



2017

The Gender Wage Gap: Does it pay to follow the crowd?

Marissa Cozzi
mcozzi@iwu.edu

Follow this and additional works at: <https://digitalcommons.iwu.edu/parkplace>

Recommended Citation

Cozzi, Marissa (2017) "The Gender Wage Gap: Does it pay to follow the crowd?,"
The Park Place Economist: Vol. 25

Available at: <https://digitalcommons.iwu.edu/parkplace/vol25/iss1/14>

This Article is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by editorial board of the Park Place Economist at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

The Gender Wage Gap: Does it pay to follow the crowd?

Abstract

The gender wage gap has recently gained a significant amount of attention in the literature. The gender wage gap is the difference between male and female earnings for doing the same work. Additionally, one can often find the gender wage gap expressed as a percentage of male earnings. Currently, there is a debate over what portion of the gender wage gap is due to obvious workplace discrimination. Some argue that women's career choices are the driving force behind the gender wage gap (Ehrenberg et al, 1993). However, there are many factors that could contribute to the gender wage gap such as age, educational attainment, hours worked, and occupational distributions. The motivation behind this research is to establish whether there are differences in the gender wage gap based on gender distribution within an occupation after controlling for a number of other important determinants of the gender wage gap.

After controlling for human capital related determinants of wages, this study will determine the impact of gender distribution within an occupation on earnings. Section 2 of this paper will look at existing literature on the subject and discuss its relevance to the study at hand. Section 3 will explain the theoretical framework that lead to the hypothesis. Then, Section 4 will describe the data along with its reliability and relevance to the topic at hand. Upon observing the data, Sections 5 and 6 will illustrate the descriptive statistics and regression model used in this paper. After depicting the means to which this topic was observed, Section 7 will convey the results of both the descriptive statistics and regression models. Finally, Section 8 will provide some concluding remarks.

The Gender Wage Gap: Does it pay to follow the crowd?

Marissa Cozzi

I. Introduction

What do you want to be when you grow up? As a child, this is the typical question that gets brought up time and time again. Many of the answers heard at an extremely young age are a bit far fetched. Things like princess, mad scientist, and puppy provide some chuckles at the moment, but as we get older, reality sets in. As people age and find their true callings in life, the princess response might turn into chief executive officer, the mad scientist might be a teacher, and the puppy could turn into a veterinarian. Choosing an occupation is one of the biggest decisions people can make in their lifetime. That isn't to say that once choosing an occupation, you are set. Individuals have the ability to move around.

Ultimately, everyone is faced with choices. On a daily basis people make more decisions than they can count. Some choices can be as trivial as what to have for breakfast while others can have a much larger impact. A major decision in a person's life is deciding to go to college. It is often believed that attaining a college degree will increase an individual's income. However, depending on your gender, you might not reap the same benefits as a counterpart in the same occupation. Once you have selected which occupation to invest yourself in, you might ask what the monetary consequences are. Will your gender have an impact on your future earnings or does something else have an even larger impact? Are the effects of your gender different depending on how many individuals identify as your gender within your occupation? Are genders rewarded differently for the same work? How does this change based on the occupation?

The gender wage gap has recently gained a significant amount of attention in the literature. The gender wage gap is the difference between male and female earnings for doing the same work. Additionally, one can often find the gender wage gap expressed as a percentage of male earnings. Currently, there is a debate over what portion of the gender wage gap is due to obvious workplace discrimination. Some argue that women's career choices are the driving force behind the gender wage gap (Ehrenberg et al, 1993). However, there are many factors that could contribute to the gender wage gap such as age, educational attainment, hours worked, and occupational distributions. The motivation behind this research is to establish whether there are differences in the gender wage gap based on gender distribution within an occupation after controlling for a number of other important determinants of the gender wage gap.

