



March 2008

## Does It Pay to be a Man? A Study of Pay Differentials among College Graduates

Jennifer Van Dyke '99  
*Illinois Wesleyan University*

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

---

### **Recommended Citation**

Van Dyke '99, Jennifer (2000) "Does It Pay to be a Man? A Study of Pay Differentials among College Graduates," *The Park Place Economist*: Vol. 8  
Available at: <https://digitalcommons.iwu.edu/parkplace/vol8/iss1/13>

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 faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

---

## Does It Pay to be a Man? A Study of Pay Differentials among College Graduates

### Abstract

There is a difference in men and women's salaries even within narrowly defined fields. This paper reviews the theory as to why a gender income gap exists and then looks at a sample of college graduates in order to show that there is a difference between college men and women's starting salaries. It then follows these graduates over time to show that the income gap increases.

# Does it Pay to Be a Man?

## A Study of Pay Differentials Among College Graduates

*By Jennifer Van Dyke*

### I. INTRODUCTION

The theory of labor economics suggests that people with similar education and experience should be paid similar amounts. Since male and female college graduates in the same field receive the same education and have had few career experiences, it seems that there should not be significant differences in their salaries. However, a survey of data shows that there is indeed a difference. For example, men graduating in 1997 and entering a business-related occupation earned on average \$30,778. Women graduating the same year earned on average \$29,606. This is not a large difference, and can be explained by the fact that neither gender dominates the field. In the education field, a female-dominated occupation, male graduates earned on average \$26,188, while female graduates earned \$22,817. This difference is much more pronounced, yet some argue that women are earning less because it is a female-dominated occupation. However, in computer science, a male-dominated field, male graduates earned on average \$37,167 whereas female graduates earned only \$35,383 (NACE, 1997). These numbers show that there is a difference in men and women's salaries even within narrowly defined fields. This paper reviews the theory as to why a gender income gap exists and then looks at a sample of college graduates in order to show that there is a difference between college men and women's starting salaries. It then follows these graduates over time to show that the income gap increases.

This paper takes a section by section approach to address the problem of wage differentials between college men and women. Section II introduces the theoretical foundation for this subject. Section III lays out the hypotheses and explains the theoretical model and data. Section IV discusses the results of the model, and Section V

draws conclusions from the results and suggests policy implications.

### II. BACKGROUND

Why are salaries different for men and women? This is a question many scholars have wrestled with. Economists draw on their knowledge of labor markets in order to answer this question. Their answers can be divided into two categories: those that affect the supply of labor and those that affect the demand for labor. This section outlines these answers in relation to the research problem.

#### A. Supply-side Theories

Supply-side theories of the gender wage gap focus on the possibility of differences in tastes, qualifications, education, formal training, or other productivity related characteristics (Blau, 1986). One theory that uses these characteristics is the human capital model by Gary Becker (1971). He argues that skills and qualifications enhance a worker's productivity and can increase the value of that worker to the employer. The skills and qualifications which contribute to one's productivity are referred to as their human capital. Therefore, the wage a worker is paid is not only compensation for the time a person spends working for the firm, but also compensation for the use of that person's human capital during the time spent working. Following this line of reasoning, it is argued that wages provide a measurable return on human capital. As a result of their lack of human capital, women earn less than men. In other words, the difference in wages between men and women is based on the differences of education and experience each group receives.

In this paper there are built-in controls for human capital because the sample consists of college graduates who are approximately the same age and

have very little work experience. Therefore, from a human capital perspective, it can be argued that college graduates in the same field who have the same education and similar professional experience should have similar starting salaries. Yet, as shown in the introduction, this is not true. Men and women who enter into the same fields with the same years of education earn different salaries. Therefore, other theories must be considered to explain the differences in pay between men and women.

Another theory based on the human capital model argues that there are systematic differences in the type of human capital men and women obtain, thus causing the gender earnings gap. Women may be more likely to invest in human capital that has a high nonmarket return, while men tend to invest in human capital with a high return in wages but little increase in satisfaction. The educational choices that men and women make may explain why there is a gap in income because these choices affect the supply of labor. The following paragraphs further explore why men and women make different educational choices.

