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A Woman's World: Gender Discrimination in the Entertainment Industry

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A Woman's World: Gender Discrimination in the Entertainment Industry

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Abstract

The goal of this research was to discover if there is a significant gender difference which affects total income in the entertainment industry. While I was unable to find any scholarly research on the specific issue of women in the entertainment industry, I was able to review articles regarding women in the general workforce over time as well as entertainment industry-specific trade publications. With this information, I created a model including the key variables number of children, age, age-squared, and marital status because these were seen in previous research to have an effect on women's income. The sample that was analyzed comes from the American Community Survey between, and including, the years 2001-2017 and included only those within the occupation Agents and Business Managers of Artists, Performers, and Athletes. I also separated the male and female datasets in order to analyze the gender difference for all variables in the model as opposed to solely looking at gender's effect on total income. Regression of the model using both datasets showed that there is a significant gender difference for all variables except for number of children for females, which is due to certain econometric factors as well as socioeconomic factors. Age and age-squared are two highly significant variables, highlighting the importance of age's quadratic relationship with total income over time.

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I. Introduction

As we all know, unfortunately all too well, there is a great deal of discrimination in the world when it comes to race, sexuality, religion, gender, and nearly any other factor that makes us all different from each other. Of course, discrimination is unnecessary regardless of the context, but a place in which it really does not belong is in the job market. Every educated and qualified individual deserves a chance at their dream job, or any job for that matter, no matter what they look like or believe in. An industry where discrimination is still alive and rampant is the entertainment industry. The Time's Up and Me Too movements have brought light to some of the horrific events that took place just in these past few years, a majority of which affected a particular group of people: Women. Despite the fact that it is 2018, women are still underrepresented in the workplace and this is something that must be changed.

The issue of income inequality and discrimination against women in the entertainment industry specifically is one that has not been discussed in scholarly research just yet. This may be because the entertainment industry is considered on a lower status compared to other industries such as finance or technology, but in reality, entertainment companies require the functions of a finance department, technology department, business development department, and so on. Because I have noticed this lack of research on gender discrimination in the industry in which I aim to work after graduation, I have decided to take matters into my own hands: This paper aims to answer the question, "Is there a significant gender difference which affects total income in the entertainment industry?"

For the reasons stated above, the scholarly articles analyzed in this paper discuss the effects of gender discrimination on women in the general workplace over time and are not

focused on one particular industry. However, since the entertainment industry is ever changing, sources used to discuss this industry specifically must be more current and from trade publications such as *Billboard* and *Variety*, as well as from specific company websites with up-to-date employee information regarding diversity data.

II. Literature Review

Discrimination is not a new phenomenon in the slightest. It has been around and in action for centuries, and history has a strange way of repeating itself despite how much we are told to be cautious of this exact occurrence. Studies that were done as early as 1973 show that 45 years ago gender discrimination was as rampant in the workforce as it is now, despite the feminist activists like Gloria Steinem who began the fight for equal rights that still continues to this day. In Isabel Sawhill's article (1973) on the economics of discrimination against women she states that "few attempts have been made to estimate the magnitude of this discrimination," therefore she writes her seminal piece using the ideas and theoretical analysis from Barbara Bergmann's previous economic studies on gender inequality and expands upon them with her new findings (Sawhill, 1973). Sawhill argues that the major issue of women in the workplace revolves around the relationship between employment discrimination and wage discrimination.

The term used most frequently is "crowding," as Sawhill finds that women are often crowded and pushed into jobs with low-productivity and low wages (Sawhill, 1973). This theory builds upon Bergmann's idea that women do not have the same access as men to jobs and therefore must settle for lower paying jobs despite their equal qualifications to men (Sawhill, 1973). This article also emphasizes the major differences in earnings between men, single women, and married women. Using data from the 1967 Census Bureau Population Reports,

Sawhill finds evidence of blatant age and gender discrimination: Single women ages 35 to 44 earn 54 percent as much as men, while married women of the same age earn 48 percent as much. Married and never-married women ages 20 to 24 earn 73 percent and 62 percent as much as their male counterparts, respectively, showing that employers truly do discriminate against women in any way that they can get away with (Sawhill, 1973). Table 3 from Sawhill’s original article, posted below, shows the earnings ratios for single, married, and all women in multiple age groups.

