

INCOME INEQUALITY: THE COST OF BEING A SINGLE WOMAN

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Darcy J. Mikal

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

Dr. David Wright, Committee Chair

We have read this thesis and recommend its acceptance:

Dr. Twyla Hill, Committee Member

Dr. Carolyn Shaw, Committee Member

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ABSTRACT

Using secondary data analysis of the 2003 American Time Use Survey (ATUS), this thesis examines why and how the pay gap exists between married and never-married women using an income determination model. The income determination model consists of three component parts: the individual, structural, and gender model segments. The individual-level model segment looks at variables such as education and age. The structural-level model segment of the income determination model looks at variables such as hours worked, occupation and industry level. Last, the gender-level model segment looks at variables like occupational sex segregation, having children, minority status, marital status, and household labor activities. The most salient finding of this research is that net of other factors, never-married women earn \$30.40 less a week than married women. This finding is discussed in relation to how the marriage premium is more advantageous for men compared to women.

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1. INTRODUCTION

In our changing society, women are foregoing or delaying marriage in order to pursue further education and careers. As the marriage rate continues to fall, the proportion of life lived never-married continues to grow (Schoen and Standish, 2001). Because women are delaying marriage, women's average age at first marriage has increased over time. This increase in average age at first marriage can be seen as a reflection of the rising levels of cohabitation (Schoen and Standish, 2001). Even though women are delaying or foregoing marriage, are women benefiting from this? Married men receive substantial benefits from the marriage premium but, the question still remains as to whether this premium applies to married women. As more women remain never-married and enter the workforce, the earnings difference among the sexes becomes a crucial component in order for women to have the opportunity to support themselves without a marriage requirement.

Existing research has focused heavily on the earning differences between married and never-married men, suggesting married men earn higher wages than never-married men (Blau and Beller, 1988; Brown, 1980; Carliner, 1980; Cohen and Haberfeld, 1991; Gorman, 1999; Kenny, Lee, Maddala, and Trost, 1979; Malkiel and Malkiel, 1973; Osterman, 1979). To date, minimal research has focused on the difference in earnings among married and never-married women, due to our androcentric society where men are the primary focus. Therefore, further research is necessary regarding the pay discrepancy among married and never-married women in order to better understand our working society since more and more women are entering the work force.

Various theoretical models attempt to explain the wage gap. Individualist models explain the income differences among married and never-married women by focusing on individual-

level attributes using Human Capital Theory and the Selectivity and Productivity Hypotheses. Structuralist models explain the pay gap by the hierarchy of positions within organizations (i.e. the occupation and industry of the job) which workers occupy. The position will draw a differential rate of return; for example, managerial jobs will have a greater income return than service jobs. The gender model explains the income discrepancy by looking at occupational sex segregation, crowding theory, revolving door theory, and gender and job queues.

To better explain the phenomenon, the alternative model encompasses the individual, structural, and gender model attributes to analyze the wage gap among married and never-married women. The alternative model is based upon the central role gender plays in the accumulation of human capital investments, and the selection and sorting of individuals into the economic structure. The 2003 American Time Use Survey (ATUS) is used to research the difference in earnings among married and never-married women.

2. LITERATURE REVIEW

2.1 Individual Level Model

2.1.1 Human Capital Theory

Human Capital Theory is based on the idea that individuals are rational beings and therefore have the capacity to make choices to invest in human capital (i.e. ability, education, training, skills, and knowledge) in order to increase their productivity. The worker is described as an economic entity in that the worker's value is determined by their motivation and skills relevant to the enterprise profit potential (Fitz-enz, 2000). Since individuals are seen as rational beings, they make decisions based upon a cost-benefit analysis. For example, an individual may choose a job where the work is fulfilling in an energizing environment, which in return helps the employee remain loyal to the company (Davenport, 1999).

Investing in human capital increases the individual's productivity and maximizes the marginal product. For example, a highly educated worker with skills tends to generate higher wages than an uneducated and untrained worker (Becker, 1993; Davenport, 1999; Galor and Zeira, 1993). Therefore, individuals who have invested greatly in human capital will receive higher wages due to their higher level of contribution to the marginal product than those who have not invested as much in human capital (Becker, 1993; Fitz-enz, 2000; Galor and Zeira, 1993). Likewise, as a result of investing in human capital, skilled workers have higher rates of productivity and greater marketable skills. Thus, skilled workers will generate higher wages than those unskilled workers with less investment in human capital and lower rates of productivity.

In addition, age is used as a measure of experience affecting workers' productivity, and therefore their wage outcome. For example, since more workers make human capital investments at a young age, they are foregoing current wages; and as a result have low earnings (Ben-Porath, 1967). It is expected that earnings will be low at the early years, and will peak at a later age (Ben-Porath, 1967). It is assumed that as age increases, the worker is gaining work place experience, and therefore will be more productive and have greater potential for higher earnings.

Married women tend to invest less in human capital when compared to never-married women (Jones, Manuelli, and McGrattan, 2003). Never-married women may tend to invest more in human capital at an earlier age, and firms believe never-married women will be more devoted to their careers, therefore yielding higher wages (Chiodo and Owyang, 2002). Even if married women work in the labor force, they are seen as less productive than never-married women (Jones, Manuelli, and McGrattan, 2003). Becker claims never-married people allocate their time

in a different way than married people because never-married people do not have time and goods supplied by a mate (1973).

According to human capital theorists, since bearing children is seen as a choice women make, women with children may seem less productive if more time is allocated to raising and caring for children, than investing in the workforce. When production within the home decreases, married women counter by increasing their investment in human capital, causing a narrowing gap in wage differences (Jones, Manuelli, and McGrattan, 2003). Married men are seen as more productive in the labor market, and earn higher wages, but this is not the case for women (Richardson, 2000; Korenman and Neumark, 1991, 1992; Waldfogel, 1997). Therefore, human capitalists believe the differences in income are due directly to choices made by individuals, like marriage and bearing children, and are not due to discrimination.

Neo-classical theorists will argue traditional families need specialization (women's work in the domestic sphere, men's work in the labor market) in order to minimize competition and conflict between couples, to maximize mutual dependence, to attain the highest level of family income, to heighten satisfaction, and in return this benefits the labor market by keeping women at home and men in the work force, since men are more productive (Becker, 1973; Ferber, 2003). Becker (1973) and others argue men are wage earners, and women are homemakers (Ferber, 2003). Likewise, men invest for marketable outcomes, where women invest in finding wealthy men; however, both men and women are better off married in order to maximize their utility (Becker, 1973). Becker claims married persons can be expected to raise their utility above those who remain never-married (1973).

However, this argument applies more to men than to women. Married men earn more than never-married men, and are more likely to be employed, which may contribute to men's

overall earnings advantage (Cohen, 2002). In addition, understanding trends in the marriage premium is essential to answer sociological questions such as: who benefits from marriage and how gender affects the household division of labor in relation to economic inequality between men and women (Cohen, 2002).

2.1.2 Selectivity Hypothesis

The Selectivity Hypothesis is used to explain why certain men have more desirable attributes making them more likely to be selected for marriage (Chun and Lee, 2001). The Selectivity Hypothesis holds physical characteristics have an impact on earnings; where “plain-looking people earn less than average-looking people, who earn less than the good-looking” (Hamermesh and Biddle, 1994). For men, their likelihood for marriage depends on their recognizable earnings and immeasurable individual traits (Chun and Lee, 2001). Men with higher earnings are likely to marry because they are valued more in the labor and marriage markets (Chun and Lee, 2001; Hewitt, Western, and Baxter, 2002). Previous studies have focused on men and the individual traits that make them more likely to be married; however, this has not been applied to women.

Although the Selectivity Hypothesis attempts to explain why men are likely to be married, it fails to explain why women are more likely to be married other than strictly by appearance. However, it is likely that women are attracted to marry financially stable men to improve their socioeconomic status and security. In addition, women would be likely candidates to marry because they would provide men with the domestic labor (i.e. laundry, food preparation) necessary to keep men productive in the work force. When looking at domestic labor as unpaid work, and returns on wages for married women, it is clear that marriage does not benefit women like it does men (Baxter and Gray, 2003). On the other hand, marriage may

benefit women in accessing higher standards of living as a result of their husband's income (Baxter and Gray, 2003).

2.1.3 Productivity Hypothesis

The Productivity Hypothesis argues men have greater opportunities in the labor market due to the specialization of labor (men in the workforce and women in domestic labor).

Therefore, men are more productive in the labor market because they have more time to devote to their careers and labor market goals (Chun and Lee, 2001; Baxter and Gray, 2003).

Findings show that marriage has little effect on the work experiences for women, and little if no effect on women's wages after accounting for individual characteristics (Baxter and Gray, 2003; Chiodo and Owyang, 2002). Although marital status has little effect on wages for women immediately, lifetime earnings are affected by time spent in domestic labor, and childbearing/childrearing (Chiodo and Owyang, 2002; Baxter and Gray, 2003). Most notably, childbearing/childrearing and marriage affect wage differences between married and unmarried women (Chiodo and Owyang, 2002). This is due to lost experience in the labor market and loss of skills (Chapman, et al., 2001). The marriage premium clearly applies more to men than women.

2.2 Structural Level Model

Individualist models focus on individual attributes as the determining factor of how income is distributed, whereas the structuralist models focus on the positions within organizations as determining income. The placement of organizations within the economy determines the wage structure available for the organization to allocate income to job positions. Individuals occupy these positions, and as a result, their income is determined by the position of the job within the organization.

2.2.1 Dual Economy Theory

Dual Economy Theory asserts the economy is separated into two sectors: the monopoly and competitive (Coverdill, 1988). From a dual economy viewpoint wages are directly affected by structural features of firms and industries, and as a result employment outcomes differ by sector (Coverdill, 1988).

The monopoly (core or concentrated) sector consists of large corporate and bureaucratic firms, which have ownership and control of crucial raw material supplies, while being diversified into many industries, regions, and nations (Hodson and Kaufman, 1982). Because the monopoly sector controls a large portion of the market and has a high capital to labor ratio, it allows for a higher wage structure and profit potential within this sector. An employee in the monopoly sector will earn higher wages, have better benefits, more opportunities for mobility, and greater work satisfaction than employees in the competitive sector (Reid and Rubin, 2003).