After controlling for human capital related determinants of wages, this study will determine the impact of gender distribution within an occupation on earnings. Section 2 of this paper will look at existing literature on the subject and discuss its relevance to the study at hand. Section 3 will explain the theoretical framework that lead to the hypothesis. Then, Section 4 will describe the data along with its reliability and relevance to the topic at hand. Upon observing the data, Sections 5 and 6 will illustrate the descriptive statistics and regression model used in this

paper. After depicting the means to which this topic was observed, Section 7 will convey the results of both the descriptive statistics and regression models. Finally, Section 8 will provide some concluding remarks.

II. Literature Review

As previously established, there are varying aspects that can contribute to a person's income. In this paper, the focus will be primarily on the effect that gender distribution within an occupation has on the gender pay gap. Often times, more than one demographic attribute contributes to an individual's earnings. When observing what types of factors contribute to the gender wage gap, it is essential to look at multiple variables. Often times in the literature, a human capital model is used to observe multiple variables (Black et al, 2008).

Over time, gender distribution in particular college majors has changed drastically, examples of this include business, engineering, and education. Fewer women are going into education because they are turning to business and engineering. This is the movement of women into more financially rewarding majors (Gill et al, 2000). These acknowledged shifts in gender distribution also shifted the gender wage gap. The shifts have drastically changed the gender make-up of these occupations. Gill et al (2000) seeks to observe how women are doing within these "new fields" relative to their male counterparts based on the distribution of gender within a given occupation.

A study conducted by Weinberger (1999) concluded that men more frequently enter fields with higher salaries. An example of this is mathematics. Mathematics majors, on average, earn higher salaries than other majors. This higher salary is often attributed to the specific skill set acquired in school and the execution of said skills within the job market. Additionally, based on historical patterns, men are more likely than women to pursue majors, and thus occupations, of this nature. This could help explain the average gender pay gap. Despite the fact that men more frequently enter fields with higher salaries, women in these same fields still face the expected gender gap in earnings. This emphasizes the point that there are gender gaps with-in major field of study (Weinberger, 1999). The gender wage gap observed within undergraduate majors carries over into the job market. It is understandable that a gap exists within college major because a college major doesn't necessarily determine an occupation. It is expected that different occupations will produce different wages.

Alternative sources of research suggest that the gender differences in salaries stem primarily from labor market differences versus academic differences between men and women. Therefore, if men and women are doing the same things academically, there must be some kind of variation between the two in the labor market. These labor market differences could be a number of things such as hours worked per week or access to promotions and supervisory positions. The next step is to examine whether the reason for this difference in the labor market is a product of choice or if it is a product of discrimination in the labor market (Joy, 2003). According to Joy (2003), "encouraging women to complete college and major in traditionally male-dominated fields

has, in the past, contributed to the closing of the wage gap, but the evidence found in this study suggests that educational parity alone does not ensure labor market parity” (p. 618).

Additionally, even after going to college, wage equality amongst men and women is not guaranteed. Studies have found that college major can impact earnings later in life. One study uses the National Association of Colleges and Employers Survey centered on recent college graduates and their starting salaries. Using this data and a simulated salary ratio show that almost all of the gender wage gap is described by differences in college major and what a typical starting salary is for said major (McDonald, 2007). These differences in offers could possibly stem from occupational crowding. A study done by Morgan (2008) depicts that there are two groups when it comes to college majors: majors that are very job-specific and majors that are not. The study by Morgan (2008) concluded that degrees with job-specific majors have virtually no gender wage gap. On the contrary, majors with a more broad occupation range had a much larger gap in earnings. The reason for this difference in salary gap is still unknown. However, it is possible that women in less job specific majors are pushed towards lower paying jobs than their male counterparts (Morgan, 2008). This directly correlates to the occupational crowding model and furthers the idea that gender distribution within an occupation will impact the gender wage gap.

