A DOSE OF DISCRIMINATION: THE GENDER WAGE-GAP BETWEEN MEN AND WOMEN IN MEDICAL PROFESSIONS

A Thesis by

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I have examined the final copy of this thesis for form and content, and recommended that it be accepted in partial fulfillment of the requirement for the degree of Master of Arts with a major in Sociology.

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David W. Wright, Committee Chair

We have read this thesis
and recommend its acceptance:

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Ronald R. Matson, Committee Member

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Jodi M. Pelkowski, Committee Member

DEDICATION

To my parents, my grandparents, and my dearest friends

The basic discovery about any people is the discovery of the relationship between its men and its women.

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I would like to thank my advisor, Dr. David Wright, for his commitment to my success through this research. In addition, I would like to thank Dr. Ron Matson and Dr. Jodi Pelkowski, as they and Dr. Wright ensured throughout my educational experience that my mind was a fire to be kindled rather than a vessel to be filled. These three professors are my greatest teachers, my mentors, and my heroes; and I could not have asked for finer members to serve on my committee. I would also like to thank my parents, Mike and Cindy Duckett, and my grandparents, Billy and Wanda Rainer, for their moral and financial support throughout my professional development. Lastly, I would like thank my fellow graduate students and friends: Tiffany, Shelly, Angela, Trish, and Micah for sharing in this incredible journey. I am all that I am thanks to all of these wonderful people.

ABSTRACT

Medical occupations are expected to be the fastest growing jobs in the United States over the next 10 years. Presently, a wage disparity exists between women and men employed in health care. Individualist, structuralist, and feminist theories attempt to explain the reasoning behind this gender discrepancy in earnings based upon personal investments, economic hierarchies, and the process of gender discrimination. Data used in this research comes from the 2006 Current Populations Survey report, with 7,186 respondents following the necessary sample restrictions. The results indicate that, net of other factors, women working in health care professions receive a lesser rate of return on earnings than men. These findings indicate that discriminatory bias against women may exist among medical professions.

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1 Introduction

Over the past half-century, the labor force participation rate of women has increased by a dramatic 25% (Fullerton, 1999). However, according to the 2006 Bureau of Labor Statistics report, *Women in the Labor Force: A Databook*, women experience a 74% pay gap in health care occupations despite being 79% of health care's work force. Health care occupations are among the fastest growing jobs in America. Between 2004 and 2014, health care occupations are expected to make up 12 of the 20 fastest growing occupations in America (U.S. BLS, 2005). Health care and social assistance—including private hospitals, nursing and residential care facilities, and individual and family services—are projected to grow by 30.3 percent and add 4.3 million new jobs between 2004 and 2014 (U.S. BLS, 2005). Population growth, advances in medical technologies that increase the number of treatable diseases, and a growing portion of the population in older age groups are predicted to drive employment growth (U.S. BLS, 2006). It is estimated that health care will account for the most new wage and salary jobs, about 3.6 million over the 2004-14 period (U.S. BLS, 2006). With such incredible growth expected in employment and wages in the health care industry over the coming decade, and with women's participation in the industry remaining strong, are women working in health care going to be receiving equal pay as men in the same industry?

Literature addressing determinant components for wage disparities includes individualist, structural, and feminist theories. The individualist literature predicts outcomes in earnings based upon individual choices towards the

acquisition of training and skills in order to increase personal productivity and value. Structuralist literature predicts outcomes in earnings based upon the respective industries and occupations that assign wages regardless of individual abilities. Feminist literature predicts disparities in wage determination at the individual and structural levels based upon sexually discriminatory procedures such as the devaluation of women's work and the sorting of women into sex-typed jobs.

The data employed in this research is from the Current Population Survey (CPS) 2006 March Annual Social & Economic Supplement (ASEC). These data will be used to test individual, structural, and gender models when predicting earnings determination for men and women within medical vocations.

2 Literature Review

2.1 Individual Model

The most important assumption regarding human capital theory, along with the overall individualist perspective, is that individuals are given free choice to invest their time, skills, and abilities into particular schooling and trades (Mincer, 1958). This assumes that individuals are rational actors where everyone can make investments and invest wisely, meaning each person is fully aware of all choices available, has the time and ability to weigh every choice against all other choices, and has precise information about exactly what will occur under any choice made. Under these assumptions, differences in life-earnings for individuals rest entirely upon one's choices in personal investment

based on rational responses to a reckoning of anticipated benefits and costs (Becker, 1993).

Human capital is a concept of defining and classifying individuals' skills and abilities utilized in employment and otherwise contribute to economic production. As a form of capital (means of production), and in contrast to land, raw materials, infrastructure, machinery, or finances; human capital represents a stock of assets in skills and education possessed by an individual and protected by society that can be traded as labor in exchange for trust or money (Becker and Murphy, 1992). To put it succinctly, according to the assumptions of human capital theory, the more skills you invest in, the more productive you are, the more companies are willing to pay you in terms of wages.

The central economic idea coming from human capital theory is that the distribution of personal income is related to personal abilities (Mincer, 1958). The concept of personal abilities relevant to earnings power, which at first focused on psychological data such as I.Q. measures and notions of “chance” or “luck”, later took on a more operational focus by examining the amount of training required to enter into certain occupations (Mincer, 1958). Thus, contemporary human capital theorists look at the costs of training, in terms of the costs in educational tools and job experience as well as the deferral of earnings over the course of training period, as they relate to investments in obtaining an occupation (Mincer, 1958). From this perspective, education and on-the-job training represent the most important investments in human capital, as they provide knowledge, skills, and a way of analyzing problems that makes individuals more

productive and, therefore, increasing their earnings potential (Becker, 1993). Strictly assuming people have identical abilities, human capital theory suggests that people with more years of training command higher annual income (Mincer, 1958).