TABLE 3
ADJUSTED FEMALE-MALE EARNINGS RATIOS BY AGE AND MARITAL STATUS, 1966

Age	Total Female-Male Earnings Ratio	Ever-Married Female- Male Earnings Ratio	Never-Married Female- Male Earnings Ratio
14–19	.87	.86	.88
20–24	.68	.73	.62
25–34	.55	.56	.53
35–44	.48	.48	.54
45–54	.50	.49	.56
55–64	.55	.54	.59
65+	.62	.63	.60

Source: U.S. Bureau of the Census, Current Population Reports.

Also written in the 1970s, Sharon Oster’s article poses an interesting, controversial perspective regarding discrimination against women: “Is most demand-based discrimination against professional women produced by irrational, nonprofit-maximizing behavior by employers, or is it instead a result of conditioned employee preference and a way to stabilize the organization of jobs within the firm?” (Oster, 1975, p. 215). Nonprofit-maximizing behavior is a phenomenon which describes how discrimination can successfully exist in the workplace. If all firms in a market use the same utility function, “incorporating both profits and the relative number of women in the firm,” discrimination may, unfortunately, be more beneficial than detrimental to a company (Oster, 1975). In response to the latter portion of the question, this too

assists in successful discrimination, as women are confined to stereotypical female roles like secretaries or assistants despite their educational background or market experience, but since they have a job they technically cannot complain.

Over a decade later than both Sawhill and Oster, Elizabeth Almquist (1987) proposes the fact that women face the obstructions of “domestic burdens” which hinder them from having the same job opportunities as men. These hindrances include fertility and marital status, which directly supports Sawhill’s finding regarding the discrimination against married women in their earnings compared to men and even single women (Almquist, 1987; Sawhill, 1973). In addition, if we look back at Oster’s research, she discusses the elasticity of female labor compared to male labor, as does Almquist: “Across societies, women’s economic ... status varies directly with the value and centrality of their work and inversely with the degree to which their labor is replaceable” (Oster, 1975; Almquist, 1987). Women in the workforce can easily be replaced by men in the eyes of firms, therefore said firms can afford to discriminate as it might even increase their profits in the case of employment discrimination under nonprofit-maximizing behavior (Oster, 1975).

On a more positive note, reports from the 1980s to the mid-1990s show that the wage differential between men and women did shrink dramatically in the 1990s — in just under fifteen years, women went from earning 59 percent compared to men to 71 percent (Darity & Mason, 1998). William Darity and Patrick Mason’s study touches on three distinct reasons for this wage gap shrinkage. These three changes consist of a rise in wages along the entire wage distribution for women, a narrowing gap in male-female human capital differences due to more women with experience in the workforce over the years, and legitimate legal action taken to expand the job

opportunities available to women in order to further eliminate discrimination (Darity & Mason, 1998).

However, Jane Waldfogel's study from the same year explains that there is still a long way to go until employers fully stop discriminating against women. She introduces the concept of the "family gap," a discriminatory differential between women with children and those without (Waldfogel, 1998). Despite the incredible progress made by the United States regarding the shrinking wage gap, "policies have focused on equalizing opportunities for women and men, but have not specifically addressed the problems posed by the presence of children" (Waldfogel, 1998). There was no nation-wide maternity leave policy until 1993, and even then the period of leave was unpaid and just a short twelve weeks long (Waldfogel, 1998). The United States also focuses more so on private childcare institutions as opposed to government or firm-funded ones, therefore a majority of a mother's income will go to paying for childcare while at work (Waldfogel, 1998).

Empirically, it can be seen that "a family penalty of 10-15 percent [exists] for women with children as compared to women without children ... [while] there is no such family penalty for men" (Waldfogel, 1998). In fact, while women face a penalty of 10-15 percent, men who are married with children earn a premium of 10-15 percent (Waldfogel, 1998). Waldfogel uses data gathered from Goldin's 1997 study to further prove the magnitude of the family gap:

"...[O]nly 31 percent of the mothers in [Goldin's] sample worked full-time over a three-year period in the 1980s, as compared to 67 percent of the non-mothers. With regards to earnings, only 18 percent of mothers had earnings above the 25th percentile of

earnings for college-educated men in all three years, as compared to 45 percent of non-mothers” (Waldfogel, 1998).

Table 4 below shows the wage differentials in three distinct years, emphasizing the unfair relationship between mean wages and women with children, women without children, and now including married and unmarried mothers.

