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Gender Pay Disparity Among Women

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Walden University

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Walden University
2016

Abstract

Gender Pay Disparity among Women

by

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MAcc, Houston Baptist University, 1991

BS, Norfolk State University, 1981

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Walden University

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Abstract

Irrespective of professional experience and educational background, gender pay disparity is a problem in the federal government. Women have to overcome salary barriers, such as agency segregation, position segregation, and invisible barriers known as the *glass ceiling* and *the glass wall*. Recent studies have indicated that human capital variables, people skills, discrimination, and policies all contribute to gender pay disparity in America's workforce. However, there are limited studies that focus on the indirect factors that also contribute to gender pay inequality. The purpose of this quantitative research was to investigate the relationship between wages and job responsibility (as defined by an employee's job series) for all federal employees within the GS14 pay grade working in the state of Virginia. The data source for this retrospective study came from the December 2014 archived federal employee records that were retrieved from the Office of Personnel Management website. Ordinary least square regression modeling was used to analyze the data collected from the Office of Personnel Management central personnel data file. The results from the data analysis demonstrated a significant relationship between job responsibility and wages. The results from the data analysis demonstrated that men earned higher wages than did their female counterparts and were given more authority in the technical and professional job series. This study promotes positive social change because it confirms and extends understanding of the gender wage gap in the federal workforce. The findings from this research encourage policy makers to revisit existing policies and implement new policies aimed at ensuring women receive pay equal to their male counterparts.

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Chapter 1: Introduction to the Study

Introduction

America achieves success as women achieve success (Presidential Proclamation, 2015). Women in America have made tremendous progress throughout the years. This was evident when women earned the right to vote in 1920. The 19th Amendment to the Constitution was ratified on August 18, 1920 giving American women the right to vote. Equal pay for equal work was highlighted during President John F. Kennedy's Administration. According to the White House (n.d.) with more women moving into the workforce the Equal Pay Act of 1963 was an important act in protecting women earnings rights. During the 20th century, women continued to advance in education attainment thus narrowing the gender wage gap according to published government reports (United States Government Accountability Office, 2011; United States Department of Labor, 2011; United States Equal Employment Opportunity Commission, 2014).

In 2015, President Obama declared August 26th of each year Women Equality Day (Presidential Proclamation, 2015). Also, in 2015, Jack Lew, United States Treasurer Secretary announced that Harriet Tubman, Rosa Parks, Wilma Mankiller, and Eleanor Roosevelt were the four female finalists that were being considered for the new face on the twenty dollar bill. These extraordinary women have made profound contributions worth noting to the legacy of women. For example, Harriet Tubman, was born a slave in 1812, a humanitarian in the fight that abolished slavery; Rosa Parks, an African American, born in 1913, an activist in the fight for civil rights, and well known for refusing to give up her seat on a bus to a white rider in Montgomery, Alabama; Wilma

Mankiller, born in 1945 was the first female chief for a Indian nation; and Eleanor Roosevelt, born in 1884, reinvented the role of a first lady through her involvement in politics (Bio., n.d.). Yet, while America ponders over a decision to select the first female face for the twenty dollar bill, women are fighting to receive pay equal to their male counterparts.

According to the latest data published by the United States Department of Labor (n.d.) women represented approximately 57% of America's total workforce in 2013. Labor projections show that in 2022 women will represent nearly 60% of the labor market. Women are becoming the primary financial support for their families and their earning potential directly impacts their level of spending (Stanberry, 2013). Women earnings potential is correlated to their buying power and economic decisions regarding quality of living expenses, including the quality of housing, medical care, or educational attainment. However, recent studies show women earned approximately twenty-three cents less on the dollar than their male counterparts (Bolitzet & Godtland, 2012; Cohen, 2013; Kilgour, 2014; Lyons, 2013; Travis, 2014). Reports published by the United States Office of Personnel Management (2014) showed women in the federal government in 2012 earned thirteen cents less on a dollar than their male counterparts. Gender pay disparity is a problem and may affect public and private labor markets (Lyons, 2013).

Background

The United States federal government has put into place laws to protect employee civil rights in the workforce, including equal pay for women. President John F. Kennedy

signed the Equal Pay Act of 1963. The Equal Pay Act of 1963, 29.U.S.C. § 206 (d) as cited by Cohen (2013) states:

No employer...shall discriminate... on the basis of sex by paying wages to employees in such establishment at a rate less than the rate at which he pays wages to employees of the opposite sex... for equal work on jobs the performance of which requires equal skill, effort, and responsibility, and which are performed under similar working conditions (p.21).

A year later, Title VII of the Civil Rights Act of 1964 prohibited sex-based employment discrimination when hiring, firing, training, promoting, and paying wages to employees. President Barack Obama signed into law the Lilly Ledbetter Fair Pay Act in 2009, as an amendment to the Civil Rights Act of 1964, which allowed resetting the statute of limitations. Laws to protect discrimination against the federal contractor were also put into place by President Lyndon B. Johnson.

During President Obama's administration, progress continued to be made in achieving paycheck equality in the workplace. For example, The National Equal Pay Task Force was established in 2010 (White House, n.d.). The National Equal Pay Task Force included professionals from the various federal agencies that were mandated by federal law to ensure equal pay was received for equal work. Additionally, as stated by the White House (n.d.), the National Equal Pay Task Force, with the Department of Labor, initiated an Equal Pay App Challenge. According to the White House (n.d.), the purpose of this challenge was to entice computer software experts to invent an application that could provide the public with more pay data. The pay data application

featured the data by human capital attributes and provided “how to” tools to aid understanding the application.

Additionally, President Obama’s May 10, 2013 memorandum on Advancing Pay Equality in the Federal Government and Learning from Successful Practices required the Office of Personnel Management Director to submit a plan to address gender pay disparity in the Federal Government (The White House, 2013). The President’s memorandum required the Office of Personnel Management Director to review policies and practices for promoting federal employees (The White House, 2013). The strategies had to include: (a) reviewing and recommending changes, if needed to the General Schedule (GS) classification, (b) developing guidance for all federal agencies that promoted pay transparencies of federal employee salaries, (c) providing recommendations to have more investigations for understanding and narrowing the gender wage gap, (d) reviewing each agency policies for establishing an individual’s starting pay, (e) reviewing each agency policies for establishing an individual’s starting pay that left the federal government for personal reasons and was returning, (f) reviewing each agency policies in general that impacted pay, and (g) reviewing all agencies best practices to enhance gender pay equality (The White House, 2013).

Also, federal agencies partnered together and developed uniformed equal pay strategies that promoted paycheck equality (The White House, n.d.). For example, a study was conducted by the Department of Labor Women’s Bureau and the Office of Public Engagement and Center for Faith-Based Neighborhood Partnerships to understand the challenges faced by workers (The White House, n.d.). Equal pay events around the

country were sponsored by the United States Equal Employment Opportunity Commission (The White House, n.d.). The Department of Labor, the Women's Bureau, and the United States Department of Labor sponsored equal pay tweets, chats, and events (The White House, n.d.). The Equal Employment Opportunity Commission is an agency responsible for "enforcing federal laws that makes it illegal to discriminate against a job applicant or an employee because of the person's race, color, religion, sex (including pregnancy), national origin, age (40 or older), disability or genetic information" (United States Equal Employment Opportunity Commission, 2013, para. 1). However, women in the federal government still tend to earn less in wages than their male counterpart performing the same job (Cohen, 2013).

Problem Statement

The problem in the public sector is that gender pay disparity exists in the federal workforce irrespective of professional experience and educational background (United States Government Accountability Office, 2011; United States Department of Labor, 2011; United States Equal Employment Opportunity Commission, 2014). Women still have to overcome salary barriers such as: agency segregation, position segregation, and invisible barriers known as a glass ceiling and glass wall (Alkadry & Tower, 2013). Although policies and laws were designed by the government to ensure paycheck equality, women tend to learn less in wages than their male counterparts (Perry, 2013). The Council of Economic Advisers (2014) states:

Over the past forty years, women have made substantial gains in the workforce and economy, but in 2014, far more can still be done to expand

economic opportunities for women. While female labor force participation rose through the 1970s and 1980s. Yet women have continued to make gains in earning educational credentials-today young women are more likely than young men to be college graduates or have a graduate degree.

These improvements have important implications for American families. On average, women's earnings account for more than 40 percent of married parents' income, up from less than a third 40 years ago. And women are the primary breadwinner for nearly 30 percent of dual-earning couples.

Despite this progress, a gender wage gap persists: on average, full-time year-round female workers earn 77 cents for every dollar earned by their male counterparts. This gap is even more pronounced among women of color. While the wage gap reflects a variety of causes, there are gaps across the income distribution, within occupations, and are seen even when men and women are working side-by-side performing similar tasks. Additionally, women are still more likely to work in low-wage occupations and are more likely than men to earn the minimum wage (p.1).

While women have made progress in the American workforce, women still have a ways to go to achieve pay parity in the 21st century.

Nature of the Study

My study used a quantitative approach to investigate gender pay disparity in the public sector. The source for the data used in my study was the archived federal employee records that were retrieved from the Office of Personnel Management website. The file contained all data on a federal employee; such as, pay, grade occupation, position description, legal authority, race, and work status (Bolitzet & Godtland, 2012, p. 42). My population base included all employees on record working for the federal government as of December, 2014. Additionally, gender wage gap studies published by the United States General Accountability Office and the United States Bureau of Labor Statistics were analyzed to further understand gender pay inequity in the federal government.

In chapter 3, a more detailed analyses of the research design selected and the rationale for the approach is provided.

Purpose of the Study

Recent studies have indicated that human capital variables, people skills, discrimination, and government policies all contributed to the gender wage gap in America's workforce (Alkadry & Tower, 2013, Asplund & Lilja, 2014, Gittleman & Pierce, 2015). However, there are limited studies that focus on the indirect factors that also add to gender pay inequality in America's workforce. The purpose of this quantitative research was to determine if gender pay disparity exists in the federal government. More specifically, investigate the relationship between job function and responsibility (as defined by an employee's job series) to an employee's pay.

Variables

- Dependent variable – Salaries of all GS14 federal employee salaries working for agencies in the state of Virginia.
- Independent variable – Occupational job series for all GS14 federal employees working in the state of Virginia.
- Covariates – Human capital attributes, educational levels, ages, length of service, and type of appointment. The literature review suggested that these variables appear in the study as control variables (Alkdary & Tower, 2011; Langdon & Klomegah, 2013).

Research Question and Hypotheses

How much of the authority variable (job function/responsibilities as defined by an employee's job series) is correlated to wages and gender? (Alkdary & Tower, 2011, p.748).

- H₁₁: There is a correlation between wages and gender and an employee's type of authority (authority defined by the employee's job series).
- H₀₁: There is no correlation between wages and gender and an employee's type of authority (authority defined by the employee's job series).
- H₁₂: There is a correlation between wages and gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.

- H₀₂: There is no correlation between wages and gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.

Theoretical Foundation and Conceptual Framework

The theoretical foundation for this study was the system justification theory and Oaxaca decomposition method. The system justification theory and Oaxaca decomposition methods are both consistent with understanding the reasons for gender pay disparity in the public sector. Hogue and Cardamone (2011) used the system justification theory to justify unequal pay as an acceptable social behavior. In addition to examining the status approach and the equity theory to explain the human capital attributes of the employee in relationship to the pay received, Hogue and Cardamone (2011) examined job-based compensation practice. Job-based compensation practice focused on the value of the position to the organization when determining fair pay. The conceptual framework for this study was Bolitzet and Godtland (2012) Oaxaca decomposition method which was used for discrimination analyses. Bolitzet and Godtland (2012) used the Oaxaca decomposition theory to distinguish pay differences as a result of work characteristics (age, experience, race, ethnicity, agency) and treatment based on gender. Both the Oaxaca decomposition and the system justification theory were used in this study to measure the relationship between employee wages (dependent variable) and employee occupations and level of responsibilities (independent variables).

Definition of Terms

Age: An employee's age. Age is displayed in five-year intervals, except for an initial interval of less than 20 years and a final interval of 65 years or more (The Office of Personnel Management, n.d., Data Definitions CSV file).

Agency: The employing organization (The Office of Personnel Management, n.d., Data Definitions CSV file).

Average Length of Service: A measure representing the average number of years of federal civilian employment and creditable military service (The Office of Personnel Management, n.d., Data Definitions CSV files).

Average Salary: A measure representing the average adjusted basic pay, an annualized rate of pay. Adjusted basic pay is the sum of an employee's rate of basic pay and any locality comparability payment and/or special pay adjustment for law enforcement officers. An employee's actual earnings may be more or less than the annualized rate because of factors such as overtime, shift differentials, less than full time work, or leave without pay (The Office of Personnel Management, n.d., Data Definitions CSV file).

Date: The file date; e.g. December 2014 represented by 201412 (The Office of Personnel Management, n.d., Data Definitions CSV file).

Education Level: The extent of an employee's educational attainment from an accredited institution (The Office of Personnel Management, n.d., Data Definitions CSV file).

Employment: A measure representing the number of employees in pay status at the end of the quarter or end of the pay period prior to the end of the quarter (The Office of Personnel Management, n.d., Data Definitions section).

Gender: An employee's gender; male or female (The Office of Personnel Management, n.d., Data Definitions section).

Gender Wage gap: Women's earnings as a percentage of men's subtracted from 100 (Kilgour, 2014, p. 1).

General Schedule & Equivalent Grade: The General Schedule grade for pay plans in the General Schedule and Equivalent pay plan category (The Office of Personnel Management, n.d., Data Definitions section).

Length of Service: The number of years of federal civilian employment, creditable military service, and other service made creditable by specific legislation. Length of service is grouped by five-year intervals, except for the initial intervals of less than 1 year, 1-2 years, and 3-4 years, and the final interval of 35 years or more (The Office of Personnel Management, n.d., Data Definitions section).

Location: The official duty station of an employee. Locations in the United States are defined in terms of states. Locations outside the United States are defined in terms of countries and U.S. territories (The Office of Personnel Management, n.d., Data Definitions section).

Occupation: An employee's occupation as defined by the Office of Personnel Management (The Office of Personnel Management, n.d., Data Definitions section).

Occupation Category/Classification/Job Series: Occupational categories/classifications/job series are defined by the educational requirements of the occupation and the subject matter and level of difficulty or responsibility of the work (The Office of Personnel Management, n.d., Data Definitions section).

Pay Plan & Grade: The pay system and, where applicable, the grade used to determine an employee's basic pay rate. Grade denotes a hierarchical position in a pay plan and is sometimes referred to as level, class, rank, or pay band (The Office of Personnel Management, n.d., Data Definitions CSV file).

Salary Level: An employee's adjusted basic pay, which is an annualized rate of pay. Adjusted basic pay is the sum of an employee's rate of basic pay plus any locality comparability payment and/or special pay adjustment for law enforcement officers. Salaries are grouped by \$10,000 intervals, except for an initial interval of less than \$20,000 and a final interval of \$180,000 or more. An employee's actual earnings may be more or less than the annualized rate because of factors such as overtime, shift differentials, less than full time work, or leave without pay (The Office of Personnel Management, n.d., Data Definitions CSV file).

STEM Occupations: Listing of occupations grouped into four occupational series; science, technology, engineering, and mathematics (The Office of Personnel Management, n.d., Data Definitions CSV file).

Supervisory Status: The nature of managerial, supervisory, or non-supervisory responsibility assigned to an employee's position (The Office of Personnel Management, n.d., Data Definitions CSV file).

Type of Appointment: An employee's appointment in terms of permanence and competitiveness (The Office of Personnel Management, n.d., Data Definitions CSV file).

Work Schedule: The time basis on which an employee is scheduled to work (The Office of Personnel Management, n.d., Data Definitions CSV file).

Work Status: A combination of Type of Appointment and Work Schedule data elements. The Work Status data element is limited to "Non-Seasonal Full Time Permanent" and "Other Employees" (The Office of Personnel Management, n.d., Data Definitions CSV file).

Assumptions, Limitations, Scope and Delimitations

The assumptions made in my quantitative study on gender pay disparity were related to all job series of GS14 federal employees working for agencies in the state of Virginia. My first assumption was that the December 2014 federal employee raw data set file of the Office of Personnel Management accurately contained all employees working during the specified time period. My second assumption was that the data populated for each employee contained within the file was correct. My third assumption was that no agencies were omitted when the Office of Personnel Management compiled the December 2014 file for public use. My fourth assumption was that any revisions to the December 2014 federal employee file had been received as a result of me providing my

email address as instructed by the Office of Personnel Management. Finally, I assumed that all data found in the Office of Personnel Management, United States General Accountability Office, the United States Bureau of Labor Statistics, and any other government source used in my study contained accurate data for analyses.

