

THE WAGE GAP:  
GENDER DIFFERENCES IN THE TEACHING PROFESSION

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The following faculty members have examined the final copy of this thesis/dissertation for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Sociology.

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## DEDICATIONS

First and foremost I give honor to God for allowing me to achieve this accomplishment. Thank you for carrying me through this journey in my life, I could not have walked it alone.

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## ABSTRACT

This thesis examines the wage gap between male and female teachers by analyzing data drawn from the 2006-08 Current Population Survey (CPS). The CPS data set is composed of 72,000 households and the civilian noninstitutional population of the United States abiding in these households. The dependent variable, income, is an interval measure of annual income from wages and salaries. In this study the lower income for female teachers is best explained by three theoretical perspectives: individual, structural, and gender. A univariate, bivariate and multivariate analysis were conducted and it was found that the wage gap between male and female teachers was partially explained by age, education, and organization size. It was also found that women will receive a lower income than their male counterparts based on their gender, and that women will be sorted into inferior economic positions relative to men.

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## 1. Introduction

The Equal Pay Act was signed in 1963 declaring that women and men will be given equal pay for equal work. This act was to provide equality in wages among men and women, yet four decades later women are still being given lower wages than men (EEQC, 2008). It is evident in the teaching profession where there is a wage gap between male and female teachers. Female teachers dominate the low paying positions in elementary and secondary education levels, while male teachers dominate the higher paying positions in college and graduate education levels. Some well known reasoning behind the wage gap between men and women is due to sex segregation, or the division of labor based on gender. The Equal Pay Act does little to concentrate on this issue because it is limited in addressing only gender between those who occupy the same job (EEQC, 2008). Other reasoning behind the wage gap between men and women stems from the difference in human capital investments men and women make. The difference in men and women's investments supports the idea that individuals with more human capital have a greater value to employers because they have more education, as well as job experience, adding to their increased knowledge, giving the employer more productivity. Even though female teachers are achieving education and making human capital investments they are still receiving lower wages than their male counterparts.

A review of the literature will explore the reasoning behind the wage gap. There are two dominant theories that are commonly used in the wage gap between men and women. The first being human capital theory arguing that an individual's experience, knowledge and skill come from education and training and produce economic value. Gary Becker, who is credited as the father of human capital theory, argues that the most valuable capital can be found within humans. Education and training are the most important investments in human capital (Swanson,

Holton, and Holton, 2001). In the human capitalist point of view, the wage gap exists because of the different investments men and women make. Women choose to invest their time in domestic activities/labor, while men choose to invest their time into education, job experience, and training; these all being skills that will increase productivity. The second theory is a structural perspective, being that it is one's position that is the determinant of their income. This theory examines the labor market of the individual, and views the economy as a dualistic labor market being segmented into a primary and secondary sector (Edwards, et al, 1973). It argues that men are in the primary labor market, making higher wages than women, who are in the secondary labor market.

The two theories above believe that gender is a factor that can be controlled, and an alternative is to view gender as a factor that influences job positions. Even though gender does play a role in the human capital investments women make, it is also a process of sorting women into the peripheral and secondary labor markets. This marginalizes women into crowded, sex-typed jobs that are devalued.

In order to examine the three theories above and their impact on the wage gap between male and female teachers the 2006-08 CPS data set will be analyzed. A complete literature review follows including a summary conceptual model which integrates the ideas in the three theories used.

## 2. Literature Review

### 2.1 Individual Level Models

Rational choice theory argues within an individualist perspective. It explains all social situations as acts performed by individuals' rational choices to feed their self interest. Individuals are rational actors who make choices concerning economic cost. Every social interaction



individuals have between one another is based on economic wants. They are motivated by the economic rewards that will come from their interactions in hopes that they will achieve a profit for their actions (Browning, Halcli, & Webster, 2000).

### 2.1.1 Human Capital Theory

In contrast, human capital theory argues that one's experience, knowledge and skill come from education and training which produce economic value (Swanson, Holton, and Holton, 2001). Gary Becker argues that the most valuable capital can be found within humans. Education and training are the most important investments in human capital (Swanson, Holton, and Holton, 2001).

Human capital theory has two different aspects: firm specific and general purpose. Firm specific human capital is the knowledge gained from education and training in areas such as management information systems, accounting and other jobs that pertain to a firm. General purpose human capital is the knowledge gained from education and training in generic skills such as sales, marketing, and human resource management (Swanson, Holton, and Holton, 2001).

There are key relationships and ideas in Gary Becker's theory of human capital. The relationship between education and training demonstrate that investments that are made in education and training will produce more learning (Swanson, Holton, and Holton, 2001). The relationship between learning and productivity indicate that with increased learning comes increased productivity. The relationship between productivity and wages suggests that more productivity will produce more wages for individuals and more earnings for businesses (Swanson, Holton, and Holton, 2001).

Human capital theory has three key factors: education, training and age. Meaning the older the individual is, the more experience they have in on the job training. This is beneficial because the individual will produce more economic value with their further knowledge of the job training. When viewing the wages of teachers, female teachers have lower wages than male teachers despite the female teachers being in possession of the key factors. The majority of women in general outnumber men in holding a four year college degree. In 2007 alone women held fifty four percent of bachelor's degrees within the United States (Challenger, 2009). In the 2008 U.S. Census Bureau, a total of 7,879 females obtained their Master's degree, while 844 obtained their doctorate (U.S. Census Bureau, 2008). The women who choose to participate in the teaching field having their bachelor's degree, have a low average salary. Even with the education that women hold, female teachers are more subject to hold employment in the primary and secondary education area (k-12<sup>th</sup> grade). Female teachers who had been teaching less than one year had an average salary of \$34,212 (Payscale Report, 2009). Female teachers who had been teaching between one to four years had an average salary of \$36,570 (Payscale Report, 2009). Female teachers who had been teaching between five to nine years had an average salary of \$42,011(Payscale Report, 2009). Female teachers who had been teaching between ten to nineteen years had an average salary of \$48,885 (Payscale Report, 2009). Female teachers who had been teaching twenty years or more had an average salary of \$56,092 (Payscale Report, 2009). Female teachers that hold a graduate degree, and teach at a university/college level earn an average of \$41,142 per year (Payscale Report, 2009).

Within the elementary and secondary education levels of education, male teachers earn ten percent more than female teachers (Fairfield & Roberts, 2009). Within the college education level, more tenured teachers are male; establishing the twenty two percent higher wage males

have over females (Fairfield & Roberts, 2009). In the 2008 U.S. Census Bureau, a total of 6,886 males obtained a Master's degree, while 1,628 obtained their doctorate (U.S. Census Bureau, 2008). The college/university level teachers are pre-dominantly male teachers who hold a graduate degree, earning an average salary of \$46,239 per year. Male teachers who had been teaching less than one year had an average salary of \$40,000 (Payscale Report, 2009). Male teachers who had been teaching between one to four years had an average salary of \$38,671 (Payscale Report, 2009). Male teachers who had been teaching between five to nine years had an average salary of \$42,479 (Payscale Report, 2009). Male teachers who had been teaching between ten to nineteen years had an average salary of \$46,595 (Payscale Report, 2009). Male teachers who had been teaching twenty years or more had an average salary of \$52,552 (Payscale Report, 2009).