Table 4
Wage Changes from 1978–1994: U.S. Women and Men Age 24–45
(All dollar figures are mean wages/hour, converted to 1994 dollars)

	1978	1988	1994
Mean wage for all women	10.49	11.58	11.42
Mean wage for all men	16.25	15.68	14.95
Wage for all women/Wage for all men	64.5%	73.9%	76.4%
Mean wage for women with no children	11.11	12.50	12.15
Wage/Wage for all men	68.4%	79.7%	81.3%
Mean wage for mothers	10.15	10.99	10.97
Wage/Wage for all men	62.5%	70.1%	73.4%
Mean wage for married mothers	10.20	11.31	11.44
Wage/Wage for all men	62.8%	72.1%	76.5%
Mean wage for previously married mothers	10.08	10.21	9.87
Wage/Wage for all men	62.0%	65.1%	66.0%
Mean wage for never married mothers	9.34	8.89	8.44
Wage/Wage for all men	57.5%	56.7%	56.5%

Source: Tabulated from March 1979, 1989, and 1995 Current Population Survey (CPS).

At the start of the new millennium, Francine Blau and Lawrence Kahn discuss occupational segregation, which includes usage of the Index of Segregation. This index is calculated using the percentage of women who would have to switch their jobs in order for the occupational distribution of each group to be equal (Blau & Kahn, 2000). This explains why the index consistently dropped over the course of twenty years from 1970 to 1990, as women began to work in “predominantly male” positions for the first time (Blau & Kahn, 2000). Women have historically been victims of crowding into clerical work and service occupations, but as the times begin to change, as many as 45 percent of women are now seen in management roles (Blau & Kahn, 2000). Certain previously male-dominated industries have even shifted to

female-dominated industries over the course of two decades; however, this shift includes occupations in typesetting, insurance, and public relations, not managerial or senior-level jobs (Blau & Kahn, 2000).

Looking more deeply into the 21st century, Risa Lieberwitz (2008) analyzes statistics collected within the past ten years to emphasize the continued societal use of gender roles to undermine and discriminate against women in the workplace. Despite the progress explained by Blau and Kahn's research, "two-thirds of U.S. working women still hold low-wage and low-status jobs" and only "2 to 20 percent of traditional men's jobs" are held by women (Lieberwitz, 2008). The index of segregation is brought up once again, highlighting how important it to recognize just how extreme the index is — "more than half of women would have to change jobs to achieve equal representation among occupations" (Lieberwitz, 2008). Gender roles play such a significant part in occupational segregation, considering that society expects women to be mothers and wives first before focusing on their professional and career development (Lieberwitz, 2008).

A factor contributing to gender inequality not yet discussed in depth is the idea of age discrimination. Sawhill's work touched upon the fact that older women, both single and married, were paid significantly less than men and younger women, both single and married, but Joanna Lahey conducted research (2008) showing just how drastic age discrimination can be in the workplace. Lahey conducted a study using a sample of women ages 35 to 62 in two populous U.S. cities, in which she sought to discover what entry-level or similar-type opportunities were available to this age group (Lahey, 2008). After sending out randomized resumes designed specifically for each woman, there was sufficient evidence proving that a younger person is

anywhere between 42 and 46 percent more likely to be offered an interview than someone who is older (Lahey, 2018). Although it is not stated whether or not the worker's gender matters in this exact case, Lahey does state that "the extent of discrimination against older workers is similar to that of discrimination against women," enabling the idea that discrimination knows no bounds, regardless of age or gender (Lahey, 2008).

It is apparent that women in the workplace have come a long, long way over the years, but studies from the past year or two show that there is still a long, long way to go. Chinhui Juhn and Kristin McCue find that even in 2017, there is still a substantial wage gap for extremely educated and skilled women with children (Juhn & McCue, 2017). Women have been found to transcend the educational achievements of men, yet "[their] early-in-life decisions about schooling, marriage, fertility, and work [still] have repercussions throughout their lifetimes," despite the so-called progress we have made as a society in embracing equality (Juhn & McCue, 2017). Expecting women to be housewives and housekeepers is such an archaic way of thinking, but somehow it still occurs when women are penalized monetarily for choosing to have children or get married and still work in a successful career.