Limitations existed in conducting my research in understanding the gender wage gap that existed in the federal government. Attributes had to be established given the size and the various pay categories with the federal government workforce. The federal government workforce for the period of December 2014 included 2,080,337 employee records. This figure was comprised of 2,038,005 federal employee records for the United States, 12,051 federal employee records for the United States Territories, 29,338 federal employee records for foreign countries, and 943 federal employee records that were unspecified. The various pay categories included executive and senior employees, law enforcement officers, and GS grade employee levels ranging from GS1 – GS15. I narrowed the focus of my quantitative study to federal employees within one grade level that worked in the state of Virginia. As a result of the attributes established, the population and sample size used in the study was reduced to 15,095 employee records.

Significance of the Study

Regardless of policies and laws administered and carried out by various government agencies that are empowered to ensure paycheck equality in the federal workforce, women still earn less on the dollar than their male counterparts (Perry, 2013). Research has proven that academic achievement for women does not correlate to receiving the same level of income as men. According to Lyles (2015), women with

advanced degrees earned less than their male counterparts with a graduate or undergraduate degree. Additionally, women earned less in occupations that had a high female presence. For example, women occupied ninety percent of jobs in the nursing profession, but they earned approximately twelve cents less on the dollar than their male counterparts (Lyles, 2015).

The significance of this research is to have a positive impact on social change and continue to raise awareness regarding gender pay inequality. My research will add to the body of literature on gender pay disparity by investigating the impact of the human capital indirect authority variable (measurable attribute) to determine if there is a correlation between an individual's wages and job responsibility as suggested by Alkadry & Tower, 2011. The findings from my research will encourage policy and law makers to revisit existing policies and implement new policies aimed at ensuring women receive pay equal to their male counterparts.

Summary and Transition

Chapter 1 provided a synopsis of the quantitative research that I conducted on gender pay disparity. This chapter included an introduction to the study, background of the study, the problem statement, the nature and purpose of the study. After that, the research question and hypotheses were stated, followed by the research design, theoretical foundation and conceptual framework, and the rationale for the study. The chapter concluded with the significance of the study, definition of terms, assumptions, limitation, and delimitations in the study.

Chapter 2 provides a review of the literature on gender pay disparity. For clarity in understanding the factors that have influenced the gender wage gap, the chapter is structured by the various concepts that have continued to surface within the past five years. The chapter ends with a summary and conclusion drawn from the literature review.

Chapter 3 provides a discussion regarding the research design and methodology for the study. The chapter includes a discussion pertaining to the internal and external threats to validity. Also, included in this chapter is a brief discussion regarding the protection and ethical use of human subjects.

Chapter 4 provides a discussion relating to the analysis of the data collected. Chapter 5 provides a discussion of the results and conclusion from the data collected and includes an interpretation of the findings, limitations of the study, recommendations for further research, and the implications for social change.

Chapter 2: Literature Review

Problem Statement

Gender pay disparity exists in the federal workforce irrespective of professional experience and educational background (United States Government Accountability Office, 2011; United States Department of Labor, 2011; United States Equal Employment Opportunity Commission, 2014). Women still have to overcome salary barriers; such as, agency segregation, position segregation, and invisible barriers known as a glass ceiling and glass wall (Alkadry & Tower, 2013). Although policies and laws were to ensure paycheck equality, women tend to earn less in wages than men performing the same job (Perry, 2013).

Purpose of the Study

The purpose of this quantitative research was to determine if gender pay disparity exists in the federal government. More specifically, I intended to investigate the relationship between job function and responsibility and employee pay.

In this chapter, I provide a synopsis of the current literature that was relevant to understanding gender pay disparity in America's workforce. This chapter provides an examination of the theoretical foundation and conceptual framework that were developed to understand gender pay disparity. In this chapter, I discuss the themes that researchers have applied to explain the causes for the gender wage gap. Finally, I offer suggestions for future research and discuss how my research will inspire social change.

Literature Search Strategy

I have conducted an exhaustive search to acquire appropriate research on the topic of gender pay disparity. The search strategy for the articles selected for the literature reviewed required the use of Walden University multi-data-base search engine, Thoreau. The search criteria included peer-reviewed articles and journals from *Wisconsin Journal of Law, Gender & Society; American Sociological Review, Journal of Leadership and Organizational Reviews, American Sociological Review, Journal of Leadership & Organizational Review, Compensation & Benefits Review, Applied Economics, Review of Radical Political Economics, Public Administration Quarterly, American Review of Public Administration, Insights to a Changing World Journal, Human Prospect, Managerial Challenges of the Contemporary Society, Sociological Spectrum, Feminist Formation, Journal of Industrial Relations, Cardozo Journal of International & Comparative Law, International Journal of Manpower, Nonprofit Management & Leadership, Columbia Journal of Law & Social Problems, European Sociological Review, North American Journal of Psychology, Nonprofit & Voluntary Sector Quarterly, Journal of Economics & Social Measurement, Harvard Journal on Legislations, Public Administration Review, Social Science Research, Texas Journal on Civil Liberties & Civil Rights, Denver University Law Review, Industrial & Labor Relations Review, Review of Public Personnel Administration, Sociological Perspectives, Labour Economics, Northern Illinois University Law Review, Economics Inquiry, Journal of Business Studies, International Review of Modern Sociology, Sex Roles, Social*

Forces, Journal of Labor Research, World Economy, Arizona State Law Journal, Gender & Society, and Gender Issues.

The date range for the articles selected for the literature review was from January, 2011 through October, 2015. The key terms searched included *gender pay disparity, equal pay, public personnel administration, wage equity, women earnings, pay differences, gender wage gap, pay inequality, paycheck equity, equal pay act*, and *title VII*. Although 56 sources were selected, the results from the aforementioned criteria returned 2, 273 sources for review which encompassed 2, 241 academic journals, 23 dissertation theses, eight reviews, and one magazine. Included in the literature review on gender pay disparity were reports and articles published by the United States Bureau of Labor Statistics, United States Department of Labor, United States Equal Employment Commission, United States Department of Personnel Management, and United States Government Accountability Office). Walden University ProQuest dissertations that were written within the last few years were retrieved and used as examples to gain an understanding of the expectations for a quantitative literature review.

Theoretical Foundation and Conceptual Framework Applied to the Gender Wage Gap

Researchers have used various concepts, theories, and models to guide their understanding of the gender wage gap problem in the United States. In an effort to determine if extant policies implemented through the years have been effective in addressing gender pay disparity in the labor markets, researchers have relied on the litigation-enforcement model, equity theory, and transparency theory (Eisenberg, 2011;

Day, 2012; Wolszczak-Derlacz, 2013). The human capital model and gender equity theory were applied in research to investigate the impacts of human capital attributes on wages (Lips, 2012; Olson, 2012; Mani, 2013; Langdon & Klomegah, 2013). To consider how people skills influenced the gender pay gap, researchers relied on the people skilled model, gender-specialized theory, and/or evolutionary theory (Nyhus & Pons, 2012; Borghans, Weel, & Weinberg, 2014). The becker theory was applied to help understand how discrimination affected the gender wage gap (Orozco-Aleman & Rezek, 2014). Hierarchical linear modeling, lowi's policy typology framework, and representative bureaucracy theory were other examples of how a concept, theory, or modeling technique laid the foundation in understanding how the various forms of segregations impacted the gender wage gap (Johnson & Crum-Cano, 2011; Edwards, Lewis & McGinnis, 2012; Smith & Monaghan, 2013).

The theoretical framework used by researchers for understanding gender pay disparity in the public sector was the system justification theory and oaxaca decomposition statistical technique. The system justification theory allowed individuals to lessen the discomfort realized from the group of individuals that were negatively impacted by the unfair act (Hogue & Cardamone, 2011). The system justification theory allowed an individual to justify and accept as the norm unfair social behaviors whether they were positively or negatively impacted by the outcome. According to Buchanan (2014), the system justification theory allowed the unjustly treated individual to internally legitimize their unfair treatment. The relationship between system justification theory and my area of research was that this concept established the theoretical framework and lend

insight into the gender wage gap (Hogue & Cardamone, 2011). The system justification theory starts the process of understanding the gender wage gap as a socially acceptable behavior in America's public and private sector workforce cultures.

The Oaxaca decomposition method was used in discrimination analyses. According to Bolitzet and Godtland (2012), the objective of Oaxaca decomposition was to have separate pay differences between male and female workers by human capital characteristics and possible differences based on gender. The advantage of Oaxaca decomposition was that the method allowed deeper insight into the human capital variables that helped to explain gender pay differences. Bolitzet and Godtland (2012) used the Oaxaca decomposition method to distinguish pay differences as a result of work characteristics (age, experience, race/ethnicity, and agency), and treatment based on gender that allowed a more in-depth understanding of the human capital results. Both the system justification theory and Oaxaca decomposition method was consistent with understanding the reasons for gender pay disparity in America's labor force.

Literature Review Emerging Concepts on the Gender Wage Gap

Human Capital Concept Role on the Gender Wage Gap

A different concept that emerged to help explain the gender wage gap was the role of human capital variables through application of different models and theoretical lens. Theorists have debated whether or not the gender gap was caused by human capital variables or a result of discrimination (Lips, 2013). Human capital from an individual's perspective was the compensations received based on one's qualifications and from an organizational perspective, human capital included collectively all of the organization's

workforce education, experience, and abilities (Mani, 2013). Human capital variables consisted of education, experience, and chosen occupation. The human capital equity theory stated that an employee training was equivalent to the length of their employment over the course of their working career (Langdon & Klomegah, 2013).

According to Hogue and Cardamone (2011), the status approach was based on the status characteristics theory, status construction theory, status value theory, and rewards expectations theory. The status approach suggested that there was a social correlation between the investments the worker made and the rewards the worker received. Social status was one of the components of a worker's investment. One would expect a worker with high status in the organization would receive more pay than a worker with low status. Social status was correlated to the power and prestige that was established by meeting performance expectations based on culturally shared beliefs (Hogue & Cardamone, 2011). Additionally, status characteristics could be diffuse or specific. Diffuse characteristics were characteristics such as age or race, and specific characteristics were characteristics such as experience or education.

The equity theory expanded upon the status approach because it was based on a ratio of an employee's rewards to their social status or value in an organization, followed by a comparison of another individual's ratio. (Hogue & Cardamone, 2011). The only drawback to the equity theory was the ratio calculated by the employee varied depending upon the person and investments selected for comparison. An employee's perception of fairness could be measured in the equity theory; high perception indicated fairness within the organization and low perception indicated unfairness within the organization (Hogue

& Cardamone, 2011). The system justification theory examined merit and value (job status/position) by analyzing the equity theory, status approach, and compensation practices as logical explanations for the gender wage gap, as illustrated in below:

Table 1 Comparison of Equity, Status Approach, and Compensation Practice (Hogue and Cardmone, 2011, p.829).

Equity theory	Status approach	Compensation practices
Personally relevant	Diffuse status characteristics	
Sex	Sex	
Age	Age	
Race	Race	
	Specific status characteristics	Skill
Education	Education	Education
Job experience	Job Experience	Experience
Experience in a similar job	Experience in a similar job	Job knowledge
Work output/performance	Competence-related	
Quality of work	Quality of work	
Quantity of work	Quantity of work	
	Job-related	
Job responsibility	Job responsibility	Job responsibility
Working conditions	Working conditions	Working conditions
	Job impact	Job impact
	Job complexity	Job complexity

Whereas the system justification theory, the status approach, and the equity theory used the individual as the bases for determining pay, in job-based compensation practice theory the pay was equivalent to how the job was valued in the organization (Hogue & Cardamone, 2011). The job value was determined by compensable factors. Hogue & Cardamone (2011) defined these compensable factors as traits that did not represent job activities that could be identified or their outputs measured, but were important to the job. These compensable factors were elements of how the job was evaluated. According to Hogue and Cardamone (2011) these compensable factors were numerically scaled based on their importance and then through job analysis they were applied to the jobs within the

organization. It should be noted that although various job evaluation systems existed, the compensable factors used were the ones defined by “the national War Labor Boards during World War II which became codified in the Equal Pay Act of 1963, or those developed by the United States government as part of a Factor Evaluation System in 1973” (Hogue & Cardamone, 2011, p.828). Additionally, Hogue and Cardamone (2011) stated that the compensable factors regularly used were: job responsibility, job conditions including risks, complexity of the job, and scope of the job. The organization had the option to use all or some of the compensable factors in their job evaluation.

On the other hand, Rishner (2013) stated several fallacies with job evaluation in the public sector. Beginning with the logic behind the job evaluation system which dated back to the 1980s. To answer the call of advocates for comparable worth the disadvantages of the job evaluation systems are stated below (Rishner, 2013, p.189):

- promoted bureaucratic management style
- implicitly specified what not to do
- reinforced the job hierarchy
- depersonalized value orientation
- fostered internal focus
- impaired strategic orientation
- discouraged organizational change
- encouraged point grabbing
- eroded honesty/credibility

- inflated pay system operation costs
- failed to encourage skill development
- made promotions too important
- rewarded wrong behavior

The method by which an employee was paid contributed to paycheck inequality.

The research of Kangasniemi and Kauhanen (2013) investigated the relationship of being rewarded for job performance as an indicator to understanding the gender wage gap.

Although performance related pay was a small contributor to the wage gap, the results of Kangasniemi and Kauhanen (2013) study found that male earnings exceeded female earnings in positions that compensated based on piece rates and reward rates. In contrast, the research conducted by Gittleman and Pierce, 2015 found that the performance based pay such as the type of bonuses, awards, and/or commissions had no major impact on gender pay disparity. However, it should be noted that performance based on piece rates and rewards were measured at a personal level, whereas performance based on bonuses were measured from an individual or company level (Kangasniemi & Kauhanen, 2013).

The cohort effect, grouping individuals by age was another reason that caused the inequality of gender wages (Campbell & Pearlman, 2013). A benefit from cohort analysis and how this analysis influenced the gender wage gap was that the cohort effect demonstrated how younger women received better opportunities in the labor market than the more senior women cohorts. The Millennial cohorts had a favorable impact on the gender wage gap. The millennial generation included individuals from 18-32 years of age. According to the Pew Study cited by Gallery (2014) the gap was narrower primarily

due to women achieving more education than their male counterparts. In the Pew Study, 2 percent more females in the millennial cohort had a bachelor degree in comparison to males, and 7 percent more women were enrolled in postsecondary education than males.

The mere fact of working more than the normal forty hours per week was another indicator that widens the gender wage gap. According to Cha and Weeden (2014) an employee that worked more than forty hours per week was viewed as the individual that was more committed to achieving the organizations goals. By working more than forty hours per week an employee demonstrated loyalty to their position or occupation. Furthermore, men were prone to work longer hours than women because women had more of a need to be committed to their family obligations versus their job responsibilities (Cha & Weeden, 2014). Also, trends showed that women tend to take jobs that required no more than a forty-hour work week (Cha & Weeden, 2014). The results of compensating an employee for working more than forty hours in a week increased compensation; thus broadening the gender wage gap (Cha & Weeden, 2014).

Using the gender equity and human capital theory, Langdon and Klomegah (2013) research added to the body of literature in understanding the gender pay gap by confirming that all the human capital variables as well as ideologies and beliefs, and more importantly, occupational type all influenced gender pay disparity. Langdon and Klomegah (2013) demonstrated in their study using logistics regression analysis that wages as a dependent variable was influenced by the independent human capital variables with the exception of an individual's marital status. Gender equity theory posits that gender meanings were derived from roles and behaviors in the workforce, and that

multiple layers within an organizations caused gender differences (Langdon & Klomegah, 2013).

Kassenboehmer and Sinning (2014); Asplund and Lilja (2014) research explored changes in the human capital variables by applying a decomposition method for unconditional quantile regression models. Kassenboehmer and Sinning (2014) research added to the understanding of the gender wage gap by analyzing data over the entire wage distribution rather than at just the mean. By examining data over the whole wage distribution, Kassenboehmer and Sinnings (2014) findings revealed that the gender wage gap varied depending on if the data was measured at the lowest or highest decile. Kassenbehmer and Sinnings (2014) expanded the traditional blinder-oaxaca decomposition model to include an “unconditional quantile regression models” (p. 36). By incorporating the unconditional quantile regression model, Kassenbehmer and Sinning (2014) had the flexibility of analyzing any quantile including categorizing individuals or like characteristics in the same method as data was analyzed using the traditional blinder-oaxaca decomposition.

Similarly, Asplund and Lilja (2014) study added to the understanding of the gender wage gap by investigating the change in pay disparity as it related to job tasks by using a decomposition method that analyzed the entire wage distribution range. Bolitzet and Godtland, (2012); Reese and Warner, (2012) examined the causes of pay disparities in the federal government and how it had changed through the years. Both Bolitzet and Godtland, (2012); Reese and Warner, (2012) studies revealed that in spite of more

women achieving the same educational attainment and other human capital attributes as their male counterparts the gender pay gap declined significantly.