When examining female and male teachers' wages based on education, training and age, human capital theory illustrates that because male teachers have invested more time into their education and on the job training they are able to produce more economic value, resulting in higher wages than female teachers. Female teachers obtain lower wages than male teachers as a result of investing an inadequate amount of time into higher education and on the job training.

### 2.1.2 Comparative Advantage Theory

Although women have a higher four year educational investment than men, they still receive a lower income than men because they are less likely to use their degree (Cline, 1994). Comparative advantage theory examines the reasoning behind women receiving a lower income than men. Comparative advantage theory argues that a country or individual can produce a good at a lower opportunity cost than another country or individual. David Ricardo explained the theory in his example of countries needing to trade with alternate countries even if some had

lower efficiency in their products. The trading between the two countries would help with all countries opportunity cost (Cline, 1994). Comparative advantage is most useful when trading goods that involve natural resources and it demonstrates that economic gain can be achieved by both countries even if one has higher efficiency in the majority of its goods (Cline, 1994).

When applying comparative advantage theory to the differences in male and female occupations, there are many factors that can account for the differences between the two genders. Women may have less work experience than men, change jobs more frequently, or be less productive in their work (Suter & Miller, 1973). Another factor that applies to some women is the age they choose to work. While men choose to work full time between the ages of twenty and forty, women are working only part time, and sometimes not at all, to take care of their families and raise their children (Suter & Miller, 1973).

Comparing the differences in occupations and wages between male teachers and female teachers there are fewer numbers of male elementary and secondary teachers than women. Reasoning behind the low numbers in male elementary and secondary teachers is men's disinterest in working in a female dominated profession (Brown, 2008). In 2006, men only made up twenty four percent of teachers in the United States, and in Kansas only thirty three percent (Brown, 2008). Men are also not willing to embrace low social status, by doing what they believe is women's work, and they will not work for low wages the way women will (Brown, 2008). Men are also lacking in nurturing attributes (Brown, 2008), and can be accused of child abuse very easily (Brown, 2008). Additionally, men are encouraged to seek administrative positions, such as principals or deans, in schools even if they do attempt to teach where as females are encouraged to stay in the classroom and are not pushed into in educational administration (Brown, 2008).

In comparing wage differences between male and female teachers, because women choose to be more family oriented, they are prone to changing jobs more often, have less job experience, and begin their careers at a later age than men, resulting in a low salary (Suter & Miller, 1973). This may explain the low wage of female teachers. They need a flexible job schedule and more freedom to change jobs in order to take care of their family and children. Due to female teachers' first priority being their families, their incomes suffer and the primary and secondary teaching areas are more accessible to their needs. On the other hand, men are not primarily focused on their families and children, leaving them free to pursue a higher paying career while they are at a younger age (Suter & Miller, 1973). Men are able to invest time in an administrative position; such as a principal, dean, (Brown, 2008) doctoral program or teaching career. Male teachers do not have the domestic responsibilities female teachers have, giving male teachers a more successful teaching career at a university/college level.

## 2.2 Structural Level Theory

In contrast to individual theories, which focus on the individuals' actions determining their income, structural theories view society as an economic hierarchy composed of economic positions. Each position has a range of income independent of individual attributes. Structural theories focus on the concept that individuals wages are based on the position they occupy.

### 2.2.1 Dual Economy Theory

Dual economy theory argues that within an economy there is an imbalance between two different sectors that are growing at different rates (Basu, 2003). The labor market within a dual economy consists of two sectors: core and periphery (Beck, et al, 1978). Within each of these two sectors employers and workers operate under different sets of rules. In the late nineteen nineties, the core sector emerged and became filled with and dominated by large corporate

enterprises. In contrast to the core sector, the periphery sector is dominated by smaller firms that have a less competitive and capitalistic environment (Beck, et al, 1978).

The core sector includes the industries that make up economic and political power. They are filled with manufacturing as well as construction trades. The automobile, steel, rubber and aluminum industries are very active in the core sector of the economy (Beck, et al, 1978). The firms within the core sector are large and known for high productivity, profits, intense utilization of capital, and monopoly elements. This type of sector has high profits and wages, because of the elements that are within it. Workers who have jobs within this sector not only have high wages, but they also have employment security, good benefits and safe working environments (Beck, et al, 1978). The core sector would include the male teachers at the university level of education. Most male teachers are more likely to achieve tenure in their teaching career which insures them high profits, employment security, and good benefits. While most female teachers will remain adjuncts, professors on a part time basis who do not have employment security and good benefits (Rubin, 2009).

Unlike the core sector of the economy, the peripheral sector is lacking in most of the advantages the core has. This sector is dominated by industries of agriculture, retail, and sub-professional services. The firms within the periphery are very small, have intense labor, low profits as well as productivity, and low wages. The periphery does not have the size, assets or political power to take advantage of the economy and use it to enhance its sector (Beck, et al, 1978). The periphery sector would mostly be composed of female teachers, with a small amount of male teachers, at the elementary and secondary levels of education because of the low wages, and low employment security.

Dual economy theory implies that these different sectors create different opportunity structures and experiences for workers. In the core sector workers are able to move within jobs which give them the opportunity for different tasks, wages as well as careers. In the peripheral sector job opportunity, tasks and wages are very restricted which accounts for the workers low wages. The workers are paid hourly based on their individual capacities such as reasoning and vocational skill (Beck, et al, 1978).

### 2.2.2 Segmented Labor Market Theory

Segmented labor market theory argues the labor market has been divided and placed into separate segments. Each segment has different labor market characteristics and rules. The labor market has been separated into four different segments: segmentation into primary and secondary markets, segmentation within the primary sector, segmentation by race and segmentation by sex (Edwards, et al, 1973).

Segmentation in the primary and secondary markets differ by their characteristics. Primary labor market jobs require and develop stable working environments, skills are learned on the job, wages are high, and there is the possibility of climbing the job ladder. However, secondary labor market job characteristics are low wages, few job ladders, and the workers do not have a stable work environment. This labor market is filled with young workers, minorities, and women (Edwards, et al, 1973).

The primary sector is segmented within itself into two different jobs: the subordinate and the independent. Subordinate primary jobs include factory and office jobs. These jobs are routine, encourage its workers to be dependable, disciplined, submit to rules as well as authority, and accept the firms goals. However, the independent primary jobs require workers to be

creative, problem solving, self initiating, and have professional standards for work. Individual motivation and achievement are highly rewarded (Edwards, et al, 1973).

The labor market is not only segmented into the primary and secondary markets, but it is also segmented by race and sex. Minority workers are seen in the secondary, subordinate primary, and independent primary segments of the labor market. Within these segments there are jobs that are 'race typed', meaning that these jobs are segregated by prejudice and labor market institutions (Edwards, et al, 1973). There are also certain jobs that have been restricted to men and others to women. Wages in the female dominated jobs are much lower than those job assigned for men. Female jobs are those that require a serving mentality, meaning providing services to other people, and their main goal should be to provide to men. These characteristics for female jobs are encouraged by families and educational institutions (Edwards, et al, 1973).