Men and women may choose different college majors because they are aware that there is a depreciation of human capital. With changing technology, workers must stay current with their human capital skills. What was once the norm for an occupation can become obsolete. It is easiest to keep skills current by continuously being in the work force. Men are more likely than women to work continuously and to have more tenure. Women are more likely to have work interruptions than men. A study by Jacobsen and Levin found that women who have a worklife gap subsequently have a partial rebound in earnings, but never catch up with women who work continuously (1992). People who leave the workforce are at a disadvantage compared to those who continuously work. Anticipating a discontinuity in their career, women may choose fields that are less dynamic. Fields that are less dynamic will have a lower income penalty for those re-entering the field. However, dynamic fields typically pay higher salaries to reward those who keep their human capital skills current. If the majority of women do not enter dynamic fields, there will be an income gap.

Another way to keep human capital skills current is through on-the-job training. It is difficult to find data on the amount of training that men and women receive. However, it is argued that employers may also expect women to have a gap in their working life and therefore are more reluctant to train female employees. This would mean that men would receive more on-the-job training and would amass more human capital than women, thus causing an income gap.

Another theory for the differences in choice of occupation or major is the feedback effect. The feedback effect theory argues that women recognize discrimination in the labor market and choose their careers to avoid such discrimination. If women believe that some occupational fields are more discriminating than others, they choose to invest in the fields with less discrimination. This explains why women enter female-dominated fields. In female-dominated fields women see fewer barriers hindering their career advancement. Occupations that are lower-paying but less discriminatory could be relatively more attractive to women than they would be in a world with no discrimination.

A sociological approach can be used to determine why men and women choose different occupations. Linda Subich argues that men and women's choices are different because they have differing attitudes towards the job market in relation to their sex-roles (1989). The sex-role refers to the stereotypes associated with masculine and feminine behavior. It is the sex-role that has an effect on women's choice of field and therefore their salaries in relation to their male counterparts (1989).

A study by Randall Filer showed that men and women look for different types of jobs. In this study, Filer asked men and women to rate various job characteristics in terms of their desirability. Men valued variety, autonomy, challenge, and applicability of their skills, while women valued role clarity, better relations with coworkers, and more freedom to take time off from work. Another study found that women have a higher concern for clean working environments and for attaining direct satisfaction from work, while men were more concerned about the content of their work (Agassi, 1982). This could affect wages because jobs that

have poor working conditions must have a wage premium to make them desirable to workers. If women are more likely than men to choose jobs with relatively pleasant working conditions, their earnings will be lower, all else being equal. Differences in preferences for work characteristics may account for earnings differences both directly due to job choice and indirectly through their effect on investment in particular types of human capital. A study of young people that collected data on college major and job preferences found that each gender differed significantly in both areas. Differences in college major accounted for 28 to 43 percent of the wage gap and differences in job preferences accounted for 6 to 27 percent (Daymont, 1984).

Although men and women have different preferences in relation to the job market, it is hard to determine the line drawn between a woman's voluntary choice and a choice made by influences in the environment. For example, Linda Subich argues that men and women receive different salaries due to the fact that women are given imperfect information about the job market. Women are encouraged to enter traditional female occupations that use skills associated with their gender-role. For instance, teaching and nursing are traditional female occupations, because they require women to use their maternal instincts. This crowding of women into heavily female occupations artificially increases the labor supply for those occupations and drives down its wages. So women who enter female-dominated occupations have lower salaries than men.

According to Linda Subich, gender-roles affect women's earnings directly. Some characteristics of the female gender-role include low

self-confidence and a fear of taking risks. Subich argues that women have lower self-confidence than men, so they are less likely to ask for a higher salary or pay increase (Subich, 1989). The gender-role has taught women not to expect large salaries or rewards for work well done. This makes it easier for women to "settle" for a job with lower paying salaries than men. Subich also argues that women are less likely to take risks than men are. As a result, women are more willing to accept less risky and low-paying occupations. Over time, these gender-role traits continue to increase the gap between salaries for men and women.

*Although men and women have different preferences in relation to the job market, it is hard to determine the line drawn between a woman's voluntary choice and a choice made by influences in the environment.*

These theories are all supply-side explanations for why there is a difference in salary between men and women. If men and women choose to gain different human capital skills, some fields will have a greater supply of labor than others. Those fields with a greater supply of workers will have lower wages. Supply-side explanations of male-female wage differentials suggest that

women are concentrated in different fields than men due to gender-role characteristics, feedback effects, imperfect information, and depreciation effects of human capital. This "crowding" of women increases the supply of labor in female-dominated fields and causes women to have lower wages than men.