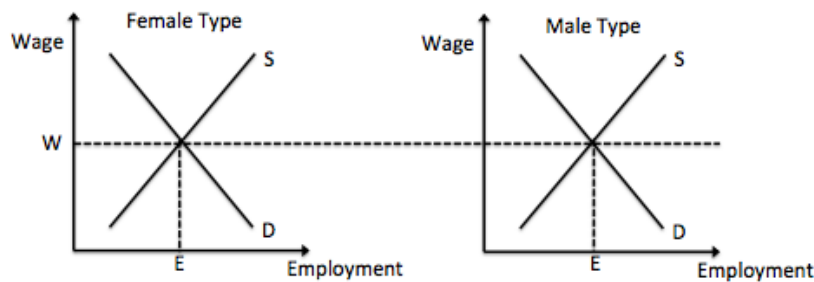
The largest contributor to the gender wage gap happens when there are a higher number of women in an occupation relative to men (Boraas, 2003). This is an important point to make because it showcases the importance of gender distribution in regards to the gender wage gap. In Boraas (2003), women were found to make substantially less than their male counterparts. Typically, gender integrated occupations fair better in terms of a pay gap when compared to female-dominated and male-dominated occupations (Grönlund, 2013). In a study conducted by Solberg (2005), estimated wage equations were created for all types of workers (part-time, full-time, private sector, etc.) using the same constant human capital variables for each. He found that his results were not consistent with the occupational crowding model. Occupational crowding was not the only contributor to the gender pay gap. However, the idea that crowding might occur at less aggregated levels of occupations than those used for this study is something that is considered by the author.

III. Theoretical Framework

Many studies support the claim of a gender wage gap and the importance of gender distribution within an occupation, and human capital theory was constantly referenced. However, this research project will be using the occupational crowding model. Barbara Bergman created the overcrowding model in 1974. This model is directly applicable to the labor market. Due to the direct link to the labor market, the occupational crowding model can and will be applied to gender distribution in this research project. This is unlike previous research, so this study will be contributing to the literature by using a different theoretical framework than the human capital theory. Bergman (1974) theorized that in the labor market there are 2 kinds of occupations, male type and female type. The overcrowding model shows that, all things being equal, wages are lower in predominantly female occupations than predominantly male occupations. For clarity, this is not

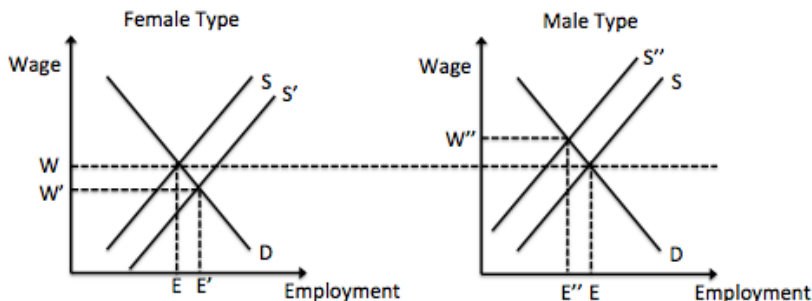
to say that males are excluded from female type occupations or vice versa, but a crossover is not the most likely to occur. When men end up in the lower paying, female type occupations, it is typically attributed to poor luck on the individual's part or lack of knowledge on better opportunities. It is societally conditioned to think that men would not have chosen these lower paying jobs for themselves. On the other hand, it is thought that many women will crowd into these lower paying occupations because of their personal preference for the work, in addition to a shortage of alternate opportunities. The supply of labor will inherently have an impact on the wages earned in that position. Figure 1 represents the labor market before crowding takes place. The two types of occupations have been labeled as male type and female type.

Figure 1: Before Occupational Crowding



The occupational crowding model is built on the assumption that men and women have equal capabilities in all positions. With this in mind and all things remaining equal among genders, Figure 1 shows that male type and female type occupations earn the same amount in wages and the employment levels are determined by the equilibrium established by labor demand and supply. However, this isn't necessarily the case. The occupational crowding model theorizes that women are crowded into female type occupations over male type occupations, this crowding leads to higher employment levels and thus lower wages. As the female type occupations increase in employment numbers and decrease in wages, the male type occupations are doing the exact opposite. Figure 2 depicts this situation and shows that male type occupations are experiencing a decrease in employment with an increase in wages.