Additionally, the monopoly sector requires a stable and trainable workforce, which means education and work experience are an important aspect of gaining entry into the monopoly sector, as well as upward mobility (Coverdill, 1988). Hodson (1977) concludes men earn more for a college degree than when compared to women, and women earn less than men regardless of the sector where women work. As a result, education and work experience determine the job assignment and the wage rate (Coverdill, 1988).

Coverdill argues the employee's sex and familial obligations are important in determining the sector in which an employee job is located (1988). Since women are more affiliated with family than men, maybe they are attaining less education, and having children makes them less likely to be in the monopoly sector (Coverdill, 1988). Beck et al. (1980) found never-married women are slightly more likely than married women to work in the monopoly

sector; however, this finding was not statistically significant (Coverdill, 1988). This finding suggests all women are seen as a homogeneous group, since all women have the potential to be mothers (Coverdill, 1988). Because married and never-married women workers are seen as a homogeneous group, perhaps marital status and children are insignificant factors in determining the sector in which women work (Coverdill, 1988).

The competitive economy (periphery and unconcentrated sector) contains small firms distinguished by restricted markets, low wages, little or no training and skills, minimal job security, and limited opportunities for upward mobility (Hodson and Kaufman, 1982; Coverdill, 1988; Reid and Rubin, 2003; Reich, Gordon, and Edwards, 1973). The competitive firm's production and marketing are not up to par with those in the monopoly economy because the monopoly sector is technology-intensive (Hodson and Kaufman, 1982; Reid and Rubin, 2003). Furthermore, the monopoly firms are large in size and have the influence to take advantage of the competitive firms by taking profits from the smaller firms (Hodson and Kaufman, 1982). As a result, over time, the capital becomes more concentrated and centralized in the monopoly market, and the competitive market becomes small competitive firms (Hodson and Kaufman, 1982). An important aspect of the dual economy is this dependency relationship between monopoly and competitive sectors, which is related to Marx's notion of capitalism (Hodson and Kaufman, 1982).

Women are more likely than men to be found in the competitive jobs, which lead dual economists to the conclusion the overrepresentation of women in competitive jobs accounts for the difference in earnings between the sexes (Coverdill, 1988). Dual economists speculate women are more likely to have jobs in the competitive sector as a result of institutional barriers raised by firms (Bluestone, 1970). O'Conner (1973) argues, "the supply of labor in competitive

industries is further inflated by workers (e.g. married women, students, and retired workers) who want, and will accept lower wages to obtain, irregular work”. Since women are more involved in family activities, childcare, and housework, they are likely, or forced, to forego the wage advantage of jobs in the monopoly sector, and are more willing to work in competitive jobs to obtain flexible hours (Coverdill, 1988; Reich, Gordon, and Edwards, 1973).

The monopoly and competitive sectors differ in wages paid due to the difference in the technical relations of production. The monopoly sector has more capital and influence upon the competitive sector, which allows the monopoly sector to have technology-intensive production. The competitive sector does not have the capital to use technology-intensive production. Technology-intensive production allows for a higher wage structure for the monopoly sector compared to the competitive sector. The organization’s sector in the economy, monopoly or competitive, provides the wage structure where lower wages are paid in the competitive sector compared to that of higher wages paid in the monopoly sector.

2.2.2 Segmented Labor Market Theory

Segmented Labor Market Theory (SLM) is associated with dual economy theory given that primary labor market jobs are found in the monopoly sector of the economy (Reid and Rubin, 2003). The labor markets, primary and secondary, are discussed in relation to inequalities in earnings. The differences in income between the primary and secondary sectors are caused by the social relations of production. SLM theorists have argued earnings are closely related to the worker’s productivity in the primary sector, but not in the secondary sector of the labor market (Boston, 1990). In addition, the primary sector is characterized by a wage premium unlike the secondary sector (Boston, 1990).

The primary market requires skills, training, and education, the wage outcome is higher, and employees are given more freedom to make decisions (Reid and Rubin, 2003; Reich, Gordon, and Edwards, 1973). Within the primary sector, workers tend to not change jobs as frequently as in the secondary sector, and as a result acquire higher levels of experience and tenure (Boston, 1990). In addition, the primary sector requires general and specific labor, which requires training and skills (Boston, 1990). As a result, the ‘good jobs’ are located in the primary labor market within the monopoly sector of the economy (Reid and Rubin, 2003).

Boston found a high representation of women in the primary sector, which at first glance seems odd (1990). However, women are concentrated in jobs related to technical sales and administrative support (clerical workers, secretaries, stenographers), where specific skills or training are required for these jobs (Boston, 1990). These findings may suggest attention should be given to gender issues within the primary sector (Boston, 1990).

The jobs in the secondary market are characterized as high risk, small number of employees, labor-intensive production, and require less autonomy from the employees (Reid and Rubin, 2003; Reich, Gordon, and Edwards, 1973). The secondary sector demands “raw labor” which means the labor is menial, simple, repetitive, and interchangeable (Boston, 1990). Therefore, the ‘bad jobs’ are located in the secondary labor market within the competitive sector of the economy (Reid and Rubin, 2003).

The amount of hours worked is the major argument for determining earnings in the secondary labor market (Boston, 1990). Because women are closely tied to familial obligations, they may not attain the education and skills necessary to break through institutional barriers in order to get into the primary labor market. In addition, the findings suggest employees work less hours per week in the secondary sector compared to the primary sector which may be a

determining factor of why the wages are less for employees in the secondary sector (Boston, 1990). Perhaps women are earning less because they are exchanging less hours of work for more flexibility in order to meet familial responsibilities.

Furthermore, SLM theory states earnings are related to productivity in the primary sector but not in the secondary sector; therefore, this does not explain why women are so concentrated in the secondary sector, if in fact the earnings are not related to productivity (Boston, 1990). Although hours worked seems to be the determinate for earnings, Boston (1990) found that having never been married is one of the most significant factors in determining the likelihood of upward mobility from the secondary sector to the primary sector. Therefore, women may be better off remaining never-married in order to achieve upward mobility into the primary sector. In addition, education has a positive effect on upward mobility, and never-married women may have more opportunities than married women to attain education especially when children are not present (Boston, 1990). However, never-married women with children may have less time to get educated than married women with children due to support from the married partner.

2.3 Gender Level Model

The individual and structural models see the wage gap between married and never-married women as affected by individual-level variables such as the level of attained education, age of the worker, level of productivity, and occupational prestige. In contrast, gender theories see women as being devalued and systematically sorted into jobs as workers; therefore these processes result in an earnings difference between men and women. These processes consist of sorting workers by gender, and into jobs that are deemed “appropriate” for the gender of the worker. For example, women are likely to be sorted into clerical and secretarial jobs because they are thought to have better skills for these jobs compared to men. A woman’s earnings will

be affected by her role as primary household laborer. Furthermore, because men often hold the position of authority in the household, women are often left responsible for all household labor (Reskin and Roos, 1992). Therefore, the gender model looks at the wage gap as a process and not individual level variables affecting the earnings difference. The gender model looks at several theories: crowding theory, revolving door syndrome, and the gendered job queue theory.

2.3.1 Division of Household Labor

The gender model evaluates how the division of household labor influences the opportunities of paid work for women. The resource-power perspective focuses on the economic and social contexts of how husbands and wives use their individual resources for bargaining power over who will do housework (South and Spitze, 1994). A second perspective, socialization and gender role attitudes, focuses on learned behaviors deemed appropriate for husbands and wives in the household (South and Spitze, 1994). Gender differences in the way children are trained in doing housework produces standards that vary according to gender, which may carry over these attitudes into adulthood (South and Spitze, 1994). Third, the time availability hypothesis focuses on the amounts of housework done by wives and husbands relative to the time left over after paid work is completed (South and Spitze, 1994). According to South and Spitze, gender is more influential than individual resources in determining the division of housework (1994).

Among all marital statuses, women spend more hours than men doing housework (South and Spitze, 1994). The time spent doing housework, which typically adds up to a full-time work week, was termed by Hochschild (1989) as the “second shift”. Married women spend over 17 hours more per week on housework than do never-married women (South and Spitze, 1994). Marriage often brings children, and as a result, a reduction in the hours of paid work for women

(South and Spitze, 1994). Differences in housework hours are affected by the number of hours worked outside the home, and the presence of children (South and Spitze, 1994). The presence of children produces the need for more hours of housework to be completed (South and Spitze, 1994).

Housework affects women's wages by limiting their effort and energy to perform on the job since a large amount of time is spent on housework (Becker, 1985). Even though men spend more time in the job market, women spend more total time on housework (Hersch and Stratton, 1994). This extensive housework causes physical fatigue for women making them less productive in the labor market (Hersch and Stratton, 1994). Overall, wives do more housework than their husbands, partly because husbands, on average, earn more than their wives (Hersch and Stratton, 1994). According to Hersch and Stratton, time spent on housework has a more pronounced negative effect on women's earnings (1994). It is unknown how housework affects never-married women's wages, although it is speculated that there will be a negative effect on earnings.

2.3.2 Crowding Theory

Crowding theory attempts to explain some of the gender gap in pay based on the economic models of supply and demand (Cohn, 2000). In general terms, the supply of labor is the number of workers willing to take a job, and the demand is the number of workers employers are willing to hire for jobs (Cohn, 2000). Wages are then determined by the difference between the supply and demand of labor (Cohn, 2000). For example, wages of the average worker increase when the numbers of workers are in short supply (Cohn, 2000). On the contrary, wages decrease when there is an over supply of the average worker (Cohn, 2000).

Crowding may occur because employers discriminate in a way that excludes individuals from entering a certain type of occupation (Solberg and Laughlin, 1995). Men are able to enter a vast number of occupations in comparison to women, who are limited to fewer occupations, and as a result, the over supply of women workers for fewer jobs presents lower wages (Cohn, 2000). Many male workers are interested in keeping as many as possible of their coworker's male, and therefore, raising men's wages by keeping women restricted to subordinate positions where they are less of a threat (Bergmann, 1986). The wage rates would change, and the wage gap between men and women would be reduced if the supply of workers to jobs earmarked for men would increase, and the supply of workers to jobs earmarked for women would decrease (Bergmann, 1986).