### **B. Demand-side Theories**

There are also demand-side theories for the gender income gap. Most of these theories involve forms of discrimination. Gary Becker defines discrimination as "a personal prejudice" or "a taste against associating with a particular group" (Blau, 1986). Workplace discrimination occurs when two persons who have equal productivity and tastes for

work conditions, but who are members of different groups, receive different outcomes in the workplace in terms of wages they are paid and their access to jobs (Jacobsen, 1994). There are many forms of discrimination. Some of these forms include employer, employee, customer, and statistical discrimination. All of these forms of discrimination can have an effect on women's wages.

In employer discrimination, employers are willing to trade off profits for higher wages to desired employees in order to avoid contact with undesired employees. Employers could use gender-role characteristics to determine that women are undesirable employees and therefore give women lower wages. This argument is widely used, but it is also flawed. It does not support a long-run competitive market equilibrium. A profit-maximizing company would hire more of the undesirable group at the lower wage and earn more profits than a discriminating competitor, thus bringing wages back to equilibrium between the groups. However, in an industry with few competitors wage differentials, could persist if the firms were discriminatory.

In employee discrimination, employees have a taste for discrimination and must be paid more to work with the undesirable group. This encourages employers to run segregated firms even though they may not be prejudiced. This model refers to occupational proximity as well as physical proximity. If male employees require higher wages in order to work with women in the same occupation but are indifferent to the presence of women in the firm in other occupations, then a firm may be integrated, but be segregated by occupation within the firm. Women would not be promoted and therefore have lower wages. This model can also be modified to have an interesting feedback property. If prejudiced men cannot work as efficiently in integrated firms as they can in segregated firms, then

female marginal productivity is lowered. In other words, adding a woman to an all-male firm results in less of an increase in revenue than adding another man. So even though women need be no different than men in human capital endowment and employers pay wages equal to marginal product, firms will pay women less than men (Jacobsen, 1994).

There also exists customer discrimination. If a customer has a taste for discrimination, then customers will seek to purchase services from firms that do not employ members of the disliked group. In order to remain profitable, firms must either pay the disliked group members less to make up for the

lowered revenue associated with their employment or avoid hiring them completely. Women earn less because they are causing the firm to earn less of a profit.

Statistical discrimination can also occur. When hunting for a job, individuals are unable to perfectly signal actual productive ability to employers. Therefore

employers may use group averages to determine wages. If an employer infers that women as a group are less productive than men, then wages will reflect this. Another factor besides ability differences leading to statistical discrimination is reliability differences. People often point to the higher turnover rates of women relative to men in arguing that employers are justified in preferring men over women as employees. If the costs involved in training men and women are monetarily equal, then there are higher costs for women because they will spend less time with the company. Also, women are more likely to be absent than men. This statistic also makes women less desirable than men in the job market.

All of the theories of discrimination just reviewed suggest that women are at a disadvantage in the job market due to discriminatory tastes and the gender preferences of the employer, other

*People often point to higher turnover rates of women relative to men arguing that employers are justified in preferring men over women as employees.*

employees, or customers. These discriminatory tastes depress women’s salaries in order to make them more desirable in the workplace. Thus women find themselves accepting lower salaries in order to make up for the stereotypical shortcomings associated with being female.

**III. EMPIRICAL MODEL AND DATA**

The purpose of this research is to explain why there is a gender gap in the starting salaries of college graduates and to determine how quickly this gap increases over time. By using college graduates, this study controls for the human capital of men and women in order to determine what other factors are creating a gender income gap. I hypothesize that the gap between men and women’s starting salaries can be attributed to the supply-side theories that affect what fields men and women choose and to the demand-side theories of discrimination. Also, I hypothesize that over time the gap between men and women’s salaries increases.

In order to test this hypothesis, I gathered

the data for the empirical model from the National Longitudinal Survey of Youth (NLSY, 1997). The NLSY is a database that is derived from in-person interviews with 12,686 people between 1979 and 1996. My study restricts the sample to members of the NLSY who graduated from college in 1986. This survey year was chosen because it contained the largest sample of college graduates (303 respondents, 152 women and 151 men). The model looks at these graduates’ income, gender, major, the number of hours worked, and tenure to determine whether or not there is a difference in men and women’s starting salaries. As seen in Table 1, there is a gap in average starting salaries between men and women. A major purpose of this study is to explain this gap and to examine what happens to the pay gap between men and women between 1987 and 1995.