Not only does this model include years invested in acquisition of education, but also years invested in acquisition of occupational experience that account for increased earnings throughout the life course as one's productive efficiency and skills presumably increase (Mincer, 1958). With respect to the influence of job experience on productivity, jobs that require more training for higher levels of skill and greater complexity are said to see more growth in prolonged and pronounced performance than those simply requiring manual labor (Mincer, 1958). Thus, jobs requiring more training produce individuals that are more productive and more skilled, who are consequently paid greater earnings (Mincer, 1958).

The concept of comparative advantage, developed by David Ricardo (1817), describes the benefit that economies obtain through a combination of specialization and trade based upon unique opportunity costs (Ellsworth, 1940). In relation to individuals, comparative advantage in the performance of tasks by individuals explains the distribution in labor earnings based on differences in abilities (Sattinger, 1978). Thus, an individual's earnings are determined by that individual's abilities compared to the abilities of other workers in the labor market.

As the concept of comparative advantage relates to men and women, non-market tasks such as housework and child care responsibilities are most

often experienced by married and single mothers providing them with distinctly less energy available for the labor market than men because women are dividing their energy between their families and their careers (Becker, 1985; Fuchs, 1989). Essentially, women are trading part of their market labor to provide for non-market household labor which results in fewer job opportunities and reduced earnings, even when working the same number of market hours as men, ultimately producing a gender wage-gap (Becker, 1985).

The sexual division of labor is based on the premise that women have a comparative advantage to invest in household labor while men invest in market labor, with further reinforcement of this sexual division coming from the gendered socialization of women being guided into roles as wives, mothers, and homemakers, and of men as husbands, fathers, and breadwinners (Becker, 1985; Fuchs, 1989). The gendered socialization process then influences men and women's ambitions, talents, and interests regarding their potential careers and labor market activity, with women especially experiencing a conflict between commitments to career and family (Fuchs, 1989). Women encountering this conflict are most often married with a child in the home, making part-time employment a frequent compromise between work and family commitments (Fuchs, 1989).

Different career and family commitments by men and women through the gendered socialization process can also lead to men and women investing in skills and abilities towards particular sex-typed occupations, resulting in the occurrence of occupational sex-segregation (Fottler, 1976). For example, the

tasks of the nursing occupation have largely been comparable with the responsibilities of the traditional female role, consistently making nursing a highly sex-typed occupation for the better part of a century (Fottler, 1976). This may explain why more women pursue nursing while men make investments other, less feminized, medical careers (Fottler, 1976). Hence, the sex-segregation of labor through gendered socialization acts as an influence behind men and women's comparative advantages in the labor market, with women gravitating towards lesser paying female-typed jobs, resulting in a gender gap in earnings.

Comparative advantages between men and women are additionally reinforced by the direction of women into feminized occupations that do not compete with men for occupational status (Parsons, 1940). This is to supposedly ensure that family solidarity is preserved and not disrupted or strained by separating men and women, husbands and wives, into complementary sex roles rather than being placed in competitive positions (Parsons, 1940). Encouragement of these distinct sex roles on the individual's commitments propels men towards a concentration of the greater part of their investments and valuations in occupational achievements, while women concentrate a greater part of their investments and valuations towards maintaining the family through household labor (Parsons, 1940). With women focusing a lesser share of their investments towards occupational achievements than men, the consequence of these sex role concentrations is a gender gap in personal earnings.

2.2 Structural Model

In contrast to individualist perspectives, structuralist theories do not acknowledge the existence of individuals, but rather see economic positions within society which individuals merely occupy. Therefore, personal outcomes are determined by the requirements and characteristics of occupied positions rather than individual choices. Structuralist theories view the economy as having a hierarchy of positions instead of individuals exercising rational and motivated pursuits towards achievement. Based on these assumptions, structuralist theories contend that social structures continually dictate the lives and outcomes of people through the positions they occupy. Employing the structuralist assumptions, dual economy theory and labor market segmentation theory attempt to explain the distribution of income from a structural perspective.

The central premise of dual economy theory is that the industrial structure is divided into distinct sectors, with workers and employers facing essentially different conditions and operating according to essentially different rules (Beck, Horan, Tolbert II, 1978). The existence of distinct industrial divisions arises from the development of large monopolistic corporate enterprises, characterized by control over means of production, high productivity, high wages, high profits, and intense utilization of capital; along side smaller competitive firms, characterized by low productivity, low wages, low profits, and labor intensity (Beck et al., 1978). The former characterization represents the core segment of the economy, while the latter represents the periphery segment (Osterman, 1975).

Firms in the periphery are subject to market forces due to their smaller size and competitive qualities, while firms in the core maintain control of their markets through economies of scale due to their global size and monopolistic qualities (Beck et al., 1978). The distinct characteristics of these industries have an impact on employee wages, with core industries willing to supply higher wages to encourage the commitment of labor while providing for additional on-the-job training investments to create more productive workers, whereas periphery industries supply lower wages due to the possession of fewer assets, higher rates of turnover, less productivity, and limited opportunities for growth in job skills (Beck et al., 1978; Osterman, 1975).

The large-scale and monopolistic qualities of the core industries allow them to create their own internal job ladders possessing lucidly defined tasks and career patterns, with limited access to factors such as academic certification, thus allowing the industries themselves to control wages with some independence from the market (Beck et al., 1978). This is in contrast to the open access of periphery industries which are subject to external forces of supply and demand due to their limited size and scarce capital assets, thus limiting their independence from the competitive market (Beck et al., 1978). Therefore, the earnings process and earnings potential for workers is different depending on the industry in which they are employed.

Where dual economy theory makes distinctions based on the technical division of labor, labor market segmentation focuses on the social division of labor, in which occupations are separated by behavioral rules, different channels

of information, and different skills, as opposed to differences over the industrial controls of capital and technology (Cummings, 1980; Reich, Gordon, and Edwards, 1973). These jobs are often segmented by independent and subordinate jobs, whereby the former jobs require creativity, problem-solving, and professional standards of work, while the latter jobs require dependability, discipline, and responsiveness to rules and authority (Reich et al., 1973).