The vast over supply of labor women provide is considered a buyer's market, where employers can negotiate wages down (Cohn, 2000). Part of the explanation for overcrowding of women is occupational sex-typing, where women and men are pooled into gender specific jobs, limiting women's occupational opportunities (Cohn, 2000). In short, economic possibilities are better for men than for women. However, it is unclear how crowding theory affects women in regards to marital status. It seems women are collectively seen as a homogenous group in that marital status is not a contributing factor for determining job type, but discrimination against all women is the reason for the crowding of women into female dominated jobs.

The supply of women workers is higher than the demand for them in jobs, and therefore women may think it is unrealistic to spend vast amounts of time job hunting, and instead they may decide to go back to school, become active in the community, have children, or engage in some activity not related to paid employment (Cohn, 2000). The case may be that women do not want paid jobs, or that they have learned it is better to not want a job they cannot have (Cohn,

2000). Because economic opportunities are better for men, having children is a common reason for women to withdrawal from the work force (Cohn, 2000). Since childbearing is not gender neutral, at any given time the size of the female labor force will be generally smaller than the male labor force (Cohn, 2000).

2.3.3 Revolving Door Syndrome

Revolving Door Syndrome is a mechanism that perpetuates occupational sex segregation based on the idea that women frequently move between sex-typical and sex-atypical jobs over their life course (Jacobs, 1989). Jacobs found that for every 100 working women, 11 women enter male-dominated jobs, but 10 women leave (1989). According to Jacobs, “male occupations” are those where women account for less than 30 percent of the labor force (1989). “Female occupations” are those where women make up 70 to 100 percent of the work force (Chan, 1999). There is a causal connection between occupational segregation and the assignment of wage rates to jobs by the market (Bergmann, 1986). Furthermore, occupational segregation produces the market conditions that lead to low pay in female dominated jobs which most women hold (Bergmann, 1986). Women in male dominated jobs receive low pay because employers know that women have little alternative job possibilities; these possibilities are low paying, traditional female dominated jobs (Bergmann, 1986). Women in sex-atypical occupations face adverse social forces pushing them back into female occupations, and those already in female occupations find it difficult to move into sex-atypical occupations (Chan, 1999). Prior experience in female occupations increases the transition rates into female occupations, but decreases the transitions rates out of female occupations, causing women to remain in heavily female dominated jobs with lower pay scales (Chan, 1999).

Women in desirable occupations are more likely to stay in the job (Chan, 1999). Mostly, young children and marital status do not affect transitions between the occupational sex types directly; however, they do affect transitions between nonwork and being employed in female occupations (Chan, 1999). Married women tend to go from female occupations to nonwork at a rate of almost three times higher than those who have never been married (Chan, 1999). In addition, the percentage of women in female occupations increases over the life course of the cohort, however, the percentage of women in female occupations declines during the cohort's first 10 years in the labor market (Chan, 1999). As noted above, marital status and children tend to affect the transition from nonwork to paid employment; therefore, the decline of women during the first 10 years of the labor force may be due to these being women's childbearing years.

2.3.4 Gender and Job Queues

The Queuing Theory views labor markets as encompassing labor queues, which is employers' ranking of possible workers, and job queues, which is workers' ranking of jobs (Reskin and Roos, 1990). Because labor queues are heavily ordered by sex, they are in essence gender queues (Reskin and Roos, 1990). Occupational arrangements are seen as a matching process where the top-ranked workers get the most attractive jobs; therefore the lowest workers end up in jobs that others have refused (Reskin and Roos, 1990). Employers use sex as a selection process when hiring for jobs (particularly skilled jobs) by thinking that sex status is related to productivity (Kaufman, 2002).

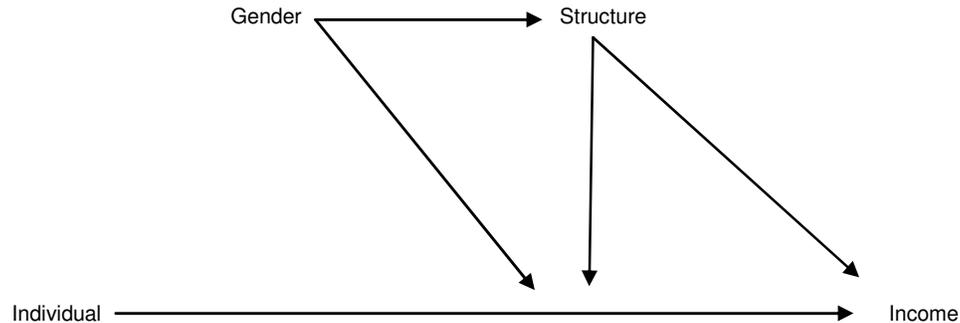
The idea that sex is related to productivity tends to assign jobs (work tasks and skills) as "appropriate" or "inappropriate" for women (England, Kilbourne, and Herbert, 1994; Kaufman, 1986; Moss and Tilly, 1996, 2001; Reskin and Padavic, 1999; Reskin and Roos, 1990;

Ridgeway, 1997). As a result, workers are stereotyped as qualified based more on their sex rather than actual personal qualifications (Kaufman, 2002). “Appropriateness” leads to the perspective of “female” jobs requiring physical dexterity, clerical perception, nurturing skills, or subservient tasks (Kaufman, 2002). On the other hand, “male” jobs are deemed as those requiring extreme environmental conditions, physical labor, mathematical skills, and authority or superior status interactions with coworkers or clientele (Kaufman, 2002).

The queuing perspective emphasizes the nature of sex segregation by looking at the outcome of socially structured rankings of groups, and how this shapes the occupational structure (Reskin and Roos, 1990). Additionally, queuing takes in perspective not only economic factors but noneconomic factors. For example, working conditions, autonomy, social standing, career opportunities, and sex influence workers’ appraisals of jobs, while prejudices, stereotypes, ideology, peer pressure, and the desire to preserve their own and other men’s advantages influence employers’ rankings of workers (Reskin and Roos, 1990).

Queuing is a way to reserve the best jobs for the most preferred groups and forces the less preferred to less desirable jobs or unemployment (Liebersson, 1980; Reskin and Roos, 1990). Jobs with more desirable settings, sufficient hours, and low unemployment have more workers of the “favored” group (white men) relative to the “less-favored” group in which women are included (Kaufman, 2002). Gender places limitations on which positions will be given to the individual by a process that places married women in higher positions in the labor market than never-married women. Due to discrimination, where women are seen as less qualified or skilled for jobs, and stereotypes where employers label highly skilled work as “inappropriate” for women, causes women to be placed lower in the labor queue (Kaufman, 2002).

2.4 Alternative Level Model



(Adapted from Wright, 1992)

This study introduces an alternative model that integrates the individual, structural, and gender-level models to explain how income is distributed. The individual model focuses on individual attributes as the determining factor of how income is distributed. Individual factors, such as age, education and skills, directly affect earnings according to theories like Human Capital. For example, a more educated worker will generate higher wages than an uneducated and untrained worker because of their investment in human capital.

Income is directly affected by structure since the hierarchy of positions which workers occupy within organizations (occupation, industry, union membership, government, etc.), pay more than others. For example, managerial jobs will have a higher earnings potential than worker positions. Structure indirectly affects income by determining which individuals will be selected into each position and the individual attributes that will be monetarily rewarded. For example, those who have invested in human capital investments will be selected into high ranking positions with higher pay.

The gender model argues the wage gap is a result of the process in which women are discriminated against and sorted into jobs “appropriate” for their gender. Occupational sex segregation, household division of labor, marital status, and effects of children are examples of

ways women are discriminated against. Even when married and never-married women hold the same position, married women will earn a higher wage because married women will have greater returns on their human capital investments than never-married women. Gender places limitations on which positions will be given to the individual by a process that places married women in higher positions in the labor market than never-married women.

Hypotheses:

Hypothesis 1a: Net of other factors, as the age of the worker increases, income will increase.

Hypothesis 1b: Net of other factors, with an increase in education, there will be an increase in income.

Hypothesis 2a: Net of other factors, the higher the position in the hierarchy of jobs, the more income.

Hypothesis 2b: Net of other factors, managers will receive greater economic returns to educational investment than service workers.

Hypothesis 3a: Net of other factors, married women will have a higher occupational position when sorted into jobs, than never-married women.

Hypothesis 3b: Net of other factors, married women will earn more income than never-married women.

3. DATA AND METHODOLOGY

3.1 Data

The purpose of this study is to examine the income difference between married and never-married women. This study will use the American Time Use Survey (ATUS) of 2003. The ATUS is the Nation's first federally administered, continuous survey on time use. The

purpose of the ATUS survey is to measure how people divide their time among life's activities. The survey is sponsored by the Bureau of Labor Statistics and is conducted by the U.S. Census Bureau. The ATUS sample is drawn from the Current Population Survey (CPS) therefore; the ATUS universe is the same as the CPS universe. The universe for the CPS is composed of the approximately 105 million households in the United States and the civilian, noninstitutional population residing in those households. The ATUS sample is a stratified random sample. In 2003, 3,375 households leaving the CPS sample were selected for the ATUS sample each month (approximately 40,500 households annually). All ATUS data was collected using computer-assisted telephone interviewing (CATI).

For this study, sample restrictions have been placed on the ATUS data to target the intended population. The sample consists of married and never-married women ages 18 to 64 who worked full-time, full-year and part-time, full-year in the private and government sectors. The age restriction was placed on individuals between 18 and 64 in order to avoid subsidized training wages of those under 18 and also the retirement effects on wages of those 65 and older. Self employed workers were removed because these individuals acquire income differently than private employees. Also, only actively working persons were selected so that those seeking employment would not affect the wage structure. Before multivariate analysis was executed, outliers more than three standard deviations away from their respective means were removed. After the outliers were removed, the amount of variance explained increased to 53 percent. As a result of removing the outliers, the total sample size N decreased from 4,044 to 3,956, for a reduction of approximately 2.2 percent. The final sample size (n) is 3,956.