OLS regression is used to test my hypotheses. Income is the dependent variable and is tested against gender, percentage of women in chosen majors of study, hours worked, and tenure

**Table 1: Sample’s Means for 1987**

Variable	Mean for Women	Mean for Men	Overall Mean
Income	\$16856.2	\$20362.8	\$18621.7
Percent of Women in Major	59.8%	44.1%	51.9%
Hours Worked (annually)	1823.7	1895.5	1859.6

**Table 2: Variable Definitions and Their Expected Signs**

Variable	Type	Explanation	Expected Sign
INCOME	Dependent	Total income from wages and salary for calendar year	
GENDER	Independent	Dummy variable indicating the gender of the respondent. Takes on a value of 1 for male and 0 for female.	Positive
MAJOR	Independent	Percentage of women studying a particular major	Negative
HOURS WORKED	Independent	Number of weeks respondent has been at job.	Positive
TENURE	Independent	Number of weeks respondent has been at job.	Positive

to see what effect each variable has on income. My regression equation takes the form:

$$\text{Equation 1: } \text{INCOME} = \alpha + \beta_1 \text{ GENDER} + \beta_2 \text{ MAJOR} + \beta_3 \text{ HOURS WORKED} + \beta_4 \text{ TENURE}$$

This regression was run for 1987 (the year graduates began working) and then re-run for the years 1988 to 1995 (excluding 1994 due to lack of data) to determine how the income gap changes over time. Below, each variable is discussed individually in accordance with the hypothesis and theory. Please refer to Table 2 for variable definitions and expected signs of the coefficients.

The INCOME variable is the total income that the respondent has earned for the year and is the dependent variable in this study. Other research has used the natural log of income for the dependent variable in order to avoid heteroskedasticity. Heteroskedasticity can be a problem when looking at income because the variation of earnings for men can be larger or smaller than the variation of earnings for women. However, because this study looks at a very small time period for the earnings of men and women, the differences in variation should not occur. To be sure of this, I ran a regression with the natural log of income as the dependent variable and the results were not as good. Less of the regression was explained when the natural log of income is used. Therefore, for my study, using INCOME as the dependent variable is fine.

A dummy variable for GENDER is used in the regression analysis to capture the effects of the demand-side theories on income. A value of zero is given for female respondents and a value of one is given for male respondents. According to demand-side theories of discrimination, this variable should have a positive effect on income. In other words, when the variable equals one, income should increase. This is because men are considered the favored group; so if men are favored over women by employers, employees, or customers, then men's salaries will be higher than women's salaries. This discrimination effect will be picked up in the

GENDER variable.

The variable called MAJOR is the percentage of women in the field that the graduate was majoring in at the time he or she graduated. These percentages were obtained from the September 5, 1990 edition of The Chronicle of Higher Education. This variable is included in the income regression to determine how male-dominated fields pay in relation to female-dominated fields. According to supply-side theories, this variable should have a negative effect on income. Women choose to enter into female-dominated fields because of the depreciation effects on human capital, feedback effects, imperfect information, and gender-role characteristics. As women continue to enter into the same few fields, the supply of labor for these fields increases and pushes wages down. Therefore, as the percentage of women in the field increases, income for these fields should decrease.

The remaining two variables are control variables for the effects of work experience on earnings. The HOURS WORKED variable is used to control for the effect of hours of work on pay. Pay can differ a great deal depending on the number of hours worked. This variable, of course, should have a positive effect on income. As the number of hours worked increases, income will also increase. The TENURE variable measures the number of weeks the respondent has worked for his or her employer at the time of the survey. TENURE should have a positive effect on income. In other words, the longer the respondent stays with a company, the greater his or her income.

It would be desirable that a more direct measure of discrimination be included in the model than the dummy variable for gender. Unfortunately, gender discrimination is very difficult to measure empirically. However, there is some evidence from the NLSY database that discriminatory attitudes exist and that many women feel that they have been victims of employment discrimination. Respondents were asked many questions about their attitudes and beliefs including questions about their attitudes toward women. I chose to focus on three questions. The first question asked whether respondents agreed with the statement that a woman's place is in the home. The second question asked whether



respondents agreed that women are happier in traditional roles. The third question asked whether or not the respondent felt that he or she was discriminated against based on their gender when looking for a job. These questions are important, but they were only asked in 1979, 1982, and 1987. This factor makes it difficult to include into the model; however, the results are still important. Over time, these variables show that respondents' attitudes are shifting. Fewer people agree that a woman's place is in the home and that women are happier in traditional roles. Also, fewer respondents believe that they were discriminated against based on sex (see Table

3). The results show that, although respondents' attitudes are shifting, discrimination is still occurring. This is indicated by the response to the last question. In 1982, 12.5% of women believed that they were discriminated against when looking for a job. This shows that there is a basis for including discrimination into the model. However, there is no acceptable empirical method to allow use of these measures in the regressions. Regardless, they are able supplement the analysis by showing that even though discrimination still exists, attitudes towards women are changing.