Occupations are also segmented according to race, ethnicity, and gender with occupational characteristics and requirements related to social stereotypes, which are used to determine job rewards and career paths. Women and racial/ethnic minorities find it especially difficult to escape subordinate occupations (Reich et al., 1973; Kalleberg and Sorensen, 1979). The presence of these internal labor markets, as opposed to external market forces, establishes the movement of workers among job classifications within their respective enterprises and companies (Kalleberg and Sorensen, 1979). This allows employers, rather than the labor market, to control the distribution of earnings and job mobility of their employees through social mechanisms.

2.3 Gender Model

While individualist and structuralist theories view gender as a standard demographic variable, feminist theory views gender as having a direct effect on occupational sex segregation, with men and women being sorted into particular jobs based on traditional gender roles (Reskin and Roos, 1991). Indeed, this gendered sorting has a noticeable impact on earnings as research by Jacobs

(1989) suggests that approximately 25% of the gender gap in wages has been credited to the sex segregation of occupations.

The individualist response to occupational sex segregation maintains a biological focus on women's childbearing capacity, suggesting male and female occupations require different skills with women avoiding occupations that demand skills that depreciate while they are out of the labor force and raising children (Reskin, 1993). These choices lead to women accepting more flexible part-time part-year jobs than men, which results in fewer earnings than full-time full-year jobs (Reskin, 1993). However, feminists counter such an argument with evidence that the probability of women working in a non-traditional job increased with the women's number of children (Reskin, 1993).

Additional feminist literature suggests that women's work is devalued compared to men's (Cohen and Huffman, 2003). Feminists claim this is evidenced by notable differences in pay between men and women within the same job (Cohen and Huffman, 2003). This process of devaluation creates a "glass ceiling" in which women are given limited opportunity for advancement compared to their male counterparts (Cohen and Huffman, 2003). This process is based on the preservation of the strict differentiation between the genders through systematic compartmentalization (Reskin, 1988)

Research by Barbara Bergmann (1986) claims that employers discriminate against women by excluding them from traditionally male occupations, which is also known as the crowding hypothesis (Sorensen, 1990). With traditionally male occupations reserved for men, few women are allowed

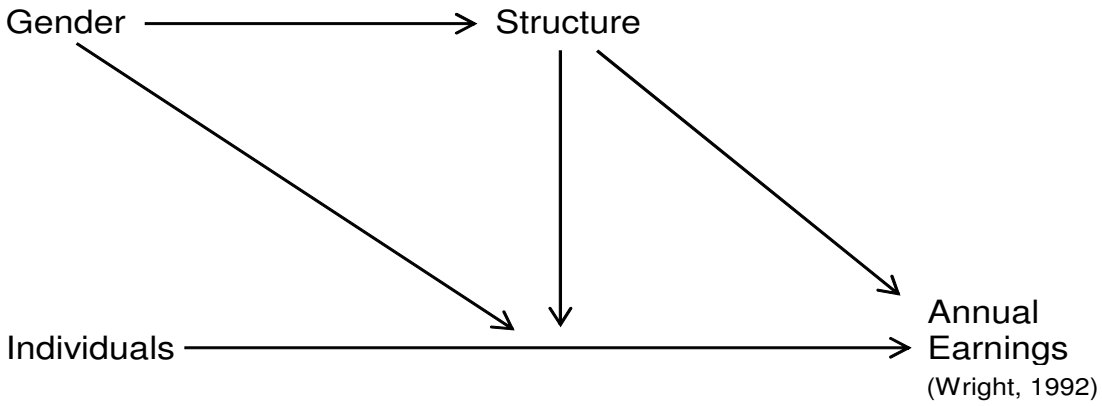
access to these jobs, thus systematically crowding them out of a portion of the labor force (Bergmann, 1986; Sorensen, 1990). Consequently, this process increases the supply of female workers for traditionally female occupations, resulting in a reduction in earnings and therefore lower salaries (Bergmann, 1986; Sorensen, 1990). This model assumes that men and women have equal abilities, however, due to discrimination; they are segregated into different sex-typed occupations on the basis of gender rather than aptitude (Bergmann, 1986; Reskin, 1993; Sorensen, 1990).

Jerry Jacobs' feminist research suggests that a revolving door process exists regarding worker mobility and gender socialization (Ridgeway, 1997). According to this approach, movement between occupational segments creates a self-regulating circulatory system of sex segregation, with both men and women subject to life-long social pressures to conform to traditional gender expectations (Jacobs, 1995). These constant social pressures effectively reduce women's status and earnings while increasing men's by forcing them each towards same-sex segments of the work force (Jacobs 1995: 158).

In *Job Queues, Gender* Queues (1990), Reskin and Roos describe the deterioration of working conditions in the 1970's, which caused men to leave certain jobs for more desirable employment (Chiu and Leicht, 1999). This resulted in women being concentrated in jobs with lower pay and less desirable status (Reskin and Roos, 1990; Chiu and Leicht, 1999). The basis for this arrangement is rooted in queuing theory, where employers use different proxies, such as educational attainment, work experience, or ascribed characteristics

(race, sex, ethnicity, etc.), in order to screen job applicants (Bellas and Coventry, 2001). If the most preferred employees cannot be acquired, the employer moves down the queue to hire workers of a lower rank (Reskin and Roos, 1990; Bellas and Coventry, 2001). Therefore, if men are preferred to women, men should occupy the most highly ranked jobs with lower ranked jobs reserved for women (Reskin and Roos, 1990; Bellas and Coventry, 2001).

2.4 Composite Model



(Wright, 1992)

Theoretical components from individual, structural, and gender approaches all claim to have an effect on the income of men and women within medical professions. The individualist model views individuals as rational actors choosing to acquire productive skills and abilities to use in the labor market. These skills and abilities can include work experience, on-the-job training, and academic credentials. This results in individuals becoming more productive, thus increasing their earnings. The structural model view industries segregated by the technical divisions of labor, leading to a hierarchy of economic positions with different levels of earnings. The structural model also sees occupations segmented according to the social divisions of labor which limits the access to

certain jobs. This results in earnings being determined by the job rather than the individual worker, with workers in the direct care occupations receiving greater wages than workers in the indirect care occupations. The gender model declares gender as being an active force in segregating men and women into different jobs as well as influencing the value of women's labor. Sex segregation is facilitated by sorting men and women into specified occupations based upon traditional gender roles, leading women into jobs that typically pay lesser wages than the higher wage jobs into which men are placed. Women also experience a devaluation of their individual labor through a social stereotyping process, with women perceived as being generally less productive than men, resulting in women receiving lower wages than their male colleagues.