Figure 2: After Occupational Crowding



The discrimination theory could certainly contribute to the gender wage gap. Women could be discriminated against in the workplace for a variety of different things. As depicted by the images above, discrimination against women in male dominated occupations has multiple effects within the occupational crowding model. One type of discrimination could appear immediately, for example, qualified women simply are not hired into male type jobs. This type of occupation discrimination leads to a decrease in the supply of labor for those occupations. Additionally, women that were intentionally barred from these male type jobs are now crowded into the female type jobs. The crowding will innately increase the labor supply in female type occupations. As Figure 2 shows, when the supply of labor increases, wages will decrease. On a different note, there could be employer discrimination in wages as well as lack of internal or external promotions for women. Based on the theoretical framework presented above, my research hypothesis is that occupational crowding has a significant impact on the gender wage gap.

IV. Data

In this study, the data come from the American Community Survey of 2014. This is the most recent data available through the American Community Survey. The U.S. Census Bureau collects data for the American Community Survey. It is distributed by IPUMS at the University of Minnesota (Ruggles et al, 2015). The survey itself reaches around three million people per year. The data are collected through mail, telephone, and personal interviews, although it is mainly collected through mail. The data utilized in this research are compacted down to a smaller pool of participants. This is an appropriate data source to use because it provides all information necessary to test the hypothesis. The data compile many factors about individuals that include age, hours worked per week, gender, wages, occupation, race, and educational attainment. This data are particularly well suited for this project because it provides a large data set, which allows the opportunity to look at the most up to date information and use a sample that only includes individuals who have obtained at least a bachelor's degree.

To explore the gender wage gap in a more controlled setting, it is necessary to narrow the sample by age, educational attainment, employment status, and occupation. An important note is that this study is specifically comparing the wages of men and women who are employed full time, are part of the labor force year round, and have comparable levels of education. In order to ensure these three factors apply to all participants in this study, those that do not fit the criteria will be removed.

First, the sample was narrowed down to people with ages ranging from twenty-two to sixty-five. This restriction placed on age allows traditional students to obtain bachelor's degree at the very least and then be a part of the sample. This restriction also eliminates people that have most likely hit retirement age. Those in retirement will certainly not have the same income as a full time worker. Additionally, they don't currently have an occupation. Second, this study is only looking at people that have obtained some sort of college degree. This includes bachelor's degree, master's degree, professional degree, and doctoral degree. Higher levels of education will naturally receive higher wages, therefore those without a collegiate degree are not part of this study. Additionally,

people with college degrees may fall into occupational crowding more than others because of a preconceived notion that an individual's college major will inherently decide that individual's career path. Furthermore, all participants must be employed full time. In this study, full time is defined as working forty-eight weeks or more throughout the year and working at least thirty-six hours per week. The constraint on a person's employment status is to control for the number of hours worked. Individuals that only work part-time or half time are not going to make as much money as full time workers simply due to the lack of hours on the job. Working full time sets a benchmark, so that the findings of a gender wage gap cannot be attributed to hours put into the job. After all of the criteria are taken into account, there are still a total of 371,262 respondents. Additionally, in total, there are over 400 reported occupations collected through this survey.

V. Empirical Research Design: Descriptive Statistics

Upon considering the hypothesis and theoretical framework, descriptive statistics will be used to exemplify the gender wage gap based on gender distribution. The hypothesis is that occupational crowding has a significant impact on the gender wage gap. The occupations have been assigned to one of three groups: male-dominated, female-dominated, and gender-neutral based on their gender distribution. The gender dominations are determined on a quartile basis. This means that male-dominated occupations have been defined as being composed of 75% or more male respondents, female-dominated occupations are composed of 75% or more females, and gender-neutral occupations are comprised of both genders making up 25.1%-74.9% of the distribution. These quartile cutoff points are relatively arbitrary and could easily be altered. This is one weak point of this study. There is not a definition stating what it takes to be considered "dominated" by one gender or another. However, it was thought that if an occupation had at least 75% made up of one gender, it would be safe to say that said gender dominates said occupation for the purposes of this study. Each of the groups is subjected to a comparing means test. The comparing means test compares the means for two groups of cases. In this case the two groups are males and females. This test provided a t-statistic value. The t-value will determine which gender wage gaps are statistically significant. Once the gender gaps have been determined statistically significant or not, the gender wage gaps will be compared to find particular patterns and significant gaps in wages.

