

Finally, Pay Equity in Big-Time Women's College Basketball?

A Kitagawa-Blinder-Oaxaca Decomposition

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Despite growing recognition and attempts to remedy the problem, pay inequality continues to plague American higher education. In college sports, this problem is especially pronounced. Media reports and some empirical research has noted significant across-sport and within-sport gender/sex differences in coaches' pay. This study looked to complement previous research by examining whether male and female women's basketball head coaches at National Collegiate Athletic Association (NCAA) Division I universities competing in autonomous five conferences are paid equally. The findings show some evidence of sex discrimination in base pay, but total compensation for male and female coaches was statistically equal. Potential explanations for these findings are offered as well as suggestions for future research.

Despite often espousing progressive ideals, American higher education continues to be a setting for gender/sex inequity. Females face a campus climate where sexual harassment and assault are highly prevalent (A. J. Harris, Terry, & Ackerman, 2019; Pauly, 2019). Females are significantly underrepresented in campus leadership, as evidenced by the fact that only 30% of college presidents are female. Among doctoral-granting universities, only 22% of presidents are female (Gardner, 2019). Though females are going to and graduating from college at higher rates than males, only 1/3 of college student body presidents are female (New, 2014).

Wage gaps also continue to exist in higher education. According to data from *The Chronicle of Higher Education*, females are paid less than males across all faculty ranks. This pay gap is expanding, especially at four-year, nonprofit colleges (Hatch, 2017). The pay gap between male and female college presidents is about 9% (Blevins, Sauerwald, Hoobler, & Robertson, 2019). Across senior-level administrative positions, including provosts, vice presidents, deans, and associate deans, females earn 80 cents on the dollar compared to males (Bichsel & McChesney, 2017).

Pay inequality is also well documented in athletics. At the professional level, Abrams (2019) and Kaufman (2019) note that in both individual and team sports, female athletes are paid substantially less than male athletes (with the possible exception of tennis). Within intercollegiate athletics administration, there is limited evidence that female administrators earn less than male administrators (Parks, Russell, Wood, Robertson, & Shewokis, 1995).

College coaching is a much-discussed topic with regard to pay inequality. In general, male college sports head coaches earn more than female head coaches (Dodds, 1999; Hopkins, 2019). However, whether this pay gap between male and female coaches is due to sex discrimination has been hotly debated in the popular press and academic literature (Ament, 2017). Some individuals use the lens of meritocracy and human capital theory to argue that pay inequalities between male and female coaches are due to market forces and performance differences (Hopkins, 2019). However, this study uses critical feminist theory as a lens to question the assumptive practices of meritocracy and perfectly competitive markets in coaching contract negotiations. I specifically question these assumptive practices in National Collegiate Athletic Association (NCAA) Division I women's basketball. Using the Kitagawa-Blinder-Oaxaca decomposition, I explored the following questions:

- 1: Are male women's basketball coaches paid more than female women's basketball coaches at public NCAA Division I universities in autonomous five conferences?
- 2: If pay is different, how much of the pay gap between male and female coaches is "explained" by measurable individual and university characteristics, and how much is "unexplained" and potentially attributable to discrimination?

A Note on Language

The sex and gender language used in this paper is intentional. Traditionally, pay gap research has used male/female and man/woman interchangeably. This tradition ignores differences between biological sex and gender expression. For this study, male/female refers to the biological sex of college basketball coaches. When referring to the sport of college

basketball, traditional gender terms are used and refer to men's and women's basketball. While I do not believe binary terms men's/women's are accurate in describing differences between male and female college basketball players, the men's/women's language used to differentiate basketball is so pervasive within college sports that not using it might be confusing for the reader.

Literature Review

The context for this study starts with the passage of Title IX. Title IX is a federal civil rights law passed as part of the Educational Amendments of 1972. The law states that:

No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance (Suggs, 2006, p. 201).