On the other hand, Mani (2013); Lips (2012); Macarie and Moldovan (2012); Stockdale and Nadler (2012) research proved that the human capital theorists were wrong in their belief that men and women were compensated equally for the same increase in human capital attainment. The purpose of Mani (2013) research, through application of the human capital model was to determine if an individual's veteran status, education, experience and chosen occupation had an effect on their federal government pay. Mani (2013) used the ordinary least square regression model to analyze the data collected from the Office of Personnel Management central personnel data file. According to Mani (2013) study the gender pay gap narrowed by 23 percent when controlling for human capital variables. The wage variable in Mani (2013) research served as the dependent variable in the model, and the independent variables was composed of education, occupation, federal and military experience. Additionally, Mani (2013) analysis introduced another variable in the model that combined both veteran status and gender. The results based on occupation from the least square regression model showed that the gender wage gap was smaller in Department of Defense agencies versus non-Department of Defense agencies (Mani, 2013). Also, the results from the least square regression model showed that the gender wage gap diminished in non-professional type occupations (Mani, 2013).

Lips (2012) study focused on the problems that occurred when both human capital variables and multiple regression analysis were used to explain the gender wage gap. For

example, biasness occurred in regression analysis when any of the human capital variables became a dependent variable because the correlation between wage and human capital was devalued. As stated by Lips (2012) researchers needed to understand the limitations of the human capital model as well as look beyond application of the model to understand the causes of gender pay disparity. Lips (2012) posited that the idea of the human capital model was that an employee attributes could be quantified and because of the quantification of these attributes, rewards were equitably distributed and bias free. However, the question arises as to how an employer places a value on an employee's investments and contributions (Lips, 2012). Furthermore, lack of consistency existed in the application of the human capital model depending on the situation at-hand. For example, CEO's of high profile failing banks receiving large bonus of different amounts when they should have been receiving a reduction in pay (Lips, 2012). According to Lips (2012) researchers need to stop focusing on what caused the gender wage gap, but the operation of the processes within the work environment.

Olson (2012) research demonstrated the limitations of the human capital model, and suggested that more realistic results would be achieved if other variables were included in the analysis of gender pay disparity. For example Olson (2012) study examined the relationship of human capital attributes (education, experience, age) and soft variables (an individual's beliefs and what they valued) to analyze the gender wage gap. According to Olson (2012), the limitations with using regression analysis and the human capital model to determine gender pay disparity were the effects of biases and left out variables. For example if a variable such as work experience were dependent, then the

biases occurred on the salary regression based on work experience and the true relationship was devalued (Olson, 2012).

People Skills Concept Role on the Gender Wage Gap

Employees varied by their skill levels, initiatives, and motivational attributes (Leutwiler & Kleiner, 2013). Past research had shown that behavior characteristics could explain why male wages tend to be higher than women wages in the American workforce (Nyhus & Pons, 2012). Behavior characteristics could range from self-confidence, the ability to bargain, and possessing the right non-cognitive skills to perceptions and attitude towards one's job. Men came across as being more confident in their abilities to obtain, maintain and/or advance on a job than their female counterparts (Santos-Pintos, 2012). Expanding upon Spence's signaling model, Santos-Pinto (2012) concluded that the over-confidence (which was found more in men) and under-confidence (which was found more in women) contributed to gender pay disparity.

The ability to effectively negotiate one's salary had influenced the gender wage gap. According to Dittrick, Knabe and Leipold (2014) research men and women acted differently when negotiating their wages. In an employer-employee face-to-face scenario wherein the discussion was centered on the starting salary of the employee, Dittrick et al (2014) research showed various results depending on gender pairing. For example, when males and females were paired together in the experiment the female starting pay was lower when compared to negotiating starting salaries of a male employee. Likewise, when the female acting as the employer, the same results occurred; the female starting pay was lower than the male starting pay. Borghans, Weel, and Weinberg (2014) research

used a people skill model to demonstrate that people soft skills and non-cognitive tasks contributed to the gender wage gap in the 1970s through 1990s because the skills influenced the type of occupation and position an individual would acquire in the workforce. People skills was an employee's ability to handle interactions with other individuals (Borghans, Weel, & Weinberg, 2014). According to Borghans, Weel, and Weinberg (2014) research there were people jobs as well as non-people jobs. People jobs included tasks that ranged from interaction with people via participation on teams, providing instruction, presenting, counseling to just listening to another individual.

Similarly, Cobb-Clark and Tan (2011) used a decomposition approach to explain how the gender wage gap was also influenced by the correlation between one's non-cognitive skills and occupational attainment. Cobb-Clark and Tan (2011); Nyhus and Pons (2012) studies linked personality traits to gender wage inequality. The big five personality traits as reflected in the social learning theory were known as extroversion, agreeableness, an openness to experience, emotional stability, and conscientiousness (Nyhus & Pons, 2012; Cobb-Clark & Tan, 2011, p. 4). Cobb-Clark and Tan (2011) stated that extroversion was evident when an individual was sociable, assertive and talkative whereas emotional stability was the complete opposite; worrier, insecure, and angry. According to Cobb-Clark and Tan (2011) an individual that was open to experience was one that was imaginative, curious and non-dogmatic; whereas, agreeableness was associated with cooperative, courteous, kind and trusting. Cobb-Clark and Tan (2011) stated that a conscientiousness individual was one that was reliable, thorough and dutiful.

According to Nyhus and Pons (2012) research, extraversion was evident when an individual tried to find stimulation and uniqueness; emotional stability was when the individual's behavior lacked self-confidence and calmness; agreeableness was evident when an individual was cooperative, willing to help and became a team player; conscientiousness was seen in an individual that had high work standards, they were reliable and dependable; openness to experience was the intellectual creative individual. Through application of the social learning theory and understanding the big five personality traits and locus of control, Nyhus and Pons (2012) research suggested (a) personality traits impacted how an employee reacted or was motivated by the incentives he/she received for job performance, (b) personality traits influenced productivity on the job and varied between men and women, and (c) personality traits caused the behavior or negotiation tactics of an employee that were in different levels within an organization, all played a role in the gender wage gap.

The non-conscious behavior of an individual influenced the gender wage gap. The less liberal the individual the more inequality in pay was in existence and accepted. The evolutionary theorist believed that people emotional makeup enhanced reproductive success and men and women reproduction tactics varied when achieving any type of success (Nyhus & Pons, 2012). Additionally, the accumulation of material resources had been the key to reproductive success for men and the role of motherhood for women was deemed as being reproductive success (Nyhus & Pons, 2012). The gender-specialized theory aligned with the evolutionary theory because in the gender-specialized theory men were viewed as contributing more financially to the household than their spouse. Women

invested in their children and family in the early years of their career, while men invested in their careers by increasing their educational attainment and experience in the job (Nyhus & Pons, 2012).

Using the status characteristics theory, Buchanan (2014) demonstrated how a person's perception and attitude could impact the amount of pay expected. The status characteristics theory used an interactional process to determine the value of an employee (Buchanan, 2014). Gender inequality permeates in the work environment when job performance was based on grouping men and women in different categories (Buchanan, 2014). Intersectional theory was introduced as one more factors that caused wage inequality which demonstrated how race, gender, and status influenced inequalities (Mandel, 2012; Nawyn & Gjokaj, 2014). Effective bargaining skills played a major role in the outcome of one's wages, especially when gender pairing (Dittrick, Knabe, & Leipold (2014).

Travis (2014) researched demonstrated how institutional practices influenced women compensations and not their negotiations skills through the social model approach. Travis (2014) research found by applying the social model theory that the barriers faced by women to achieve paycheck equality were the same barriers that individuals encountered during the disability rights movement. The social model theory was a tool used to shift the focus once it has been identified that the socially challenged group of individuals were ostracized and in a controlled status (Travis, 2014). When the social model theory was applied to gender pay disparity, more concrete solutions to paycheck inequity could be reached when the focus was shifted from the individual's

skillset to practices within the institution (Travis, 2014). The outcome of Travis (2014) research added to the understanding of the gender wage gap by focusing on the organization and not the individual.

Likewise, the indirect behavior patterns that influenced the gender wage gap can be explained by the tournament and fair wage equity theories. Hamann and Rem (2013) research demonstrated wage inequality through the application of these two theories on organizational ownership. The tournament theory was competitive in nature because the employee competed for wage increases, and the fair-wage theory was a comparison of an employee's salary to their counterpart. Both theories described a behavior pattern in the employee which indirectly affected the earning power of the employee. For example, in the tournament theory as the names implied, individuals were motivated to perform more in their jobs because of being compensated for their efforts; whereas, in the equity theory a person's effort was compared to the efforts of their counterpart to evaluate the fairness in their pay (Hamann & Ren, 2013).

Segregation Concept Role on the Gender Wage Gap

Segregation based on the type of agency, occupation and position contributed to gender pay disparity (Alkadry & Tower (2013). Agency segregation occurred when women dominated positions in a particular agency and earned less than their male counterparts in male dominated type agencies (Alkadry & Tower, 2013). As the name implies, occupational segregation occurred when women presence were in traditional type positions such as taking care of and/or teaching children, nursing or other health care professions. For example, supportive type positions that tend to pay women less than

their male counterparts that were in a position of higher authority (Alkadry & Tower, 2013). When there existed a preconceived notion that the position should be earmarked for a female that would be considered position segregation (Alkadry & Tower, 2013). Female dominated positions for the most part are the low-level positions within an organization with minimum authority. These positions could be either full or part-time employment. These positions were compensated with lower pay than their male counterparts that were employed in the higher paying positions that required full-time presence with more responsibility (Alkary & Tower, 2013).

In line with the meaning of position segregation, Faulk, Edwards, Lewis and McGinnis (2012) research using hierarchical linear modeling and application of the motivational theory to discover that the wage gap was narrower in female dominated positions in the non-profit versus profit sectors. Additionally, Faulk et al (2012) research demonstrated gender pay differences in the various industries and occupations within the nonprofit arena. For example, the human capital variables (experience, education, and hours worked) impacted the gender wage gap because the type of pay one would receive varied across the industries and occupations within the nonprofit sectors. Cho and Sai (2012) used hierarchical linear modeling to examine the effects of the various dimensions of organizational justice and organizational level on employee attitudes.

In contrast, by exploring the representative bureaucracy theory Smith and Monaghan (2013) research found that women tend to dominate senior positions in federal regulatory organizations, thus narrowing the gender wage gap (p. 43). The representative bureaucracy theory posits government positions that were bureaucratic in nature should

mirror the characteristics of the people they served and the outcome of the decisions in the public agencies should be a reflection of public preference (Smith & Monaghan, 2013). There were two types of representation included in the representative bureaucracy theory; passive and active. Smith and Monaghan (2013) posits passive representation occurred when the bureaucracy characteristics mirrored the population characteristics in which they served. A symbolism of equal opportunity for all races and genders was achieved as a result of the bureaucracy reflecting the people they served. Active representation occurred when the public benefits from the bureaucratic acts.

Segregation for women came in the form of the glass ceiling which was known as an artificial, invisible, or a transparent barrier that blocked women from moving up to more senior level positions (Parcheta, Kaifi & Khanfar, 2013; Weinberger, 2011). Weinberger (2011) research found that the glass ceiling was why older women tend to earn less than their male counterparts. The Federal Glass Ceiling Commission was created from the enactment of the Glass Ceiling Act which was formed to address these artificial, invisible, or transparent barriers that women had to overcome in the workforce (Parcheta, Kaifi & Khanfar, 2013). The Federal Glass Ceiling Commission purpose was to determine the causes for these barriers and make recommendations to minimize and/or eliminate their existence (Parcheta et al., 2013). The Federal Glass Ceiling Commission report of 1995 only confirmed the results of past research in that the artificial glass ceiling was a reality in the workplace (Parcheta et al., 2013). Alkadry and Tower (2011) research called gender pay disparity the “new glass ceiling” wherein women had advanced to the senior positions, but with less authority than their male counterparts.

Segregation for women also came in the form of the glass wall, an artificial barrier that separated women by occupation or area. Occupational segregation or the glass wall was considered one of the primary reasons why gender pay disparity existed in the United States workforce as well as at a global level (Johnson & Crum-Cano, 2011; Gauchat, Kelly & Wallace, 2012). According to Johnson and Crum-Cano (2011), the glass wall was a metaphor used to isolate men and women into separate occupations, departments or positions. This type of setup existed when there was no organizational changes because of culture or the inability to transfer skillsets to another position/occupation (Johnson & Crum-Cano).

Discrimination Concept Role on the Gender Wage Gap

A measurable outcome of discrimination was gender pay disparity or more commonly referred to as the gender wage gap (Pitts, Orozco-Aleman & Rezek, 2014; Wolszczak-Derlacz, 2013). Wage discrimination occurred when the employer allowed their beliefs to influence their decisions regarding a person obtaining a position, compensation, and promotions because of their gender (Leutwiler & Kleiner, 2013). The degree of pay discrimination encountered by an employee was dependent upon the size of the organization in which they were employed (Pitts et al., 2014). In spite of the Equal Pay Act of 1963 discrimination was still a reality in the public and private labor markets (Kilgour, 2014; Lyons, 2013; Stanberry & Aven). Statistics showed that more than \$52 million was received by employees as a result of winning discrimination lawsuits (Leutwiler & Kleiner, 2013).

The Equal Pay Act required employers to pay employees equal pay for equal work; regardless of gender. Title VII of the Civil Rights Act of 1964 stated that an employee could not be discriminated against due to their race, color, religion, sex or national origin. Employees over the age of 40 could not be discriminated against based on their age as a result of the Age Discrimination Employment Act of 1967, an employee's disabilities could not be a factor when determining an individual wages as a result of the American Disabilities Act of 1980. However, new statues needed to be designed to revisit wage discrimination and take a more universal approach to the phenomenon. The role of women had changed since both the Equal Pay Act of 1963 and Title VII of the Civil Rights Act of 1964 were adopted. For example the household income now consisted of two individuals versus one and women represented 50 percent of the workforce (Leutwiler & Kleiner, 2013).

Another term for wage discrimination was compensation discrimination which included an employee being compensated for all forms of monetary payments (i.e. stocks, bonds, and benefits). To add to the body of literature and prove discrimination was a contributing factor in the gender wage gap Leutwiler and Kleiner (2013) research focused on understanding the factors that impacted an employees pay and the unexplained factor was discrimination. According to Leutwiler and Kleiner (2013) research the gender wage gap was due to “domestic responsibilities and occupational sex-typing” (p.100). Occupational sex-typing was the gender one would expect to see in a particular field. According to the Bureau of Labor Statistics as cited by Leutwiler and Kleiner (2013), men dominated jobs were: doctors, lawyers and engineers wherein males held more than

70 percent of the positions in these occupations; and women dominated jobs were: teachers, secretaries and nurses wherein females held more than 70 percent of the positions in these occupations.

Stanberry and Aven (2013) study demonstrated that paycheck inequality still existed in the United States between men and women with the same title. In an effort to narrow the gender pay gap, Standberry and Aven (2013) research focused on men and women employees with the same title. Using a longitudinal study, the authors analyzed the data from the American Association of Professional Landman. According to Stanberry and Aven (2013), an individual in this position was required to negotiate the requirements needed for energy companies' mineral rights. The variables used in the author's analysis that were identified as influencing the differences in wages between the Landman man and woman employees was the type of industry and years of experience. Stanberry and Aven (2013) research concluded that education and experience were not the culprits for the gender wage gap for women and men having the same title, and suggested that discrimination was still a concern.

Wage discrimination was prevalent in our society and evident by the number of national lawsuits that have been tried in federal and state courts (Leutwiler & Kleiner, 2013). For example, the outcome of the class-action suit against the national chain Wal-Mart, Inc. found that 1.5 million women were paid less than men as a result of a large number of women employees claiming that they were denied raises and promotions (Eisenburg, 2011; Letwiler & Kleiner, 2013). Other findings in the Wal-Mart, Inc. gender pay discrimination suit showed women in the same position and with identical

qualifications earned less than their male counterparts (Leutwiler & Kleiner, 2013). Over half of Wal-Mart, Inc. hourly jobs were dominated by women and approximately one-third of the female employees held management positions (Leutwiler & Kleiner, 2013). The wage discrimination suit against General Motors and Goodwin caused the plaintiff to be denied compensation because the time for filing the claim had expired (Lyons, 2013). However, the Lilly Ledbetter case against Goodyear Tire and Rubber Co, and the adoption of the Lilly Ledbetter Fair Pay Act of 2009 increased the statute of limitation for a plaintiff to file a discriminatory act (Cohen, 2013; Lyons, 2013).