VI. Empirical Research Design: Regression Model

Beyond descriptive statistics, this study will also use a regression model to address the effect of occupational crowding and gender distribution. This is an effective model to use when looking at gender distribution and occupational crowding because it allows one to observe the interactions between gender and occupation. In order for the regression model to work, the occupations must follow the same sorting method used in the descriptive statistics section. This distinction will continue to showcase the difference in gender distribution. Based on the occupational crowding model, there will be a cluster of females in lower paying jobs and this

would significantly contribute to the overall gender wage gap. The equation used to determine this impact will be as follows:

$$\begin{aligned} \ln Wages = & \beta_1 + \beta_2(F) + \beta_3(FD) + \beta_4(F \times FD) + \beta_5(MD) + \beta_6(F \times MD) \\ & + \beta_7(Age) + \beta_8(Age^2) + \beta_9(Race) + \beta_{10}(MASTERS) + \beta_{11}(PROF) \\ & + \beta_{12}(DOCTOR) \end{aligned}$$

In the equation, *F* is a dummy variable that signifies a female, *FD* is a dummy variable that signifies female-dominated occupations, and *MD* is a dummy variable that signifies male-dominated occupations. β_4 and β_6 represent the interactions between being female in either a male-dominated or female-dominated occupation. For more detailed descriptions of each variable please see Table 1 below.

Table 1: Description of Variables

Fem	Gender is female (Dummy Variable)
FemDom	Female Dominated Occupation (Dummy Variable)
FxFD	Interaction between being female in a female dominated occupation
MaleDom	Male Dominated Occupation (Dummy Variable)
FxMD	Interaction between being female in a male dominated occupation
Age	An individual's age in years as of their last birthday
Age²	This is the variable Age squared
Race	Individuals that identify as non-White (Dummy Variable)
MASTERS	Having obtained a Master's degree (Dummy Variable)
PROF	Having obtained a Professional degree (Dummy Variable)
DOCTORS	Having obtained a Doctoral degree (Dummy Variable)

Each of the β coefficients that are estimated in the regression analysis will show the effect of a one-unit change in the dependent variable. In this case the dependent variable is the natural log of wages or estimated earnings. These estimated earnings will be able to project the impacts of a) being a female, b) being a female in a female-dominated occupation, and c) being a female in a male-dominated occupation. These values will be compared to being male in a gender-neutral occupation. The impact of being a male in a female occupation is represented by β_1 . Upon gathering the estimated earnings coefficients, a calculation of the wages based on gender distribution for both males and females will be executed. The difference between the two will be the gender wage gap based on occupational crowding.

VII. Results

VII.A. Descriptive Statistics Results

The descriptive statistics provide an overwhelmingly clear picture of significance across all gender distributions. A comparing means test was used to determine the statistical significance of the gender wage gap among three categories of occupations: gender-neutral, female-dominated, and male-dominated. The t-value provided by the comparing means test will determine which gender wage gaps are statistically significant. At the 0.1 level, a t-value must be greater than or equal to 1.64. At the 0.05 level, the value must be greater than or equal to 1.96 and at the 0.01 level, the t-value must be greater than or equal to 2.56 to be statistically significant. Table 2 shows the results of the three comparing means tests. The table includes the average earnings of males and females, the mean difference, and the t-statistic. Something that is interesting to note about the results is that all of them are statistically significant. This means that there is a statistically significant gender wage gap regardless of the gender distribution of the occupational grouping.