What is most interesting about this phenomenon is that women and men start out their careers with relatively equal wages, and as both progress and move up in positions the wage gap widens (Juhn & McCue, 2017). According to a 2016 study done by Blau and Kahn using statistics from the 2015 US Bureau of Labor Statistics, "...[A]t the 90th percentile, women essentially made no gains relative to men from 1988-2010. Similarly, among full-time/full-year workers holding a bachelor's degree and higher, women's weekly earnings as a percentage of

men's earnings remained at 74.1 percent from 2000 to 2010" (Juhn & McCue, 2017). Something must be done to change this.

When it comes to the entertainment industry, discriminatory and misogynistic practices are not foreign concepts. A 2016 industry study conducted by associates at the University of California, Los Angeles shows that as of 2014, women were extremely underrepresented in every aspect of film and cable television. In the film sector, only 4.3 percent of top-grossing films were directed by women, while 9.2 percent out of a sample of 163 films had female writers. In television, scripted broadcast, cable, and digital shows had 21.5 percent, 18.2 percent, and 16 percent female creators, respectively (Hunt & Tran, 2016). On the music industry side of things, former Recording Academy president Neil Portnow faced immense backlash for his comments on women needing to "step up" and produce better content in order to compete with men (Angermiller, 2018). Even though this statement is false as there are so many talented women in the industry, it shows that men in power still have a male chauvinist attitude towards women in the workplace.

An extreme side of gender inequality faced by so many women today is sexual harassment in the workplace. In February 2018, the Creative Coalition, Women in Film & Television, and the National Sexual Violence Resource center conducted a survey posted in USA Today of 843 women working in the entertainment industry with regards to sexual misconduct, and the results are not something to be ignored — A horrific 94% of the women surveyed claimed that they have experienced sexual harassment in the workplace, "often by an older individual in a position of power over the accuser" (Puente and Kelly, 2018). The most common

accusation was “unwelcome sexual comments, jokes or gestures about you,” with 87% of women responding (Puente and Kelly, 2018).

As of early 2018, women only accounted for 31% of board directors at 3,000 large public companies. Now, Senate Bill 826 requires that there must be at least one woman for every four men (Fuhrmans, 2018; Hu, 2018). This is still an extremely small number, but we must start somewhere. Spotify just became a publicly traded company and have released data showing that between 26 and 33 percent of women are on the board of directors, in the C-suite, and in various leadership positions (Notermans, 2018). Senate Bill 826 is extremely promising and provides hope that one day these numbers will increase immensely for Spotify and many other entertainment companies so that women can finally get the equal treatment and pay that they deserve.

Based on all information discovered through the literature review process, I have chosen to observe four key variables — number of children, age, age squared, and marital status — in addition to race and educational attainment, as there is no academic study to be found regarding these variables’ effect on women’s income in the entertainment industry specifically.

III. Data, Variables, & Expected Coefficients

Because my research question asks if there is a significant gender difference which affects total income in the entertainment industry, I have decided to analyze two separate datasets — One of all female respondents and one of all male respondents. I chose to do this as opposed to creating interaction variables because I wanted to ensure that multicollinearity would not be an issue due to the inclusion of four dummy variables, which I will get into later in this section. Further specifying my data, I have also only obtained information regarding people with

the occupation Agents and Business Managers of Artists, Performers, and Athletes because I am only analyzing people within the entertainment industry. I was unable to select a specific industry using the Industry NAICS codes, but I was able to pre-select an occupation using the OCC2010 variable, which is defined as a “harmonized occupation coding scheme based on the Census Bureau's 2010 ACS occupation classification scheme” (MPC). With these two pre-selected variables in place, I was able to then continue on with my regression variables.

Both datasets are from the Integrated Public Use Microdata Series, or IPUMS-USA, website, and consist of respondent information gathered by the American Community Survey between, and including, the years 2001 to 2017. The ACS is “an ongoing survey that provides vital information on a yearly basis about our nation and its people,” consisting of questions regarding occupation, marital status, number of children, and others of the same vein in order to properly grant federal and state funds to certain communities in need (US Census Bureau, 2018). Because the data spans across 16 years and is a random, cross-sectional sample of the U.S. population, it is considered panel data.

The variables used in both regression equations are exactly the same, as this allows for comparisons of male and female results after the regressions are performed. For my research, I have chosen one dependent variable, four key independent variables, and three independent controlled variables. Extensive details regarding these variables are listed on the following page.