The ATUS provides a standard weight variable which is used to generalize from the ATUS sample to the larger U.S. population. It is necessary to apply weights when computing

estimates using the ATUS data because the unweighted ATUS data will produce misleading results generating biased population parameters. In addition, weights must be used for the ATUS household division of labor measurements in order to adjust for the time when the measures were recorded. Therefore, a relative weight has been calculated and applied. The relative weight is calculated by dividing the standard weight by its mean (relative weight = standard weight/mean of standard weight). The relative weight allows the sample size to reflect the unweighted data, and the sample will still reflect the frequency percents of the weighted data.

3.2 Variables

3.2.1 Dependent Variable

In this study the dependent (interval level) variable is income, which is measured in weekly earnings, ranging from \$10.50 to \$2990.00. Weekly earnings are measured in dollars. Because the income is skewed, a log measure of income is created. In addition, the dependent variable was created into a centile measure for comparison purposes.

3.2.2 Independent Variables

3.2.2.1 Individual Level Variables

At the individual level the variables measured include age, education of the respondent, the region, rural or urban area where the respondent resides. Age is an interval level variable measured in years. It is expected that as age increases the more experienced a worker becomes; therefore, income will increase because employers pay more productive workers a higher wage.

The education level of the respondent was measured as a 5-level ordinal variable with categories of less than high school, high school or equivalent, some college but no degree, Bachelors degree (BA, BS), and Masters degree or higher. From this ordinal measure five binary (0,1) variables were created to note the respondent's education level. Last, a binary variable

(0,1) was made to differentiate earnings from those who have a college degree or higher and those who do not have a college degree or higher. It is expected that as education increases so will income.

Region is a nominal level variable showing which region respondents live in the United States: Northeast, Midwest, South, and West. In order to create a low income region binary (0,1) variable, an ANOVA was ran which showed that the lowest income areas were Midwest and South. The Midwest and South regions were combined to make up the lower income group. It is expected that the Midwest and South region will have a lower income potential than the Northeast and West region. A rural binary (0,1) variable was created to show the difference in earnings among respondents living in a rural area. It is expected that respondents living in an urban area will have a higher earnings potential than those respondents living in a rural area.

3.2.2.2 Structural Level Variables

The structural level variables used are hours worked on a weekly basis, occupational prestige, government employment, union membership, occupation, and industry. The number of hours worked per week is an interval level variable. It is expected that income will increase as more hours are worked.

Occupational prestige is a variable indicating the level of prestige associated with each occupation on a scale of 1 to 100. It is expected that as occupational prestige increases so will income. The worker type variable was recoded into a binary (0,1) variable separating the private from the government sector where 1 denotes government workers. It is expected that government workers will earn less than private sector workers. The union membership variable is coded in a binary (0,1) variable separating the union members from non-union members. It is expected that union members will earn more income than non-union members.

The occupational variable was coded into 4 binary (0,1) variables: white-collar high-skill, white-collar low-skill, blue-collar high-skill, and blue-collar low-skill. White-collar high-skill occupations consist of health care, educators, managers and professionals. White-collar low-skill occupations are clerical and sales jobs. Protective, precision/craft, construction, and high skill transportation jobs are included in the blue-collar high-skill sector. Blue-collar low-skill occupations include service, laborers, machine operators, and assembly line workers. It is expected that white-collar jobs will earn more income than blue-collar jobs, and high-skill jobs will earn more than low-skill jobs within white and blue-collar occupations. The industry variable was coded into a binary (0,1) variable where 1 denotes the goods industry. The goods-producing industry includes construction, manufacturing, and extraction occupations. In general, goods producing jobs will earn more than service jobs.

3.2.2.3 Gender Level Variables

The gender-level variables used are marital status, whether the respondent has children, occupational sex segregation, and minority status. Marital status was recoded into a binary (0,1) variable separating married women from never-married women. It is expected that married women will earn more income than never-married women. Whether or not the respondent has a child under the age of 6 years was recoded into a binary (0,1) variable separating those who have a child under the age of 6 years. It is expected that women with children will earn less than women without children.

Occupational sex segregation is an interval level variable. This variable shows the percent of women in the occupation in relation to the number of women in the labor force. The occupation sex segregation variable ranges from 0 to 2, where the value 0 denotes no females in that occupation, the value of 1 indicates equal distribution of male and females in the occupation,

and a value over 1 denotes there is a higher percentage of females in the occupation than males. It is expected that female saturated occupations will have less income potential than equally male-female distributed occupation, and male dominated occupations.

Race and ethnicity was created into a 5-level nominal variable. The five categories are White non-Hispanic, Black non-Hispanic, Hispanic, Asian non-Hispanic, and other non-Hispanic. From this 5-level nominal variable, a minority binary (0,1) variable was created where 1 denotes minorities. It is expected that minorities will earn less than non-minorities.

3.3 Methodology

This research project uses SPSS to analyze the data. Univariate analysis is used to provide the parameters of the full sample and the subsample: married and never-married women. Bivariate analysis (t-tests) will be used to determine that statistically significant differences between the two groups married and never-married women. The significance value must be below .05 in order to determine a statistically significant difference between the two groups. Ordinary least squares regression (OLS) will be used to show which variables have an independent effect on income, the value of these effects, and whether the effects are different for married and never-married women.

4. RESULTS

4.1 Univariate and Bivariate Results

4.1.1 Table 1 Univariate and Bivariate Analysis by Full Sample and Marital Status

Married and never-married women earn statistically different amounts of income, with never-married women earning approximately 83 percent of the mean income of married women (\$486 versus \$585 weekly), for a difference in income of \$99.00 weekly. This \$99.00 difference is statistically significant and has a moderate effect size, meaning the difference between the two

means is meaningful. When looking at median weekly earnings, married women earn more than never-married women (\$504 versus \$400) generating a pay gap of 79.4 percent. In addition, married women occupy the 52nd percentile while never-married women occupy the 43rd percentile of earnings.

Individual level factors show statistically significant differences between married and never-married women. Married women are more likely to be older than never-married women (mean age of 41.5 versus 29 years). This difference in means of age is statistically significant with a large effect size; meaning the difference between the two means is meaningful. Bivariate analysis shows there is a statistically significant difference between the two groups in relation to residing in a rural area and living in the Midwest-South region. Married women are more likely than never-married women to live in a rural area (22% versus 12%), and more likely to live in the Midwest-South region (60% versus 56%). In addition, the difference in means of living in a rural area is meaningful with a moderate effect size. When looking at college degree attainment, Human Capital Theory would predict that the income difference between these two groups would be a result of education. Even though married women have a higher college degree attainment than never-married women (33% versus 30%), and is statistically significant, the effect size is not meaningful.

At the structural level, there are statistically significant differences among married and never-married women. Married women are more likely to work in the goods-producing industry than never-married women (13% versus 7%). This difference in means of workers in the goods-producing industry is statistically significant with a moderate effect size; meaning the difference between the two means is meaningful. In addition, married women are more likely than never-married women to be union members and to work in government occupations (12% versus 9%

and 23% versus 19%). When looking at skill levels, married women are more likely than never-married women to work in White-collar High-skill jobs (47% versus 43%); however, never-married women are more likely than married women to work in Blue-collar Low-skill jobs (18% versus 15%). Hours worked per week, White-collar Low-skill and Blue-collar High-skill jobs are not statistically significant.

Gender level factors are statistically significant among married and never-married women. Married women are more likely than never-married women to occupy occupations that are female saturated (1.43 versus 1.37). Married women are more likely than never-married women to have children under the age of 6 years (21% versus 13%). Not only is having a child under the age of 6 years statistically significant, the effect size is moderate showing a meaningful difference between the two groups. Never-married women are more likely than married women to be minorities (32% versus 19%). The effect size for being a minority is moderate, showing a meaningful difference between the two groups.

4.1.2 Table 2 Household Division of Labor

Overall, the percent involved in household labor is greater for married women compared to never-married women (81.7% versus 61.7%). Married women spend almost 5 more hours a week cooking, cleaning, and doing laundry than never-married women (11 versus 6.3 hours per week). When looking at the 30 to 59 age cohort, the percent involved in household labor is greater for married women than for never-married women (83.4% versus 68.3%). Married women perform 4 more hours of household labor than do never-married women (11.4 versus 7.4), within this same age cohort. There was no significance at the 25 to 29 age cohort.

At all educational levels except the graduate degree, bivariate analysis shows a statistically significant difference between the two groups for both the percent involved in

household labor and hours spent performing household labor. When looking at education levels (less than high school, high school diploma, some college, and college degree) married women consistently perform more household labor than never-married women (90.6 % versus 67.9%, 84.1% versus 63%, 79.7% versus 58.3%, 81.2% versus 62.7%). At the graduate degree level, there is no significant difference between the two groups. For the most part, as education increases, hours of housework decrease for both married and never-married women. However, there is a significant change in hours for married women, but not for never-married women. For example, at the less than high school diploma level, married women spend 17 hours per week on housework compared to 9.8 hours a week at the college degree level. For never-married women, at the high school diploma level, 8.8 hours are spent doing housework compared to 6.1 hours at the college degree level. The difference in hours spent on household labor from the less than high school diploma to college degree level is 7.2 hours for married women versus 2.7 hours for never-married women. Therefore, married women perform more hours of housework.

At all skill levels (blue-collar low and high skill, white-collar low and high skill), we see some variation in the percent involved in household labor, however married women consistently perform more housework than never-married women (84.7% versus 65.3%, 88.1% versus 68%, 83.3% versus 61.4%, 79.1% versus 59.9%). There is a statistically significant difference between the two groups at all skill levels. In addition, there is a statistically significant difference between the two groups in relation to skill level and hours spent on housework. Both married and never-married women perform more hours of housework as the skill level decreases; however the increase in hours is smaller for never-married women. For example, the difference in hours of housework performed from blue-collar low-skill to white-collar high-skill jobs is 4.7 hours for married women, compared to 2.3 hours for never-married women.