3 Data and Methodology

3.1 Data

The data used for this research comes from the Current Population Survey (CPS) March 2006 Annual Social & Economic Supplement (ASEC). The CPS and March 2006 ASEC supplement data are distributed by the United States Bureau of the Census for the U.S. Bureau of Labor Statistics, a division of the U.S. Department of Labor (CPS ASEC, 2006). The CPS 2006 ASEC universe includes approximately 57,000 households composed of civilian, non-institutional respondents living in the United States along with members of the Armed Forces living in civilian housing units on a military base or a household not on a military base (CPS ASEC, 2006). All housing units within the universe are selected using a probability sample (CPS ASEC, 2006). The multistage

stratified sample of the CPS 2006 ASEC is composed of 792 sample areas composed of 2,007 counties in all 50 states and the District of Columbia, specifically tailored to the specific demographic and economic conditions in each particular state (CPS ASEC, 2006; CPS Technical Paper 63RV, 2002). The central purpose of the survey is to collect information on the employment situation and labor force characteristics of persons, families, and households while also obtaining information regarding demographic status of the population (CPS ASEC, 2006; CPS Technical Paper 63RV, 2002).

Restrictions for the sample include those respondents who worked during the previous year; who received compensation; are eighteen years old and above; and those who are employed in medical practice, technical, and support occupations. Following all the necessary restrictions, the final restricted sample size includes 7,186 respondents. Because the CPS is a national probability sample, weights are included in order to extrapolate the findings to fit the targeted universe. However, a problematic limitation of using weights is that they inflate the size of the sample which can result in biased parameters and false significance levels. Therefore, a relative weight was created by taking the mean of the weight divided by the weight in order to make the sample distribution proportional to the targeted population without inflating the sample size.

3.2 Variables

3.2.1 Dependent Variable

The dependent variable being examined is the measure of total annual personal earnings in dollars. Because medical professionals are often self-

employed, personal earnings values can be either positive or negative. The measure of annual personal earnings is coded as an interval level variable. Because earnings are typically skewed to the right, most scholars use a logarithmic computation to correct for skewness. However, due to sample restrictions, and more importantly due to the standardized residuals being normally distributed, this study elects to use raw dollars since they are easier to interpret.

3.2.2 Independent Variables

3.2.2.1 Individual Model

The independent variables within the individual model segment include education, age, region, population density, immigration. Education describes the amount of formal schooling attained in terms of years. This variable was recoded into a five level ordinal variable with levels of less than high school, high school graduate, some college, college degree, and graduate degree to measure educational attainment. Binaries were then created for each ordinal level, along with a binary for those with a college degree or higher. It is expected that as the number of years of education increases, earnings will also increase.

Age is an interval level variable measured in years. For the purpose of this study, only those respondents 18 years old and above were selected into the sample. Human capital theory argues that as persons age they acquire additional skills and abilities from their experiences. It is expected that as age increases, income will also increase.

Region describes the geographical area of the United States in which the respondent resides. The nominal level region variable is divided into distinct categories of Northeast, Midwest, South, and West. Binaries were created for each regional category. Descriptive statistics indicated that medical professionals residing in the Midwest region received the fewest annual dollars compared to other regions. Thus it is expected that health care professionals residing in the Midwest region will experience the lowest earnings.

Population density describes the physical concentration of people within certain residential areas. This nominal level variable is divided into central cities, a balance of metropolitan statistical areas, and non metropolitan statistical areas. Binaries were created for each of these categories. It is expected that those choosing to reside in rural residential areas will experience the lowest income.

Immigration is a nominal level variable which describes the nationality status of respondents in reference to United States citizenship. It is divided into U.S. born natives, natives of the U.S. born in outlying U.S. territories, natives of the U.S. born outside the U.S., foreign born U.S. citizens by naturalization, and foreign born non-U.S. citizens. This variable was recoded into a binary to characterize foreign born respondents. It is expected that foreign born respondents will experience the lowest income.

3.2.2.2 Structural Model

The independent variables within the structural model segment include hours worked per week, weeks worked per year, company size, worker

classification, medical occupations, and occupational prestige. These variables reflect the demands ascribed to occupational positions.

Hours worked per week along with the number of weeks worked describe the time respondents spent on the job. Both variables are in reference to the respondent's experiences from the previous year. Number of weeks worked refer to the number of weeks respondents worked even a few hours, including paid vacation and sick leave. Both hourly and weekly variables were coded as interval level measures with hours per week ranging from 0 to over 99 hours within a week and weeks worked ranging from 0 to 52 weeks worked with a year. For multivariate analysis, these two variables were combined into annual hours. It is expected that as the number of hours worked per week increase personal earnings will increase. It is also expected that as the number of weeks worked per year increase earnings will increase. Finally, it is expected that those working greater annual hours will receive higher annual earnings.

Company size refers to the number of people employed within a respondent's respective business. This variable is coded as an ordinal level measure with levels ranging from zero employees, under 10, 10 to 24, 25 to 99, 100 to 499, 500 to 999, and over 1000 employees. This variable was recoded to an interval level measure by creating midpoints from each ordinal level (5, 15, 75, 250, 750, and 1250). Three binaries of company size were also created for small business (1 thru 24 employees), medium business (25 thru 99 employees), and large business (more than 100 employees). It is expected that as company size increases personal earnings will increase.