In the academic profession, minorities have the lowest total of professors and are more likely to be employed at two year colleges (Schneider, 1997). Within four year universities African Americans, Latinos/as, Asian Americans, and other non-white people accounted for only 12% of all full time faculty members and only 16% of African American and Latino/a are full professors with tenure (Kendall, 2008).

Within the educational institutions, women are pushed more into the secondary positions such as teaching within the high school and elementary levels. As of 2007 80.9% of elementary school teachers were female, while 97.3% of preschool and kindergarten teachers were female (Department for Professional Employees, 2008). The difference in occupation distribution between men and women remains unequal within the secondary education level, with women being the dominant gender in comparison to men (Department for Professional Employees, 2008). In colleges and universities, female teachers earned 25% less than those who were male



(Department for Professional Employees, 2008). According to the pay scale report of 2009, in the United States, male teachers within the K-12 education level made a higher income than female teachers in the K-12 education level with an average salary of \$44,005 dollars. Female teachers made an average salary of \$41,335 dollars (Payscale Report, 2009).

There is also a level of occupational prestige that coincides with teaching. Occupational prestige involves social advantage and power associated with a role or membership within an occupation (Goldthorpe, Hope, 1972). Within the teaching occupation, the higher the occupational prestige or position the teacher holds, the higher the wages will be for the teacher. Female teachers have a lower occupational prestige than male teachers because they are dominant within the secondary labor market; primary and secondary levels of education, while male teachers are dominant in the primary labor market, university/college level of education.

### 2.3 Gender Theory

In contrast to individual and structural theories, which view gender as a factor that can be controlled, gender theories view gender as a means of devaluing and sorting. Women are devalued in comparison to men, as is their work and contributions in the work force. This causes women to be sorted into crowded female dominated job positions, and their earnings to be lower than men's (Bergman, 1983).

#### 2.3.1 Crowding Theory

Barbra Bergman (1983) argues the crowding theory claiming that women are excluded from select occupations causing women to crowd into the remaining occupations, causing a decrease in productivity and wages for women. Those women working in male dominated jobs are paid lower wages than men because of discrimination against their sex (Rosen, 2003).

Bergman believes that an individual's wages are a reflection of the job they hold and the labor market conditions in which the job is located. No matter what qualifications an individual holds their sex may be the determinant as to whether or not an employer will consider them for a position (Bergman, 1986). Women's low wages are a reflection of occupational segregation; many jobs are only available to men, others are only available to women and a select few are available to both men and women (Bergman, 1986). Occupational segregation establishes the factors that cause segregation result in the crowding of the women's job sector, therefore keeping male dominance alive and women in small subordinate job sectors (Bergman, 1986).

### 2.3.2 Revolving Door Theory

Women are subject to sex segregation, discrimination and limited occupational mobility which can be explained by Jerry Jacobs (1989) revolving door theory. The revolving door theory process recognizes the struggles women face in male dominated occupations and explains the flow of women in and out of male dominated occupations. For every one hundred women that hold male dominated occupations, over a length of two years, ninety women will remain in that occupation while ten leave for a sex-neutral or female dominated occupation (Jacobs, 1989). At the same time these ten women are leaving, eleven men enter a male dominated occupation coming from another occupation group. This causes a revolving door effect, allowing ten workers out of an occupation for every eleven workers the occupation lets in, meaning there will always be more male workers in male dominated occupations because for every ten women that leave, eleven men will replace them (Jacobs, 1989).

Reskin and Roos (1990) examine the differences in wages for women by using the hypothesis of Lester Thurow (Reskin and Roos, 1990). Thurow hypothesized that African Americans experienced more unemployment than Caucasians because employers ranked African

Americans lower than Caucasians in the labor queue (Reskin and Roos, 1990). Reskin and Roos examined the pay gap for women in this same manner: women experience lower wages than men because they are ranked lower than men by employers in the labor queue (Reskin and Roos, 1990). There is also the job queue which determines a worker's ranking of jobs. Both labor and job queues have an effect on the labor market because employers wish to hire an employee from as high as possible within the labor queue, while the employees wish to obtain the best jobs available (Reskin and Roos, 1990). This results in the preferred worker obtaining the best job, while the worst jobs are obtained by those lower in the labor queue, and some jobs are left unoccupied because they are so undesired by employees (Reskin and Roos, 1990).

The queues dictate which group of workers will end up with which jobs and are made of three properties: the ordering of their elements, shape, and the intensity of rankers' preferences (Reskin and Roos, 1990). The elements consist of jobs, groups and workers. The shape is the size of population subgroups in the labor queue and occupations in the job queue; while the intensity of rankers' preference determines whether or not elements overlap. The number of workers within each subgroup in a labor market creates the shape of the labor queue. The job queue is similar, with the number of jobs at each level of a specific job creating the shape of the queue (Reskin and Roos, 1990). If there are changes in the shapes of both queues, it affects each group of employees' access to desirable jobs as well as each occupation's probability of recruiting workers from certain groups (Reskin and Roos, 1990).

The intensity of rankers' preferences is the last element in the queue, being that for select employers' group membership is very important and they favor those from the same group as they are, no matter what qualifications they may or may not have (Reskin and Roos, 1990). Employers have expectations about performance and cost, and obtain custom and sex prejudice

influence to rank the sexes within the labor queues resulting in queues that favor men above women (Reskin and Roos, 1990).

Women will be sorted into the lower economic positions relative to men. Female teachers are receiving lower wages than male teachers because they are discriminated against due to their sex. Whether it is by being sorted into female dominated job positions, being the primary and secondary teaching level (Bergman, 1986), being replaced by eleven men when ten women leave that position (Jacobs, 1989), or being in the lower portion of the labor queue meaning female teachers are not hired to work for teaching positions of higher wages due to employers' prejudice against women. Employers favor male teachers, allowing them entry into the college/university level (Reskin and Roos, 1990). This traps female teachers in the primary and secondary levels of teaching with low wages and allows male teachers to retain their positions in the university/college level with high wages (Reskin and Roos, 1990). Female teachers are devalued in comparison to male teachers, as is their work and contributions in the educational field.

#### 2.4 Conceptual Model (Refer to Model)

The conceptual model examinations of each theory's value in explaining why female teachers have lower wages than male teachers. The individual theory argues that individuals are rational and make investments in human capital. Human capital includes education, on the job training, age (which results in more experience in on the job training) and other knowledge. Increases in human capital result in higher earning potential. Female teachers did not invest in their capital the way male teachers do, resulting in male teachers having higher wages than female teachers. Female teachers are more focused on their domestic duties, whereas male teachers are free to aspire in their teaching careers.