When looking at quintiles of earnings for married women, as earnings increase, the percent involved in household labor decreases (89.9%, 85.7%, 79.8%, and 78.7%), however for never-married women the percent is fairly consistent (60.8%, 62.8%, 64.4%, and 54.3%). The top 20% of earnings was not found to be statistically significant for the percent involved in household labor. At all quintile levels, bivariate analysis shows statistically significant differences between married and never-married women. For married women, hours of housework decreases as earnings increase (15.3, 12.1, 10.6, 10.2, and 7.9 hours). For never-married women, there is mostly a flat distribution of hours (5.9, 6.2, 7.6, 5.4, and 6.5 hours).

4.1.3 Table 3 Median Weekly Earnings by Occupation and Education

Median weekly earnings indicate white-collar high-skill jobs earn higher wages for both married and never-married women overall (\$692 versus \$570) followed by blue-collar high-skill (\$478 versus \$459), white-collar low-skill (\$453 versus \$380), and blue-collar low-skill (\$260 versus \$241). Married women make more than never-married women in all occupations except for construction jobs in the blue-collar high-skill sector (\$319 versus \$574) and the service occupations in the blue-collar low-skill sector (\$210 versus \$224). Between the two groups, the greatest pay gap is in the white-collar high-skill jobs (82.3%), followed by white-collar low-skill (83.9%), blue-collar low-skill (92.7%), and blue-collar high-skill jobs (96.1%). For example, in white-collar high-skill jobs, never-married women are earning only 82.3 percent of the income of married women. In addition, a greater percentage of never-married women occupy blue-collar low-skill jobs (37%), followed by white-collar low-skill (32%), blue-collar high-skill (31%), and white-collar high-skill jobs (30%).

When looking at median weekly earnings in relation to education level, married women earn more than never-married women at the less than high school diploma (\$268 versus \$230),

high school diploma (\$400 versus \$328), some college (\$481 versus \$330), and college degree (BA or BS) levels (\$702 versus \$646). However, never-married women earn more than married women at the graduate or professional degree level (\$962 versus \$904).

When considering the educational attainment required for occupations, married women earn more than never-married women at all educational levels. For both married and never-married women, jobs requiring a college degree or higher pay more (\$769 versus \$734) than jobs only requiring a high school diploma, some college, bachelors degree (\$648 versus \$519), and more than jobs requiring only a high school degree or some college (\$359 versus \$280).

4.1.4 Table 4 Univariate and Bivariate Analysis for Full-time, Full-year Workers by Full Sample and by Marital Status

Married and never-married women, full-time, full-year workers, earn statistically different amounts of income, with never-married women earning approximately 85% percent of the mean income of married women (\$586 versus \$686 weekly), for a difference in income of \$100.00 weekly. This \$100.00 difference is statistically significant and has a moderate effect size, meaning the difference between the two means is meaningful. When looking at median weekly earnings, married women earn more than never-married women (\$600 versus \$503) generating a pay gap of 83.8 percent. In addition, married women occupy the 62nd percentile while never-married women occupy the 53rd percentile of earnings.

At the individual level, factors show statistically significant differences between married and never-married women, for full-time, full-year workers. Married women are more likely to be older than never-married women (mean age of 41.3 versus 30.4 years). This difference in means of age is statistically significant with a large effect size; meaning the difference between the two means is meaningful. Bivariate analysis shows there is a statistically significant

difference between the two groups in relation to residing in a rural area and living in the Midwest-South region. Married women are more likely than never-married women to live in a rural area (22% versus 13%), and to live in the Midwest-South region (63% versus 58%).

Human Capital Theory would predict that the income difference between these two groups would be a result of education. When considering full-time, full-year workers, college degree attainment showed no statistical difference among the two groups.

At the structural level, there are statistically significant differences among full-time, full-year workers when looking at government employment, being a union member, working in the goods-producing industry, and blue-collar low-skill sector. Married women are more likely to work in the government sector (24% versus 18%) and be union members (13% versus 10%) when compared to never-married women. Married women are more likely to work in a goods-producing industry (15% versus 8%) compared to never-married women; however never-married women are more likely to work in the blue-collar low-skill sector (15% versus 11%) compared to married women. There was no statistical difference between the two groups in relation to hours worked per week, white-collar high-skill, white-collar low-skill, and blue-collar high-skill jobs.

At the gender level, all factors are statistically significant among married and never-married, full-time, full-year workers. Married women are more likely to work in female saturated jobs (1.40 versus 1.34) compared to never-married women. In addition, married women are more likely to have children under the age of 6 (18% versus 13%) when compared to never-married women. Finally, never-married women are more likely than married women to be minorities (31% versus 20%).

4.2 Multivariate Results

4.2.1 Table 5A Multivariate Analysis using OLS Regression of Income by Full Sample and by Marital Status

For the full saturated model, the adjusted R-square value is 0.507, which shows 50.7 percent of the variance explained of weekly earnings. Net of other factors, never-married women see a loss of -\$30.40, which supports the hypothesis (3b) that married women will earn more than never-married women. At the individual level, income does increase with age and with education, net of other factors. The full sample earns \$5.00 more a week for every increase in age, which supports hypothesis 1a. The full sample earns \$46.07 more for attaining a college degree, which supports hypothesis 1b. The full sample sees a loss of -\$35.28 for living in the mid-west, south region, and a loss of -\$89.50 for living in a rural area. The data shows there is a significant difference between the two groups where never-married women see a greater deduction compared to married women for living in a rural area (-\$98.68 versus -\$84.05).

At the structural level, the full sample shows an increase of \$13.07 per week for every extra hour worked. The full sample earns \$58.56 more per week for being a union member, and there is a significant difference between the two groups where never-married women benefit more than married women (\$77.15 versus \$44.29). The full sample earns \$49.55 more per week for working in a goods-producing industry than the service industry, which supports hypothesis 2a. Furthermore, the data shows there is a significant difference between married and never-married women in the goods-producing industry, where never-married women see a greater reward in income (\$74.51 versus \$39.41). When looking at high skill (blue-collar high and white-collar high skill levels combined) the data shows the full sample earns \$121.22 more per week for working in high skill jobs, which supports hypothesis 2b.

At the gender level, for the full sample, women are penalized -\$34.26 for working in female saturated jobs. The data shows that for every hour spent in household labor, women lose -\$2.03. In addition, the full sample sees a loss of -\$23.33 per week for being a minority. However, women earn \$31.17 more per week for having a child under the age of 6.

4.2.2 Table 5B Multivariate Analysis using OLS Regression of Income by Full Sample and by Marital Status

An ordinary least squares regression was performed for the full sample and by marital status. The saturated model for both married and never-married women exceeds the social scientific standard, with over 50 percent variance in income explained (Adjusted R-sq .531). Net of other factors, never-married women lose -\$30.65 per week in earnings. At the individual level, income does increase with education, net of other factors. Overall, the full sample with a post graduate degree earns \$407.32 more than the comparison group of those with less than a high school diploma. In addition, the full sample with a high school diploma, some college, and a college degree, earn more income than those without a high school diploma (\$29.87, \$92.24, \$223.58). When looking at skill levels, workers are rewarded more for working in white-collar high-skill jobs (\$215.47), followed by white-collar low-skill (\$121.43), followed by blue-collar high-skill (\$76.84) in comparison to the reference group, blue-collar low-skill jobs.

For never-married women, the R-square value is .582, showing 58.2 percent of the variance explained. At the individual level, findings show that never-married women see an increase in earnings for every increase in education level. Never-married women with a high school diploma, some college, a college degree, and post graduate degree, earn more income than never-married women without a high school degree (\$32.10, \$84.42, \$245.52, \$500.32). In addition, only at the post graduate level is there a significant difference between married and

never-married women (\$383.24 versus \$500.32). At the structural level, never-married women see increases in earnings for every increase in skill level compared to the reference group, blue-collar low-skill level (\$88.86, \$134.16, \$212.02).

For married women, the R-square value is .506, showing 50.6 percent of the variance explained. At the individual level, married women earn more for each increase in level of education. Married women with a high school diploma earn \$35.16 a week more than married women without a high school diploma. Married women with some college, a college degree, and post graduate degree, earn more income than married women without a high school degree (\$102.67, \$223.62, \$383.24). When looking at the skill levels in the structural model, married women earn \$212.59 more for working in a white-collar high-skill jobs, followed by \$113.50 for white-collar low-skill jobs, followed by \$66.82 for blue-collar high-skill jobs, in comparison to blue-collar low-skill jobs.

4.1.7 Table 6 Partitioning of Variance for Income Determination Model Segments

Using partitioning of variance with OLS regressions allows each model segment to be examined separately in order to see which model segment explains the most variance. For the full saturated model, the amount of variance explained is 47.9 percent (Adjusted R-sq of 0.479). By removing the individual model factors, the variance explained falls to 38.3 percent, for a difference of 20 percent. Removing the structural model factors shows the variance explained falls to 26.3 percent, for a decrease of 45.1 percent. Last, when removing the gender model factors, the variance explained falls to 46.8 percent, for a difference of just 2.3 percent. As a result, the structural model factors account for the most variance explained.

When looking at the results by marital status, for both married and never-married women, the structural factors are the strongest predictors, followed by the individual factors, followed by

the gender factors which are the weakest in the model segment. For married women, the amount of variance explained is 46.7 percent (Adjusted R-sq of 0.467). By removing the individual model factors, the variance explained falls to 38.1 percent, for a difference of 18.4 percent. Removing the structural model factors shows the variance explained falls to 23 percent, for a decrease of 50.7 percent. Last, when removing the gender model factors, the variance explained falls to 45.3 percent, for a difference of 3 percent. As a result, the structural model factors account for the most variance explained.

For never-married women, the amount of variance explained is 51 percent (Adjusted R-sq of 0.510). By removing the individual model factors, the variance explained falls to 37.7 percent, for a difference of 26.1 percent. Removing the structural model factors shows the variance explained falls to 35.2 percent, for a decrease of 31 percent. Last, when removing the gender model factors, the variance explained falls to 50.9 percent, for a difference of 0.2 percent. Like the saturated model, the structural model is the strongest predictor for both married and never-married women.