Worker classification refers to the sector of the economy in which the respondent is employed. This variable is coded as a nominal level variable with distinct private sector, public sector (federal, state, and local government), and self employment (incorporated and unincorporated) categories. This variable was recoded into a three level nominal variable with private sector, public sector, and self employment categories. Binaries were then created for each category. It is expected that self employment will yield the greatest personal earnings while public sector employment will yield the least.

Occupational prestige is an interval level variable which describes the comparative desirability of occupations. This scale ranges from 16.78 to 86.05 with higher scores reflecting higher levels of desirability. It is expected that higher levels of occupational prestige will result in increased personal earnings.

Health care occupations are divided up into four separate groups: direct care, assistant direct care, indirect care, and assistant indirect care. Direct care providers refer to medical occupations that are responsible for primary health care needs and include: physicians, surgeons, dentists, chiropractors, optometrists, pharmacists, audiologists, podiatrists, and veterinarians. Assistant direct care providers are responsible for aiding and assisting those in primary health care positions and include: physician's assistants, dental hygienists, and registered nurses. Indirect care providers are responsible for secondary health care of patients and include: radiation therapists, physical therapists, dieticians and nutritionists, opticians, occupational therapists, recreational therapists, respiratory therapists, speech-language pathologists, clinical laboratory

technologists and technicians, emergency medical technicians and paramedics, diagnostic related technologists and technicians, health diagnosing and treating practitioner support technicians, medical records and health information technicians, licensed practical and licensed vocational nurses, health care practitioners and technical occupations, miscellaneous health technologists and technicians, and all other therapists diagnosing and treating practitioners. Assistant indirect care refers to medical occupations responsible for the aid and assistance of secondary health care providers and is composed of: nursing aides, home health aides, psychiatric aides, dental assistants, occupational therapist assistants and aides, medical assistants, massage therapists, and other health care support technicians. It is expected that medical occupations responsible for providing direct patient care will experience greater returns on earnings than assistant direct care providers, indirect care providers, and assistant indirect care providers.

3.2.2.3 Gender Model

The independent variables within the gender model segment include sex, race/ethnicity, family type, marital status, dependents, and occupational sex segregation. These variables reflect gender and racial differentiation of individuals as well as discrimination of employment.

Sex refers to the biological sex of the respondent. This variable is coded as a nominal measurement with exclusive male and female categories. It was recoded into a binary to represent females. It is expected that females will experience fewer personal earnings than males.

Race represents the racial identity of the respondent. This variable is coded as a nominal level variable with twenty-one categories. It was recoded into a nominal variable with five categories (white, black, American Indian or Alaskan, Asian or Pacific Islander, and other). Ethnicity refers to the ethnic background of the respondent. This variable is coded as a nominal level variable. It was recoded into a nominal level variable with six discreet categories (Mexican, Puerto Rican, Cuban, Central or South American, other Hispanic, and non-Hispanic). A race/ethnicity variable was computed using the race and ethnicity variables. This was created as a nominal level variable with four discreet categories (white/non-Hispanic, black/non-Hispanic, Hispanic, and other/non-Hispanic). From this variable, a minority status binary was created for black/non-Hispanic, Hispanic, and other non-Hispanic. Binaries were also created for each of the four race/ethnicity categories. It is expected that racial/ethnic minorities will experience the fewest personal earnings.

Marital status refers to the marital arrangements of the respondent. This variable is coded as a nominal level variable with seven discreet categories (married civilian, spouse present; married armed forces, spouse present; married with spouse absent; widowed; divorced; separated; and never married). This variable was recoded to create binaries for those currently married, ever married, and never married. It is expected that those currently married will experience the greatest personal earnings while those never married will experience the least.

Family kind represents the family structure of the respondent's household. This variable is coded as a nominal level variable with three discreet

categories (husband and wife, male reference, and female reference). Family type refers to the living arrangements in the respondent's household. This variable is coded as a nominal level variable with five discreet categories (primary family, non-family householder, related subfamily, unrelated subfamily, and secondary individual). A nominal level family variable was computed using the family type and family kind variables to produce three discreet categories of household arrangements (two-parent, single-parent, and living alone). It is expected that two-parent families will experience the highest personal earnings while living alone will experience the lowest.

Number of related persons under six describes the number of children in the respondent's household fewer than six years in age. Number of related persons under eighteen refers to the number of children in the respondent's household fewer than eighteen years in age. These variables are coded as interval level variables. Binaries were created for these variables. It is expected that an increase in the number of children in the household will result in a decrease in personal earnings.

The occupational sex-segregation index is created by taking the percent of females in each 4-digit occupational code and dividing it by the percent of females in the workforce. This generates an index in which values equal to 1 indicate men and women are evenly represented in the occupation, values under 1 indicate women under-represented, values over 1 indicate women are over-represented. It is expected that personal earnings for females will decrease as occupational sex segregation increases.

3.3 T-tests, Regressions

For bivariate analysis, an independent sample t-test is used to compare the two mutually exclusive independent groups of men and women in order to determine whether statistical significant difference exists between men and women's earnings. For multivariate analysis, a multiple regression analysis using an ordinary least squares regression (OLS) is used to generate predictive values from independent factors. Additionally, a multiple regression analysis is used to test the partitioning of variance explained by separate segments of the theoretical model.

3.4 Hypotheses

The following hypotheses are in relation to the individual model.

1a: Net of other factors, as age increases the amount of personal earnings will increase.

1b: More years of education will result in higher personal earnings, net of other factors.

The following hypotheses are in relation to the structural model.

2a: Greater occupational prestige will result in more personal earnings, net of other factors

2b: Higher skill groups will receive greater economic returns from increases in educational investments.

The following hypotheses are in relation to the gender model.

3a: Women will be concentrated in lower economic positions than men.

3b: Net of other factors, women in medical professions will earn less than men.

4 Results

4.1 Univariate and Bivariate Analysis

Table 1 presents the univariate analysis of descriptive variables, showing the mean values for men and women. Additionally, Table 1 presents the bivariate analysis values on individual, structural, and gender/race-level factors. As seen in Table 1, the annual earnings for men are higher than for women, with a mean of $65,494 for men compared to a mean of $35,176 for women. These mean earnings values indicate that women in health care professions annually earn just 54% of what men annually earn in health care professions. The difference in mean annual earnings among men and women in health care professions is statistically significant.