In contrast, the structural theory argues that income is determined by the economic position one occupies and what labor market segment that position holds within the primary or secondary labor market. The core economy is comprised of mainly primary labor market jobs, while the peripheral economy is comprised of mainly secondary labor market jobs. A person's position in either the primary or secondary labor market determines their income. The primary labor market requires more skills, and has a small amount of qualified individuals within this labor market, resulting in a higher income. The secondary labor market requires fewer skills and has numerous individuals within this labor market, resulting in a lower income. Female teachers are located within the secondary labor market, placing them in a teaching position filled with several female teachers similar to themselves: education levels kindergarten through high school, few skills required to teach the students and low income for the teachers. Male teachers are prevalent in the primary labor market; a teaching position at a university/college that requires more skill, fewer teachers similar to themselves, and a high income.

The gender theory is in contrast with both the individual and structural theories, and views gender as a factor that can be controlled. Gender theory views gender as a way of devaluation and sorting of women into female jobs. Gender theory argues that women as a group are segmented into the secondary labor market which is crowded through a process that determines the individual's access to certain positions. This can be seen in the labor queues that favor men over women, the crowding theory, and the revolving door theory. Discrimination and socialization account for the decrease in women's income. Female teachers are victim to discrimination and devaluing based on their gender. Female teachers receive lower wages than male teachers because they are crowded into the same teaching area, the elementary thru high school levels, and the labor queue that favors male teachers over female teachers.

Hypothesis:

- 1) Net of other factors increases in age will result in increases in income.
- 2) Net of other factors increases in education will result in increased income.
- 3) Net of other factors increases in occupational prestige will result in increased income.
- 4) Net of other factors as organizational size increases, income increases.
- 5) Net of other factors women will receive a lower income than men.
- 6) Women will be sorted into inferior economic positions relative to men.

### 3 Data and Methods

#### 3.1 Data

The current research relies on data drawn from the Annual and Social Economic (ASEC) which is a sample drawn from the 2006-08 pooled Current Population Survey (CPS). The CPS data set is composed of 72,000 households and the civilian noninstitutional population of the United States abiding in these households. The CPS selects 57,000 households monthly to interview with the goal of attaining information of employment situations and the demographic status of the population with information such as: age, sex, race, marital status, educational attainment, and family structure.

In addition to these selections, the following restrictions were also imposed. Only individuals between the ages of 18 and 64 were included; which removes the individuals in training and retired individuals. Individuals who are self employed and military spouses were also excluded because they do not accumulate income the same as employed individuals. Only primary and secondary teachers were included; this includes elementary and high school teachers and removes the special education and other education teachers. Individuals with annual incomes

below \$258 and above \$200,000 were also excluded. The final sample size is a total of 8,829 men and women.

The inclusion of weights in the ASEC requires that weights be used in the data analysis. Standard weights generate within large sample sizes which effect the population parameter, causing the standard error to be reduced. The reduction of the standard error makes all tests of significance true even when a non significant finding would be expected. In order to compensate for this bias, the ASEC weight is divided by its mean creating a relative weight. The creation of a relative weight generates N values in the sample distribution that are more reflective of those in the target population. The relative weight returns the N to the original sample size, reducing the bias created by inflating the sample to the size of the population, while still reflecting the population parameters.

### 3.2 Dependent Variable

The dependent variable, income, is an interval measure of annual income from wages and salaries. It does not include earnings from self-employment or other sources such as interest, dividends, social security, etc. While many scholars log income to correct for skewness, the sample restrictions will minimize skewness. In addition, the standardized residuals are normally distributed so the annual income will remain as dollars. Centiles and quintiles of income have been created for descriptive purposes.

#### 3.2.1 Model Segments

#### 3.2.2 Individual Factors

Measures of human capital include age, education and experience. Age is being used as a measure for experience. Age is a nine level ordinal measure, and was converted into a primary

work age (0,1) binary. Ages 25 thru 59 being the ‘primary work age’, equal one and all other ages, equal zero. Education is a five level ordinal measure in the ASEC, and was converted into five (0,1) education binaries being: ‘less than high school diploma’, ‘high school diploma or equivalent’, ‘some college’, ‘college degree BA/BS’ and ‘advanced degree MA MS PhD MD’. An additional (0,1) college degree binary was created by recoding the five level education degree variable where ‘less than high school’ thru ‘some college’ equals 0 and ‘college degree BA/BS’ and ‘advanced degree MA MS PhD MD’ equals 1.

A descriptive location variable was also created. The location factors include the creation of a Midwest and rural (0,1) binary. The Midwest binary, which originally had four regions, was created as Northeast, South, and West being zero and Midwest being one. The rural (0,1) binary was created as urban being zero, and rural being one.

### 3.2.3 Structural Factors

Structural factors included annual hours of work, type of employment; being full-time or part time, the type of employer whether it is government or private sector, the type of industry in which they were employed, and the respondents educational occupation. The ASEC worker status variable was recoded into four (0,1) work status binaries with the binaries being: ‘full time full year’, ‘part time full year’, ‘full time part year’, and ‘part time part year’. Additional (0,1) full time/ part time binaries were created by recoding the hours per week variable. Those who work part time weekly have a (0,1) binary of one being part time; 34 hours and below, and all other hours being zero. Those who work full time weekly were given a (0,1) binary of one being full time; 35 hours and above, and all other hours being zero. The annual hours worked variable was computed by multiplying the weeks worked variable by the hours per week variable. Hours per week is measured as an interval level variable and constitutes the number of hours worked on



a weekly basis. Weeks worked is measured as an interval level variable as well and constituted the number of weeks worked by individual.

The worker type variable, originally a six level variable being: 1 private, 2-4 government: federal, state, local; 5-6 self-employed: incorporated, non-incorporated was recoded into a (0,1) government binary where government worker (2-4) equals one, and all other worker types, non government workers, equal zero (1,5-6). The individuals who are self employed are excluded because self employed individuals do not earn income the same way as individuals in the government or private sectors.

The company size variable was recoded into three (0,1) binary with the binaries being: 'small business' those with 99 or less employees, 'medium business' employee size between 100 and 499, and 'large business' employee size of 500 and above. The education occupation variable was recoded into three (0,1) binaries with the binaries being: 'elementary teachers', 'high school teachers', and 'special education teachers'.

White collar high skill, white collar low skill, blue collar high skill, and blue collar low skill variables were already defined as (0,1) binaries in the ASEC and no additional transformations were necessary. White collar high skill positions are defined as managers, professional, technicians, educators, and health care providers. White collar low skill positions are defined as sales, clerical, and administrative support, Blue collar high skill positions are defined as precision craft, high skill transportation, construction, and protective. Blue collar low skill positions are defined as service, machine operators and assemblers, and farm-fish-forestry.

Occupational prestige is measured as an interval level variable. The occupational prestige values were taken from the GSS user guide on the occupational prestige scores. These values

were then remapped back into the 4-digit CPS/ATUS occupation codes, so the values were able to be used in the dataset (Hodge, et al, 1990).

#### 3.2.4 Gender Factors

Gender level factors included female, occupational sex segregation index, industry sex segregation index, race and ethnicity, minority, marital status, with child under 18, with child under six, and immigrant status. Female was created by recoding the sex variable into a (0,1) binary with one being female and zero being male. The race/ethnicity variable was created from the race and ethnicity variables contained in the ASEC. This was achieved by sorting respondents into two groups of Hispanic/Non Hispanic and subdividing them into White, Black, Asian, and other minorities. Then (0,1) binaries were created for White non Hispanic, Black non Hispanic, Hispanic, Asian non Hispanic, and other non Hispanic. A minority (0,1) binary was created by recoding the race/ethnicity variable where one equals White non Hispanic and Asian non Hispanic and zero equals all other variables. The immigrant status (0,1) binary was created by recoding the immigrant variable in the ASEC where one equals yes and zero equals no.