4.1.8 Figure 1: Median Weekly Earnings by Age and Marital Status

Figure 1 shows a graph of married and never-married women by age cohorts and weekly earnings. Married and never-married women's earnings are approximately the same from age cohorts 20 to 24, 25 to 29, 30 to 34, 35 to 39, and 40 to 44. However, at the 45 to 49, 50 to 54, 55 to 59, and 60 to 64, never-married women earn significantly more amounts than married women. Never-married women earn far more than married women in the 50-54 age cohort suggesting that never-married women are more career focused at an older age. In addition, during childbearing years the income difference between married and never-married women is

small. Therefore, as age increases so does income, but benefits never-married women at older ages.

4.1.9 Figure 2: Median Weekly Earnings by Education Level and Marital Status

Figure 2 shows median weekly earnings for married and never-married women by education level. Married women earn more than never-married women at the following educational levels: less than high school, high school diploma, some college, and college degree. However, at the masters and above degree level, never-married women earn more than married women.

4.2.0 Figure 3: Median Weekly Earnings of Occupation and Education by Skill Level

Figure 3 shows median weekly earnings for white-collar high-skill and blue-collar low-skill jobs by education. At all education levels, white-collar high-skill jobs earn more income than blue-collar low-skill jobs. As education increases, the pay difference between white-collar high-skill and blue-collar low-skill increasingly gets larger. The largest pay gap is at the master's and above education level (\$563), followed by college degree (\$450), some college (\$277), high school diploma (\$200), and less than a high school diploma level (\$55).

5. DISCUSSION

The most important finding of this research is the pay gap among married and never-married women, net of other factors. Never-married women are penalized by a decrease in weekly earnings of -\$30.40. The first individual level hypothesis (1a) predicted that as age increases so will income, net of other factors, which was supported by the data. The second individual level hypothesis (1b) predicted that as education increased so will income, net of other factors, which was also supported by the data. Both married and never-married women are rewarded with pay increases for every increase in level of education.

At the structural level, the first hypothesis (2a) looked at the four skill levels (white-collar high and low-skill and blue-collar high and low-skill) predicting that working in a white-collar high-skill job will have greater returns of income when compared to white-collar low-skill and blue-collar high and low-skill jobs, net of other factors. This hypothesis was supported by the data. Jobs in the white-collar high-skill sector pay more than white-collar low-skill jobs, followed by blue-collar high and low-skill jobs. For the full sample, working in white-collar high-skill occupations receives a \$215.47 increase in pay compared to blue-collar low-skill jobs, net of other factors. The second hypothesis (2b) predicted that managers will receive greater returns on their educational investments than service workers, net of other factors. This hypothesis was supported by the data.

The first gender level hypothesis (3a) predicted that never-married women will be concentrated in lower occupations compared to married women, net of other factors, and this is supported by the data. For example, married women make up a greater percentage of white-collar high-skill jobs; whereas, never-married women make up a greater percentage of blue-collar low-skill jobs. The second gender level hypothesis (3b) predicted that, net of other factors, married women will earn more income than never-married women, and this hypothesis was supported by the data. Net of other factors, never-married women earn -\$30.40 less than married women.

While attempts have been made to use the most accurate data possible, the ATUS data does have limitations. Because income data is collected in weekly earnings, this measure does not account for overtime pay. This can be an issue because the ATUS data may be an underestimation of income due to not accounting for overtime pay being time and a half and/or double. Earnings may be substantially higher when overtime is taken into account. Another

limitation in the ATUS data is that it does not account for the size of the company like the CPS data. Company size may have a significant effect on earnings, where a larger company may have a higher wage structure to pay its employees more. In addition, the ATUS data does not take into account how long the worker has been in the workforce and how long an employee has worked for the same employer. Likewise, the ATUS data does not take into account how long a person has been married or the exact age of the child. Although the ATUS does a better job measuring household division of labor factors, information on secondary activities (activities that are done at the same time as the primary activity) are not collected. This could lead to underestimates of the amount of time people spend doing activities that are frequently done in combination with other activities.

Because there is little research done about married and never-married women and the pay gap, further research is necessary. This study suggests that the marriage premium applies more to married and never-married men compared to married and never-married women. This study shows that, net of other factors, married women earn \$30.40 per week for an estimated \$1,580 more per year than never-married women. When looking at studies on married and never-married men, the earnings increase for married men, net of other factors, is significantly higher compared to women. The question remains as to why this marriage premium applies more to men.

When looking at individual factors, this study shows that married and never-married women are earning college degrees at almost the same rate where married women earn 33 percent of the degrees while never-married women earn 30 percent. Therefore, education is not proving to be a strong factor in the earnings difference between the two groups. However, when looking at age in this study, there is a statistically significant difference between the two groups

where married women are older at 41.5 years versus 29 years for never-married women. In addition, this finding may show that older married women are more career focused in relation to never-married women, therefore earning more income. Life-course implications may also reflect this earnings difference in that married women who are older, currently focus on careers rather than childrearing/childbearing which tends to occur for women in their mid-twenties. Married women with grown children may have more time to focus on careers and in turn earn more income.

It is important to note that further research is needed to see whether married women with and without children earn more than never-married women with and without children in order to show a clearer understanding of the pay gap. Perhaps, children are a more salient factor in determining earnings especially for younger women in their childbearing/childrearing years. Another essential factor that needs to be considered is the marriage network and its relation to how married women hear about job opportunities from their spouses. Married women are more likely to hear about job opportunities in higher level positions from their working spouse, compared to never-married women who do not have this benefit. Married women may be earning more because they hear about job opportunities in higher paying positions from their spouses who are likely to work in higher occupations since they are men. Likewise, this study looks at only married and never-married women, it may be important in further research to also compare ever-married women (separated, divorced, or widowed) in addition to married and never-married women.

Last, this study uses a minority variable that denotes whether or not a woman is a minority. However, a breakdown of earnings by race may show more salient results. In addition, discriminatory practices have led to an economic penalty for women. Although current

laws against discrimination are implemented, stricter penalties must be applied to companies not following regulations in order to narrow the pay gap. However, until women are viewed by employers as productive workers, rather than mothers and caregivers, the pay gap will remain.

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APPENDICES

APPENDIX A: TABLE 1
Values for Full Sample of Women and by Marital Status

Variables:	Full Sample	Married	1	2	Never-Married	
Dependent Variables:						
<i>Dependent Variable</i>						
Weekly Earnings (mean):	\$553	\$585	***	^	\$486	(pay-gap) 83.0%
Weekly Earnings (median):	\$480	\$504			\$400	79.4%
(stddev.)	(370)	(373)			(353)	
Weekly Earnings Centile (mean):	50%	52%	***		43%	
(stddev.)	(28)	(28)			(28)	
Independent Variables:						
<i>Individual-Level Factors:</i>						
Age (years):	37.5	41.5	***	^	29.0	
	(12.0)	(10.6)			(10.1)	
% College Degree (0,1):	32.0%	33.0%	*		30.0%	
	(0.5)	(0.5)			(0.5)	
% Rural (0,1):	19.0%	22.0%	***	^	12.0%	
	(0.4)	(0.4)			(0.3)	
% Mid-West South Region (0,1):	59.0%	60.0%	*		56.0%	
	(0.5)	(0.5)			(0.5)	
Structural-Level Factors:						
Hours Per Week:	36.9	36.8			37.2	
	(11.5)	(11.4)			(11.7)	
% Government Workers (0,1):	21.0%	23.0%	*		19.0%	
	(0.4)	(0.4)			(0.4)	
% Union Workers (0,1):	11.0%	12.0%	*		9.0%	
	(0.3)	(0.3)			(0.3)	
% Goods-producing industry (0,1):	11.0%	13.0%	***	^	7.0%	
	(0.3)	(0.3)			(0.3)	
% White-collar High-skill (0,1):	46.0%	47.0%	*		43.0%	
	(0.5)	(0.5)			(0.5)	
% White-collar Low-skill (0,1):	34.0%	34.0%			35.0%	
	(0.5)	(0.5)			(0.5)	
% Blue-collar High-skill (0,1):	4.0%	4.0%			4.0%	
	(0.2)	(0.2)			(0.2)	
% Blue-collar Low-skill (0,1):	16.0%	15.0%	**		18.0%	
	(0.4)	(0.4)			(0.4)	
Gender:						
Occupational Sex Segregation:	1.41	1.43	***		1.37	
	(0.5)	(0.5)			(0.5)	
% with children under 6 (0,1):	18.0%	21.0%	***	^	13.0%	
	(0.4)	(0.4)			(0.3)	
% Minority (0,1):	23.0%	19.0%	***	^	32.0%	
	(0.4)	(0.4)			(0.5)	
Sample n (weighted):	3,956	2,693			1,263	
	100%	68.1%			31.9%	

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

² effect size greater = > .20

APPENDIX B: Table 2
Household Division of Labor (HDL):
Cooking, Cleaning, and Laundry

Variables:	% doing HDL		Hours per week in HDL	
	Married	Never-Married	Married	Never-Married
	81.7%	*** 61.7%	11.0	*** 6.3
Age				
25 to 29	73.8%	66.8%	8.7	8.4
30 to 59	83.4%	*** 68.3%	11.4	*** 7.4
Education				
less than H.S. dipl.	90.6%	*** 67.9%	17.0	*** 8.8
high school dipl.	84.1%	*** 63.0%	12.5	*** 7.2
some college	79.7%	*** 58.3%	10.3	*** 5.3
college degree (BA/BS)	81.2%	*** 62.7%	9.8	*** 6.1
graduate degree	75.8%	66.0%	8.0	6.4
Occupation/skill				
blue-collar low-skill	84.7%	*** 65.3%	14.4	*** 8.1
blue-collar high-skill	88.1%	* 68.0%	12.2	** 7.4
white-collar low-skill	83.3%	*** 61.4%	11.3	*** 5.8
white-collar high-skill	79.1%	*** 59.9%	9.7	*** 5.8
Quintile of earnings				
Bottom 20% of earnings	89.9%	*** 60.8%	15.3	*** 5.9
Quintile 2	85.7%	*** 62.8%	12.1	*** 6.2
Quintile 3	79.8%	*** 64.4%	10.6	*** 7.6
Quintile 4	78.7%	*** 54.3%	10.2	*** 5.4
Top 20% of earnings	76.7%	67.9%	7.9	* 6.5