Discrimination could be viewed as either vertical or horizontal. According to Macarie and Moldovan (2012); Smith and Monaghan, (2013) research, vertical discrimination existed in a work environment when the female population was in the minority; also known as the glass ceiling which was the invisible barrier, or the glass escalator where men were promoted in female dominated professions, or the glass cliff where women dominated management positions primarily in agencies that had a high risk of failure and low visibility. Smith and Monaghan (2013) study found that risks was directly correlated to the representation of women in top level positions. For example, the larger the organization the more the organization was scrutinized and held accountable to societal expectations when women were in senior level positions (Smith & Monaghan, 2013). However, women presence was dominated in organizations that had the likelihood of a high failure rate, but had low visibility to the public (Smith & Monaghan, 2013). According to Macarie and Moldovan (2012), vertical discrimination was evident when a smaller population of women than men held top management positions in normal

conditions or the reverse occurs in riskier management positions during adverse conditions.

Horizontal discrimination was the type of treatment received based on gender by employees performing on the same level. Horizontal discrimination was subtle and occurred when the individual was excluded from activities within the organization as a result of their gender. For example, exclusion in horizontal discrimination could consist of group and mentorship exclusion. Another aspect of horizontal discrimination was gender pay differences that existed between individuals performing the same jobs and responsibilities (Macarie & Moldovan, 2012). Generally, in horizontal discrimination women tend to earn the same or less salary than their male counterparts (Macarie & Moldovan, 2012). The authors' study focused on the effects of horizontal discrimination on salaries of women in managerial and non-managerial positions.

A different reason why gender wage discrimination existed in the United States more than fifty years later after implementing various policies and passing a number of laws was because of gender role stereotyping. Nadler and Stockdale (2012) referred to gender role stereotyping in their research as stranger-to-stranger, pro-male, male versus female, or gender bias when performing job evaluations (p. 288). As a result of the stranger-to-stranger, gender bias, pro-male phenomenon when conducting job evaluations a woman's pay was lower than their male counterpart (Nadler & Stockdale, 2012). The reality of this occurrence was more evident in cases where the evaluator and the individual being evaluated were of the same gender.

A different popular belief regarding gender pay disparity was that being a native versus an immigrant in a society adversely impacted one's pay (Nawyn & Gjokaj, 2014). Professional cultural prejudices have had a negative effect on gender wage inequality. For example, by focusing on the technical and social jobs within the engineering profession, Cech (2013) demonstrated how gender wage inequality permeated our society because there was a higher male dominance in the technical competencies which correlated to higher wages, but there was less of a male presence in the social engineering competencies. When will the American culture understand that women can be productive, efficient and effective in positions that were traditionally held by men when given the opportunity? A woman's pay should not be less than her male counterpart if she chooses to play a sport such as football, baseball, or field hockey (Housh, 2012).

Even if the manager was a female the evidence of gender wage discrimination was still prevalent (Penner, Toro-Tulla & Huffman, 2012). According to Maume and Ruppner (2014), the gender wage gap narrowed especially in liberal states wherein females held supervisory positions. By analyzing data from a national survey study by Changing Workforce and through application of hierarchical models, Maume and Ruppner (2014) was able to show a correlation between the reporting relationships of a female supervisory and wages. In addition to showing the effects of a woman's pay when reporting to a female supervisory, Maume and Ruppner (2014) research demonstrated how a state political condition impacted this relationship.

Using the becker theory Pits, Orozco-Aleman and Rezek (2014) research found that supervisors played a role in wage discrimination towards their subordinates. The

becker theory focus was on wage discrimination by an employer; “if an employer has a taste for discrimination, they have some positive willingness to pay, either directly or in the form of reduced profits, to be associated with one group of people instead of another” (Pits, Orozco-Aleman & Rezek, 2014, p. 3534). However, a remedy to gender wage discrimination would be through a system of accreditation. As suggested by Brenton (2012), companies that worked towards abolishing anti-discrimination practices were given accreditation in the same manner that high school and colleges received accreditation for conforming and maintaining a certain academic standard.

Applying the status characteristics theory Penner, Toro-Tulla and Huffman (2012) demonstrated in their research that wage inequality still existed with a man or woman manager. The status characteristics theory implied that perception, beliefs regarding an individual’s characteristics; such as, age and gender impacted how an individual’s competency, status, and participation levels were regarded. For example, women were seen as inferior to men (Penner et al, 2012). In regard to a women managers, a woman subordinate would be viewed based on the status characteristics theory as inferior to a man subordinate causing the woman subordinate’s pay to be lower than their male counterparts. In other cases, women earnings tend to be higher when their superior was of the same sex.

An element that influenced gender wage discrimination as suggested by Alkadry and Tower (2013) was the establishment of comparable worth wherein jobs/positions were evaluated based on a formal standards to achieve equity in pay and job performance. Kim (2013) defined comparable worth as pay equity. According to

Eisenberg (2011), the comparable worth approach was designed to achieve fairness and value women dominated positions in the same light as men work was valued. For example, to ensure pay equity for devalued traditionally dominated women positions, a secretarial position that was traditionally filled with women would be valued and compensated in the same manner as a truck driver's position that was traditionally filled with men (Eisenberg, 2011). As well as the impact of risks in correlation to representation of women in leadership positions to ensure pay equity (Smith & Monaghan, 2013).

There are two theoretical schools of thoughts regarding gender wage discrimination in globalization; neoclassical and non-neoclassical. The neoclassical theorists posits that gender pay disparity was non-existing because of the cost to the employer (Wolszczak-Derlacz, 2013). There was a domino effect on pay discrimination from a neoclassical perspective because as trade increased in the competitive market the wage gap lessen as a result of the demand for more women in proportion to men in the less skilled jobs (Wolszczak-Derlacz, 2013). The neoclassical economist believed that women were not as productive as men, and women searched for part-time employment and low wages (Kim, 2013). Contrary to the neoclassical school of thought was the non-neoclassical theorist that suggested trade activities increased the raw gender wage gap because of the demand for skilled-based jobs due to technology advancements (Wolszczak-Derlacz, 2013).

Policy Concept Role on the Gender Wage Gap

A different concept that emerged from past research was revisiting and analyzing existing policies in an effort to bridge the gender wage gap. Policies were designed and implemented to protect individual's rights and promote equal treatment for all people regardless of their race, gender, cultural, religion or political beliefs. Policies were the legal remedies to right a wrong imposed on an individual by another person or legal entity. Pay policies implemented through the years were to promote pay transparency and negate pay secrecy (Day, 2012; Eisenberg, 2011; Kim, 2013; Lyons, 2013; Travis, 2014). For example the Equal Pay Act of 1963 was implemented by Congress to promote fairness among individuals performing the same job and with the same skillset to be equally compensated in pay (Cohen, 2013). As well as, eliminating the "pay secrecy" part of an organization's confidentiality policy that caused employees to feel an uneasiness when internally or externally discussing their salaries to anyone other than their employer (Lyons, 2013).

An employee's attitude and perception related to equal pay increased when the organization was more focus on pay communications rather than pay secrecy. According to Day (2012) and through the application of the equity theory, employees lack the knowledge of the organization pay structure (which included understanding job worth, bonuses, merit and incentives) because of pay secrecy policies that prevented the employee from discussing these topics with other employees. It was impossible to know if wage discrimination existed in an organization because the employee was unaware of the amount of wages earned for various positions (Lyons, 2013). Does society need to

shift to a transformative law that vanishes rather than support pay secrecy social norms which was a key element in the fight to stop paycheck inequality and influenced social change (Lyons, 2013)? For example, a transformative law was designed to violate the social norm; such as pay secrecy that was found in organizations confidentiality reports, to implementing a law that promoted transparency into socially unacceptable behavior (Lyons, 2013). When will society grasp the reality that women just want equal pay for equal work? Have women in occupations traditionally held by their male counterparts been compensated accordingly?

The benefits to eliminating pay secrecy in the American workforce would (a) cause employers to value the market wages based on the job and not by gender type, (b) cause employees to become educated in their pay structure, the financial position of the organization, as well as gauge how their position was compensated in comparison to other positions compensation packages within the company, (c) cause improvements in employees production and performance due to the creation of an environment of trust and loyalty in the employer-employee relationship, (d) raise awareness and hold employers accountable to be equitable in pay compensation.

Kilgour (2014) research narrative demonstrated that Title VII of the Civil Rights Act of 1964 had closed the gender pay gap after taking into consideration an individual's major in college, physical and negative aspects of the job, and hours worked. Guy and Fenley (2014) research centered on the Civil Rights Act of 1964 and analyzed subsequent laws to show how these laws had influenced gender equity in the workplace, education, and sports that had been traditionally earmarked for men. Also, Guy and Fenley (2014)

research pointed out that gender equity should be based on fairness and women should not be seen as the victim in all cases. Through tracing and analyzing the various laws over the years, Guy and Fenley (2014) study had shown from a positive perspective how women have advanced in the aforementioned areas.

Using the litigation-enforcement model Eisenberg (2011) demonstrated how the Equal Pay Act of 1963 that promoted pay check equality had failed women employees. The litigation approach model was supposed to represent fairness for all individuals through litigation, but the market was seen as not being a fair player due to human dynamics, the courts lack of interference in organizational business practices regarding compensation, and the importance of pay transparency used as a tool to promote adverse business practices (Eisenberg, 2011). The solutions to the litigation model would be the pay transparency model. Eisenberg, 2011 research suggested that the pay transparency model would allow visibility into pay systems that should be paying workers fairly based on an employee's educational attainment, experience, responsibility and skills needed for the position and not based on gender. For example, visibility into worker's pay without violating their privacy would be in the form of the agency, organizational, departmental reports with a breakdown by gender, position, geographical location (Eisenberg, 2011). Consistent with Eisenberg (2011), Cohen (2013) research showed how the Equal Pay Act of 1963 has failed women. By removing the escape clause, "other than sex" would aid in closing the gender wage gap (Cohen, 2013, p.21). This "other than sex" clause legally justified employers hiring men into a higher salary bracket than their female counterparts solely based on their prior salary and years of experience as demonstrated in *Irby v.*

Bittick court case (Cohen, 2013). In the *Irby v. Bittick* court case a woman deputy sheriff sued her employer because her wages were considerably lower than her two male counterparts. Although, it was determined that equal work was conducted by both the women and men deputy sheriffs, the burden of proof was whether the male sheriff deputies were paid more because of their sex. The courts rule in the employer favor due to the clause “other than sex”. It must be noted that the “other than sex clause” included “unique characteristics of the same job, such as an individual’s experience, training or ability, as well as special exigent circumstances connected with the business” (Cohen, 2013, p.23).

By applying Theodore Lowi’s policy typology framework which suggested that the mission of the organization influenced not only the type of work being performed by the agency, but whether or not a man or woman would be hired to fill the position, Johnson and Crum-Cano (2011) research found that men tend to be hired for positions that aligned with enforcement type policies (regulative, distributive, and constituent), and women tend to be hired for positions that aligned with supportive type policies (redistributive). Lowi’s policy typology framework posits that there was a correlation between policy, politics, and the type of work performed by government agencies (Johnson & Crum-Cano, 2011). For example in the Lowi’s policy typology framework as revealed in Johnson and Crum-Cano (2011) study, policies were classified as either being a control type of policy (regulatory as the name implied wherein positions were usually filled by men because it required force for being non-compliant); service type policy (distributive wherein a client/patron relationship existed and was usually dominated by men because of the type

of skillset involved in performing this type of service); supportive type policy (redistributive wherein the agency was there to save the less fortunate group of people and were usually dominated by women or were more gender imbalance); and decision type policy (constituent wherein the agency focus was to create and ensure compliance of rules and was usually dominated by men because of the decision making aspect of the agency).

Not only has gender wage policies been enacted for workers employed in the United States, but policies have been implemented to address gender pay disparity at a global level (Hall, 2014; Wolszczak-Derlacz, 2013; Mandel, 2012). Paycheck inequality was a problem all over the world (Asplund & Lilja, 2014; Lips, 2012; Olson, 2012). The results of Wolszczak-Derlacz (2013) study demonstrated how trade policies impacted the overall (raw) and residual (after controlling for the human capital variables) gender wage gap. For example, using the hecksher-ohlin-samuelson theory, Wolszczak-Derlacz (2013) posits that the results of trade activity caused an increase in wage compensation which was correlated to the demand for heavily concentrated factors of production. However, in the aforementioned example, the raw gender wage gap was influenced versus the residual wage gap as the demand for trade increased the demand for low-skilled jobs. Gauchat, Kelly and Wallace, 2012 research focused on the impact of gender pay inequity from a global perspective. Gauchat et al, 2012 study examined the correlation between globalization and how the design of labor markets and occupations influenced gender inequality. An important element to note in Gauchat et al, 2012 study was that the metropolitan area was used as a variable in the analysis.

Dependent and Independent Variables

According to Alkdary and Tower (2011) research using a conceptual model approach to understand the impact of gender on wages had to take into consideration salary drivers such as (a) women being segregated by agency, occupation, and position, (b) human capital challenges, (c) organizational characteristics, (d) authority level composition, (d) cost of living index, (e) control for race, benefits, age, and performance as illustrated in Figure 1.

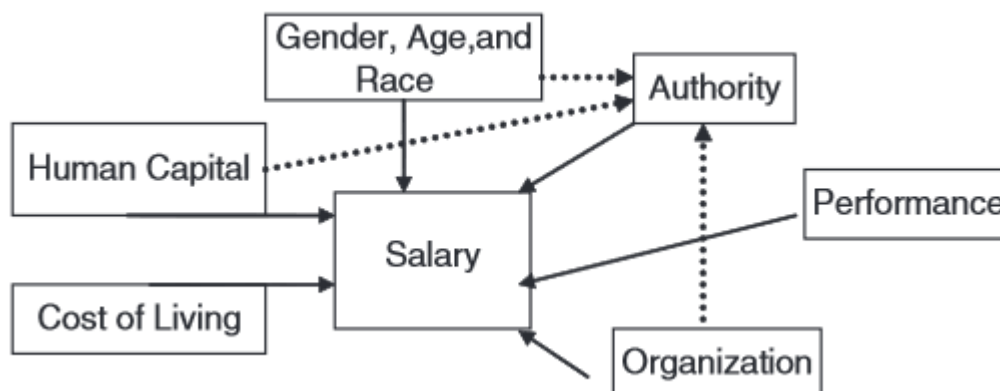


Figure 1. Conceptual Model (Alkdary & Tower, 2011, p.741).

Alkdary and Tower (2011) posits that (a) the effect of pay was not as significant when segregated by occupation, agency, and position, (b) human capital variables were significant factors when determining pay, (c) an organizational size and structure influences authority level and pay, (d) authority level determined amount of pay, (e) locations in the United States determined the cost of living, (f) control for employee benefits, age and performance, and (g) race should be included when analyzing salaries. Alkdary and Tower (2011) study applied three regression models to investigate the effect

of an employee's authority level on salary. The dependent variable in the first regression was salary and the independent variable was the human capital variables (i.e. education, experience, levels within the hierarchy structure within the organization, and number of subordinates). The dependent variable in the second regression model was the volume of work handled in the position and the independent variable was years of service with the organization, certification obtainment, education, staff, gender, race and age. The dependent variable in the third regression model used the number of employees supervised and the independent variable was years of service within the organization, certification and education obtainment, gender, age, and race.

Through exploratory factor analysis and application of one-way analysis of variances (ANOVA) test Hogue and Cardamone (2011) examined the factors that influenced pay decisions. The dependent variables in Hogue and Cardamone (2011) study was work output, job attributes, diffuse and specific status characteristics. The work output variables were quality and quantity of work. The job attributes variables were job responsibility, conditions, impact and complexity of the job. The diffuse variables were age, sex, and race. The specific variables were education, direct and indirect experience about the job. The independent variable in Hogue and Cardamone (2011) study was gender.

From a different perspective, Smith and Monaghan (2013) study investigated women in leadership positions (authority level/type) in 118 federal regulatory agencies using ANOVA test. The dependent variable in Smith and Monaghan (2013) study was gender; gender at the top and secondary level. The independent variables in Smith and

Monaghan (2013) study was gender within a policy area; meaning that they developed a list of policy areas and determined if it should be categorized as feminine, masculine or neutral. For example, a financial or criminal policy area institution was categorized as masculine and a policy area such as education was categorized as feminine in Smith and Monaghan (2013) study. The other independent variable that were included in Smith and Monaghan (2013) study was the organizational size, age, female representation, and leadership path.

Langdon and Klomegah (2013) research used the human capital equity theory and regression analysis to analyze the effects of the human capital variables on wages. The dependent variable in Langdon and Klomegah (2013) study was wage and the independent variable was the human capital variables occupation, education, gender, age, marital status, and race. The constructs that will be measured quantitatively in my study will be the relationship between an employee wages (dependent variable) and an employee occupation and type of responsibilities (independent variables). According to Alkdary and Tower (2011) research the more authority one has the more pay one will receive. The population for my research was all GS14 series federal employee job series working in the state of Virginia. According to Frankfort-Nachmias, C., & Nachmias, D. (2008) population was the “aggregate of all cases that conform to some designated set of specifications. The population has to be defined in terms of content, extent, and time” (p. 163 – 164). In terms of gender pay disparity of GS14 federal employees in all job series, the content would be the differences in pay, the extent would be the variations in pay, and the time would cover federal employee records as of December 2014.