The marital status variable was created by recoding the ASEC marital variable into three (0,1) binaries with the binaries being: 'married', 'ever married', and 'never married'. The has child under 18 (0,1) binary variable was created by recoding the ASEC variable with one equal to yes and zero is no. The has child under 6 (0,1) binary variable was created by recoding the ASEC variable with one equal to yes and zero is no. The occupational sex segregation index and sex segregation index are both measured as interval level variables. They are measured by taking the percent female within each 4 digit occupation or industry code divided by the percent female in the workforce. Values of one show men and women equally distributed, values under one show women under-represented and values over one show women are over represented.

### 3.3 Data Methods

A univariate, bivariate, and multivariate test will be used for analysis. The univariate tests will include the statistics of mean, median, and standard deviation to identify the general characteristics of the sample. The two populations of interest are men and women. Bivariate statistics are used to evaluate the statistical significance of the differences found in the univariate analysis. Bivariate statistics include a t-test performed on the dependent and independent variables by gender which identifies any significant differences between men and women. A multivariate analysis was performed using ordinary least squares (OLS) multiple regression analysis in order to determine the independent variables effect on the dependent variable and whether the effect was impacted by gender.

## 4 Findings

### 4.1 Table 1 Univariate and Bivariate Analysis by Values for Full Sample and by Sex

According to the 2006-2008 CPS data, annual earnings of men is \$44,272 with a median annual earnings of \$44,000. The annual earnings of women are \$37,259 with a median annual earnings of \$39,000. The difference between male and females average earnings is significant, with females' average earnings being 84.2% of males and 88.6% for the median. This results in an annual difference of \$7,013 for the mean and \$5,000 for the median.

For the individual level factors, the difference between male and females average educational attainment is statistically significant at the 0.001 level. There was statistical significance in education at the 0.01 level with 46.1% of men having a BA/BS degree or higher, and 49.6 % of women having a BA/BS degree or higher. There was statistical significance at the 0.001 level between the average of men and women with an advanced degrees (MA to PhD), with 47.4% of men having an advanced degree, and 42.2% of women with an advanced degree.

Respondents residing in the South region have a 0.001 statistical significance with 33.6% of men and 40.0% of women residing there. There was no statistical significance in the age of the respondents, respondents with some college or less education, and respondents residing in a rural region.

For the structural level factors, the difference between men's average hours per week worked, 43, and women's average hours per week worked, 40, was significant at the 0.001 level. The percent of full time and annual hours worked was statistically significant at the 0.001 level. 93.0% of men worked full time and 86.5% of women worked full time. Men's annual hours worked were 2,054 in comparison to women who worked 1,867 hours annually. The difference between the average number of men working for the government and women working for the government is significant at the 0.001 level. Men are more likely to work for the government, at 84.7% in comparison to 82.6% of women who work for the government. The difference between men and women average employment in small and medium businesses is significant at the 0.01 level. Averages of 12.7% of men are employed in small businesses, in comparison to 15.0% of women that are employed in a small business. Averages of 21.6% of men are employed in medium businesses, in comparison to 18.6% of women that are employed in a medium business. The difference between men and women average employment in large businesses is significant at the 0.001 level. An average of 65.8% of men work in large businesses and 66.4% of women work in large business. Within the teaching profession, men and women were statistically significant at the 0.001 level. 49.4% of men were elementary school teachers and 70.6% of women were elementary school teachers. 45.7% of men were high school teachers and 20.2% of women were high school teachers. 4.9% of men were special education teachers and 9.2% of women were special education teachers.

For gender level factors, 8.7% of men and 12.7% of women were never married. 21.9% of men and 16.9% of women were ever married. The difference between men and women's average immigrant status is significant at the 0.001 level. 7.2% of men and 5.3% of women were of immigrant status. Those who had children under the age of six were statistically significant at the 0.01 level with 21.5% of men and 18.8% of women. There was no statistical significance in whether or not the respondent was a minority or married.

#### 4.2 Table 2 Bivariate Analysis of Median annual Earnings by Occupation and Education

The occupation variable has been sorted into three levels of educational teachers; Elementary, High school, and Special education. From this sorting the difference in pay can be seen between male and female teachers. Female elementary school teachers have annual earnings of \$41,000 with male teachers' earnings of \$45,000. Following this are female high school teachers who earn \$43,700 and male teachers who earn \$48,000. Special education teachers that are female earn \$42,000 in comparison to male teachers who earn \$42,900.

The education attainment of males and females was also sorted into three levels being some college, college degree (BA/BS), and graduate or professional degree. It can be seen through this sorting the difference in pay between males and females based on their educational attainment. Females with some college education earn \$24,000 annually, while men earn \$35,287 annual earnings. In other levels of education, females with a college degree (BA/BS) earn \$38,000 whereas men earn \$2,000 more, giving men \$40,000 in higher earnings than females. Females with a graduate or professional degree earn \$49,000 annually while men earn \$50,990.

The pay-gap can be seen between male and female teachers with elementary, high school and special education teacher's earnings. The difference between male and female earnings in

teaching elementary and high school is significant at the 0.001 level. Elementary school teachers have a pay-gap between male and female teachers of 91.1% with 79.8% of elementary school teachers being women. High school teachers have a 91.0% pay-gap between male and female teachers with 53.3% of high school teachers being women. Special education teachers have a pay gap of 97.9% between male and female teachers with 85.1% being women. It can also be seen what percentage of women make up the educational occupations within all females. 70.4% of females make up elementary teachers, 20.2% of females as High school teachers, and 9.4% of females being Special education teachers.

For education, the difference between men and women obtaining a some college or less thru graduate or professional degrees is significant at the 0.001 level. 73.5% of women have some college education who experience a 68.0% pay-gap in comparison to men with some college education. 74.4% of women with a college degree (BA/BS) experience a 95.0% pay-gap along with 71.3% of women who hold a graduate or professional degree who experience a 96.1% pay-gap between themselves and men holding a graduate or professional degree. It can be seen what percentage of females have an educational attainment within all women. 5.9% of females have some college education, 48.3% have a college degree (BA/BS), while 45.7% of females have a graduate or professional degree.

#### 4.3 Table 3 OLS Regression Analysis for the Income Determination Model

OLS Regression Analysis for the full sample resulted in an adjusted R square of 0.545, which means that 54.5% of the variations of the dependent variable, income is explained jointly by the independent variables in the model. At the individual level, age, education, and geographical location where the respondent lives can significantly predict the variations of income. The modified chow test analysis shows respondents with a post graduate and college

degree have a significant size effect. Net of other factors, respondents having a post graduate degree earn \$17,457 more annually and \$8,929 more annually if they have a college degree, than respondents who have less than a high school diploma. The modified chow test analysis shows that the age (which is used as a measure for job experience) shows a significant size effect. Net of other factors, as the respondent's age increases; the respondent will earn \$311 more annually. In terms of geographic location, respondents residing in the South will earn \$4,037 less than if they resided in the Midwest. Respondents residing in a rural area will earn \$4,346 less annually than if they resided in the Midwest.