Variable	Brief Description	Definition	Expected Sign for Female	Expected Sign for Male
inctot	Total personal income	Each respondent's total pre-tax personal income or losses from all sources for the previous year	N/A	N/A
nchild	Number of children	Number of own children residing with each individual	(-)	(+)
age	Age	The person's age in years	(+)	(+)
agesq	Age-squared	Quadratic term for age	(-)	(-)
married	Dummy variable for marital status	Person is currently married	(-)	(+)
white	Dummy variable for race	Person considers himself/herself to be white	(+)	(+)
hispanic	Dummy variable for Hispanic origin	Person is of Hispanic/Spanish/Latino origin; May be of any race	(-)	(-)
college	Dummy variable for educational attainment	Person's highest level of education is 4 or 5+ years of college	(+)	(+)

Source: IPUMS-USA; 2001-2017 ACS (MPC)

My dependent variable is total personal income, and it is important to explain why I have chosen this as opposed to wage and salary income. Many individuals within this occupation are self-employed, and consequently, do not work for a wage. While looking at my raw dataset, I noticed that many respondents did not enter an amount for wage and salary income, while they did respond with their total personal incomes. I wanted to include all observations within this occupation in my research, therefore I omitted wage and salary income and kept total personal income as my dependent variable.

My four independent key variables are nchild, age, agesq, and married. I decided to make these my key variables because based on my survey of the literature, these are factors that seem to have a significant effect on women's total income. For this research, I have decided not to create a dummy variable for number of children due to lack of substantial explanatory power. The same goes for the age variable, as some analysis was done previously looking at the income of older women vs. younger women, while in this case, I decided to keep age as a continuous variable. However, my literature does highlight a key study by Juhn and McCue (2017), who state that men and women start off with relatively equal incomes, but eventually the wage gap widens with higher incomes. This being said, I believe that the coefficient for age will be positive, while the agesq coefficient will be negative due to the quadratic relationship between age and income over time. My expected coefficient for female marital status is in-line with the information discovered through the literature review, being that the married variable is comparing married women to unmarried or never married women. For number of children, however, my expected coefficient is not based solely on the literature in the sense that studies have shown comparisons between women with children and women without children.

The three independent variables I have decided to control are dummies for race, Hispanic origin, and educational attainment. These were important to include because race and educational attainment always play a role in income and earnings, even though they are not the main variables I have decided to analyze in this study. The dummy variable for race is comparing all respondents who consider themselves white to those who consider themselves to be of any other race, while the dummy variable for Hispanic origin is comparing those of Hispanic origin to those of non-Hispanic origin. College is a dummy variable comparing all respondents who have

either graduated college or continued on their education past college to those who have either not completed their college education or have not completed their high school education. I believe that the coefficient for white will be positive while the coefficient for hispanic will be negative due to the fact that racial discrimination is, unfortunately, still extremely prevalent in the workplace today. The coefficient for college will be positive, as someone with a college education or beyond will more than likely earn a significant amount more than one who is not a college graduate.

IV. Model & Hypotheses

The model I created to perform my regression analyses is linear, therefore I will be performing two OLS regressions. Said model is as follows:

$$\text{inctot} = \beta_0 + \beta_1 \text{nchild} + \beta_2 \text{age} + \beta_3 \text{agesq} + \beta_4 \text{married} + \beta_5 \text{white} + \beta_6 \text{Hispanic} + \beta_7 \text{college} + \epsilon$$

Before running my regressions, I must state my hypotheses. Again, my research question asks if there a significant gender difference which affects total income in the entertainment industry, which leads to my hypothesis stating that there is a significant gender difference which affects total income in the entertainment industry. The null hypothesis states that there is no significant gender difference, and my empirical results will tell us which hypothesis we can reject or which one we can accept.

V. Empirical Results

After running regression tests using identical variables for both females and males, the results show that my expected coefficients are right on par with what the data tells us. We can reject the null hypothesis for each variable in both regressions, except for number of children for females, which will be discussed in a later section. Age and age-squared are also two important

variables to discuss, but first, we will analyze the four independent dummy variables. A chart of regression results is shown below.

Dependent Variables	Female Total Income (N = 3,205)	Male Total Income (N = 3,633)
nchild	-1437.78 (1254.77)	9332.81*** (1918.25)
age	4952.52*** (428.32)	4724.53*** (602.50)
agesq	-45.92*** (4.72)	-39.66*** (6.35)
married	-5730.16** (2465.83)	11912.22*** (3817.24)
white	7850.28*** (2912.58)	19994.44*** (3935.52)
hispanic	-8099.09** (3840.74)	-13644.95** (5364.99)
college	23712.06*** (2195.71)	39503.21*** (3155.36)
R²	.115	.146

Note: *p<0.10, **p<0.05, ***p<0.01, standard errors in ()

Starting with marital status, it is apparent that these results are comparable to those in the Sawhill (1973) article discussed, as both studies show that married women earn less than women who are unmarried or never married. In addition to the comparison of married and not married women, we can also observe the difference between married women and married men, as married men earn much more than married, or even not married, women. This, again, is supported by the literature in the sense that some societal expectations do not change over time.