**IV. RESULTS**

The regression using 1987 data accounted for approximately thirty-eight percent of the variance in income. All variables achieved the predicted results and were significant. The

regression can be represented by the following equation:

**Equation 2:**  $INCOME = 3800.84 +$   
(t-stat) (1.609)  
 $1803.9(GENDER) - 75.2 (MAJOR)+$   
(1.607) (-2.895)  
 $8.7 (HOURS WORKED)+ 17.7 (TENURE)$   
(10.812) (3.182)

The coefficient of the GENDER variable is positive and significant. According to the regression, women earned \$1803 less than men. In other words, there

is a \$1803 wage penalty directly associated with being female. This suggests that there could be discrimination based on gender because, after controlling for education and work experience, men still earned more than women.

The coefficient of the MAJOR

variable is negative and significant to the .01 level. This variable measures the change in annual salary for every one percent increase of women employed in a field. In 1987, for every one percent increase in the number of females in a field, wages decreased by approximately \$75.

Table 4 puts these results in perspective. The first column of numbers shows the percentage of females for the selected disciplines. This ranges from 13.7% in engineering to 85.3% in the health sciences. Table 4 indicates that men in the sample choose very different majors than women. Columns

**Table 3: Respondents' Views on Women**

Statement (Year)	Percent of Females who Agreed	Percent of Males who Agreed
A woman's place is in the home.		
1979	7.9	19.3
1982	3.3	9.4
1987	4.1	1.3
Women are happier in traditional roles		
1979	15.4	20.6
1982	9.3	17.4
1987	7.9	19.3
I had a problem getting a good job due to sex discrimination.		
1979	17.4	2.2
1982	12.5	3.3
1987	Not Asked	Not Asked

three and four estimate the combined effects of gender and choice of major on men and women respectively. The values reported are derived by multiplying the coefficients of GENDER and MAJOR by the appropriate values. In terms of the regression, the equation is the following:

$$\beta_1 (\text{GENDER} - 1) + \beta_2 (\text{MAJOR} - 44.1)$$

The GENDER variable is subtracted by one in order to measure the effects of the wage penalty associated with being female. Men have a value of one in the study, so when GENDER is subtracted by one the term  $\beta_1 (\text{GENDER} - 1)$  drops out. Women have a value of zero in the study. When their GENDER is subtracted by one, the term  $\beta_1 (\text{GENDER} - 1)$  becomes the negative value of the GENDER coefficient. This represents the wage penalty that women incur, regardless of their field of study. The MAJOR variable is subtracted by 44.1% because it is the average value of MAJOR

for men and therefore the basis of comparison for all occupations. The estimated wage effects show how much more or how much less respondents are earning in comparison to the sample's average male. For example, in 1987, 77% of those who graduated

with a teaching certificate were female. According to the model, male respondents who entered into teaching earned at least \$2460 less than the sample's average male for entering this female-dominated field. Men earn less than the average male in female-dominated fields, but they are still earning more than women. Therefore, it is possible for men to experience a wage penalty, yet the wage penalty is not as large for men as it is for women. Also, the fields containing the majority of women have the greatest wage penalty. So more women are being affected by large wage penalties. The MAJOR coefficient is an extremely important finding. According to Subich and Blau, since most women

**Table 4: Estimated Effects of Choice of Major on Wages for 1987 (ceteris paribus)**

Field of Study	Percentage of Females in Major for 1987	Estimated Wage Effects for Men (In Dollars)	Estimated Wage Effects for Women (In Dollars)
Engineering	13.7	2280	476
Physical Sciences	30.3	1035	-769
Computer Science	32.4	877.5	-926.5
Social Sciences	43.8	22.5	-1781.5
Mathematics	46.4	-172.5	-1976.5
Business	46.6	-187.5	-1991.5
Life Sciences	50.3	-465	-2269
Communications	60.2	-1207.5	-3011.5
Psychology	70.0	-1942.5	-3746.5
Education	76.9	-2460	-4264
Health Sciences	85.3	-3090	-4894

are being affected by large wage penalties. The MAJOR coefficient is an extremely important finding. According to Subich and Blau, since most women

are influenced into female-dominated fields through their environment, they are never given an opportunity to earn salaries as high as men (1989, 1986).