Bivariate analysis of individual-level factors reveals that within medical profession men are more likely to be older in than women (42 years vs. 40 years) as well as more years of education than women (16 years vs. 14 years). Men in health care professions are more likely to be immigrants to the United States (21% vs. 13%). Women in the sample have a higher likelihood of living in rural communities (12% vs. 17%, and are more likely to live in the Midwest region of the U.S. (20% vs. 25%).

Bivariate analysis of structural-level factors reveals that men in medical professions work more hours per week than women in medical professions (42 vs. 37), and are also working more weeks per year (49 vs. 48). Women in health

care professions are more likely to be working in the private sector (87% vs. 90%), while more men in health care professions are more likely to be employed by the government (13% vs. 10%). Men working in health care are more likely to be self-employed than women (17% vs. 3%). The occupational prestige index is higher for men in medical professions than for women working in health care (64.5 vs. 57.1). Within the hierarchy of medical occupations, men in medical professions are more likely to work in both direct care positions than women in medical professions (37% vs. 5%) as well as indirect care positions (33% vs. 28%). Meanwhile, women in medical professions are more likely than men in medical professions to work in positions of assistant care both with respect to direct assistant care positions (12% vs. 30%) and indirect assistant care positions (18% vs. 38%). The difference in company size for men and women in medical professions is not statistically significant. These findings lend support to hypothesis 3a that women be concentrated in lower economic positions within medical professions than men.

Bivariate analysis for gender/race-level factors indicates that women in medical professions than men to work in highly feminized jobs (1.29 vs. 1.83). Men in the sample are more likely to be currently married than women in medical professions (64% vs. 57%). Women in health care professions are more likely than men in health care professions to report having children under the age of eighteen in the home (42% vs. 47%). Men in medical professions are less likely to report living in a single parent household than women in the sample (11% vs. 20%). Four gender/race-level variables, ever being married, never being

married, having a child in the home under the age of six, and racial minority status do not indicate statistical differences between men and women working in medical occupations.

Table 2 provides results for the earnings comparison between men and women by job classification and educational attainment. For job classifications, male medical professionals responsible for providing direct patient care obtained more mean earnings than female medical health care workers ($108,866 vs. $80,495), resulting in a 73.9% wage gap. In medical job classifications responsible for providing assistant direct patient care, men received greater earnings than women ($55,151 vs. $48,175), resulting in a 87.4% pay gap. A 78% wage gap resulted from differences in earnings among health care providers responsible for indirect care, with men receiving $44,356 and women earning $34,607. For health care providers responsible for assistant indirect care, men received a greater rate of return on earnings than women ($23,205 vs. $19,359), resulting in an 83.4% wage gap.

In terms of educational attainment among medical professionals, as seen in Table 2, higher skilled occupational groups receive a greater rate of return on earning than lower skilled groups. Men working as direct care providers, the highest skilled group of medical professionals, receive a higher rate of return from a college degree than women ($87,500 vs. $55,897), resulting in a 63.9% wage gap; as well as greater economic returns from a graduate and professional degree ($112,078 vs. $83,804), resulting in a 74.8% pay gap. Meanwhile, men and women in lowest skilled group of medical occupations, assistant indirect care

providers, receive the fewest returns on educational investments, supporting hypothesis 2b that higher skill groups will receive greater economic returns from increases in educational investments. Within this lowest skilled group, men in these professions experience a higher rate of return from having obtained less than a high school diploma or some college than women ($21,338 vs. $18,556).

4.2 Multivariate Analysis

Table 3 provides results from the OLS regression analysis regressing the three model segments of the alternative model on annual personal earnings. The adjusted R-squared is .584 (significant at the .000 level), suggesting that the model explains approximately 58% of the variance in annual personal earnings. The separate analysis by sex also reports statistically significant R-squared values of .551 (55%) and .535 (54%) for men and women working in health care respectively.

Among the individual level factors, supporting hypothesis 1a, increases in age result in an increase in annual earnings, $268 for every year in age net of other factors. Men in medical professions receive a greater rate of return on age net of other factors than females ($538 vs. $201). Lending support to hypothesis 1b that increases in education will result in increases in earnings, every additional year of education a person working in health care acquires $2,144. Men receive a greater rate of return on education, net of other factors, than females ($2,555 vs. $2,005).

For the structural level factors, per hypothesis 2a, greater occupational status results in higher earnings, with the most prestigious occupations, direct

patient care jobs, receiving $45,065 greater than the reference group in annual earnings, net of other factors, compared to assisting direct care ($19,244 greater than the reference group) and indirect care positions ($7,356 more than the reference group). Men in medical professions responsible for direct patient care receive a greater rate of return than do females in the same positions, net of other factors ($47,881 vs. $38,080 more than the reference group), as well as assisting direct care ($20,462 vs. $19,431 great than the reference group), and indirect patient care ($8,773 vs. $7,888 more than the reference group). Self employment and public sector employment are not shown to be significant factors for determining the earnings of medical professionals.

Among the gender/race-level factors, as seen in the results for the full sample of medical workers, net of other factors, women working in medical professions experience a loss of -$5,634 in annual personal earnings compared to men working in medical professions. This lends definitive support to hypothesis 3b that women in medical professions will earn less than men, net of other factors. Sex-segregation of health care workers results in a loss of -$5,181 in annual earnings, while men working in health care see additional losses in earnings compared to women, net of other factors (-$6,705 vs.-$3,432).