Men have historically been expected to support their wives and subsequent families, and unfortunately, this research shows that not too much has changed at this point in time.

Looking at the dummy variables regarding race and origin, white and hispanic, we can see that wage discrimination exists not only for women but for men of color as well. Men of Hispanic origin earn almost \$14,000 less than non-Hispanic men, while Hispanic women earn only \$8,100 less than non-Hispanic women. Consequently, white men earn nearly \$20,000 more than non-white men, and white women earn \$7,850 more than non-white women. It seems as though this does not support the idea of gender inequality, but these results are most likely because men are already on a higher pay scale than women and therefore can afford to lose more. The college education variable shows exactly what we would expect, as with a college education and degree comes a higher income; However, it is incredible that women of the same education level as men would earn nearly \$20,000 less, but this does align with previous findings.

Aside from discussing coefficients, it is also important to address my R^2 statistics. Because of the inclusion of four independent dummy variables, my R^2 statistics for both males and females are relatively low. Dummy variables do tend to lack in explanatory power, but this does not mean that their statistical significance should be ignored completely. My three continuous independent variables, however, have substantial explanatory power and allow apt conclusions to be made regarding this study.

Total Income & Number of Children

When we look at the results for female total income, it is hard to ignore the fact that nchild is the only statistically insignificant variable. Statistical insignificance is not typically what researchers aim for in their results, but I believe that this finding is extremely important to

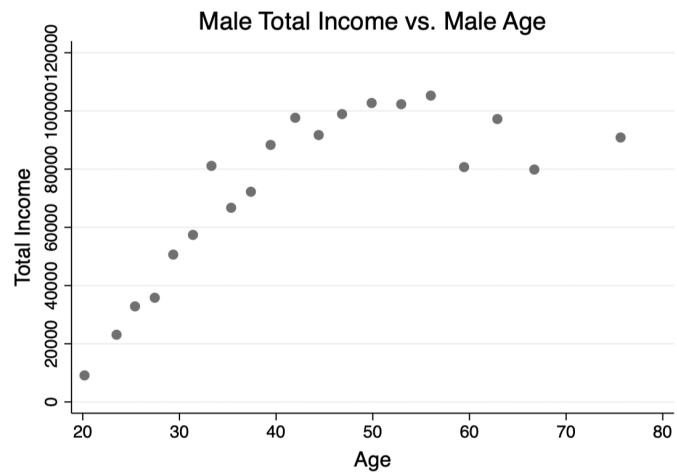
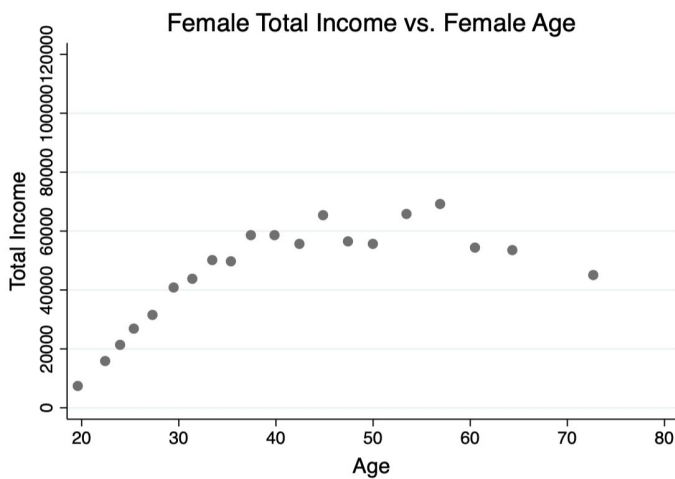
my study as a whole. While *nchild* might be an insignificant variable when looking at it econometrically, it is still theoretically valid due to socioeconomic factors. Econometrically speaking, it makes sense for this variable to be insignificant for the female dataset, as its correlation with total income is only .009. Socioeconomically speaking, there are a few different arguments supporting why this variable may not have the same significance that it did in past studies I have analyzed.

