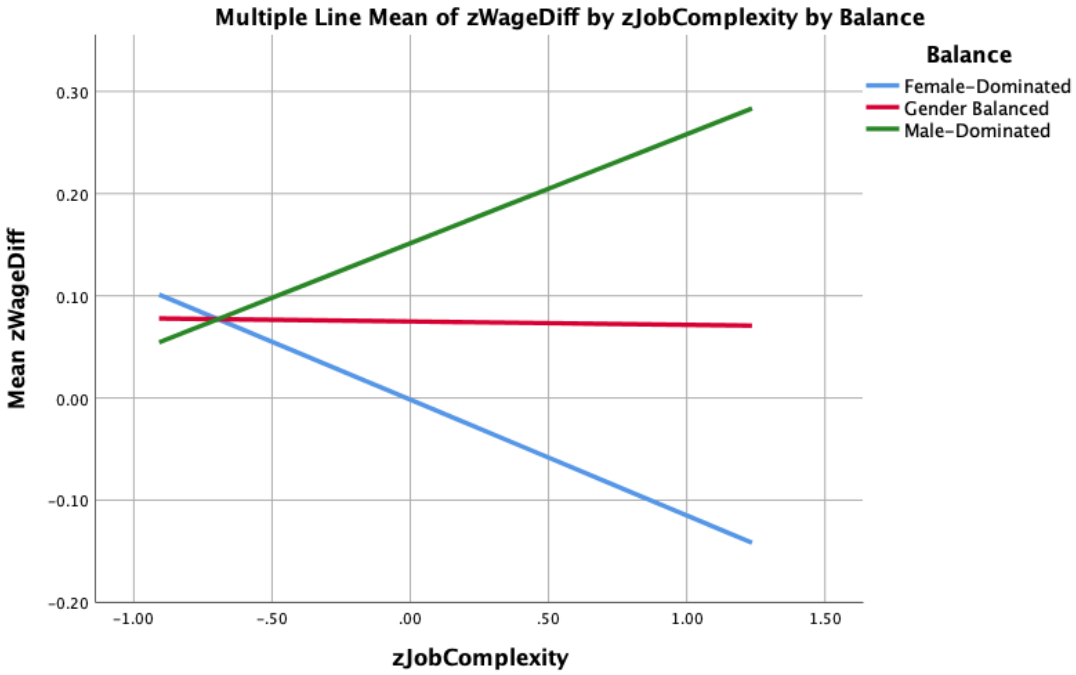


Figure 5

Interaction between Wage Ratio, Job Complexity, and Gender Balance (No Control)

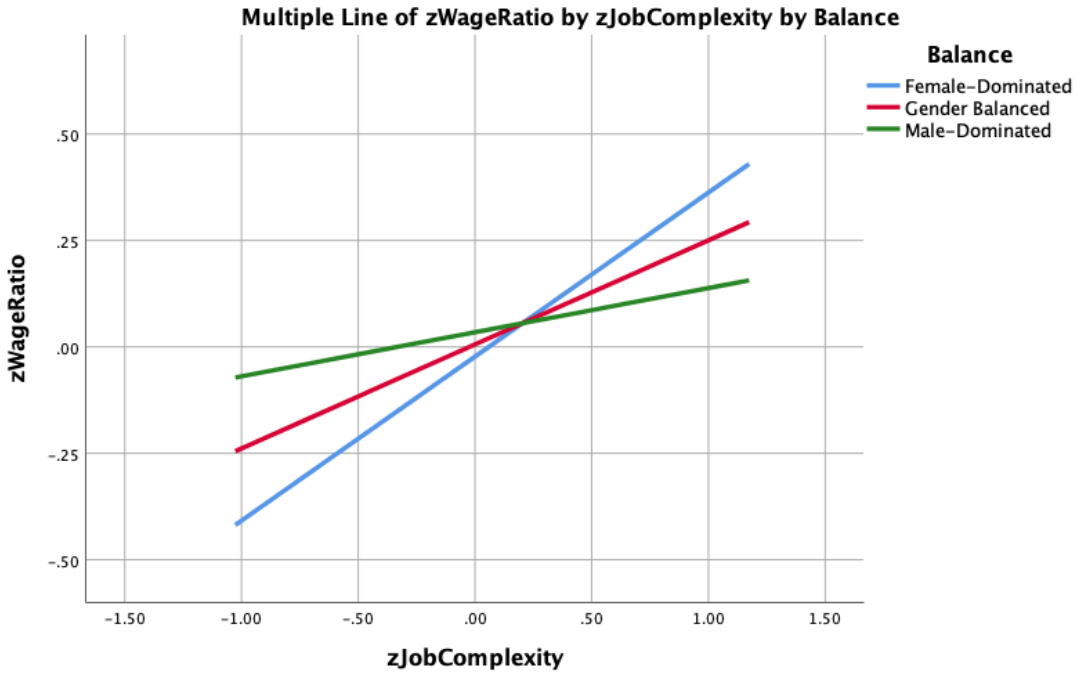


Figure 6

Interaction between Wage Ratio, Job Complexity, and Gender Balance (Controlling for Hours worked)