At the structural level, government and educational occupation variables can significantly predict the variations of the dependent variable. Net of other factors, respondents earned \$4,248 more annually working for the government.

Due to the interaction effects between gender and other independent variables, the sample was split into two groups: male and female. Regression analysis was conducted separately using the male data and the female data. Results show that, men with a post graduate degree earn \$14,162 more annually and \$6,205 more annually as a college graduate than the reference group of less than high school, net of other factors. Women with a post graduate degree earn \$18,090 more annually and \$9,146 more annually than the reference group. In terms of geographic location, men earned \$3,734 less annually being located in a rural area than the reference group. Net of other factors, women earned \$4,016 less annually having a South location and earned \$4,503 less annually being located in a rural area than the reference group.

For the structural level business factors men working in a small business earn \$3,672 less annually than the reference group. Net of other factors, men working in large businesses earn \$14,023 more annually than employees working in a medium business. Women earned \$2,182

less working in small businesses and \$333 more compared to the reference group. For the educational occupation factors women earned \$834 more annually as a secondary school teacher, and \$125 less as a special education teacher compared to the reference group. At the gender level respondents' with a child under the age of six can significantly predict the variations of the dependent variable.

#### 4.4 Table 4 Comparison of Structural and Individual Level Models

The block regression model checks the amount of variance that can be explained by each theoretical model. The variance resulted in an adjusted R square of 0.545 indicating that the full model accounted for 54.5% of the variation in annual earnings. The removal of the individual level factors resulted in a adjusted R square of 0.388 with a change of 0.16 from the full model. The removal of the structural level factors resulted in a adjusted R square of 0.285 with a change of 0.26 from the full model. The removal of the gender level factors resulted in a adjusted R square of 0.537 with a change of 0.01 from the full model. The removal of the education factor resulted in a adjusted R square of 0.465 with a change of 0.08 from the full model. The removal of the educational occupation factors resulted in a adjusted R square of 0.544 with no change from the full model. The removal of the sex variable resulted in a adjusted R square of 0.540 with a change of 0.01 from the full model.

The variance by gender resulted in a adjusted R square for males of 0.44 indicating that the full model accounted for 44% of the variation in annual earnings. The removal of the individual level factors resulted in a adjusted R square of 0.262 with a change of 0.18 from the full model. The removal of the structural level factors resulted in a adjusted R square of 0.271 with a change of 0.17 from the full model. The removal of the gender level factors resulted in a adjusted R square of 0.437 with no change from the full model. The removal of the education



factor resulted in a adjusted R square of 0.377 with a change of 0.06 from the full model. The removal of the educational occupation factors resulted in a adjusted R square of 0.438 with no change from the full model.

The variance by gender resulted in a adjusted R square for females of 0.566 indicating that the full model accounted for 56.6% of the variation in annual earnings. The removal of the individual level factors resulted in a adjusted R square of 0.411 with a change of 0.16 from the full model. The removal of the structural level factors resulted in an adjusted R square of 0.271 with a change of 0.30 from the full model. The removal of the gender level factors resulted in a adjusted R square of 0.564 with no change from the full model. The removal of the education factor resulted in a adjusted R square of 0.481 with a change of 0.09 from the full model. The removal of the educational occupation factors resulted in a adjusted R square of 0.566 with no change from the full model.

#### 4.5 Findings

Univariate (central tendency statistics), bivariate (T-tests) and multivariate analysis (regression analysis) have been conducted in this research. For hypothesis 1- Net of other factors increases in age will result in increases in income, the OLS regression analysis for the income determination model (table 3) supports the individual level hypothesis that an increase in age (used as a measure for job experience) will result in a significant increase in income. For the full sample there is an inverse U Shape nonlinear relationship between age and income, showing that the hypothesis was partially supported. While the age increases on the right side of the U shape (the inclined portion) income does increase with age.

The second hypothesis argues that net of other factors increases in education will result in increased income. This hypothesis is supported by table 3 showing that every increase in

educational level resulted in a higher income for the full sample and with men and women. The higher the education level, the more annual income is increased.

The structural level hypothesis, net of other factors increases in occupational prestige will result in an increased income was not supported by the OLS regression analysis for income determination model. For the full sample occupational prestige the results were not statistically significant. The fourth hypothesis net of other factors as organizational size increases, income increases, is supported by the OLS regression analysis between small and medium organizations. There are significantly less annual earnings, between the full sample of small and medium business of \$2,612. The hypothesis was supported between the small and medium business showing that small organizations pay teachers less than teachers who work in medium organizations; however there were no significant findings between the large and medium businesses.

The gender level hypothesis net of other factors women will receive a lower income than men, was supported by the OLS regression analysis of the full sample female variable. It shows females earn \$3,187 less than their male counterparts.

The hypothesis women will be sorted into inferior economic positions relative to men is supported in values by occupation and education analysis (table 2) as well as table 1. According to table 1, the values for full sample by sex support this hypothesis because it shows male teachers occupying the higher paying positions with 45.7% of men as high school teachers in comparison to 20.2% of women as high school teachers. This analysis also shows that 47.4% of men have a graduate degree while 42.2% of women have a graduate degree. This shows there is a significant amount of men who are able to teach at the college level and above, while women are more educated to teach below the college level. The median annual earnings analysis shows that the majority of women are placed into the lower teaching positions allowing men to fill

higher levels of education. While male teachers earn more annually than female teachers on every level of educational occupation, this analysis further supports the hypothesis that women are sorted into the inferior positions by the majority of lower educational occupations being filled with female teachers. 79.8% elementary teachers are female, while 53.3% of females fill the high school teacher positions.

These findings demonstrate that women are experiencing discrimination in educational occupations, attainment and annual income based on their gender. Women are more likely to obtain a college degree (BA/BS) or lower, and are more likely to occupy lower teaching positions such as pre-school, kindergarten, and elementary levels of teaching. Regardless of their educational attainment female teachers still continue to earn less annual income than their male counterparts.

## 5 Discussion

This study examined the reasoning behind the wage gap between male and female teachers by testing six hypotheses. A univariate, bivariate, and multivariate test was used for analysis finding that all of the hypothesis were either partially supported or supported except hypothesis three.

Hypothesis 2 “Net of other factors increases in education will result in increased income” was supported in both the bivariate and multivariate analysis. Human capital theoretical perspective was supported by this hypothesis as well. The men and women’s experience, knowledge and skill came from education and training which produced a economic value (Swanson, Holton, and Holton, 2001). The reasoning behind women earning less annually than men can also be explained by human capital theory. Women choose to invest more in domestic

duties, whereas men choose to invest in their education longer and build a well paying career for it (Swanson, Holton, and Holton, 2001).