5. Conclusion

5.1 Discussion

Among the individual level variables, as predicted in hypothesis 1a, increases in personal earnings of medical professionals are supported by increases in age, net of other factors. Also, increases in education, as predicted

in hypothesis 1b, are supported by increases in personal earnings of health care professionals, net of other factors. In reference to structural level factors, higher occupational prestige results in medical professionals receiving increased earnings, net of other factors; thus supporting hypothesis 2a. In addition, means analysis and t-test results show that higher skilled occupational groups receive a greater rate of economic return on educational investments in support of hypothesis 2b. Within gender/race level factors, hypothesis 3a is supported by means analysis and t-test results which indicate that women are more heavily concentrated in lower occupational positions than men. Furthermore, net of other factors, hypothesis 3b finds support that women in medical professions earn less than men. These findings illustrate that gender discrimination exists among medical occupations such that women consistently earn less than men when individual, structural, and gender/race level factors are controlled, resulting in women being placed in disadvantaged circumstances compared to their male counterparts.

5.2 Limitations

Due to the nature of the CPS data, the findings of this research are cross-sectional in nature rather than longitudinal. This limits the ability of the study to monitor variable trends over continual periods of time. Thus, the full impact of factors such as martial status and education history cannot be sufficiently examined. For instance, the CPS data indicates whether or not a person is currently married; however, we do not know how long this person has been married, while persons married over longer periods of time tend to experience

higher earnings than newlyweds. Without the use of longitudinal data that would track such factors, the annual earnings for medical professional may be underrated.

The research is also limited by lack of information regarding determinant effects of the job history of medical professionals on annual earnings. Records on respondent's job experience are not available. Information on how medical professionals obtained their positions, their tenure, and promotions is also unavailable. Information on the household division of labor, which has been viewed as a factor in the determination of earnings, is also not available in the CPS data set. Comprehensive data providing this collection of information would allow for a better understanding of the nature of medical occupations and help to better predict the outcomes in earnings.

Another limitation presented by the data is in regards to the specialization of labor among medical occupations. For example, registered nurses may specialize in psychiatrics, ambulatory, hospice, or long-term care service. Each of these services is unique in their responsibilities and compensation; however, in this instance, these specializations in nursing are all solely categorized into registered nurses. Henceforth, with such a consolidated format on occupations, we are unable to see the impact of earnings based upon the distinct specializations of medical labor across several different health care positions.

5.3 Policy

The results of this research indicate that women in medical occupations are discriminated against in terms of wages. One possible solution to address

this discrepancy and further discriminatory practices would be for greater emphasis by employers on wages systems of comparable worth, in which earnings for men and women will receive greater pay equity than what presently exists. Education, job responsibilities, and skill requirements should all be considerations for comparable worth for men and women working as health care providers. An additional policy implication would be for women to be encouraged to enter into more direct care occupations, where although differences between men and women's wages exists, overall wages are typically higher, which will give women greater economic advantages. This approach might aid in reducing the sex segregation and gender sorting of medical occupations that work towards the greater economic benefit of men over women.

Future research should investigate total compensation in addition to wages. Proper investigation of benefits should be taken into consideration along with earnings. This may require the use of an alternative data set or developing a new survey instrument for mass distribution. Along the lines of benefits, greater access to affordable child-care from health care and hospital administrators may help working women to reduce the unpaid burdens of child rearing and diminish the present wage gap so that women can better concentrate on work force participation. It is also important to re-examine the influence of patriarchy and hegemonic masculinity within the present medical structure such that fewer women are systematically segregated into lower skilled, lower paying occupations. When society acknowledges that members of both genders, not

just one, are able to realize their potential through equality rather than discrimination, then all of humanity ultimately prospers.

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APPENDIX

APPENDIX

TABLE 1

Values for Full Sample and by Sex

Variables:	Full Sample	Men [1] [2]	Women	
Dependent Variable:				(pay-gap)
Personal earnings (mean):	$41,106	$65,494 *** ^	$35,176	53.7%
Personal earnings (median):	$32,000	$50,000	$30,000	60.0%
(stddev):	(35415.97)	(52235.58)	(26766.96)	
Independent Variables:				
Individual-level factors:				
Age (years)	40.7	42.0 ***	40.4	
	(12.74)	(13.25)	(12.59)	
Education in years	14.8	16.4 *** ^	14.4	
	(2.68)	(3.05)	(2.42)	
% US Immigrant (0,1)	14.6%	20.6% *** ^	13.1%	
	(0.35)	(0.40)	(0.34)	
% Rural (0,1)	16.0%	11.9% ***	17.0%	
	(0.37)	(0.32)	(0.38)	
% Midwest Region (0,1)	23.9%	19.8% ***	24.9%	
	(0.43)	(0.40)	(0.43)	
Structural-level factors:				
Work hours per week	37.9	42.0 *** ^	36.9	
(median)	40.0	40.0	40.0	
	(11.36)	(12.48)	(10.84)	
Weeks worked per year	47.9	49.3 ***	47.6	
	(10.30)	(8.72)	(10.62)	
Company size	605.0	585.4	609.8	
	(550.70)	(560.89)	(548.14)	
% Private sector (0,1)	89.1%	87.0% **	89.6%	
	(0.31)	(0.34)	(0.31)	
% Government (0,1)	10.9%	13.0% **	10.4%	
	(0.31)	(0.34)	(0.31)	
% Self employed (0,1)	5.9%	17.1% *** ^	3.2%	
	(0.24)	(0.38)	(0.18)	
Occupational Prestige	58.5	64.5 *** ^	57.1	
	(11.21)	(13.34)	(10.10)	
Medical Occupations:				
% Direct care (0,1)	11.2%	36.9% *** ^	5.0%	
	(0.32)	(0.48)	(0.22)	
% Direct asst care (0,1)	26.2%	11.5% *** ^	29.8%	
	(0.44)	(0.32)	(0.46)	
% Indirect care (0,1)	28.6%	33.3% ***	27.5%	
	(0.45)	(0.47)	(0.45)	
% Indirect asst care (0,1)	34.0%	18.4% *** ^	37.8%	
	(0.47)	(0.39)	(0.48)	
Gender:				
Occupational Sex-Segregation	1.72	1.29 *** ^	1.83	
	(0.44)	(0.57)	(0.32)	
% Married (0,1)	58.5%	64.4% ***	57.1%	
	(0.49)	(0.48)	(0.50)	
% Ever-married (0,1)	19.1%	12.1%	20.8%	
	(0.42)	(0.42)	(0.42)	
% Never-married (0,1)	22.4%	23.5%	22.1%	
	(0.42)	(0.42)	(0.42)	
% with children under 6 (0,1)	21.1%	20.7%	21.2%	
	(0.41)	(0.41)	(0.41)	
% with children under 18 (0,1)	46.3%	41.6% ***	47.4%	
	(0.50)	(0.49)	(0.50)	
% Single Parent (0,1)	18.6%	11.1% *** ^	20.4%	
	(0.4)	(0.3)	(0.4)	
% Minority (0,1)	31.0%	32.5%	30.7%	
	(0.46)	(0.47)	(0.46)	
Sample n (weighted):	7,186	1,405	5,781	
	100%	19.6%	80.4%	