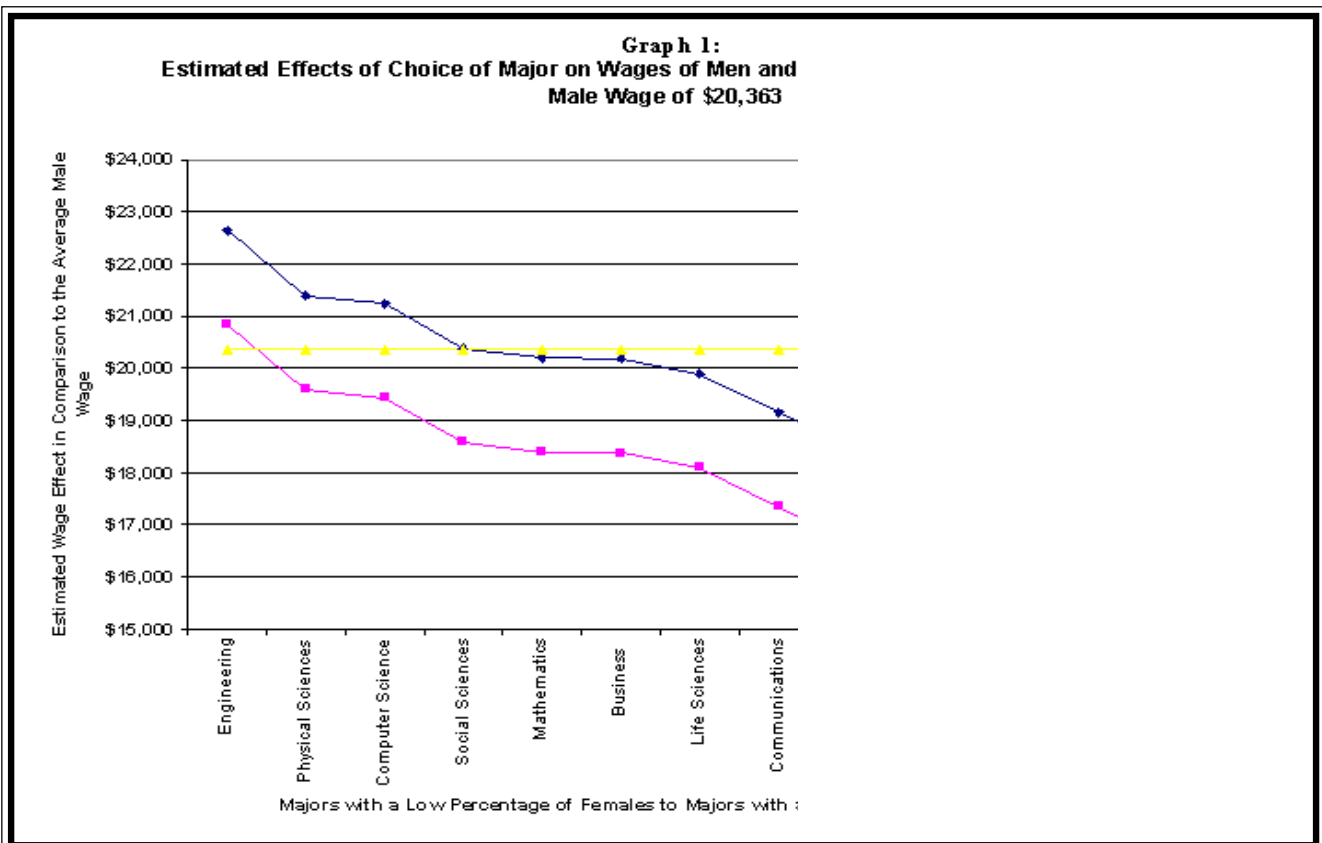
Once the wage benefits or penalties associated with the choice of major have been determined, they can be added to the sample's average male's salary in order to predict what men and women's starting salaries should be according to the model. This is shown in Graph 1. The graph emphasizes the income gap between men and women. According to the model, the only field that women can enter and earn more than the sample's average male's salary of \$20,363 is engineering. The income gap between men and women exists in every field of study, yet the overall income gap is even more pronounced than it first appears to be. Since the majority of women are in female-dominated fields, such as health sciences, education, and psychology, they are earning the lower estimated wages. However, the majority of men are concentrated in such fields as engineering, physical sciences, and computer science, and are earning the higher estimated wages. Therefore women are earning lower salaries than men due to their choice

of field and due to their gender.