Hypothesis 5 “Net of other factors women will receive a lower income than men” was supported in both the bivariate and multivariate analysis. Gender level theoretical perspective was supported by this hypothesis as to the reasoning behind the wage gap. Barbra Bergman’s (1983) crowding theory explains that women are excluded from select occupations causing women to crowd into the remaining occupations, causing a decrease in productivity and wages for women. The women working in all of the teaching occupations (pre-school through 12) are paid lower wages than men because of discrimination against their sex (Rosen, 2003).

### 5.1 Limitations

Limitations of the CPS dataset include the CPS being a cross-sectional survey (not longitudinal or panel). Cross-sectional data provides a snapshot at one point in time which has a tendency to make things appear a historical in their impact. For example, a respondent may have experienced a significant change such as: divorce, relocation, or promotion during the week of the survey. However that change has not yet had sufficient time for its impact to be felt in other areas like income.

Other limitations include lack of description of employment status and history of respondents. There is a need to know the employment history to see how long an individual has been in the labor market, and to assess the length of time an individual has held an occupation. The CPS does not provide how long the respondent has been in the labor market, how many jobs they’ve had, how many labor force interruptions, promotions, or tenure in their current job. The CPS also does not provide information on the household division of labor and family obligations such as childcare or elderly care. In terms of educational occupation, it would be beneficial to

learn which education level female teachers began in, if they switched positions, and the length of time each position was held. The division of household labor information is needed to further access if the unequal distribution of household labor between males and females affect females holding a teaching occupation. Female teachers who have more domestic and childcare duties may work fewer hours than male teachers, and they may not have the time to pursue their education further. This more detailed information could help explain the reasoning behind female teachers' low income in comparison to male teachers.

## 5.2 Further Research

Suggestions for further research would be to gather longitudinal data, and this would allow for an analysis of change over time.

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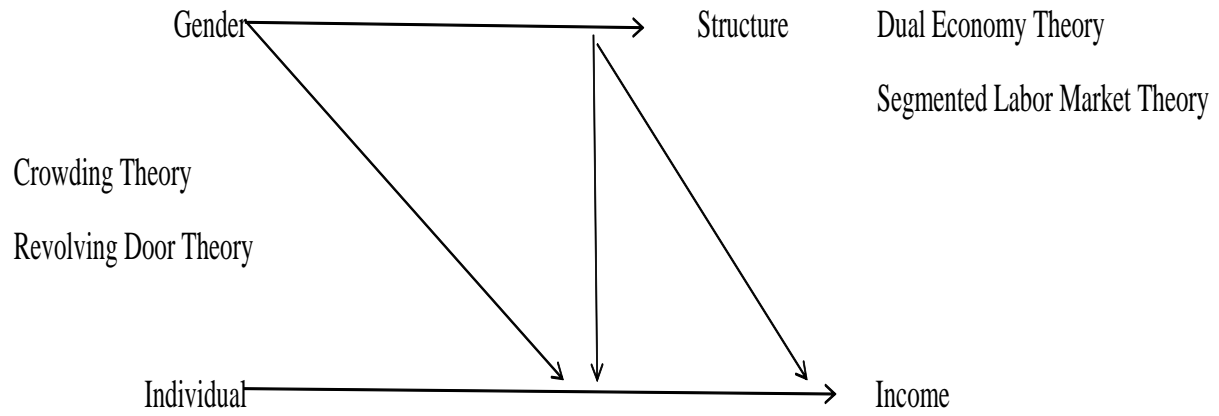
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## APPENDIX



(Wright, 1992)

**Table 1**  
**Values for Full Sample and by Sex**

Variables :	Full Sample	Men	1	2	Women	(pay-gap)
<b>Dependent Variable:</b>						
Annual earnings (mean):	\$39,014	\$ 44,272	***		\$37,259	84.2%
Annual earnings (median)	\$40,000	\$ 44,000			\$39,000	88.6%
Annual earnings centile:	49	57	***		47	
(stddev):	(17985)	(17249)			(17885)	
<b>Independent Variables:</b>						
<i>Individual-level Factors:</i>						
Age (years)	41.2 (11.6)	41.1 (12.0)			41.2 (11.5)	
% Some college or less(0,1)	7.8% (0.3)	6.5% (0.2)			8.2% (0.3)	
% BA/BS deg. or higher (0,1)	48.7% (0.5)	46.1% (0.5)	**		49.6% (0.5)	
% Adv Deg MA to PHD (0,1)	43.5% (0.5)	47.4% (0.5)	***		42.2% (0.5)	
	100%	100%			100%	
% Rural (0,1)	18.1% (0.4)	18.0% (0.4)			18.1% (0.4)	
% South Region (0,1)	38.4% (0.5)	33.6% (0.5)	***		40.0% (0.5)	
<i>Structural-level Factors:</i>						
Hours per wk (median)	40 40	43 40	***		40 40	
% Full-time	88.1%	93.0%	***	^	86.5%	
Annual Hours Worked (median)	1,914 2,080	2,054 2,080	***	^	1,867 2,080	
% Government (0,1)	83.1% (0.4)	84.7% (0.4)	***		82.6% (0.4)	
% Small Business (0,1)	14.4% (0.4)	12.7% (0.3)	**		15.0% (0.4)	
% Medium Business (0,1)	19.3% (0.4)	21.6% (0.4)	**		18.6% (0.4)	
% Large Business (0,1)	66.3% (0.5)	65.8% (0.5)	***		66.4% (0.5)	
% Elementary Teachers (0,1)	65.3% (0.5)	49.4% (0.5)	***	^	70.6% (0.5)	
% High School Teachers (0,1)	26.6% (0.4)	45.7% (0.5)	***	^	20.2% (0.4)	
% Special Ed Teachers (0,1)	8.2% (0.3)	4.9% (0.2)	***		9.2% (0.3)	
<i>Gender:</i>						
% Minority (0,1)	16.5% (0.4)	16.4% (0.4)			16.5% (0.4)	
% Married (0,1)	70.1% (0.5)	69.4% (0.5)			70.3% (0.5)	
% Never-married (0,1)	11.7% (0.3)	8.7% (0.3)	***		12.7% (0.3)	
% Ever-married (0,1)	18.2% (0.4)	21.9% (0.4)	***		16.9% (0.4)	
% with children under 6 (0,1)	19.5% (0.4)	21.5% (0.4)	**		18.8% (0.4)	
% immigrant (0,1)	5.8% (0.2)	7.2% (0.3)	***		5.3% (0.2)	
<b>Sample n (weighted):</b>						
	8829	2209			6620	
	100%	25%			75%	

<sup>1</sup> = \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05

<sup>2</sup> = effect size greater = > .20

**TABLE 2**  
**Median Annual Earnings by Occupation and Education**  
**Full-time Workers Only**

	All	Men	1	2	Women	Pay-gap	%female within unit	% within all females	% within all males
Occupation:								(100%)	(100%)
% Elementary Teachers (0,1)	\$42,000	\$45,000	***	^	\$41,000	91.1%	79.8%	70.4%	47.9%
% High School Teachers (0,1)	\$45,000	\$48,000	***	^	\$43,700	91.0%	53.3%	20.2%	47.7%
% Special Ed Teachers (0,1)	\$42,000	\$42,900	***	^	\$42,000	97.9%	85.1%	9.4%	4.4%
Education:									
Some College or less	\$27,000	\$35,287	***	^	\$24,000	68.0%	73.5%	5.9%	5.7%
College Deg (BA, BS)	\$38,500	\$40,000	***	^	\$38,000	95.0%	74.4%	48.3%	44.8%
Graduate or Prof. Deg.	\$50,000	\$50,990	***	^	\$49,000	96.1%	71.3%	45.7%	49.5%