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

APPENDIX C: Table 3
Median Weekly Earnings by Occupation and Education

Full-time Full-year Women Workers Only

	Married	Never-Married	All	Pay Gap	% Job Never-Married
Occupation:					
White-Collar High-Skill	\$692	\$570	\$673	82.3%	30%
Executive, administrators, mgrs	\$769	\$676	\$750	87.9%	28%
Professional	\$703	\$538	\$600	76.6%	42%
Education	\$673	\$538	\$646	80.0%	23%
Health Care	\$666	\$483	\$595	72.5%	29%
White-Collar Low-Skill	\$453	\$380	\$431	83.9%	32%
Sales	\$370	\$255	\$320	69.0%	39%
Admin. Support, Clerical	\$465	\$420	\$455	90.4%	30%
Blue-Collar High-Skill	\$478	\$459	\$469	96.1%	31%
Protective service	\$556	\$458	\$478	82.4%	48%
Construction	\$319	\$574	\$377	180.2%	23%
Precision Craft	\$480	\$460	\$476	95.8%	27%
Transportation equipment	\$615	na	\$615	na	33%
Blue-Collar Low-Skill	\$260	\$241	\$250	92.7%	37%
Service	\$210	\$224	\$220	106.7%	42%
Machine operators, assemblers	\$320	\$298	\$316	93.1%	28%
Farm, Fish, Forest	\$303	\$280	\$300	92.6%	1%
Education:					
Less than High School Dipl.	\$268	\$230	\$253	85.8%	
High School Diploma	\$400	\$328	\$380	82.1%	
Some College	\$481	\$330	\$423	68.6%	
College Deg (BA, BS)	\$702	\$646	\$686	92.0%	
Graduate or Prof. Deg.	\$904	\$962	\$923	106.3%	
Education/Occupation Matrix:					
Jobs require HS or some college	\$359	\$280	\$330	78.0%	
Jobs req HS, some college, BA/BS	\$648	\$519	\$600	80.1%	
Jobs req College degree or higher	\$769	\$734	\$769	95.4%	

APPENDIX D: TABLE 4
Full-time, Full-year Worker Values
for Full Sample of Women and by Marital Status

Variables:	Full Sample	Married Women	¹	²	Never- Married	
Dependent Variables:						
<i>Dependent Variable</i>						
Weekly Earnings (mean):	\$654	\$686 ***	^		\$586	(pay-gap) 85.4%
Weekly Earnings (median):	\$573	\$600			\$503	83.8%
(stddev):	(358.5)	(358.0)			(350.1)	
Weekly Earnings Centile (mean):	59%	62% ***			53%	
(stddev):	(23.9)	(23.1)			(24.6)	
Independent Variables:						
Individual-Level Factors:						
Age (years):	37.8	41.3 ***	^		30.4	
	(11.6)	(10.5)			(10.2)	
% College Degree (0,1):	35.0%	35.0%			36.0%	
	(0.5)	(0.5)			(0.5)	
% Rural (0,1):	19.0%	22.0% ***	^		13.0%	
	(0.4)	(0.4)			(0.3)	
% Mid-West South Region (0,1):	61.0%	63.0% **			58.0%	
	(0.5)	(0.5)			(0.5)	
Structural-Level Factors:						
Hours Per Week:	42.5	42.4			42.6	
	(7.0)	(6.7)			(7.5)	
% Government Workers (0,1):	22.0%	24.0% ***			18.0%	
	(0.4)	(0.4)			(0.4)	
% Union Workers (0,1):	12.0%	13.0% *			10.0%	
	(0.3)	(0.3)			(0.3)	
% Goods-producing industry (0,1):	13.0%	15.0% ***	^		8.0%	
	(0.3)	(0.4)			(0.3)	
% White-collar High-skill (0,1):	49.0%	50.0%			46.0%	
	(0.5)	(0.5)			(0.5)	
% White-collar Low-skill (0,1):	34.0%	34.0%			34.0%	
	(0.5)	(0.5)			(0.5)	
% Blue-collar High-skill (0,1):	5.0%	5.0%			4.0%	
	(0.2)	(0.2)			(0.2)	
% Blue-collar Low-skill (0,1):	12.0%	11.0% ***			15.0%	
	(0.3)	(0.3)			(0.4)	
Gender:						
Occupational Sex Segregation:	1.38	1.40 **			1.34	
	(0.5)	(0.5)			(0.5)	
% with children under 6 (0,1):	17.0%	18.0% ***			13.0%	
	(0.4)	(0.4)			(0.3)	
% Minority (0,1):	24.0%	20.0% ***	^		31.0%	
	(0.4)	(0.4)			(0.5)	
Sample n (weighted):	3,956	2,693			1,263	
	100%	68.1%			31.9%	

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

² effect size greater = > .20

APPENDIX E: TABLE 5A
OLS Regression Analysis for the Income Determination Model
(Dependent Variable=Weekly Earnings)

Variables:	Full Sample			Married Women			2	Never-Married Women		
	unstd.	1	std.	unstd.	1	std.		unstd.	1	std.
Independent Variables:										
Individual-Level Factors:										
Age (years)	\$5.00	***	0.162	\$4.17	***	0.119		\$6.27	***	0.18
Age2	-\$0.25	***	-0.096	-\$0.20	***	-0.078		-\$0.28	***	-0.101
College Degree	\$46.07	***	0.32	\$46.01	***	0.318		\$48.18	***	0.348
Rural (0,1)	-\$89.50	***	-0.095	-\$84.05	***	-0.093	^	-\$98.68	***	-0.092
Mid-West South Region (0,1)	-\$35.28	***	-0.047	-\$49.96	***	-0.065		-\$3.33		-0.005
Structural-Level Factors:										
Hours Per Week	\$13.07	***	0.406	\$14.41	***	0.439		\$10.12	***	0.335
Government (0,1)	-\$19.39		-0.022	-\$17.26		-0.019		-\$27.10		-0.03
Union Member (0,1)	\$58.56	***	0.049	\$44.29	*	0.038	^	\$77.15	**	0.063
Goods-Producing (0,1)	\$49.55	***	0.042	\$39.41	*	0.035	^	\$74.51	**	0.053
High Skill (0,1)	\$121.22	***	0.164	\$119.04	***	0.159		\$119.15	***	0.169
Gender:										
Never_Married (0,1)	-\$30.40	**	-0.038		na				na	
Occ. Sex-Seg. Index with Child Under 6 (0,1)	-\$34.26	***	-0.048	-\$40.29	***	-0.056		-\$21.19		-0.031
Hours in Direct Household Labor	\$31.17	**	0.032	\$34.00	*	0.037		\$16.65		0.016
Minority (exc. Asian) (0,1)	-\$2.03	***	-0.064	-\$2.08	***	-0.069		-\$1.29		-0.036
	-\$23.33	*	-0.027	-\$39.89	**	-0.042		-\$8.50		-0.011
(Constant):	-\$667.24			-\$664.51				-\$690.74		
Adjusted R-sq.	0.507			0.489				0.537		
Sample n (weighted)	3,956			2,693				1,263		

¹= *** p < 0.001; ** p < 0.01; * p < 0.05; ns non-significant

² significant difference between married and never-married women at the .05 level or higher

APPENDIX F: TABLE 5B
OLS Regression Analysis for the Income Determination Model
(Dependent Variable=Weekly Earnings)

Variables:	Full Sample			Married Women			Never-Married Women			
	unstd.	¹	std.	unstd.	¹	std.	²	unstd.	¹	std.
Independent Variables:										
Individual-Level Factors:										
Age (years)	\$4.85	***	0.157	\$3.88	***	0.111		\$5.78	***	0.166
Age2	-\$0.25	***	-0.096	-\$0.20	***	-0.076		-\$0.26	***	-0.092
Post Graduate (0,1)	\$407.32	***	0.324	\$383.24	***	0.314	[^]	\$500.32	***	0.377
College Graduate (0,1)	\$223.58	***	0.253	\$223.62	***	0.251		\$245.52	***	0.29
Some College (0,1)	\$92.24	***	0.117	\$102.67	***	0.125		\$84.42	**	0.117
High School Dipl. (0,1)	\$29.87		0.037	\$35.16		0.044		\$32.40		0.038
Less High School (0,1)			ref grp.			ref grp.				ref grp.
Rural (0,1)	-\$78.65	***	-0.083	-\$76.02	***	-0.084		-\$81.19	***	-0.076
Mid-West South Region (0,1)	-\$31.68	***	-0.042	-\$44.08	***	-0.058		-\$4.32		-0.006
Structural-Level Factors:										
Hours Per Week	\$12.87	***	0.400	\$14.08	***	0.43	[^]	\$9.85	***	0.326
Government (0,1)	-\$27.99	*	-0.031	-\$20.22		-0.023		-\$46.07	*	-0.051
Union Member (0,1)	\$46.75	***	0.039	\$38.64	*	0.033		\$54.65	*	0.044
Goods-Producing (0,1)	\$62.54	***	0.053	\$58.45	***	0.052		\$67.83	*	0.049
White-collar High-skill (0,1)	\$215.47	***	0.290	\$212.59	***	0.284		\$212.02	***	0.298
White-collar Low-skill (0,1)	\$121.43	***	0.156	\$113.50	***	0.144		\$134.16	***	0.181
Blue-collar High-skill (0,1)	\$76.84	**	0.039	\$66.82	*	0.034		\$88.86	*	0.047
Blue-collar Low-skill (0,1)			ref grp.			ref grp.				ref grp.
Gender:										
Never_Married (0,1)	-\$30.65	**	-0.039		na				na	
Occ. Sex-Seg. Index with Child Under 6 (0,1)	-\$48.31	***	-0.068	-\$54.43	***	-0.076		-\$35.95	**	-0.052
Hours in Direct Household Labor	\$25.29	*	0.026	\$27.32		0.03		\$13.54		0.013
Minority (exc. Asian) (0,1)	-\$1.90	***	-0.060	-\$2.13	***	-0.07		-\$0.74		-0.02
	-\$26.37	**	-0.030	-\$50.68	***	-0.054		\$3.67		0.005
(Constant):	-\$213.79	***		-\$201.26	***			-\$215.83	***	
Adjusted R-sq.	0.531	***		0.506	***			0.582	***	
Sample n (weighted)	3,956			2,693				1,263		