Table 2: Descriptive Statistics Results

Number of Respondents	Avg. Male Earnings	Avg. Female Earnings	Mean Difference	t-stat
<i>Gender-Neutral Occupations</i>				
233,184	\$106,201.32	\$74,335.57	\$31,865.75	93.429***
<i>Female-Dominated Occupations</i>				
76,324	\$58,598.49	\$51,995.59	\$6,602.90	17.546***
<i>Male-Dominated Occupations</i>				
61,755	\$98,066.72	\$88,343.15	\$9,723.57	11.688***

***Significant at the .01 level

It is understandable that the gender-neutral category has the largest number of respondents because it holds twice as much percentage as the female and male dominated occupations. With that in mind, by having the highest number of respondents by far, it is certainly expected that there will be a greater range in occupation types. With there being such a wide range of occupations, there will naturally be a wider range of wages than those observed in the female and male-dominated occupations. However, when looking at the female and male-dominated occupations, there is a substantially smaller gap between the average earnings. In fact, the mean difference for the two is almost comparable to one another.

While the male and female-dominated occupations have a more comparable gap to each other than the gender-neutral occupations, it is important to acknowledge the difference in average earning between the two. The difference in average male earnings is almost \$40,000. This number was calculated by subtracting the average male earnings in female-dominated occupations from the average male earnings in male-dominated occupations. Precisely, the math works out to $\$98,066.72 - \$58,598.49 = \$39,468.23$, which is slightly less than \$40,000, but the same idea applies. The females are not too different with their difference being around \$36,000. The difference in average female earnings between male and female-dominated occupations was calculated in the exact same manner as the average male difference. The exact numbers in this case

are $\$88,343.15 - \$51,995.59 = \$36,347.56$, which is slightly more than the estimated $\$36,000$. This would stem back to the occupational crowding model. It is possible that women are being funneled into lower paying jobs as compared to men. Overall, the descriptive statistics showcased that there is, in fact, a statistically significant gender wage gap, regardless of the gender distribution.

VII.B. Regressions Model Results

The regression model ran very smoothly and proved to have very interesting results. All of the variables included in the regression, which are fully described in Table 1, were found to be statistically significant. Table 3 exemplifies the symbols for coefficients, coefficients, and standard error provided by the regression as well as showing a conversion from the standard coefficients to percentages.

Table 3: Regression Results

Variable	Symbol	Coefficients	Percent	
Constant	β_1	8.376*** (.017)	434060.77%	
Fem	β_2	-0.247*** (.003)	-21.89%	
FemDom	β_3	-0.395*** (.006)	-32.63%	
FxFD	β_4	0.165*** (.007)	17.94%	Adjusted R-Squared: .211
MaleDom	β_5	0.025*** (.004)	2.53%	Sample Size: 371, 262
FxMD	β_6	0.17*** (.008)	18.53%	Notes: The standard error is in parenthesis below each of the coefficients.
Age	β_7	0.119*** (.001)	12.64%	Percentages are calculated from the coefficients by substituting the estimated coefficient into the computation $e^{\beta}-1$.
Age ²	β_8	-0.001*** (.000)	-0.099%	***Significant at the .01 level.
Race	β_9	-0.012*** (.001)	-1.19%	
Master	β_{10}	0.185*** (.003)	20.32%	
PROF	β_{11}	0.524*** (.005)	68.88%	
DOCTOR	β_{12}	0.32*** (.006)	37.71%	

Upon observing that all the variables are significant, it is important to observe the sign and magnitude of these variables. As expected, females earn significantly less than men. In fact, their overall wages come in at 21.89% lower than their male counterparts even after controlling for all other independent variables. Being in a female-dominated occupation, as opposed to a gender-neutral occupation and regardless of gender, also proved to have a negative impact on earnings. This impact is even larger than being female in any occupation. Some results that appear to be most interesting focus on male-dominated occupations. Being in a male-dominated occupation has a positive impact on earnings, but being a female in a male-dominated occupation has a much larger impact. As expected there are largely positive impacts made from furthering an education. Having acquired a master, professional, or doctoral degree leaves a hefty increase on estimated earnings.