<sup>1</sup> = \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05

<sup>2</sup> = effect size greater => .20

**TABLE 3**  
**OLS Regression Analysis for the Income Determination Model**  
(Dependent variable = annual earnings)

Variables:	Full sample			Men			Women			
	unstd.	<sup>1</sup>	std.	unstd.	<sup>1</sup>	std.	<sup>2</sup>	unstd.	<sup>1</sup>	std.
<b>Independent Variables:</b>										
<i>Individual-level factors:</i>										
Post Graduate (0,1)	\$17,457	***	0.481	\$14,162	***	0.41	^	\$18,090	***	0.5
College Graduate (0,1)	\$8,929	**	0.248	\$6,205	***	0.179	^	\$9,484	***	0.265
Some college or less	ref grp.									
Age (years)	\$311		0.201	\$399	***	0.277	^	\$276	***	0.178
Age squared	-\$8	***	-0.052	-\$11	***	-0.08		-\$8	***	-0.052
South (0,1)	-\$4,037	***	-0.109	-\$3,913	***	-0.107		-\$4,016	***	-0.11
Rural (0,1)	-\$4,346		-0.093	-\$3,731	***	-0.083		-\$4,503	***	-0.097
<i>Structural-level factors:</i>										
Annual Hours	\$14	***	0.506	\$11	***	0.4	^	\$14	***	0.539
Government (0,1)	\$4,248		0.088	\$1,999		0.042		\$4,821	***	0.102
Small Business (0,1)	-\$2,612	**	-0.051	-\$3,672	***	-0.071		-\$2,182	***	-0.044
Medium Business (0,1)	ref grp.			ref grp.				ref grp.		
Large Business (0,1)	\$583		0.015	\$1,423		0.039		\$333		0.009
Elementary School Teachers (0,1)	ref grp.			ref grp.				ref grp.		
Secondary Teachers (0,1)	\$1,138	***	0.028	\$1,790	**	0.052		\$834		0.019
Special Ed Teachers (0,1)	-\$6	***	0	\$502		0.006		-\$125		-0.002
<i>Gender:</i>										
Female(0,1)	-\$3,187		-0.077							
Married (0,1)	-\$888		-0.023	-\$380		-0.01		-\$1,046		-0.027
Ever-married (0,1)	ref grp.			ref grp.				ref grp.		
Never-married (0,1)	\$252	***	0.005	\$7		0		\$245		0.005
% with child under age 6 (0,1)	\$1,715	**	0.038	\$2,711	***	0.065		\$1,289	**	0.028
Minority (0,1)	\$1,147		0.024	-\$184		-0.004		\$1,424	***	0.03
Immigrant (0,1)	\$937	***	0.012	\$2,233		0.033		\$491		0.006
(Constant):	-\$9,946			-\$4,271				-13592.28 ***		
Adjusted R-sq.	0.545			0.44				0.566		

<sup>1</sup> = \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05; ns non-significant

<sup>2</sup> significant difference between men and women at the .05 level

**TABLE 4**  
**Comparison of Structural and Individual-level Models**  
(Dependent variable = annual earnings)

(unstandardized betas shown, all sig. at .001)

Variables:	Full	w/o Ind.	w/o Struc.	w/o Gender	w/o Educ.	w/o Occp.	w/o Sex
<b>Independent Variables:</b>							
<i>Individual-level factors:</i>							
Age (years)	\$311	X	\$287	\$281	\$381	\$8,989	\$315
Age squared	-\$8	X	-\$16	-\$7	-\$10	\$312	-\$7
Some College or less(0,1)	ref grp.	X	ref grp.	ref grp.	X	ref grp.	ref grp.
College Graduate (0,1)	\$8,929	X	\$15,790	\$8,600	X	\$8,989	\$8,837
Graduate or Professional Deg (0,1)	\$17,457	X	\$26,220	\$17,226	X	\$17,551	\$17,418
South (0,1)	-\$4,037	X	-\$2,603	-\$4,082	-\$5,307	-\$4,042	-\$4,181
Rural (0,1)	-\$4,346	X	-\$3,838	-\$4,542	-\$4,882	-\$4,348	-\$4,344
<i>Structural-level factors:</i>							
Annual Hours	\$14	\$15	X	\$14	\$15	\$14	\$14
Government (0,1)	\$4,248	\$4,745	X	\$4,299	\$5,382	\$4,222	\$4,342
Small Business (0,1)	-\$2,612	-\$4,068	X	-\$2,653	-\$3,411	-\$2,625	-\$2,734
Medium Business (0,1)	ref grp.	ref grp.	X	ref grp.	ref grp.	ref grp.	ref grp.
Large Business (0,1)	\$583	\$315	X	\$690	\$527	\$533	\$524
Elementary School Teachers (0,1)	ref grp.	ref grp.	X	ref grp.	ref grp.	X	ref grp.
High School Teachers (0,1)	\$1,138	\$2,203	X	\$1,934	\$1,781	X	\$1,855
Special Ed Teachers (0,1)	-\$6	\$995	X	-\$182	\$471	X	-\$136
<i>Gender:</i>							
Female (0,1)	-\$3,187	-\$3,761	-\$6,249	X	-\$3,259	-\$3,463	X
Married (0,1)	-\$888	-\$1,978	-\$1,906	X	-\$723	-\$900	-\$688
Never married (0,1)	\$252	-\$5,777	-\$578	X	\$337	\$278	\$641
w/child under 6 (0,1)	\$1,715	-\$1,288	-\$97	X	\$2,702	\$1,748	\$1,892
Minority (0,1)	\$1,147	-\$1,010	\$1,999	X	-\$340	\$1,135	\$1,157
Immigrant (0,1)	\$937	\$2,265	-\$703	X	\$927	\$983	\$1,143
(Constant):	-\$9,946	\$11,738	\$17,768	\$1	\$0	-\$9,579	-\$13,321
Adjusted R-sq.*	0.545	0.388	0.285	0.537	0.465	0.544	0.540
Rsq change from Full model ()		<b>0.16</b>	<b>0.26</b>	<b>0.01</b>	<b>0.08</b>	<b>0.00</b>	<b>0.01</b>
Males Only:**	0.44	0.262	0.271	0.437	0.377	0.438	n/a
		<b>0.18</b>	<b>0.17</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	
Females Only:**	0.566	0.411	0.271	0.564	0.481	0.566	n/a
		<b>0.16</b>	<b>0.30</b>	<b>0.00</b>	<b>0.09</b>	<b>0.00</b>	

\* (all Rsq. Changes sig. @ .000)

\*\* unstandardized betas not shown for male or female equations.