Because athletics programs are considered educational programs, Title IX is applicable to college sports. There are three basic parts of Title IX related to athletics; 1. effective accommodation of interest, 2. financial assistance, and 3. equivalence of resources (NCAA, n.d.). The provision regarding equivalence of resources is of particular importance for this study. Under the Javits Amendment, colleges and universities are not required to spend the exact same amount on male and female sports (Edwards, 2010). However, a school is required to treat male and female sports equally with regard to the quality of the student-athlete experience (meaning that equipment, supplies, travel accommodations, and comparative facilities must be equal for male and female student-athletes).

This third provision of Title IX led to increased investment in women's sports. Since 1972, colleges and universities have substantially increased resources allocated to women's sports (Wilson, 2017). This is especially the case for women's college basketball. Basketball is arguably the most popular women's collegiate sport (Gibbs, 2019). Just over 99% of NCAA universities that offer women's athletics sponsor women's basketball (Acosta & Carpenter, 2014). Fan attendance at Division I women's basketball games increased 36% between 2000 and 2019 ("Women's Basketball Attendance," 2020). Television ratings for the NCAA Women's Basketball Tournament have increased steadily over the past ten years, culminating in the 2021 Women's Final Four being the most watched women's basketball championship game since 2012 (Bieler, 2021; Dator, 2021).

As the popularity of women's college basketball has increased, so has coaching pay. Universities still pay head coaches of men's basketball teams significantly more than head coaches in women's basketball (Lattinville & Denny, 2017). However, overall pay for women's college basketball has increased substantially since 2001 (Davis, 2021; Durando, 2009). Today, several women's basketball coaches in Division I earn base salaries greater than \$1 million per year. Women's college basketball coaches, on average, earn more than head coaches in any other women's college sport.

With greater popularity and increased pay, women's college basketball has seen a rise in the number of male head coaches. In 1977, nearly 80% of women's college basketball teams had female head coaches. In 2018, this number was down to 59% (Gibbs, 2019). At the NCAA Division I level, around 43% of women's basketball teams have male head coaches (in contrast, 0% of Division I men's basketball teams have a female head coach). This relatively high

percentage of male head coaches within women's college basketball makes it possible for researchers to compare male and female coaches' pay within the same labor market.

Sweet (1997) was one of the first to compare male and female coaches' salaries within the women's college basketball market. Sweet (1997), in her doctoral dissertation, surveyed 311 NCAA Division I athletics directors in spring 1996 to explore the factors influencing the pay of basketball coaches. Among survey respondents, Sweet found that male head coaches of women's basketball had a base salary of \$61,542 per year while female head coaches had a base salary of \$57,225. Sweet also found that male coaches had more public appearance opportunities in their contracts and earned more money for public appearances than female coaches.

While Sweet's (1997) research was informative, the study had several limitations. Sweet's research was never peer-reviewed. Sweet also failed to control for endowment differences between male and female coaches that could potentially explain differences in pay. So while Sweet's dissertation was informative, further research was needed to address questions about the male/female pay gap within women's college basketball using econometrics.

Humphreys (2000) was among the first to use econometrics to explore coaches' pay within women's college basketball. Humphreys collected data from 238 Division I universities in 1990-1991. He used OLS regression analysis to predict coaches' base salaries against various independent variables including coaching experience, career winning percentage, university size, and overall athletic department revenues. Humphreys found that female head coaches in women's basketball had a 9% higher mean base salary than male coaches. After adjusting for covariates in regression models, the wage salary gap between females and males fell to 7%. Sex, however, was not a statistically significant determinant of coaches' base salary. Instead, factors such as career winning percentage, university type, enrollment size, and revenues generated by women's basketball were the primary determinates of base salary. Humphreys found no evidence of sex discrimination against female head basketball coaches.