In a study conducted by *The Upshot*, correspondent Claire Cain Miller (2018) has found that “women with college degrees have children an average of seven years later than those without — and often use the years in between to finish school and build their careers and incomes” (Bui & Miller, 2018). While we still do have a ways to go before achieving full gender equality, a lot has changed since previous studies: We are heading towards a society where most women are working towards higher educations, can hold any job position they are equally qualified for, and not be as penalized monetarily for having children. In terms of the entertainment industry specifically, Miller’s argument that “first-time mothers are older in big cities and on the coasts, and younger in rural areas and in the Great Plains and the South” supports the statistical insignificance of *nchild* (Bui & Miller, 2018). The entertainment industry is concentrated in three major metropolitan cities — New York, Los Angeles, and Nashville — and therefore women in this industry typically do wait to have children until their careers are settled, again following Miller’s first finding.

Total Income & Age

The results for age and *agesq* are directly in line with the findings of Juhn and McCue (2017) discussed in my literature review. With age comes experience, leading to higher job

positions and, subsequently, a widening wage gap. This relationship is shown in my results: Men and women earn a relatively similar amount with every year they grow older, but `agesq` shows us that age is actually increasing at a decreasing rate, where women and men earn \$46 and \$40 less, respectively, after their incomes peak. In order to visualize this quadratic relationship between age and income, I have included the scatter plot graphs created in STATA with my results below. It is also interesting to note the y-axes on either graph, showing the major pay scale difference between men and women.



VI. Limitations

As with any extensive research project, there were limitations to my study. To start, I did include four independent dummy variables, which as stated previously do not hold substantial explanatory power. This was a reason for my relatively low R^2 statistics, amongst others that will be discussed later. I needed to include said dummy variables because they were important variables to analyze in my study, though again they might have contributed to the lack of

explanation within my model. A major factor that inhibited certain data collection is the entertainment industry itself. This industry is incredibly private, as a majority of companies do not release their data to the public. Spotify recently announced their IPO, yet most of their data is still not available and if it is, it is only in a brief PDF report explaining finances. Even if I were to ask a company for data to conduct my research, they would not allow it due to this strict privatization.

This leads to my next limitation, as there is a lack of previous research dealing with my exact research question. While I was able to review and analyze plenty of literature regarding women in the workplace, these studies were mostly conducted between the 1970s and 1990s. This is helpful in a sense, but it would be beneficial to read more studies from the past few years as they would be more relevant to the workplace today. I was also unable to find any academic studies relating to my key variables on women in entertainment specifically, hence there are more than likely plenty of variables that would provide more significance to my specific research question. I would have liked to have access to more company-specific employee information, but again that would violate many entertainment companies' strict privacy laws and ideals.

VII. Conclusions

In summary, my null hypothesis can be rejected, showing that there is a significant gender difference which affects total income in the entertainment industry. The only statistically insignificant variable was number of children for the female dataset, but this is due to the econometric and socioeconomic factors that were stated in my empirical results section. It is also important to revisit and conceptualize the importance of age's quadratic relationship with total income, as age increases at a decreasing rate for both men and women. We have also empirically

discovered that men of color are discriminated against nearly as much as women, and this is something that I would love to study further if I were to expand my research question and scope.

Given all limitations and conclusions, I believe it is safe to say that more research must be done in this field in order to find out which variables might have a more significant relationship with female total income. As I stated under my limitations, I did not have any access to records or data regarding women in the entertainment industry, and I was also unable to find any literature on the specific topic. The entertainment industry is relatively unique, as I am sure there are many more variables that have a significant impact on a woman's total income, such as time in the industry or a proxy for human capital accumulation of skills required in a specific industry job.

What I hope this research shows is that even with my limited data set, it is still clear that something must be done to change how women are treated in the entertainment industry. There is no reason why women should not be fairly compensated for their work, as women in this industry are highly qualified, intelligent, and passionate. To quote former first lady Michelle Obama, "There is no limit to what we, as women, can accomplish."