The control variables in Equation 2 also show the expected signs. The coefficient of the HOURS WORKED variable is positive and significant. The coefficient of the TENURE variable is also positive and significant.

The regression results show that many women have lower wages than men for two reasons. First, they are more likely to enter female-dominated fields of study which pay less than male-dominated fields of study. This was shown by the coefficient of MAJOR. Second, even after controlling for MAJOR and work experience women are at a wage disadvantage. This was shown by the negative coefficient for GENDER. This regression shows that women who enter into female-dominated areas of study earn starting salaries that are on average \$2,982 less than men's starting salaries.

Once it was determined that there is a gap between men and women's starting salaries, the gap was followed over time to see how rapidly it changed. The regressions were run for the years 1988 to 1995, with the exception of 1994 due to lack of data. The results are dramatic; however, it is important to note that over time the sample size



decreased. This could be due to the mobility of people and the difficulty to continuously locate respondents. The regressions over time use an increasingly smaller sample, but the results are still useful in determining what happens to the income gap. The results of each year are discussed below. Please refer to Table 5 for further clarification.

The annual regressions show that over time the income gap does increase. This is seen by the increasing coefficient of GENDER throughout the nine-year time span. These regressions account for approximately 25 percent of the variance in income. The r-square ranged from .180 to .388. Also, the coefficients for each regression showed the expected signs. The most striking result of these regressions is how rapidly the gender income gap increases (see Table 5). From 1987 to 1988 the coefficients of the GENDER and MAJOR variables more than double. This increase is surprising. One explanation for this large increase is due to the difference in on-the-job training that men and women receive. Discriminatory employers may use sex-role theory and statistical discrimination to argue that women will leave the job market to have children and will

therefore not stay with the company as long as men. This makes on-the-job training for women more expensive, so employers will not train women as much as men. If men have more training than women, then according to the human capital model, they are more valuable to their employer and will earn more money. This provides an explanation for why the gender income gap increases rapidly during the first few years of work.

It is important to recognize that in all regressions beyond 1987, the coefficient of the GENDER variable is significant beyond the .01 level and is increasing over the nine-year period. This shows that the wage penalty associated with being female does not diminish. Another important result is the MAJOR variable. The coefficient of the MAJOR variable increases rapidly, almost doubling in 1988, but then it levels off and begins to decrease and becomes less significant. This indicates that respondents who choose to enter female-dominated fields experience large wage penalties early in their careers. However, unlike the GENDER coefficient, these penalties do not increase over time. The penalties for choosing a

**Table 5: Regression Results for 1987 to 1995**

Variable and (Expected Sign)	1987 Regression	1988 Regression	1989 Regression	1990 Regression	1991 Regression	1992 Regression	1993 Regression	1995 Regression
GENDER Coefficient (+)	1803.9 *	4857.0 ***	4133.3 ***	5667.8 ***	7149.7 ***	9537.6 ***	8030.4 ***	15852.7 ***
MAJOR Coefficient (+)	-75.19 ***	-151.80 ***	-151.28 ***	-120.21 ***	-101.73 **	-106.29 *	-108.76 *	93.58
HOURS WORKED Coefficient (+)	8.7 ***	5.7 ***	5.4 ***	8.3 ***	6.8 ***	8.8 ***	10.9 ***	12.1 ***
TENURE Coefficient (+)	17.7 ***	23.3 ***	26.4 ***	13.2 ***	12.2 *	21.1 ***	5.6	10.5
R Square	.388	.205	.278	.265	.180	.220	.218	.226
Sample Size	303	272	283	257	258	258	251	248

\*Significant to the .1 level  
 \*\*Significant to the .05 level  
 \*\*\*Significant to the .01 level

female-dominated field do not continuously increase, however the penalties associated with being female are still increasing over time. By 1995, nine years after graduation, men are earning \$15,852 more than women.

The increase in the income gap shows support for discrimination theories. Women have lower salaries to make up for the stereotypical shortcomings associated with the female sex-role. Through supplemental research, I showed that attitudes towards women are changing and are, in turn, decreasing discrimination. Although discrimination is decreasing, these results show that it is still very evident.

## **V. CONCLUSION AND POLICY IMPLICATIONS**

This research study supports the statement that men's starting salaries are greater than women's. The coefficient on the GENDER variable showed that men's starting salaries are on average over \$1803 more than women's, and this gap increases when women choose to enter a predominately female occupation, *ceteris paribus*.