¹ = *** p < 0.001; ** p < 0.01; * p < 0.05; ns non-significant

² significant difference between married and never-married women at the .05 level or higher

APPENDIX G: TABLE 6
Comparison of Structural and Individual-Level Models
(Dependent Variable = Weekly Earnings)

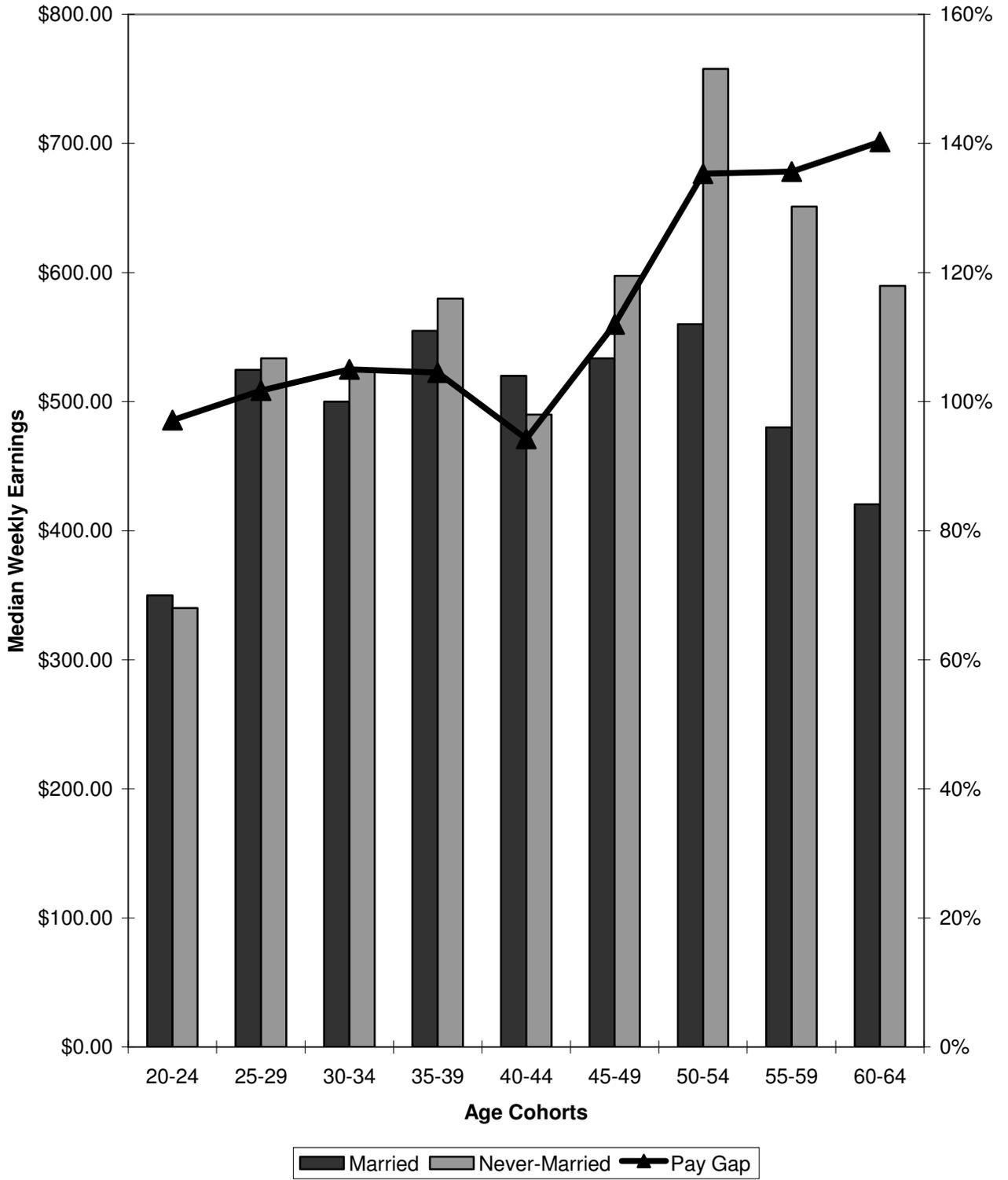
(standardized betas shown)

Variables:	Full	w/o Ind.	w/o Struct.	w/o Gender
Independent Variables:				
Individual-Level Factors:				
Age (years)	0.164	X	0.205	0.162
Age2	-0.098	X	-0.162	-0.094
% College Deg. (0,1)	0.276	X	0.395	0.297
Rural (0,1)	-0.087	X	-0.072	-0.079
Mid-West South Region (0,1)	-0.031	X	0.005	-0.028
Structural-Level Factors:				
Hours Per Week	0.427	0.448	X	0.428
Government Workers (0,1)	-0.002	0.016	X	-0.005
Union Workers (0,1)	0.049	0.084	X	0.046
Goods-Producing (0,1)	0.016	-0.004	X	0.022
High Skill (0,1)	0.171	0.280	X	0.180
Gender:				
Never Married (0,1)	-0.019	-0.087	0.006	X
Occupational Sex Segregation with Child Under 6 (0,1)	-0.032	-0.035	-0.082	X
Hours per Week Household Labor	-0.073	-0.074	-0.108	X
Minority (0,1)	-0.069	-0.104	-0.059	X
Adjusted R-sq.*	0.479	0.383	0.263	0.468
Rsq change from Full model (0.479)		-0.096	-0.216	-0.011
% change in Rsq.		-20.0%	-45.1%	-2.3%
Married Women Only:**	0.467	0.381	0.230	0.453
Rsq change from Full model (0.467)		-0.086	-0.237	-0.014
% change in Rsq.		-18.4%	-50.7%	-3.0%
Never-Married Women Only:**	0.510	0.377	0.352	0.509
Rsq change from Full model (0.510)		-0.133	-0.158	-0.001
% change in Rsq.		-26.1%	-31.0%	-0.2%

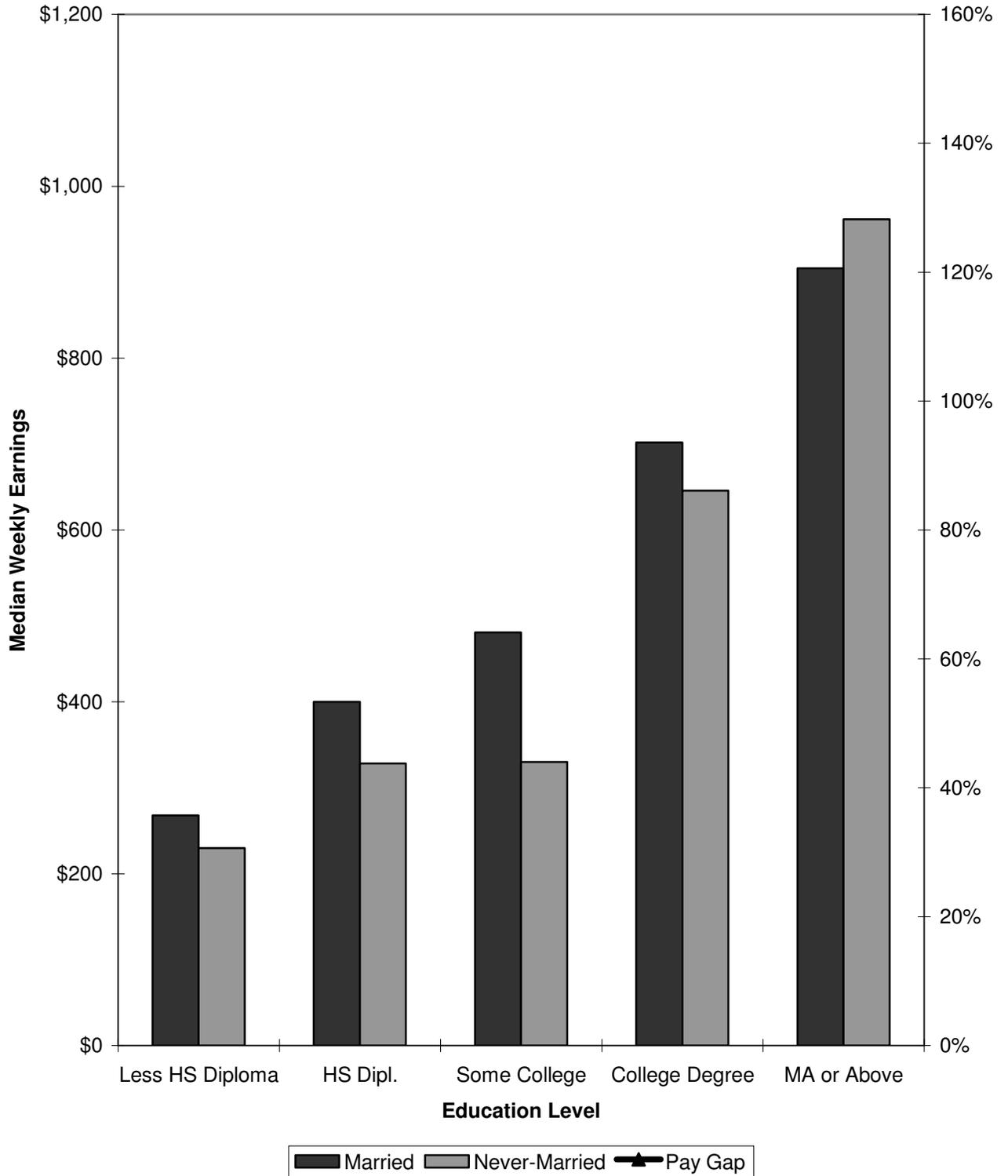
* (all Rsq. Changes sig. @ .000)

** (unstandardized betas not shown for married and never-married women equations.)

APPENDIX H: FIGURE 1
Median Weekly Earnings by Age and Marital Status



APPENDIX I: FIGURE 2
Median Weekly Earnings by Education Level and Marital Status



APPENDIX J: FIGURE 3
Service vs. Management: Occupation by Education