Summary, Conclusion and Transition

The outcome from the comprehensive literature review of past research was that there are still unexplained reasons for why the gender wage gap remains an issue in our society today, even though studies have been conducted to examine the role of the human capital variables, people soft skills, segregation and wage discrimination on wage inequality (Housh, 2012; Brenton, 2012; Strawberry & Aven, 2013). The gaps in the literature review has suggested that more research was needed to determine why gender pay disparity still is a problem in America's labor force in spite of policies implemented to address this issue. For example, the Equal Pay Act of 1963 which prohibits wage discrimination based on sex (United States Equal Employment Opportunity Commission, 2014), Title VII of the Civil Rights Act of 1964 which prohibits sex-based discrimination in the workplace, and the Lilly Ledbetter Fair Pay Act of 2009 signed by President Obama in 2009 as an amendment to the Civil Rights Act of 1964 which allows the resetting of the statute of limitations.

More studies as suggested by Langdon and Klomegah (2013) are required to understand how America's poverty level is influenced by women earning less on a dollar than their male counterparts. Future research is needed to understand why after the past twenty years working in the federal government "(a) the starting salaries of women versus their male counterparts is lower, (b) the overrepresentation of women in jobs where their maximum salary was lower, (c) underrepresentation of women in jobs where the maximum salary was higher such as science, technology, engineering and mathematics" (Lunney, 2014, p.1). Likewise, further investigation in the area of

specialization flipping is needed as women start to fill positions that were traditionally filled by men to ensure progress growth for women in wage compensation (Johnson and Crum-Cano, 2011). As suggested by Hamann and Ren (2013) more studies conducted to tests the relationship of employee efforts and employees attitudes toward the gender pay gap across various sectors. Alkadry and Tower, 2011 proposed exploring the progress of women in male dominated organizations.

Future research as suggested by Clobb-Clark and Tan (2011) would add to the understanding of gender pay disparity by analyzing how an individual's reasoning skills influences their choice of the type of occupation and position held in an organization; and how risks impact men and women choice of a given occupation. Additionally, as suggested by Eisenberg (2011) constant communication through academia, employer and employee will at a minimum keep this issue at the forefront of the American public. Smith and Monaghan (2013) suggested future research be directed in (a) understanding the factors that impact men and women distribution in leadership, and (b) determining if women obtaining leadership positions were influenced by feminine policy areas. Also, future research in the secrecy policy area; such as, examining the mechanisms employees used to share pay information and analyzing organizations that focus on pay communication because that are legally mandated (Day, 2012).

Past research has increased awareness regarding the gender wage gap, and the proposed future research continues to educate women by making informed decisions regarding their careers which ultimately impacts their family standard of living and independence (Cohen, 2013; Langdon & Klomegah, 2013, p.173). However, the

literature review has suggested that the question still needing a response is whether the gender pay gap is simply due to the indirect authority variable or is there a subtle element of discrimination that still exist in the work environment as a result of pay secrecy (Weinberger, 2011; Eisenberg, 2011; Lyons, 2013, United States Office of Personnel Management, 2014)? Additionally, the literature review suggest that the Equal Pay Act of 1963 provides the legal documentation and support for employers to pay employees equal pay for equal work. For example, a women can expect the same pay as their male counterparts performing the same job as long as their human capital attributes; skill, efforts, responsibility, and working conditions are the same (Stanberry & Aven, 2013)

As suggested by Bolitzet and Godtland (2012) further research is needed to determine if occupational choice is correlated to gender or occupational segregation. Similarly to Cech (2012) research on the impact of professional ideologies to competencies within a profession, and Alkadry and Tower (2011) research on the factors that influence pay decision; i.e. job responsibility as one of the factors, my research will add to the body of literature on gender pay disparity by investigating the settled impact of the human capital indirect authority variable (measurable attribute) to determine if there is a correlation between an individual's wages and the type of authority one has in a position as suggested by Alkadry and Tower, 2011. By analyzing all job series within the GS14 grade level for federal employees in the state of Virginia will help to determine if job authority is correlated to pay.

Chapter 3 provides the research design, rationale and methodology used to determine if gender pay disparity exists at the GS14 level for all employees working in federal government agencies located in the state of Virginia.

Chapter 3: Research Method

Introduction

Recent studies have indicated that human capital variables, people skills, discrimination, and various policies all contributed to gender pay disparity in America's workforce. However, there are limited studies that focus on the indirect factors that also add to gender pay inequality. Therefore, the purpose of my quantitative research was to determine if gender pay disparity existed in the federal government. More specifically, investigate the relationship of authority (job function/series as defined by an employee's job series) to an employee's pay.

Chapter 3 provides the quantitative approach used to determine the correlation between wages, gender and job responsibility. An explanation of the correlational design, sample population, archived data retrieval, and analyses are discussed. Also, included in this chapter are the threats to internal and external validity, a summary and conclusion section.

Research Design and Rationale

The study was a quantitative approach using a non-experimental retrospective design. This type of design was appropriated for the quantitative approach because a non-experimental retrospective design uses secondary data and the independent variables cannot be changed. Walden University (n.d.) states the following:

Non-experimental designs are used to construct a picture of the phenomenon or situations and to test relationships and differences among variables at one point or over time. The key to understanding this design

type is that the independent variables are not manipulated. However, just as with experimental designs, a clear, concise research problem that is based on a theoretical or conceptual framework is critical (p.3).

Also, a retrospective design was appropriate because it focused on showing a relationship between past and present events, and well suited to the use of secondary.

Walden University (n.d.) states the following:

Retrospective studies also known as ex-post facto studies, causal-comparative, or comparative studies that look back and attempts to determine whether the dependent variable was affected by the independent variable. The researcher attempts to link present events to events that occurred in the past. Weaknesses of this type of design were that groups are not randomly assigned and the independent variable cannot be manipulated. Retrospective designs generally use secondary data (p.6).

Transformative was another design that was considered for my study because it addressed the problem of gender pay disparity that exists in the federal government. According to Creswell and Clark (2011), transformative design focus was on change and promoting social justice. For example, the results from my intended research will change paycheck inequality for women in the federal workforce. One advantage for using a transformative design was that the researcher had the flexibility of using procedures from the Explanatory, Exploratory, Embedded and/or Multiphase design categories.

Additionally, transformative design allows the researcher the option of employing various theoretical frameworks: feminist, disability, or socioeconomic class.

Methodology

Population

The targeted population for the study was all United States federal employees on file who were employed with the federal government as of December 2014. There were 2,038,005 federal employee records retrieved from the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file that is shown in Table 2.

Table 2

The Office of Personnel Management FACTDATA_DEC2014.TXT

Data Column	DATA ELEMENT NAME	CSV Column Name	CSV Column Format
1	Agency	AGYSUB	TEXT
2	Location	LOC	TEXT
3	Age	AGELVL	TEXT
4	Education Level	EDLVL	TEXT
5	Gender	GENDER	TEXT
6	General Schedule & Equivalent Grade	GSEGRD	TEXT
7	Length of Service	LOSLVL	TEXT
8	Occupation	OCC	TEXT
9	Occupation Category	PATCO	TEXT
10	Pay Plan & Grade	PPGRD	TEXT
11	Salary Level	SALLVL	TEXT
12	STEM Occupations	STEMOCC	TEXT
13	Supervisory Status	SUPERVIS	TEXT
14	Type of Appointment	TOA	TEXT
15	Work Schedule	WORKSCH	TEXT
16	Work Status	WORKSTAT	TEXT
17	Date (e.g. 201412)	DATECODE	TEXT
18	Employment	EMPLOYMENT	NUMERIC
19	Average Salary	SALARY	NUMERIC
20	Average Length of Service	LOS	NUMERIC
		Total Records: 2,038,005	

The Office of Personnel Management December 2014 raw dataset CSV dimension translations files were imported into a Microsoft 2013 excel file. The excel file was used to interpret the data contained in the FACTDATA_DEC2014 TXT (The Office of Personnel Management FedScope Employment Cube, 2014).

According to Frankfort-Nachmias, C., and Nachmias, D. (2008), population is the “aggregate of all cases that conforms to some designated set of specifications. The population has to be defined in terms of content, extent, and time” (p. 163 – 164). In terms of investigating whether gender pay disparity exists in the federal government, the content would be the difference in pay based on authority/job series, the extent would be the variations in pay, and the time would cover United States federal employees on record at December, 2014.

Sampling Method

The sampling method used for my quantitative research plan was purposive non-probability sampling. The purposive non-probability sampling process began when all GS14 federal employees working in the state of Virginia were identified from the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file in Table 2. The codes used to identify the employee attributes required for the sample size were found in the Office of Personnel Management December 2014 raw dataset CSV dimension translations files that were imported into a Microsoft 2013 excel file.

Sampling Frame

The sampling frame for my study was a subset of the 2,038,005 individuals who were employed with the federal government as of December, 2014. Data obtained from the Office of Personnel Management Central data file were used to create the sampling frame. The sampling frame consisted of all GS14 employees working in the state of Virginia. The sampling frame included all records that matched the criteria identified for the study.

Sample Size

The sample size for analyses in my study was a total of 15,095 GS14 grade federal employees who worked in the state of Virginia on record as of December, 2014. The original sample size for the study calculated to be 2,220 federal GS14 grade employees in a 343 job series; Management and Program Analysis, that were on record at December, 2014 working in the state of Virginia. To realistically determine whether job responsibility (as defined by an employee's job series) influenced wages, all GS14 job series were included in the sample. Although past research sample size consisted of a random sample from the Office of Personnel Management Central data file to analyze the correlation of the human capital variable on wages, I chose to use all employee records that met the criteria established for my study. For example, Bolitzer and Godtland's (2012) sample size included twenty-percent of the individuals employed with the federal government during September of 1988, 1998, and 2007. Mani's (2013) sample size included 1% random samples of the individuals employed with the federal government in 2000 and 2009.

Selecting all federal employees who met the aforementioned criteria prevented a non-representative sample for analysis to determine if gender pay disparity existed in the federal government based on authority at the GS14 level. The steps to drawing the sample size of 15,095 employees are detailed below:

- The data for analysis was downloaded from The Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file shown in Table 2 that was housed on their website and imported into a Microsoft Office 2013 Access file for querying.
- To interpret the raw dataset file in the previous step, the Office of Personnel Management December 2014 raw dataset CSV dimension translations files were downloaded.
- Due to the size of the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file (which contained 2,038,005 United States federal employee records), the file was imported into a Microsoft Office 2013 Access file for manipulation and analysis. The number of records downloaded from the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file were matched to the number of records imported into the Microsoft Office 2013 Access file to ensure that all records were imported.
- The Microsoft Office 2013 Access file was first filtered by location (column 2) and then by GS grade (column 6).

- The data filtered in the previous step was copied into a Microsoft 2013 excel file. To ensure all records were imported from Access to Microsoft, another match of employee records was conducted.

Inclusion and Exclusion Criteria

Specific conditions had to be defined. An inclusion and exclusion criteria had to be established due to the size of the federal government and effectively manage, analyze, and draw a conclusion from the data used for analysis in the study. The criteria for inclusion in my study was all GS14 employees working for federal government agencies located in the state of Virginia.

Sample Characteristics

The sample characteristics included in my study were all job series of GS14 employees working for federal government agencies in the state of Virginia on record at December, 2014. The employees varied by age, agency, educational levels, job series, length of service, salary, and type of appointment. These broad covariates added validity to the study and helped to support my research findings.

Instrumentation and Materials

Data used in this study came from the Office of Personnel Management archived federal employee records. Federal employee workforce information was housed on The Office of Personnel Management website and available for public access. Federal workforce information on the Office of Personnel Management website does not contain the names and social security of the federal employee. No permissions, login information,

and/or a membership were required to retrieve the data. Public access of federal employee records was the result of the Office of Personnel Management open and transparent government philosophy. The Office of Personnel Management philosophy came about as a result of the Open Government Directive issued by the White House in December 2009.

Data Base and Data Collection

The data to conduct the analysis to investigate the correlation between wages versus gender and job responsibilities were retrieved from the Office of Personnel Management archived federal workforce raw dataset CSV file housed on their website. The Office of Personnel Management was the official website to obtain statistical data regarding the following information on employees working in the federal government (FedScope, n.d., para 3):

Who (about the employees)

- Age (5 year interval)
- Education Level
- Gender
- Length of Service (5 year interval)

What (about their positions)

- General Schedule and Equivalent Grade
- Occupation
- Occupation Category

- Pay Plan and Grade
- Salary Level (\$10,000 interval)
- STEM Occupations
- Supervisory Status
- Type of Appointment
- Work Schedule
- Work Status

Where

- Agency
- Location (U.S. State, U.S. Territories, and Foreign Countries)
- Metropolitan Statistical Area - excluded starting in March 2004.

Microsoft Access, Microsoft Excel, and IBM SPSS Statistics 21 software tools were used for data analysis.

Research Question and Hypotheses

How much of the authority variable (job function/responsibilities as defined by an employee's job series) is correlated to wages and gender? (Alkadry & Tower, 2011, p.748).

- H₁₁: There is a correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series).

- H₀₁: There is no correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series).
- H₁₂: There is a correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.
- H₀₂: There is no correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.

Data Analysis

Bivariate analysis using IBM SPSS Statistics 21 was used to determine the sample parameters. More specifically, inferential statistics. For consistency in understanding the sample size, the same codes established in the Office of Personnel Management translation files were used in the access database query of GS-14 employees working in the state of Virginia. The excel file along with the codes were import into IBM SPSS Statistics 21 software analysis tool.

Nature of Variables

The literature review suggested that regression analysis was appropriate to show the relationship between wages and authority. Regression analysis allowed the researcher the flexibility to manage data of people with many attributes. According to Bolitzet and Godtland (2012) regression analysis was most appropriate when time does not permit the researcher to meet with men and women with the same attributes to conduct a formal

experiment. Reese and Warner (2012) stated that regression analysis was appropriate for a series of data because a cross section of data can be view simultaneously.

Dependent Variable

Salaries - All GS14 federal employee salaries working for agencies in the state of Virginia. The GS14 federal employee salaries represented the adjusted base pay annualized. I coded and categorized the GS14 federal employee salaries as follows: One for GS14 federal employee salaries between \$100,000 – \$130,000, two for GS14 federal employee salaries between \$131,000 and 160,000, and three for GS14 federal employee salaries above \$161,000. Also, the number one represented low GS14 federal employee salary income, the number two represented medium GS14 federal employee salary income, and the number three represented high GS14 federal employee salary income.

Independent Variable

Occupational job series - All GS14 federal employees' occupational job series in the state of Virginia. The occupations were coded by occupation classification as job type as shown in Table 3 and Table 4.

Table 3

Occupation Classifications Codes

Occupation Classification Codes
1 - Professional
2 - Administrative
3 - Technical
5 - Other White Collar
9 - Unspecified

Table 4

Occupation Classifications Job Type Codes

Professional, Administrative, Technical & Other White Collar Occupation Classifications Job Type Codes
00xx-Miscellaneous Occupations
01xx-Social Science, Psychology, and Welfare
03xx-General Admin, Clerical, & Office Svcs
04xx-Natural Resources Mgmt & Bio Sci Group
05xx-Accounting & Budget
06xx-Medical, Hospital, Dental & Pub Health
07xx-Veterinary & Medical Science
08xx-Engineering & Architecture
09xx-Legal and Kindred
10xx-Information & Arts
11xx-Business & Industry
12xx-Copyright, Patent, & Trademark
13xx-Physical Sciences
14xx-Library & Archives
15xx-Mathematics & Statistics
17xx-Education
18xx-Investigation
19xx-Quality Assurance, Inspection, & Grading
20xx-Supply
21xx-Transportation
22xx-Information Technology

Covariates

Human capital attributes - All federal agencies in the state of Virginia were coded by agency type as shown in Table 5. Education was coded based on educational levels as

shown in Table 6, length of service were coded as shown in Table 7, and type of appointments were coded as shown in Table 8. The literature review suggested that these variables appear in the study as control variables (Alkdary & Tower, 2011; Langdon & Klomegah, 2013).