The regressions comparing earnings over time showed that the income gap increases as men and women continue to work. However, as men and women continued to work, my sample size became smaller. This was because more respondents had missing data due to an inability to locate these respondents. One reason that respondents may have dropped out of the study could be because they changed jobs or dropped out of the labor market completely. A question that arises is do men who drop out of the study drop out for different reasons than women? For example, women who most strongly feel the effects of discrimination may change employers or entirely drop out of the labor force. This would have direct effects on my study. If it could be determined that women are leaving the labor market to avoid discrimination, then the gender income gap should be greater. This is an interesting possibility for future researchers to consider.

In terms of policy implications, incentives need to be put into place to encourage more women to obtain human capital that has a higher return.

This may involve the creation of educational programs and scholarships that would encourage women to enter non-traditional occupations. There is also a need for programs that increase the acceptability of non-traditional occupational choices made by women. This is a necessary program for adults who can encourage young children to enter non-traditional fields. Re-education should especially focus on counselors and teachers in the school system, in order to change value systems and expectant behavior of gender, and to give women full information about the job market. This re-education would decrease discrimination and increase the opportunities available to women.

Another policy implication comes from the idea that college education is more expensive for women than men. This is because women are earning less than men after graduation. College is especially more expensive for women who finance their education through loans. Since women earn less money than men, it takes them longer to pay for their education. This means that women are paying more interest on their loans, which makes their education more expensive. Perhaps, women should be given an educational discount by institutions of higher education or a subsidy from the government as an incentive to receive a higher education and make it more affordable.

These policy implications are controversial and would be difficult to implement, but they are necessary for women to be treated as equals in the job market.

## **REFERENCES**

- Agassi, Judith Buber. Comparing the Work Attitudes of Women and Men. Lexington: Lexington Books, 1982.
- Becker, Gary S. The Economics of Discrimination. 2<sup>nd</sup> ed. Chicago: The University of Chicago, 1971.
- . Human Capital. 3<sup>rd</sup> ed. Chicago: The University of Chicago, 1993.

- Blau, Francine D., and Marianne A. Ferber. The Economics of Women, Men, and Work. Englewood Cliffs: Prentice-Hall, 1986.
- “Earned Degrees Conferred, 1987-1988.” Chronicle of Higher Education 5 Sept. 1990: 15.
- Daymont, Thomas, and Paul Andrisani. “Job Preferences, College Major, and the Gender Gap in Earnings.” Journal of Human Resources Summer 1984: 412-413.
- Dunn, Dana. “Gender and Earnings.” Women and Work. Ed. Paula J. Dubek and Kathryn Borman. New Brunswick: Rutgers, 1996.
- Filer, Randall. “Male-Female Wage Differences: The Importance of Compensating Differentials.” Industrial and Labor Relations Review April 1985: 426-437.
- Goldin, Claudia. “Understanding the Gender Gap: An Economic History of American Women.” Equal Employment Opportunity. Ed. by Paul Burstein. New York: Aldine de Gruyter, 1994. 17-26.
- Green, Carole and Marianne Ferber. “Occupational Segregation and the Earnings Gap.” Essays on the Economics of Discrimination. Ed. by Emily Hoffman. Kalamazoo: Upjohn Institute, 1991. 145-165.
- Hatt, Sue. Gender, Work and Labour Markets. New York: St. Martin’s Press, 1997.
- Jacobsen, Joyce. The Economics of Gender. Cambridge: Blackwell, 1994.
- Jacobsen, Joyce and Laurence Levin. “The Effects of Intermittent Labor Force Attachment on Female Earnings.” 1992 The Economics of Gender. Ed. Joyce Jacobsen. Cambridge: Blackwell, 1994. 272-274.
- National Association of Colleges and Employers (NACE). Salary Survey 35.4 (1996).
- National Association of Colleges and Employers (NACE). Salary Survey 36.4 (1997).
- National Longitudinal Survey of Youth. Center for Human Resource Research. 1997.
- Sadker, Myra and David Sadker. Failing at Fairness. New York: Touchstone, 1994.
- Subich, Linda Mezydlo, Gerald Barret, Dennis Doverspike, and Ralph Alexander. “The Effects of Sex-Role-Related Factors on Occupational Choice and Salary.” Pay Equity: Empirical Inquiries. Ed. Robert T. Micheal, Heidi Hartmann, and Brigid O’Farrell. Washington, D.C.: National Academy, 1989. 91-104.
- Whittaker, Julie. “Gender Segregated Occupations: Has the penalty for working in occupations composed primarily of women diminished over time?” Diss. University of Wisconsin-Madison, 1996.