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IX. Appendix

Full STATA Regression Results

Female:

Male:

```
regress inctot age agesq nchild married white hispanic college
```

Source	SS	df	MS	Number of obs = 3205		
Model	1.5104e+12	7	2.1577e+11	F(7, 3197) = 59.17		
Residual	1.1659e+13	3197	3.6470e+09	Prob > F = 0.0000		
				R-squared = 0.1147		
				Adj R-squared = 0.1128		
				Root MSE = 60390		
Total	1.3170e+13	3204	4.1104e+09			

inctot	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
age	4952.524	428.3154	11.56	0.000	4112.723	5792.324
agesq	-45.91638	4.723163	-9.72	0.000	-55.17712	-36.65565
nchild	-1437.778	1254.768	-1.15	0.252	-3898.01	1022.453
married	-5730.164	2465.834	-2.32	0.020	-10564.94	-895.387
white	7850.283	2912.577	2.70	0.007	2139.575	13560.99
hispanic	-8099.091	3840.738	-2.11	0.035	-15629.65	-568.5319
college	23712.06	2195.711	10.80	0.000	19406.91	28017.2
_cons	-84204.49	8767.437	-9.60	0.000	-101394.9	-67014.12

```
regress inctot age agesq nchild married white hispanic college
```

Source	SS	df	MS	Number of obs = 3633		
Model	5.2753e+12	7	7.5361e+11	F(7, 3625) = 88.48		
Residual	3.0874e+13	3625	8.5170e+09	Prob > F = 0.0000		
				R-squared = 0.1459		
				Adj R-squared = 0.1443		
				Root MSE = 92288		
Total	3.6149e+13	3632	9.9530e+09			

inctot	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
age	4724.531	602.4986	7.84	0.000	3543.261	5905.801
agesq	-39.65586	6.345483	-6.25	0.000	-52.09693	-27.21478
nchild	9332.806	1918.253	4.87	0.000	5571.842	13093.77
married	11912.22	3817.238	3.12	0.002	4428.069	19396.37
white	19994.44	3935.52	5.08	0.000	12278.38	27710.49
hispanic	-13644.95	5364.993	-2.54	0.011	-24163.66	-3126.246
college	39503.21	3155.362	12.52	0.000	33316.75	45689.67
_cons	-95060.96	12858.49	-7.39	0.000	-120271.6	-69850.36

Correlation Matrices

Female:

```
. correlate inctot age agesq nchild married white hispanic college
```


(obs=3633)

	inctot	age	agesq	nchild	married	white	hispanic	college
inctot	1.0000							
age	0.2252	1.0000						
agesq	0.1917	0.9837	1.0000					
nchild	0.1600	0.0654	0.0051	1.0000				
married	0.2218	0.4192	0.3773	0.4342	1.0000			
white	0.1570	0.1784	0.1733	-0.0045	0.1497	1.0000		
hispanic	-0.0940	-0.1202	-0.1173	0.0404	-0.0418	-0.1341	1.0000	
college	0.2450	0.0588	0.0379	0.0220	0.1100	0.1607	-0.1221	1.0000

Male:

```
. correlate inctot age agesq nchild married white hispanic college
```


(obs=3205)

	inctot	age	agesq	nchild	married	white	hispanic	college
inctot	1.0000							
age	0.1943	1.0000						
agesq	0.1568	0.9829	1.0000					
nchild	0.0090	0.0139	-0.0485	1.0000				
married	0.0721	0.2967	0.2438	0.3570	1.0000			
white	0.0776	0.1146	0.1160	-0.0533	0.0969	1.0000		
hispanic	-0.0838	-0.1161	-0.1151	0.0695	-0.0564	-0.1548	1.0000	
college	0.2081	-0.0434	-0.0712	-0.0614	0.0571	0.0480	-0.1014	1.0000

Tests for Heteroskedasticity and Variance Inflation Factor

Female:

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
 Ho: Constant variance
 Variables: fitted values of inctot

chi2(1) = **998.70**
 Prob > chi2 = **0.0000**

. vif

Variable	VIF	1/VIF
age	35.88	0.027867
agesq	35.41	0.028243
married	1.33	0.753806
nchild	1.28	0.779739
college	1.06	0.944228
hispanic	1.05	0.952142
white	1.05	0.956032
Mean VIF	11.01	

Male:

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
 Ho: Constant variance
 Variables: fitted values of inctot

chi2(1) = **1113.37**
 Prob > chi2 = **0.0000**

. vif

Variable	VIF	1/VIF
age	36.31	0.027542
agesq	35.43	0.028224
married	1.55	0.643551
nchild	1.37	0.732377
white	1.08	0.928527
college	1.06	0.946155
hispanic	1.04	0.960159
Mean VIF	11.12	