Table 5

Agency Type Codes

Agency Type Codes
1 - Cabinet Level Agencies
2 - Large Independent Agencies 1000 or more employees
3 - Medium Independent Agencies 100-999 employees
4 - Small Independent Agencies less than 100 employees

Table 6

Education Level Codes

Education Level Codes
01 - 03 – Below High School
04 – High School or Equivalency
05 - 06 – Occupational Program
07 - 12 – Between High School & Bachelors
13 – Bachelors
14 - 16 – Post Bachelors
17 – Masters
18 - 20 – Post Masters
21 – Doctorate
22 – Post Doctorate
Unspecified

Table 7

Length of Service Codes

Length of Service Codes
A – Less than 1 year
B – 1 - 2 years
C – 3 - 4 years
D – 5 - 9 years
E – 10 - 14 years
F – 15 - 19 years
G – 20 - 24 years
H – 25 - 29 years
I – 30 - 34 years
J – 35 years or more

Table 8

Type of Appointment Codes

Type of Appointment Codes
10 – Competitive Service – Career
15 – Competitive Career Conditional
20 – Competitive Service Non-permanent
30 – 32 – Excepted Service Schedules A – D, Executive, & Other
40 – 48 – Excepted Service Schedules A – D, Executive, & Other
50 – 55 – Senior Executive Service Career & Non Career
60 – 65 – Senior Executive Service Limited Term & Limited Emergency, and Unspecified

Statistical Test

The *t*-test along with SPSS was used in my research to determine if pay disparity exists in the federal workforce. A *t*-test “for independent samples was a statistic used when there are two separate groups—levels of your independent variable—and you want

to compare them on your dependent variable. These separate groups had different participants within them” (Laureate Education, Inc., 2009m, para. 2). The *t*-test was used to measure gender pay differences across the means, median, and mode including variances and standard deviations. The results of the *t*-test would show how the independent variables (authority based on job series) had influenced the dependent variable (wages). For example the formula used to calculate the *T*-test used in my study would be: Where \bar{x} is the sample mean, s was the sample standard deviation of the sample and n is the sample size. The alpha level was .05 and the degrees of freedom was $n - 2$ (Research Methods Knowledge Base (n.d.).

Nonparametric tests and Chi-Square tests were considered, but determined inappropriate for my quantitative research study. Nonparametric tests are “statistical tests to use when the tests have not met the assumptions of a parametric test, such as a Pearson correlation. These type of tests are well suited for nominal and ordinal data. They are also known as distribution-free tests” (Laureate Education, Inc., 2009, para. 2). On the other hand the chi-square test for independence is “used when you have two independent nominal variables to see if the values of one variable are related to or dependent on the values of the second variable. This test calculated the difference between observed and expected frequencies” (Laureate Education, Inc., 2009, para. 3).

Threats to Internal and External Validity

According to Frankfort-Nachmias, C., and Nachmias, D. (2008) a researcher had to ensure that all attributes in the concept were covered by the instrument (content), there was a correlation between the instrument and the outcome (empirical), and there was a

relationship between the instrument and the theoretical framework (construct). There was internal consistency with the federal employee data retrieved from the Office of Personnel Management website. First, the data was imported into a Microsoft Office 2013 access data base. Second, the data in the access data base was queried based on the criteria for the sample population. Finally, the results of the sample population query from the access data base was imported into a Microsoft Office 2013 excel file. Test and retest reliability was ensured by matching the number of records downloaded and/or imported from software tool to software tool. For example, the sample population number of records imported into IBM SPSS Statistics 21 software analysis tool were matched to the sample population number of records used in the excel file.

One threat to validity was the possibility that updates were made to the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file after the data was retrieved from the website. To minimize the threat of missing data, the Office of Personnel Management gave individuals the option to be included on their distribution list of changes to any of their federal employee raw datasets. My personal email address was given to the Office of Personnel Management as a point of contact for these changes. Another possible threat was the inaccuracy of the statistical data that was populated in the file for public access. However, there was no way of validating the data because the public was not privy to the federal employee names or social security numbers.

External validity was minimum. This study was limited to GS14 individuals working in federal agencies located in the state of Virginia. The findings in this study may not be applicable throughout the federal government.

Threats to Construct and Conclusion Validity

To ensure construct and conclusion validity was minimized the federal employee data being analyzed was downloaded from the Office of Personnel Management website. Due to the size of the file downloaded and to ensure manageability, the data was further defined by federal employees on record that met a certain criteria.

Ethical Considerations

Although the Institutional Review Board (IRB) was required for studies using data collected by others, a minimum level of review by the IRB was required for my dissertation topic because the data that was collected for analysis was secondary, and the risk of violating human subjects in my research was minimum (Walden, 2010). For example, the data for analysis came from the Office of Personnel Management employee raw dataset as of December 2014 which contained information about the federal workforce. Also, names or social security numbers were not included in the FACTDATA_DEC2014 TXT file to prevent violating federal employee's confidentiality. The data would be stored on my personal computer indefinitely with me having the only access. Federal employee's confidentiality would not be violated because there were no names or social security numbers included in the data stored on my computer. However, ethically consideration for using the data would be appropriate because the results would help understand and narrow gender pay disparity.

Summary

Chapter 3 provided a detailed discussion regarding the research design and method used to conduct an analysis in order to respond to the research question. The *t*-

test was used to determine the correlation between wages and job responsibility. Also included in this chapter was a discussion pertaining to the internal and external threats to validity.

Chapter 4 provides a discussion of the findings in the data used to respond to the research question and test the hypotheses.

Chapter 4: Results

Introduction

Chapter 4 provides a detailed discussion of the process and tools used to analyze the data collected to finalize my research study. The data collection timeframe is discussed. Additionally explanations are provided for documented discrepancies encountered from the original data collection plan presented in Chapter 3. The study results are discussed, including: statistical analysis, a graph, and tables as they pertained to the research question. The chapter summary responds to the research question and provides a transition to Chapter 5 which is the final chapter to my research study.

Purpose of the Study

The purpose of this quantitative research study was to determine if gender pay disparity exists in the federal government and to investigate the relationship between job function and responsibility as defined by an employee's job series to an employee's pay. The findings in this study will help close the gender wage gap through revisiting and/or implementing more policies aimed at equal pay for equal work.

Research Question and Hypotheses

How much of the authority variable (job function/responsibilities as defined by an employee's job series) is correlated to wages and gender?

- H₁1: There is a correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series).

- H₀₁: There is no correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series).
- H₁₂: There is a correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.
- H₀₂: There is no correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.

Data Collection

I received approval to collect data for analysis on gender pay disparity in the federal government from Walden University Instructional Review Board (IRB) on November 24, 2015. My IRB approval number is 11-24-15-0303267. The sample size for analyses in the study was a total of 15,095 GS14 grade federal employees' records who worked in the state of Virginia as of December, 2014. The original sample size for the study calculated to be 2,220 federal GS14 grade employees in a 343 job series; Management and Program Analysis that were on record at December, 2014 that worked in the state of Virginia. However, to realistically determine whether job responsibility (as defined by an employee's job series) influenced wages, all GS14 job series were included in the sample. Although past research sample sizes consisted of a random sample from the Office of Personnel Management Central data file to analyze the correlation of the human capital variable on wages, I chose to use all employee records that met the criteria established for my study. For example, Bolitzet and Godtland (2012) sample size

included twenty-percent of the individuals employed with the federal government during September of 1988, 1998, and 2007. Mani (2013) sample size included one-percent random sample of the individuals employed with the federal government in 2000 and 2009.

By selecting all federal employees that met the aforementioned criteria prevented a non-representative sample for analysis to determine if gender pay disparity exists in the federal government based on authority at the GS14 level. The steps to collect the sample size of 15,095 employees are detailed below:

- The data for analysis was downloaded from The Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file shown in Table 2 that is housed on their website, and then imported into a Microsoft Office 2013 Access file for querying.
- To interpret the raw dataset file in the previous step, the Office of Personnel Management December 2014 raw dataset CSV dimension translations files were downloaded.
- Due to the size of the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file (which contained 2,038,005 United States federal employee records), the file was imported into Microsoft Office 2013 Access file for manipulation and analysis. Additionally, the number of records downloaded from the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file were matched to the number of

records imported into the Microsoft Office 2013 Access file to ensure that all records were imported.

- The Microsoft Office 2013 Access file was first filtered by location (column 2) and then by GS grade (column 6).
- The data filtered in the previous step was copied into a Microsoft 2013 excel file. Again to ensure all records were imported from Access to Microsoft, another match of employee records was conducted.
- The initial Microsoft excel worksheet was labeled original download in the file. Another worksheet was created to update the codes and match the applicable translation file. The purpose of this step was to have all the data translated in one workbook for easy reference.
- Included in the Microsoft excel file were three pivot tables that showed (a) GS14 average salaries by occupation category and gender in the state of Virginia, (b) the number of GS14 men and women employed in the state of Virginia by occupation category/job type, and (c) GS14 average salaries by occupation category, agency and gender in the state of Virginia.
- The first worksheet of the excel file was then imported into SPSS for further analysis.

The *t*-test using SPSS was noted in Chapter 3 as the statistical test that would be used in the study to determine if pay disparity exists in the federal workforce. However, the statistical test that was actually run on the data collected from the Office of Personnel Management was ordinary least square regression. The dependent variable was salaries.

The dependent variable included all GS14 federal employee salaries working for agencies located in the state of Virginia. The salaries were further categorized by gender.

Occupational job series/type was the independent variable. This variable included all GS14 federal employees' occupational job series employed in the state of Virginia. The occupations were coded by classifications as illustrated in Table 3, and job types were coded as illustrated in Table 4.

The literature review suggested that the following human capital variables appear in the study as covariates (Langdon & Klomegah, 2013; Alkdary and Tower, 2011). For example, all federal agencies in the state of Virginia were coded based on agency type as illustrated in Table 5. Educational levels were coded as illustrated in Table 6. Length of services were coded as illustrated in Table 7. Type of appointments were coded as illustrated in Table 8.

Results

The results from the data indicated that the authority variable (job function/responsibilities as defined by an employee's job series) was correlated to wages and gender as illustrated in Figure 2, and Table 9 – Table 11.

GRAPH

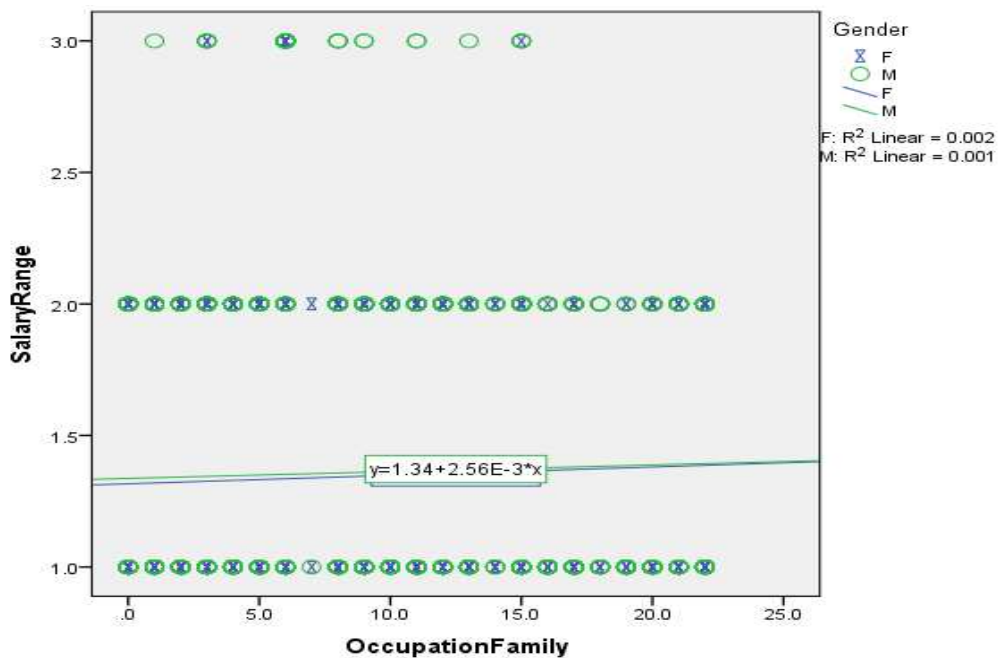


Figure 2 Graph of Linear Regression modeling.

Table 9

ANOVA for Linear Regression Modeling

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.037	2	3.019	12.545	.000 ^b
	Residual	3631.472	15092	.241		
	Total	3637.509	15094			

a. Dependent Variable: Salary Range

b. Predictors: (Constant), Gender Number, Occupation Category

Table 10

Coefficients for Linear Regression Modeling

Coefficients^a						
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	
	B	Std. Error				
	(Constant)	1.305	.015	87.720	.000	
1	Occupation Category	.003	.001	.036	4.463	.000
	Gender Number	.015	.008	.015	1.821	.069

a. Dependent Variable: Salary Range

Table 11

State of Virginia GS14 Average Salary by Occupation Classification and Gender

Occupation Classification	Women	Men
1 - Professional	\$ 125,900.99	\$ 127,178.84
2 - Administrative	124,428.77	124,657.46
3 - Technical	112,446.75	114,152.61
5 - Other White Collar	121,315.50	115,440.63
9 - Unspecified		138,136.00
Total Average Salary	\$ 124,986.95	\$ 125,707.81

The results from the data indicated that the authority variable (job function/responsibilities as defined by an employee's job series) was correlated to wages and gender and type of agency as illustrated in Table 12 – Table 16.

Table 12

Professional Job Classification Average Salary by Agency Type and Gender

Professional Occupation Classification by Agency Type	Women	Men
1 - Cabinet Level Agencies	122,684.67	124,064.38
2 - Large Independent Agencies 1000 or more employees	128,578.36	130,861.89
3 - Medium Independent Agencies 100-999 employees	120,429.00	-
4 - Small Independent Agencies less than 100 employees	122,199.50	127,512.00
Professional Occupation Classification by Agency Type Average Salary	\$ 123,472.88	\$ 127,479.42

Table 13

Administrative Job Classification Average Salary by Agency Type and Gender

Administrative Occupation Classification by Agency Type	Women	Men
1 - Cabinet Level Agencies	123,188.66	124,009.91
2 - Large Independent Agencies 1000 or more employees	124,297.23	125,225.19
3 - Medium Independent Agencies 100-999 employees	131,053.13	125,493.64
4 - Small Independent Agencies less than 100 employees	117,772.75	126,489.67
Administrative Occupation Classification by Agency Type Average Salary	\$ 124,077.94	\$ 125,304.60

Table 14

Technical Job Classification Average Salary by Agency Type and Gender

Technical Occupation Classification by Agency Type	Women	Men
1 - Cabinet Level Agencies	\$ 112,300.50	\$ 121,167.46
2 - Large Independent Agencies 1000 or more employees	113,931.00	118,543.00
3 - Medium Independent Agencies 100-999 employees	-	-
4 - Small Independent Agencies less than 100 employees	-	-
Technical Occupation Classification by Agency Type Average Salary	\$ 113,115.75	\$ 119,855.23

Table 15

Other White Collar Job Classification Average Salary by Agency Type and Gender

Other White Collar Occupation Classification by Agency Type	Women	Men
1 - Cabinet Level Agencies	120,785.10	113,454.55
2 - Large Independent Agencies 1000 or more employees	-	117,185.00
3 - Medium Independent Agencies 100-999 employees	-	-
4 - Small Independent Agencies less than 100 employees	-	-
Other White Collar Occupation Classification by Agency Type Average Salary	\$ 120,785.10	\$ 115,319.78

Table 16

Unspecified Occupation Classification by Agency Type and Gender

Unspecified Occupation Classification by Agency Type	Women	Men
1 - Cabinet Level Agencies	-	-
2 - Large Independent Agencies 1000 or more employees	-	138,136.00
3 - Medium Independent Agencies 100-999 employees	-	-
4 - Small Independent Agencies less than 100 employees	-	-
Unspecified Occupation Classification by Agency Type Average Salary	\$ -	\$ 138,136.00

The results from the data indicated that more men than women were employed in the Professional, Administrative, Technical, Other White Collar, and Unspecified Occupations as shown in Table 17 – Table 21.