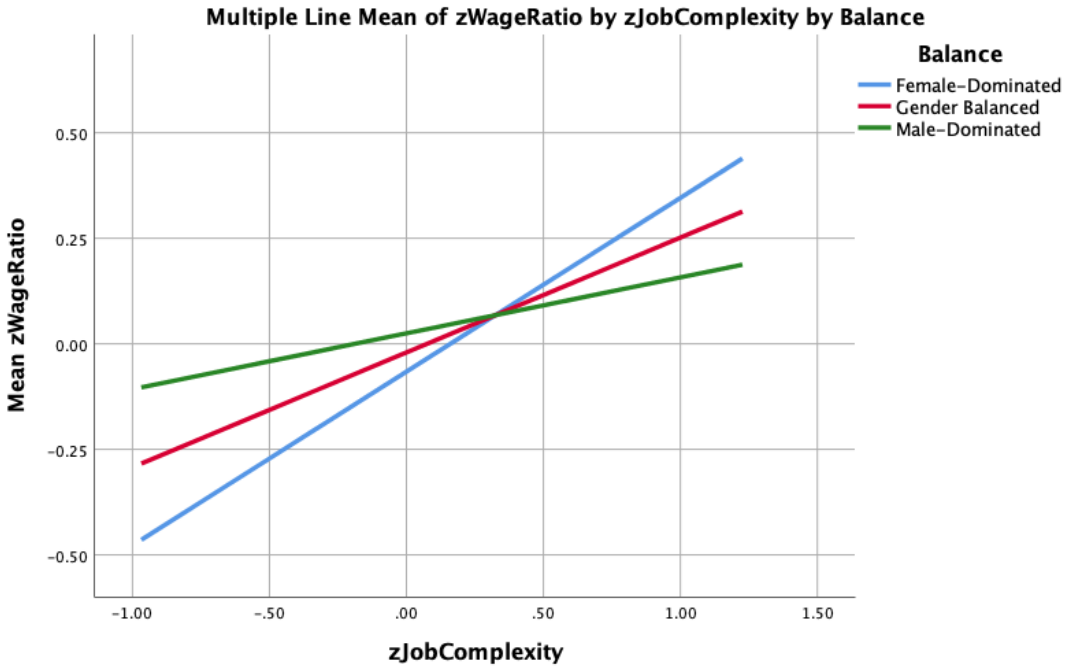
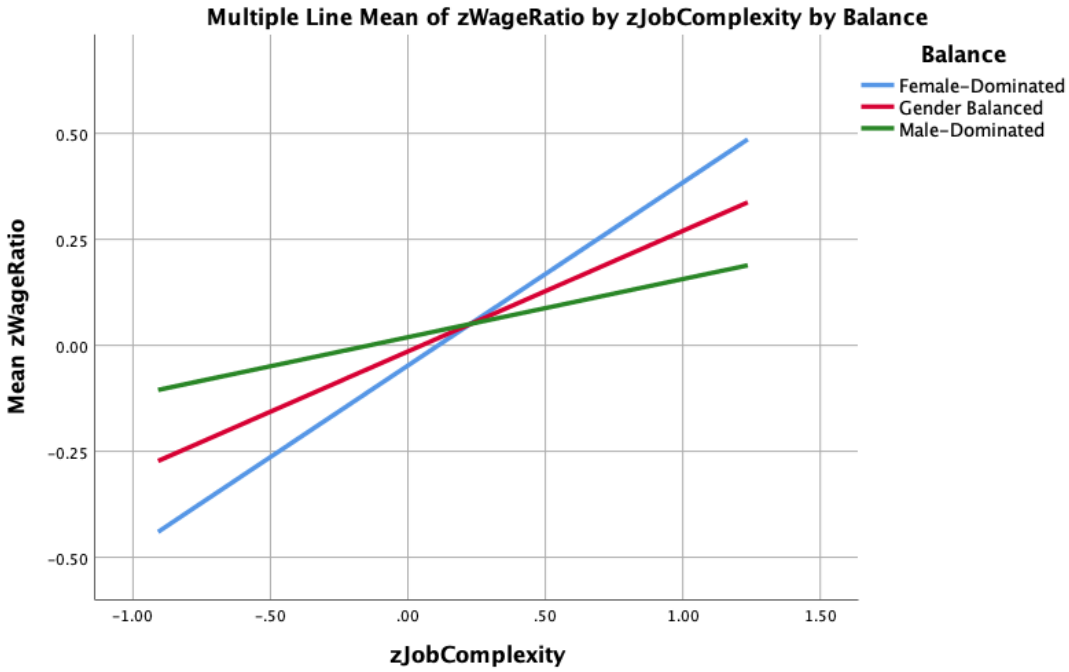


Figure 7

Interaction between Wage Ratio, Job Complexity, and Gender Balance

(Controlling for Hours Worked & Number of children)



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