The data used by Humphreys (2000) was from 1990. By the early 2000s, the popularity of woman's college basketball had grown significantly (as had the salaries commanded by woman's basketball coaches). This meant there was a need to update Humphreys' analysis of whether sex affects the compensation of college women's basketball coaches. Brook and Foster (2010) took up that challenge. The methodology and variables used by Brook and Foster, however, were slightly different than those used by Humphreys. Brook and Foster collected data from the 2004-2005 academic year from 161 NCAA Division I universities. While Humphreys uses coaches' annual base salary as his outcome variable of interest, Brook and Foster use a measure of total coaches' compensation for both head coaches and assistant coaches in the basketball program. Though Brook and Foster fail to clearly define all the sources of coaches' compensation included in the operationalization of their dependent variable, they argue that their outcome measure presents a clearer, more complete picture of coaches' compensation.

Methodologically, Brook and Foster (2010) used separate OLS regressions with covariates related to coaches' success and athletics department revenues to determine whether male and female head coaches within women's college basketball are compensated differently. They also used a decomposition technique to explore how much of any male-female compensation gap could be explained by covariates. Like Humphreys (2000), Brook and Foster's descriptive statistics showed that female head coaches had higher log compensation than male head coaches. This gap, based on the standard deviations provided in the study, was statistically significant. The decomposition of this gap found that almost 80% of the total compensation gap was explained by covariates included in the OLS regression models. Their

findings left Brooks and Foster to conclude that within the women's college basketball coaches market "we are skeptical of overt employer discrimination; instead, the substantial revenue differences ... seem to be a much greater reason for coaches' compensation differences" (p. 105).

Most recently, Traugutt, Sellars, and Morse (2018) examined coaching pay using data collected in 2014-2015. Traugutt et al. collected athletic department revenue information from public, Division I universities in autonomous conferences (the authors used to term Power Five conferences in their paper). They were able to obtain data from 36 of 53 autonomous conference universities. The mean salary (I assume the authors were referring to base salary, though that is never clearly specified in their paper) for female women's college basketball head coaches was \$631,763 while the mean salary for male head coaches was \$821,959. However, their regression analysis found sex was not a significant predictor of women's basketball head coach salaries. Instead factors such as ticket sales and NCAA Distributions were stronger predictors of salary. Traugutt et al argue that "These results... would indicate that athletic departments are more concerned with the coach's ability to generate revenue, and specifically ticket revenue, than the coach's gender" (p. 50).

Taken together, these studies provide interesting and important information about coaches' pay within women's college basketball. Humphreys (2000), Brook and Foster (2010), and Traugutt et al. (2018) failed to find significant evidence of wage discrimination within the women's college basketball coaching market. Female coaches, after controlling for human capital inputs and organizational differences, appeared to earn similar salaries to male coaches. Unlike other industries, the findings of these studies suggest that women's basketball is largely free of sex-based discrimination with regard to pay.

Need for Further Research

Given the econometric models and data used by Humphreys (2000), Brook and Foster (2010), and Traugutt et al. (2018), however, further research in this area would be valuable. Humphreys (2000) and Traugutt et al. (2018) estimated OLS models with sex as a covariate to determine whether evidence of discrimination exists. This estimation strategy assumes that human capital and organizational differences used as explanatory variables have the same impact on pay for males and females. This assumption, however, might not be valid. For example, universities might reward career wins for male coaches differently than career wins for female coaches. Therefore, work exploring the pay gap in women's college basketball might benefit from using methodologies that do not assume parallel regression lines for each sex.

The decomposition employed by Brook and Foster (2010) is one methodology for examining pay differences that does not assume parallel regression lines for different groups. Given the unclear operationalization of the dependent variable used by Brook and Foster and the age of their data, updated analyses using a decomposition technique would be an important addition to the literature on the male-female pay gap in college basketball. Brook and Foster also estimate regression models that include 18 covariates with a sample of just 36 universities. This covariate to sample ratio often leads to overfitting and unreliable regression estimations (Austin & Steyerberg, 2015; Zhang, 2014)

The current study builds on previous research on the sex wage gap in women's college basketball in three ways. First, this study uses the most updated data available for examining pay differences between males and females. Second, this study uses a methodology specifically designed to identify how pay gaps might be due to capital inputs and organizational differences

or how pay gaps might be attributable to discrimination. Third, this study uses a more parsimonious estimation model for predicting coaches' pay.