Table 17

State of Virginia GS14s by Occupation Classification/Job Type and Gender

Professional Occupation Classification by Job Type	Women	Men	Total
00xx-Miscellaneous Occupations	4	11	15
01xx-Social Science, Psychology, and Welfare	102	144	246
04xx-Natural Resources Mgmt & Bio Sci Group	49	85	134
05xx-Accounting & Budget	181	184	365
06xx-Medical, Hospital, Dental & Pub Health	97	88	185
07xx-Veterinary & Medical Science	2	1	3
08xx-Engineering & Architecture	196	878	1,074
09xx-Legal and Kindred	263	253	516
10xx-Information & Arts	1	3	4
11xx-Business & Industry	294	239	533
12xx-Copyright, Patent, & Trademark	684	1,800	2,484
13xx-Physical Sciences	85	222	307
14xx-Library & Archives	4		4
15xx-Mathematics & Statistics	81	317	398
17xx-Education	33	69	102
1 - Professional Occupation Classification Total by Job Type & Gender	2,076	4,294	6,370

Table 18

State of Virginia GS14s by Administrative Occupation Classification/Job Type and Gender

Administrative Occupation Classification by Job Type	Women	Men	Total
00xx-Miscellaneous Occupations	129	264	393
01xx-Social Science, Psychology, and Welfare	8	8	16
02xx-Personnel Mgmt & Industrial Relations	297	143	440
03xx-General Admin, Clerical, & Office Svcs	1,646	2,915	4,561
05xx-Accounting & Budget	380	272	652
06xx-Medical, Hospital, Dental & Pub Health	10	19	29
09xx-Legal and Kindred	21	15	36
10xx-Information & Arts	67	68	135
11xx-Business & Industry	124	192	316
13xx-Physical Sciences	8	4	12
14xx-Library & Archives	10	7	17
16xx-Equipment, Facilities, & Services	6	73	79
17xx-Education	4	20	24
18xx-Investigation	4	25	29
19xx-Quality Assurance, Inspection, & Grading	7	40	47
20xx-Supply	36	65	101
21xx-Transportation	19	44	63
22xx-Information Technology	481	1,221	1,702
2 - Administrative Occupation Classification Total by Job Type & Gender	2,076	4,294	6,370

Table 19

State of Virginia GS14s by Technical Occupation Classification/Job Type and Gender

Technical Occupation Classification by Job Type	Women	Men	Total
00xx-Miscellaneous Occupations	1	1	2
06xx-Medical, Hospital, Dental & Pub Health	2	1	3
08xx-Engineering & Architecture	1	24	25
10xx-Information & Arts		1	1
11xx-Business & Industry		5	5
13xx-Physical Sciences		1	1
21xx-Transportation		3	3
3 - Technical Occupation Classification Total by Job Type & Gender	4	36	40

Table 20

State of Virginia GS14s by Other White Collar Occupation Classification/Job Type and Gender

Other White Collar Occupation Classification by Job Type	Women	Men	Total
00xx-Miscellaneous Occupations	8	24	32
5 - Other White Collar Occupation Classification Total by Job Type & Gender	8	24	32

Table 21

State of Virginia GS14s by Unspecified Classification by Gender

9- Unspecified Classification by Gender	Women	Men	Total
9 - Unspecified Classification Total by Gender		1	1

Summary

The results of the study demonstrated that the authority variable as defined by an employee's classification/job type and agency was correlated to wages and gender. When considering the number of men (65%) versus the number of females (35%) employed in the state of Virginia at the GS14 level, the data illustrated that men were given more responsibility in the professional, administrative, and technical. Overall, men average salary at the GS14 level was approximately seven hundred dollars more annually than GS14 female salaries. A more detailed analysis by occupation classification showed women earned approximately thirteen hundred dollars less annually than men in the professional area. In the administrative classification women earned approximately two hundred dollars less annually than her male counterpart, and women earned approximately eighteen hundred dollars less annually than her male counterparts in the technical occupation. However, women earned approximately six thousand more annually than men in the other white collar category.

In Chapter 5 there will be a discussion on the interpretation of my findings. Also, included in Chapter 5 there will be a discussion of the limitations of the study, recommendations for future research, implications and a conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this research study was to determine if gender pay disparity exists in the federal government. The study was a quantitative approach using a non-experimental retrospective design. The targeted population for the study included all GS14 employees on record working in the state of Virginia for the federal government as of December, 2014. The source of the data was the archived employee records from the Office of Personnel Management website.

The research question and hypotheses that were presented in this study was how much of the authority variable (job function/responsibilities as defined by an employee's job series) is correlated to wages and gender? (Alkadry & Tower, 2011, p.748).

The results from the data supported the following hypotheses:

- H₁₁: There is a correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series).
- H₁₂: There is a correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.

The results from the data rejected the following null hypotheses:

- H₀₁: There is no correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series).

- H₀₂: There is no correlation between wages versus gender and an employee's type of authority (authority defined by the employee's job series) and type of agency.

Interpretation of Findings

Human Capital Concept and Segregation Concept Role on the Gender Wage Gap Human capital variables such as education, experience, and chosen occupation help to explain the gender wage gap (Lips, 2013). Human capital theorists debated whether the gender gap was caused by human capital variables or a result of discrimination (Lips, 2013). Human capital from an individual's perspective was the compensation received based on one's qualifications and from an organizational perspective, human capital included collectively all of the organization's workforce human capital variables (Mani 2013). Additionally, the human capital theory stated that an employee training was equivalent to the length of their employment over the course of their working career (Langdon & Klomegah, 2013).

Using the gender equity and human capital theory, Langdon and Klomegah (2013) research added to the body of literature in understanding the gender pay gap by confirming that human capital variables as well as ideologies, beliefs, and more importantly, occupational type all influenced gender pay disparity. Langdon and Klomegah (2013) demonstrated using logistics regression analysis that wages as a dependent variable was influenced by the independent human capital variables with the exception of an individual's marital status. Gender equity theory posits that gender

meanings were derived from roles and behaviors in the workforce, and that multiple layers within an organizations caused gender differences (Langdon & Klomegah, 2013).

The results from the data collected and analyzed in my study confirmed the extended knowledge on gender pay disparity as found in the peer-reviewed literature on the human capital concept and segregation role on the gender wage gap. Overall, GS14 women earn approximately seven-hundred dollars less annually than their male counterparts working in the state of Virginia when analyzed by agency and job series (occupational classification). Additionally, the gender wage gap varied by occupation.

Men earned approximately \$1,200 more annually than women at the GS14 level in the professional occupation classification. The gender wage gap was narrower in the administrative classification. Women earned approximately \$200 less annually than their male counterparts. In the technical occupation classification men earn approximately \$1,700 more annually than their female counterparts. However, in the other white collar occupation classification women earn almost \$6,000 more annually than their male counterparts. Further analysis in the other white collar category found that there were only eight women employed in the federal government in December, 2014 versus twenty-four men on record as being employed in this occupational category. Additionally, the total workforce employed in the state of Virginia at the GS14 level was 65% male and 35% women.

Segregation based on the type of agency, occupation and position contributed to gender pay disparity (Alkadry & Tower, 2013). Agency segregation occurred when women dominated positions in a particular agency and earned less than their male

counterparts in male dominated type agencies (Alkadry & Tower, 2013). Occupational segregation occurred when women's presences were in traditional type positions such as taking care of and/or teaching children, nursing or other health care professions. For example, supportive type positions tend to pay women less than men who were in a position of higher authority (Alkadry & Tower, 2013). Women dominated low-level positions within an organization with minimum authority. These positions could be either full or part-time employment. These positions are compensated with lower pay than their male counterparts that are employed in the higher paying positions that required full-time presence with more responsibility (Alkary & Tower, 2013).

According to the ordinary least square regression analysis in Figure 2, Table 9, and Table 10 there was a positive relationship between occupation and gender. Also, based on the *p*-value (.000) which is less than .05, we can reject the null hypotheses and accept that there was a significant relationship between job responsibility and gender.

People Skills, Discrimination, and Policy Concepts Role on the Gender Wage Gap

The results from the data collected and analyzed in my quantitative research study did not confirm or extend knowledge on gender pay disparity as found in the peer-reviewed literature on people skills, discrimination, and policy concepts role on the gender wage gap.

The peer-reviewed literature suggested that employees varied by their skill levels, initiatives, and motivational attributes (Leutwiler & Kleiner, 2013). Past research has shown that behavior characteristics could explain why male wages tend to be higher than women wages in the American workforce (Nyhus & Pons, 2012). Behavior

characteristics could range from self-confidence, the ability to bargain, and possessing the right non-cognitive skills to perceptions and attitude towards one's job. Men came across as being more confident in their abilities to obtain, maintain and/or advance on a job than their female counterparts (Santos-Pintos, 2012). Expanding upon Spence's signaling model, Santos-Pinto (2012) concluded that the over-confidence (which is found more in men) and under-confidence (which is found more in women) contributed to gender pay disparity.

A measurable outcome of discrimination was gender pay disparity or more commonly referred to as the gender wage gap (Pitts, Orozco-Aleman & Rezek, 2014; and Wolszczak-Derlacz, 2013). Wage discrimination occurred when the employer allowed their beliefs to influence their decisions regarding a person obtaining a position, compensation, and promotions because of their gender (Leutwiler & Kleiner, 2013). The degree of pay discrimination encountered by an employee was dependent upon the size of the organization in which they were employed (Pitts et al., 2014).

A different concept that emerged from past research was revisiting and analyzing existing policies in an effort to bridge the gender wage gap. Policies were designed and implemented to protect individual's rights and promote equal treatment for all people regardless of their race, gender, cultural, religion or political beliefs. Policies were the legal remedies to right a wrong imposed on an individual by another person or legal entity. Pay policies implemented through the years were to promote pay transparency and negate pay secrecy (Day, 2012; Eisenberg, 2011; Kim, 2013; Lyons, 2013; Travis, 2014).

Limitations of the Study

Limitations existed in conducting my research in understanding the gender wage gap that existed in the federal government. Attributes had to be established given the size and the various pay categories with the federal government workforce. The federal government workforce for the period of December 2014 included 2,080,337 employee records. This figure was comprised of 2,038,005 federal employee records for the United States, 12,051 federal employee records for the United States Territories, 29,338 federal employee records for foreign countries, and 943 federal employee records that were unspecified. The various pay categories included executive and senior employees, law enforcement officers, and GS grade employee levels ranging from GS1 – GS15. I narrowed the focus of my quantitative study to federal employees within one grade level that worked in the state of Virginia. As a result of the attributes established, the population and sample size used in the study was reduced to 15,095 employee records.

Threats to Internal and External Validity

There were internal consistency with the federal employee data retrieved from the Office of Personnel Management website. First, the data was imported into a Microsoft Office 2013 access data base. Second, the data in the access data base was queried based on the criteria for the sample population. Finally, the results of the sample population query from the access data base were imported into a Microsoft Office 2013 Excel file. Test and retest reliability was ensured by matching the number of records downloaded and/or imported from software tool to software tool. For example, the sample population number of records imported into IBM SPSS Statistics 21 software analysis tool were

matched to the sample population number of records used in the excel file. Also, the sample population number of records imported from the access database file matched the sample population number of records in the excel file.

One threat to validity was the possibility that updates were made to the Office of Personnel Management FACTDATA_DEC2014.TXT raw dataset file after the data was retrieved from the website. To minimize the threat of missing data, the Office of Personnel Management gave individuals the option to be included on their distribution of changes to any of their federal employee raw datasets. My personal email address was given to the Office of Personnel Management as a point of contact for these changes. Another possible threat was the inaccuracy of the statistical data that was populated in the file for public access. However, there was no way of validating the data because the public is not privy to the federal employee names or social security numbers. Yet another threat to the validity of the data collected was the 943 federal employees that appeared in locations that were unspecified. The population could have been understated by six percent if all of the 943 individuals were GS14 employees working in the state of Virginia.

External validity was minimum. This study was limited to GS14 individuals working in federal agencies located in the state of Virginia. The findings in this study may not be applicable throughout the federal government.

Threats to Construct and Conclusion Validity

To ensure construct and conclusion validity was minimized the federal employee data being analyzed was downloaded from the Office of Personnel Management website.

Due to the size of the file downloaded and to ensure manageability, the data was further defined by federal employees on record that met a certain criteria.

Recommendations for Future Studies

As a result of the actual research conducted and acquiring peer reviewed literature on gender pay disparity several recommendation for future studies on this topic are warranted. For example, future research could be done on the same topic as this study, but broaden the population. Rather than limit the population to one GS grade and state, have the population represent all locations within the federal government (United States, U.S. Territories, and Foreign countries) including all the federal government's pay categories; executive and senior employees, law enforcement officers, and the other GS grade employee levels ranging from GS1 – GS13, and GS15 to determine if gender pay disparity exists within the entire federal government. Additionally, to gain a broader view of the gender wage gap in the federal government, I would recommend conducting a mixed methods approach to understanding this phenomenon especially in the area of discrimination, policy and people skills.

Future research is needed to understand why after the past twenty years working in the federal government “(a) the starting salaries of women versus their male counterparts was lower, (b) the overrepresentation of women in jobs where their maximum salary was lower, (c) underrepresentation of women in jobs where the maximum salary was higher such as science, technology, engineering and mathematics” (Lunney, 2014, p.1). Likewise, further investigation in the area of specialization flipping is needed as women start to fill positions that were traditionally filled by men to ensure

progress growth for women in wage compensation (Johnson & Crum-Cano, 2011).

Future research as suggested by Clobb-Clark and Tan (2011) would add to the understanding of gender pay disparity by analyzing how an individual's reasoning skills influences their choice of the type of occupation and position held in an organization; and how risks impact men and women choice of a given occupation. As suggested by Bolitzet & Godtland (2012) further research is needed to determine if occupational choice is correlated to gender or occupational segregation. Cech (2012) suggested further research on the impact of professional ideologies to competencies within a profession, and Alkadry and Tower (2011) suggested further research on the factors that influence pay decision; i.e. job responsibility as one of the factors.

Implications

Regardless of policies and laws administered and carried out by various government agencies that are empowered to ensure paycheck equality in the federal workforce, women still earn less on the dollar than their male counterparts (Perry, 2013). Women have achieved and in some cases exceeded men in educational attainment. Yet, research has proven that academic achievement for women does not correlate to receiving the same level of income as it does for men. According to Lyles (2015) women with advanced degrees earned less than their male counterparts with a graduate or undergraduate degree. Women have come a long way in closing the gender wage gap, but women still have a long way to go to achieve gender pay parity in the labor market. According to Lyles (2015) the United States labor market was projected to achieve gender pay parity by year 2058. The significance of this research is to have a positive

impact on social change and continue to raise awareness that women earn less than their male counterparts at the GS14 level in the state of Virginia.

Conclusion

Irrespective of professional experience and educational background gender pay disparity is still a problem in the federal government according to the results from the data I collected on GS14 United States federal employees as of December 2014. Women still have to overcome salary barriers; such as, agency segregation, position segregation, and invisible barriers known as the glass ceiling and glass wall (Alkadry & Tower, 2013). According to the latest data published by the United States Department of labor (n.d.) women represented approximately 57 percent of America's total workforce in 2013. The results from the data collected from my study showed that women represented 35 percent of the GS14 federal employee workforce in the state of Virginia in 2014. Labor projections show that in 2022 women will represent nearly 60 percent of the labor market. Women are becoming the primary financial support for their families and their earning potential directly impacts their level of spending. Women earning potential is correlated to their buying power and economic decisions regarding quality of living expenses; i.e. housing, medical, or education. Although policies and laws have been designed to ensure paycheck equality, women tend to learn less in wages than their male counterpart (Perry, 2013).

Recent studies show women earn approximately twenty-three cents less on the dollar than their male counterparts (Bolitzet & Godtland, 2012; Cohen, 2013; Lyons, 2013; Kilgour, 2014; Travis, 2014). Reports published by the United States Office of

Personnel Management (2014) show women in the federal government in 2012 earned thirteen cents less on a dollar than their male counterparts. Additionally, results from my study show GS14 federal government women working in the state of Virginia earned approximately thirty-four cents less on the dollar than their male counterparts in 2014. Past research has increased awareness regarding the gender wage gap, and the proposed future research continues to educate women by making informed decisions regarding their careers which ultimately impacts their family standard of living and independence (Cohen, 2013; Langdon & Klomegah, 2013, p.173). However, the literature review has suggested that the question still needing a response is whether the gender pay gap is simply due to the indirect authority variable or is there a subtle element of discrimination that still exist in the work environment (Eisenberg, 2011; Lyons, 2013, United States Office of Personnel Management, 2014; Weinberger, 2011)?

References

- Alkadry, M. G & Tower, L. E. (2011). Covert pay discrimination: How authority predicts pay differences between women and men. *Public Administration Quarterly*, 71(5), 740-750. doi: 10.1111/j.1540-6210.2011.02413.x.
- Alkadry, M. G & Tower, L. E. (2013). Slowly but can we say “surely”? Pay equity & segregation a decade later in West Virginia state government. *Public Administration Quarterly*, 37(2), 208-237.
- Andrew M., P., Harold J., T., & Matt L., H. (2012). Do women managers ameliorate gender differences in wages? evidence from a large grocery retailer. *Sociological Perspectives*, 55(2), 365-381. doi: 10.1525/sop.2012.55.365.
- Asplund, R., & Lilja, R. (2014). Wage formation and gender wage gaps: is there a role for job-task evaluation schemes? *International Journal of Manpower*, 35(3), 267-290. doi: 10.1108/IJM-04-2014-0091.
- Bio (n.d.). Retrieved from <http://www.biography.com/people>.
- Bolitzet, B., & Godtland, E. (2012). Understanding the gender-pay gap in the federal workforce over the past 20 years. *American Review of Public Administration*, 42(6), 730-746. doi: 10.1177/0275074011434801.
- Borghans, L., Weel, B. T., & Weinberg, B. A. (2014). People skills and the labor- market outcomes of underrepresented groups. *Industrial & labor relations review*, 67(2), 287-334.