[1] = *** p < 0.001; ** p < 0.01; * p < 0.05

[2] effect size greater = > .20

TABLE 2
Earnings Comparison by Job Type and Education

Job Type & Educational Degree:	Mean values Men	[1]	[2]	Women	(pay-gap)	Median values Men	Women	(pay-gap)
Direct Patient Care Provider	108,866	***	^	80,495	73.9%	106,002	70,000	66.0%
Assistant Direct Patient Care Provider	55,151	***	^	48,175	87.4%	50,000	46,800	93.6%
Indirect Patient Care Provider	44,356	***	^	34,607	78.0%	42,000	31,509	75.0%
Asstistant Indirect Care Provider	23,205	***	^	19,359	83.4%	20,088	18,000	89.6%
Direct Patient Care Provider:								
less H.S. Diploma to some college	55,659			67,452	121.2%	41,600	57,477	138.2%
College degree (BA,BS)	87,500	***	^	55,897	63.9%	88,669	59,681	67.3%
Graduate or Professional degree	112,078	***	^	83,804	74.8%	112,571	70,000	62.2%
Assistant Direct Patient Care Provider:								
less H.S. Diploma to some college	58,133	***	^	43,917	75.5%	50,169	42,123	84.0%
College degree (BA,BS)	48,038			49,478	103.0%	48,498	48,000	99.0%
Graduate or Professional degree	70,578			59,607	84.5%	66,500	60,000	90.2%
Indirect Patient Care Provider:								
less H.S. Diploma to some college	37,696	***	^	30,444	80.8%	35,000	29,000	82.9%
College degree (BA,BS)	48,462			43,085	88.9%	47,784	42,000	87.9%
Graduate or Professional degree	60,297	***	^	44,177	73.3%	54,000	40,000	74.1%
Assistant Indirect Care Provider:								
less H.S. Diploma to some college	21,338	***	^	18,556	87.0%	20,000	17,431	87.2%
College degree (BA,BS)	28,482			24,755	86.9%	24,000	25,000	104.2%
Graduate or Professional degree	32,536			35,646	109.6%	24,000	30,000	125.0%

[1] = *** p < 0.001; ** p < 0.01; * p < 0.05

[2] = effect size greater = > .20

TABLE 3
OLS Regression Analysis for Income Determination Model

(Dependent variable=annual personal earnings)

	Full Sample			Men				Women		
Variables:	Unstd.	[1]	Std	Unstd.	[1]	Std.	[2]	Unstd.	[1]	Std.
Independent Variables:										
Individual-level factors:										
Age (years)	$286.69	***	0.103	$537.65	***	0.136	<>	$200.80	***	0.094
Age sq	-$7.68	***	-0.042	-$11.37		-0.050		-$9.25	***	-0.064
Education in years	$2,144.06	***	0.162	$2,554.70	***	0.149		$2,004.76	***	0.181
US Immigrant (0,1)	$2,328.68	**	0.023	-$46.02		0.000		$3,526.78	***	0.044
Rural (0,1)	-$3,898.32	***	-0.040	-$4,117.63		-0.026		-$3,683.30	***	-0.052
Midwest Region (0,1)	-$1,731.48	**	-0.021	-$4,404.50		-0.034		-$1,327.91	***	-0.021
Structural-level factors:										
Annual hours	$16.02	***	0.312	$19.04	***	0.265	<>	$14.78	***	0.368
small company size (1-25)	-$1,867.32		-0.022	-$9,822.32	**	-0.085		-$396.60		-0.006
medium company size (26-99)	ref. group			ref. group				ref. group		
large company size (100+)	$524.47		0.025	-$9,879.10		-0.093		$3,029.63	***	0.054
self emp	$4,359.29	*	0.029	$877.72		0.006		$3,933.33	**	0.026
govt	-$306.89		-0.003	-$1,512.32		-0.010		$480.99		0.005
Medical Occupations:										
Direct Care	$45,064.67	***	0.402	$47,880.96	***	0.442		$38,079.53	***	0.309
Direct Assistant Care	$19,243.90	***	0.239	$20,462.46	***	0.125		$19,431.06	***	0.332
Indirect Care	$7,356.42	***	0.094	$8,773.27	**	0.079		$7,888.21	***	0.132
Indirect Assistant Care	ref. group			ref. group				ref. group		
Gender:										
Female (0,1)	-$5,633.50	***	-0.063							
Occupational Sex-Segregation	-$5,181.17	***	-0.064	-$6,704.96	*	-0.074		-$3,431.72	**	-0.041
Married (0,1)	$721.83		0.010	$3,830.10		0.035		-$727.59		-0.013
with children under 6 (0,1)	$209.15		0.002	-$221.88		-0.002		-$272.33		-0.004
% Minority (0,1)	-$1,888.93	**	-0.025	$34.87		0.000		-$1,969.06	**	-0.034
(Constant)	-$28,535.09			-$43,396.01				-$30,641.06		
Adjusted R-sq.	0.584	***		0.551	***			0.535	***	
n=	7,186			1,405				5,781		

[1] = *** p < 0.001; ** p < 0.01; * p < 0.05

[2] significant differnce at the .05 level between men and women