Table 4 illustrates the overall changes one can expect to see affect their earning centered on individual gender and occupation type. The comparison for all of these calculations is males in gender-neutral occupations because this is the reference group. Please note that the column labeled as “Percentage Change” in Table 4 is not exactly equal to the summation of the indicated coefficients. Instead, the summation is comprised of the percentages presented in the column labeled as “Percent” in Table 3. This means that the actual coefficients were converted into percentages by placing the coefficient value into the equation $e^{\beta}-1$ as β . After closely observing Table 4, one is able to notice that all scenarios involving females or female-dominated occupations leave people in a disadvantaged place in terms of earnings relative to males in gender-neutral occupations. The only scenario that leads to an increase is male in a male-dominated occupation.

Table 4: Gap in Expected Earnings as compared to Males in Gender Neutral Occupations (β_1)

Gender and Occupation Type	Coefficients	Percentage Change
Female in Gender Neutral Occupation	β_2	-21.89%
Female in Female Dominated Occupation	$\beta_2 + \beta_3 + \beta_4$	-36.58%
Female in Male Dominated Occupation	$\beta_2 + \beta_5 + \beta_6$	-.83%
Male in Female Dominated Occupation	β_3	-32.63%
Male in Male Dominated Occupation	β_5	2.53%

These results can certainly be explained by the occupational crowding theory. If females are pushed into lower paying, female-dominated jobs, even the men in those jobs will have to face the lower wages. This correlates to society’s idea that men do not choose these jobs, but are often unaware of alternate or “better” opportunities. Therefore, it is expected that men will gravitate towards the male-dominated and higher paying professions. However, females in the same male-dominated occupations are still at an expected earnings disadvantage. Interestingly enough, males and females in female-dominated occupations face almost the same amount of earnings

disadvantage. This is also the largest negative percentage presented. This shows that female-dominated occupations have a greater impact on estimated earnings than actually being a female.

VIII. Conclusion

Using data from the 2014 American Community Survey, I was able to explore the variation of the gender wage gap based on gender distribution. The research focus was to determine the importance of occupational crowding on earnings. After reading literature and applying the occupational crowding model to the overarching question, a hypothesis came to be that occupational crowding has a significant impact on the gender wage gap.

Upon doing descriptive statistics and running a regression model, the hypothesis is not rejected. There is a prominent gender wage gap and the occupational crowding model does play a statistically significant role. All of the variables in the regression proved to be statistically significant at the .01 level. This means that being female, being in a female-dominated occupation, being in a male-dominated occupation, and all of the interactions between those variables are significant. Additionally, all of the comparing means tests were found to be statistically significant at the .01 level. Being a female-dominated or male-dominated occupation had a statistical significance in the prediction of earnings in reference to gender-neutral occupations.

It was particularly disheartening to see that female-dominated occupations had such a large, negative impact on estimated earnings. If females are constantly being pushed into these lower paying occupations, there is little room for escape. The females in these positions are even making less than their male counterparts in the same fields. The findings of this study correlate to the findings of others. Much like previous literature, this study found the existence of the gender wage gap. The findings of this study in particular add to the literature in terms of theoretical framework. While most studies on the gender wage gap use the human capital theory as a framework for their research, this study used the occupational crowding model. Using an occupational crowding model and assigning occupations into one of three categories based on gender distribution is a method that has not been used before. Overall, this study supports the conclusions of previous research by highlighting the gender wage gap in regards to gender crowding in the labor force.

This research did not really dive into the realm of workplace discrimination, so that would require further research and investigation. Something that the occupational crowding model does not confirm is the possibility of a gender pay gap within a particular occupation. These gaps would best be described by a more focused theory of discrimination, like Gary Becker's taste-for-discrimination model (Tobol, 2005). Based on the statistical tests presented above, a possible hypothesis is that women are more often discriminated against than men when it comes to occupations, specifically in male-dominated occupations. Additionally, it is necessary to consider that women could be actively choosing occupations that are female-dominated and don't pay as much. Again, this is an area for further research.