- Brenton, A. (2011). Overcoming the equal pay act and title vii: why federal sex-based employment discrimination laws should be replaced with a system for accrediting employers for their anti-discriminatory employment practices. *Wisconsin Journal of Law, Gender & Society*, 26(2), 349-385.
- Bradbury, M. D. (2011). Representation and diversity in the federal government: A critical review of government reports. *Review of Public Personnel Administration*, 31(4), 424-431. doi: 10.1177/0734371X11420910.
- Buchanan, T. (2014). The influence of gender role attitudes on perceptions of women's work performance and the importance of fair pay. *Sociological Spectrum*, 34(3), 203-221. doi: 10.1080/02732173.2014.895637.
- Campbell, C., & Pearlman, J. (2013). Period effects, cohort effects, and the narrowing gender wage gap. *Social Science Research*, 42(6), 1693-1711. doi: 10.1016/j.ssresearch.2013.07.014.
- Cech, E. A. (2013). Ideological wage inequalities? The technical/social dualism and the gender wage gap in engineering. *Social Forces*, 91(4), 1147-1182. doi: 10.1093/sf/sot024.
- Cha, Y., & Weeden, K. A. (2014). Overwork and the slow convergence in the gender gap in wages. *American Sociological Review*, 79(3), 457-484. doi: 10.1177/0003122414528936.
- Cho, Y. J., & Sai, N. (2013). Does organizational justice matter in the federal workplace? *Review of Public Personnel Administration*, 33(3), 227-251. doi: 10.1177/0734371X12458126.

- Cobb-Clark, D.A. & Tan, M. (2011). Noncognitive skills, occupational attainment, and relative wages. *Labour Economics*, 18(1), 1-13. doi: 10.1016/j.labeco.2010.07.003.
- Cohen, M. (2013). The escape clause: how U.S. equal pay law has failed women and why. *Human Prospect*, 3(3), 20-26.
- Connolly, J., Rooney, T., & Whitehouse, G. (2012). Tracking pay equity: the impact of regulatory change on the dissemination and sustainability of equal remuneration decisions. *Journal of Industrial Relations*, 54(2), 114-130. doi: 10.1177/0022185612437841.
- Council of Economic Advisors (2014). Women's participation in education and the workforce. Retrieved from https://www.whitehouse.gov/sites/default/files/docs/council_economic_advisors_slides.pdf.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research: Second Edition*. Thousand Oaks, CA: Sage. Equal Pay Act of 1963, Stat § 912 (1963).
- Day, N. E. (2012). Pay equity as a mediator of the relationships among attitudes and communication about pay level determination and pay secrecy. *Journal of Leadership & Organizational Studies*, 19(4), 462-476. doi: 10.1177/1548051812455240.
- Dittrich, M., Knabe, A., & Leipold, K. (2014). Gender differences in experimental wage negotiations. *Economic Inquiry*, 52(2), 862-873. doi: 10.1111/ecin.12060.

- Dresany, D.L. (2002). *Public Personnel Management and Public Policy* (4th ed.). New York: Longham.
- Dugle, D. (2015). America want Harriet Tubman on \$20 bill. *USA Today*. Retrieve from <http://www.usatoday.com/story/news/nation-now/2015/05/12/harriet-tubman-20-dollar-bill/27173135/>.
- Eisenberg, D. T. (2011). Money, sex, and sunshine: a market-based approach to pay discrimination. *Arizona State Law Journal*, 43(3), 951-1020.
- Equal Pay Act of 1963, Stat § 912 (1963).
- Faulk, L., Edwards, L. H., Lewis, G. B., & McGinnis, J. (2012). An analysis of gender pay disparity in the nonprofit sector: An outcome of labor motivation or gendered jobs? *Nonprofit and Voluntary Sector Quarterly*, 42(6), 1268-1287. doi: 10.1177/0899764012455951.
- Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worth.
- Gauchat, G., Kelly, M., & Wallace, M. (2012). Occupational gender segregation, globalization, and gender earnings inequality in U.S. metropolitan areas. *Gender & Society*, 26(5), 718-747. doi: 10.1177/0891243212453647.
- Gallery, J. (2014). Millennials and the Pay Gap. *Monthly Labor Review*. United States Bureau of Labor Statistics. Retrieved from <http://www.bls.gov/opub/mlr/2014/beyond-bls/millennials-and-the-pay-gap.htm>.
- Gittleman, M., & Pierce, B. (2015). Pay for performance and compensation inequality: evidence from the ECEC. *Industrial & Labor Relations Review*, 68(1), 28-52. doi:

10.1177/0019793914556241.

Grönlund, A., & Magnusson, C. (2013). Devaluation, crowding or skill specificity?

Exploring the mechanisms behind the lower wages in female professions. *Social Science Research*, 42(4), 1006-1017. doi: 10.1016/j.ssresearch.2013.03.001.

Guy, M. E. & Fenley, V.M. (2014). Inch by Inch: Gender equity since the civil rights act of 1964. *Review of Public Personnel Administration*, 34(1), 40-58. doi:

10.1177/0734371X13510379.

Hall, L. (2014). Unbinding working women in a "binders full-of-women" nation: how the United States can learn from Swedish, Norwegian and Icelandic successes in gender pay gap legislation. *Cardozo Journal of International & Comparative Law*, 22(3), 627-663.

Hamann, D. J., & Ren, T. (2013). Wage inequality and performance in nonprofit and for-profit organizations. *Nonprofit Management & Leadership*, 24(2), 207-228. doi:

10.1002/nml.21085.

Hogue, M. & Cardamone, L. F. (2011). Justifying the pay system through status:

Gender differences in reports of what should be important in pay decision.

Journal of Applied Social Psychology, 41(4), 823-849. Doi: 10.1111/j.1559-1816.2011.00737.x.

Housh, K. (2011). Different but Equal? Inequalities in the Workplace, the Nature-Based Narrative, and the Title VII Prohibition on the Masculinization of the "Ideal Worker". *Texas Journal on Civil Liberties & Civil Rights*, 17(1), 117-142.

Johnson, B. J., & Crum-Cano, B. D. (2011). Glass walls in urban planning: an

- examination of policy type and gender segregation within a profession. *Review of Public Personnel Administration*, 31(4), 386-409. doi: 10.1177/0734371X11408702.
- Kangasniemi, M., & Kauhanen, A. (2013). Performance-related pay and gender wage differences. *Applied Economics*, 45(36), 5131-5143. doi: 10.1080/00036846.2013.824546.
- Kassenboehmer, S. C., & Sinning, M. G. (2014). Distributional changes in the gender wage gap. *Industrial & Labor Relations Review*, 67(2), 335-361.
- Kilgour, J. G. (2013). The pay gap in perspective. *Compensation & Benefits Review*, 45(4), 200-209. doi: 10.1177/0886368713510991.
- Kilgour, J. G. (2014). The pay gap from a different perspective: hours worked and geographic differences. *Compensation & Benefits Review*, 46(4), 195-203. doi: 10.1177/0886368714558750.
- Kim, M. (2013). Policies to end the gender wage gap in the United States. *Review of Radical Political Economics*, 45(3), 278-283. doi: 10.1177/0486613413487159.
- Kulow, M. (2013). Beyond the paycheck fairness act: Mandatory wage disclosure laws—A necessary tool for closing the residual gender wage gap. *Harvard Journal on Legislation*, 50(2), 385-435.
- Landreneau, K. J. (n.d.) Sampling Strategies. Retrieved from www.natco1.org/research/files/SamplingStrategies.pdf Cached.
- Laureate Education, Inc. (Executive Producer). (2009a). *Analysis of variance (ANOVA)*. Baltimore: Author.

- Laureate Education, Inc. (Executive Producer). (2009m). *The t test for independent samples*. Baltimore: Author.
- Lips, H. (2013). The gender pay gap: challenging the rationalizations. Perceived equity, discrimination, and the limits of human capital models. *Sex Roles*, 68(3/4), 169-185. doi: 10.1007/s11199-012-0165-z.
- Lunney, K. (2014). Uncle Sam has shrunk the gender pay gap over the past 20 years. *Government Executive*. Retrieved from <http://www.govexec.com/pay-benefits/2014/04/opm-pay-report/82372>.
- Lyles, L. (2015). It's time for equal pay now. United States Department of Labor Blog. Retrieved from <http://blog.dol.gov/?s=It%E2%80%99s+time+for+equal+pay+now%2C+lyles>.
- Lyons, S. (2013). Why the law should intervene to disrupt pay-secrecy norms: analyzing the Lilly Ledbetter Fair Pay Act through the lens of social norms. *Columbia Journal of Law & Social Problems*, 46(3), 361-392.
- Nadler, J. T., & Stockdale, M. S. (2012). Workplace gender bias: not just between strangers. *North American Journal of Psychology*, 14(2), 281-291.
- Landreneau, K. J. (n.d.) Sampling Strategies. Retrieved from www.natco1.org/research/files/SamplingStrategies.pdf Cached.
- Langdon, D. L., & Klomegah, R. (2013). Gender wage gap and its associated factors: an examination of traditional gender ideology, education, and occupation. *International Review of Modern Sociology*, 39(2), 173-203.
- Lilly Ledbetter Fair Pay Act, Stat § 123 (2009).

- Lerum, C. (2013). Equal pay for women can become a reality: a proposal for enactment of the Paycheck Fairness Act. *Northern Illinois University Law Review*, 34(1), 221-258.
- Leutwiler, J., & Kleiner, B. H. (2013). Statistical analysis for determining pay discrimination. *Insights to A Changing World Journal*, 2013(4), 100-114.
- Macarie, F. C., & Moldovan, O. (2012). The ignored resource: gender discrimination in the labor force. *Managerial Challenges of the Contemporary Society*, (4), 12-19.
- Maczulskij, T. (2013). Employment sector and pay gaps: genetic and environmental influences. *Labour Economics*, (23), 89-96. doi: 10.1016/j.labeco.2013.04.009.
- Mandel, H. (2012). Winners and losers: The consequences of welfare state policies for gender wage inequality. *European Sociological Review*, 28(2), 241-262. doi: 10.1093/esr/jcq061.
- Mani, B. G. (2013). The human capital model and federal employees' pay: gender, veteran status, and occupation. *Gender Issues*, 30(1-4), 15-38. doi: 10.1007/s12147-013-9113-7.
- Maume, D. J., & Ruppanner, L. (2015). State liberalism, female supervisors, and the gender wage gap. *Social Science Research*, (50), 126-138. Doi: 10.1016/j.ssresearch.2014.11.005.
- Nawyn, S. J., & Gjakaj, L. (2014). The magnifying effect of privilege: earnings inequalities at the intersection of gender, race, and nativity. *Feminist Formations*, 26(2), 85-106. doi: 10.1353/ff.2014.0015.
- Nyhus, E. K., & Pons, E. (2012). Personality and the gender wage gap. *Applied*

Economics, 44(1), 105-118. doi: 1080/00036846.2010.500272.

Olson, J. (2013). Human Capital Models and the Gender Pay Gap. *Sex Roles*, 68(3/4), 186-197. doi: 10.1007/s11199-012-0208-5.

Parcheta, N., Kaifi, B. A., & Khanfar, N. M. (2013). Gender Inequality in the Workforce: A Human Resource Management Quandary. *Journal Of Business Studies Quarterly*, 4(3), 240-248.

Penner, Toro-Tulla and Huffman (2012). Do women managers ameliorate gender differences in wages? Evidence from a large grocery retailer. *Sociological Perspectives*, 55(2), 365-381.

Perry, M.J. (2013). Gender wage gap at the White House: Female staffers are paid less than 87 cents for every dollar paid to men. Retrieved from <http://www.aei-ideas.org/2013/09/gender-wage-gap-at-the-white-house-female-staffers-are-paid-less-than-87-cents-for-every-dollar-paid-to-men/>.

Pitts, J. D., Orozco-Aleman, S., & Rezek, J. (2014). The role of supervisors in the determination of wages and wage gaps. *Applied Economics*, 46(29), 3533-3547. doi: 10.1080/00036846.2014.934430.

Presidential Proclamation (2015). Retrieved from www.whitehouse.gov.

Reese, C. C. & Warner, B. (2012). Pay equity in the states: An analysis of gender-pay gap in the public sector. *Review of Public Personnel Administration*, 32(4), 2-33. doi: 10.1177/0734371X11428616.

Research Methods Knowledge Base (n.d.). Retrieved from http://www.socialresearchmethods.net/kb/stat_t.php

- Risher, H. (2013). The search for pay equity is now 50 years old. *Sage Publications* 45(4), 187-190. doi: 10.1177/0886368713510992.
- Santos-Pinto, L. (2012). Labor Market Signaling and Self-Confidence: Wage compression and the gender pay gap. *Journal of Labor Economics*, 30(4), 873-913.
- Smith, A. E., & Monaghan, K. R. (2013). Some ceilings have more cracks: representative bureaucracy in federal regulatory agencies. *American Review of Public Administration*, 43(1), 50-71. doi: 10.1177/027507401142099\.
- Stanberry, K. & Aven, F. (2013). Unequal pay for equal work: Why women still lag behind after the 50th anniversary of the United States equal pay act. *Compensation & Benefits Review*, 45(4), 93-99. doi: 10.1177/0886368713505991.
- Stockdale, M., & Nadler, J. (2013). Paradigmatic assumptions of disciplinary research on gender disparities: the case of occupational sex segregation. *Sex Roles*, 68(3/4), 207-215. doi: 10.1007/s11199-012-0228-1.
- The White House (n.d.). Your right to equal pay. Retrieved from <https://www.whitehouse.gov/issues/equal-pay>.
- The White House (2013). Presidential Memorandum—Advancing pay equality in the federal government and learning from successful practice. Retrieved from <https://www.whitehouse.gov/the-press-office/2013/05/10/presidential-memorandum-advancing-pay-equality-federal-government-and-le>.
- Title VII of the Civil Rights Act, Stat § 88-352 (1964).
- Travis, M. (2014). Disabling the gender pay gap: Lessons from the social model of

disability. *Denver University Law Review*, 91(4), 893-923.

United States Bureau of Labor Statistics (n.d.). Retrieved from

<http://www.bls.gov/home.htm>.

United States Department of Labor (n.d.). Our mission. Retrieved from

<http://www.dol.gov/opa/aboutdol/mission.htm>.

United States Department of Labor (2011). Women's earnings in Virginia – 2011.

Retrieved from <http://www.bls.gov/ro3/womenearnva.htm>.

United States Equal Employment Opportunity Commission (n.d.). Overview. Retrieved

from <http://www.eeoc.gov/eeoc/index.cfm>.

United States Equal Employment Opportunity Commission (2014). Statement on equal

pay. Retrieved from <http://www.eeoc.gov>.

United States Government Accountability Office (2011). Gender pay differences:

Progress made, but women remain overrepresented among low-wage workers.

Retrieved from <http://www.gao.gov/products/GAO-12-10>.

United States Office of Personnel Management (2014.). Data definitions. Retrieved from

<http://www.opm.gov/Data/Files/397/33346e11-fa64-4d41-b553-eca82fbcc513.pdf>

United States Office of Personnel Management (2014). Dimension translation files.

Retrieved from <http://www.opm.gov/Data/Files/397/33346e11-fa64-4d41-b553-eca82fbcc513.pdf>.

United States Office of Personnel Management (n.d.). FedScope. Retrieved from

<https://www.fedscope.opm.gov/>.

United States Office of Personnel Management (2014). FedScope Employment Cube.

Retrieved from <https://www.fedscope.opm.gov/>.

United States Office of Personnel Management (2014). Government strategy on advancing pay equality in the federal government. Retrieved from <https://www.opm.gov/policy-data-oversight/pay-leave/reference-materials/reports/Governmentwide-Strategy-on-Advancing-Pay-Equality-in-the-Federal-Government.pdf>.

United States Office of Personnel Management (n.d.). Position classification flysheet for management and program analysis series, GS-0343.

Walden University (n.d). Study Notes Study Notes: Research Design: Some Thoughts on the Research Process (Study Notes). Retrieved from <https://class.waldenu.edu>.

Walden University. (2010). *Institutional review board for ethical standards in research*. Retrieved from <http://researchcenter.waldenu.edu/Office-of-Research-Integrity-and-Compliance.htm>.

Weinberger, c. J. (2011). In search of the glass ceiling: gender and earnings growth among U.S. college graduates in the 1990s. *Industrial & Labor Relations Review*, 64(5), 949-980.

Wolszczak-Derlacz, J. (2013). Mind the gender wage gap - the impact of trade and competition on sectorial wage differences. *World Economy*, 36(4), 437-464. doi: 10.1111/twcc.12026.