One point that poses a particular interest is a female's ability to move up in terms of promotions. This study only looked at one year and a multitude of individuals. Promotions were not accounted for in any way. However, it would be interesting to use a panel data set and observe within occupation promotional opportunities. This idea brings up so much more that this study

neglected to look at such as the glass ceiling theory or general experience in the workplace. It might be worthwhile to investigate how women feel in their occupations. Is it worth it for women to find a sort of niche in female-dominated occupations? Does it provide a sense of comfort and support?

This topic is particularly important because people have the right to equal pay for equal work. In fact, the Equal Pay Act has been a law for over 50 years, and yet, a well-known gap still exists today. This study emphasizes the point that it is absolutely essential to increase the salaries of women in lower paying, female-dominated jobs. This would then give women the opportunity to be in higher paying jobs, and thus close the gender wage gap.

References

- Black, D. A., Haviland, A. M., Sanders, S. G., & Taylor, L. J. (2008). Gender wage disparities among the highly educated. *Journal of Human Resources*, 43(3), 630-659. Update Code: 200809.
- Blau, F. D., Ferber, M. A., & Winkler, A. E. (1997). Chapter 7 differences in occupations and earnings: The role of labor market discrimination. *The economics of women, men, and work* (Third Edition ed.) (pp. 185-233) Taylor & Francis.
- Blau, F. D. & Kahn L. M. "women's work and wages." The New Palgrave Dictionary of Economics. Second Edition. Eds. Steven N. Durlauf and Lawrence E. Blume. Palgrave Macmillan, 2008. The New Palgrave Dictionary of Economics Online. Palgrave Macmillan. 15 September 2016
<http://www.dictionaryofeconomics.com/article?id=pde2008_W000129>
doi:10.1057/9780230226203.1839.
- Boraas, S., & Rodgers, W. M. 3. (2003). How does gender play a role in the earnings gap? An update. *Monthly Labor Review*, 126(3), 9-15.
- Ehrenberg, R. G., & Smith, R. S. (1993). Gender, race, and ethnicity in the labor market. In J. Greenman, & R. Kohn (Eds.), *Modern labor economics theory and public policy* (5th ed.) (pp. 398). New York, NY 10022: HarperCollins College Publishers.
- Gill, A. M., & Leigh, D. E. (2000). Community college enrollment, college major, and the gender wage gap. *Industrial and Labor Relations Review*, 54(1), 163-181. Update Code: 200101.
- 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.
- Joy, L. (2006). Occupational differences between recent male and female college graduates. *Economics of Education Review*, 25(2), 221-231.

- Joy, L. (2003). Salaries of recent male and female college graduates: Educational and labor market effects. *Industrial and Labor Relations Review*, 56(4), 606-621. Update Code: 200309.
- McDonald, J. A., & Thornton, R. J. (2007). Do new male and female college graduates receive unequal pay? *Journal of Human Resources*, 42(1), 32-48. Update Code: 200703
- Morgan, L. A. (2008). Major matters: A comparison of the within-major gender pay gap across college majors for early-career graduates. *Industrial Relations*, 47(4), 625-650. Update Code: 200811.
- Ruggles, Steven, Katie Genadek, Ronald Goeken, Josiah Grover, & Matthew Sobek. *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database]. Minneapolis: University of Minnesota, 2015.
- Solberg, E. J. (2005). The gender pay gap by occupation: A test of the crowding hypothesis. *Contemporary Economic Policy*, 23(1), 129-148. Update Code: 200503.
- Tobol, Y. (2005). Wage discrimination as an illegal behavior. *Economics Bulletin*, 10(4), 1-10. Update Code: 200703.
- Weinberger, C. J. (1999). Mathematical college majors and the gender gap in wages. *Industrial Relations*, 38(3), 407-413. Update Code: 199911.
- Xu, Y. (2015). Focusing on women in STEM: A longitudinal examination of gender-based earning gap of college graduates. *Journal of Higher Education*, 86(4), 489-523. 2015.