Why Study Pay Inequality?

Why is wage equality important in women's college basketball? One reason is that equal pay might encourage more women to pursue coaching careers. A disturbing trend has occurred in women's college basketball since Title IX. Expenditures and coaching salaries for women's college basketball have increased significantly while the number of female head coaches in women's college basketball has decreased (Longman, 2017). There are several potential explanations for this trend. One explanation might be pay discrimination. By identifying whether pay inequality exists within the women's college basketball market, we might be able to identify and dismantle a barrier to female entry into the head coaching profession.

Identifying and addressing wage gaps within the women's college basketball market might also help higher education institutions avoid lawsuits. The Equal Pay Act of 1963 requires that men and women in the same workplace be given equal pay for equal work. This act is increasingly being used by female administrators and professors to sue colleges and universities for pay discrimination (Zahneis, 2020). To avoid these lawsuits becoming more common in college athletics, identifying whether pay discrimination exists is vital.

Theoretical Framework

This study is grounded in two somewhat contradictory frameworks for explaining pay within labor markets. The first is a model of perfect competition. Perfect competition assumes that market forces ensure that employee pay within the women's college basketball head coaching market is equal. Male and female basketball coaches, assuming the normal distribution of individual characteristics, would expect to earn similar pay if the market is perfectly competitive (Hirsch, 2016).

Under this assumption of a perfectly competitive market, economists would attribute any male-female pay gap primarily to two issues; human capital and demand-side factors. Human capital theory argues that differences in pay are due to the amount of human capital individuals possess. Human capital includes education, competencies, job skills, and individual experience. Within the job market, the belief is that people can monetize human capital. Individuals with higher levels of human capital would have higher pay than individuals with lower human capital. Human capital theory argues that different human capital levels play an important role in explaining pay gaps. If females have less experience and job skills than males, on average, the pay gap will be large, regardless of sex. Once human capital is held constant, the theory suggests that differences in pay between males and females would be eliminated (Grybaite, 2006). From the perspective of college basketball, one could consider various measures of coaching success, such as career coaching wins and Final Four appearances, as evidence of experience, competency, and job skills.

Demand-side factors are also likely to have an impact on individual pay. Basic economic theory suggests that increased demand for an organization's product or service increases that organization's ability to compensate its employees (Humphreys, 2000). In the case of college basketball, factors such as game attendance and athletics revenue are indicators of the demand for a university's sports entertainment product.

Based on the tenants of a perfectly competitive market, any pay gap between male and female women's college basketball coaches should be quantitatively explained by factors related to human capital and demand. Critical feminist theory, however, questions the assumptions of perfectly competitive markets. Feminist theory argues that females face societal subordination and sexism within all aspects of their existence (Allen, 1999). Given the ubiquitous nature of female oppression, feminist theorists would argue that pay within the women's college basketball coaches market is unlikely perfectly competitive (Nelson, 1995). These theorists would argue that sex plays a key role in contract negotiations and wage determination in ways that favor male coaches (Karamessini & Ioakimoglou, 2007).

This study was designed to explore the validity of these contradictory frameworks. If pay gaps for male and female women's basketball coaches in this study were driven by market forces, the findings here would lend support to the idea of college coaching being a perfectly competitive market. On the other hand, if pay discrimination between male and female coaches is found, it suggests that feminist theory offers a more accurate portrayal of the women's basketball coaches market.

Methods

Sample and Outcome Variable

Outcome data for this study came from AthleticDirectorU. AthleticDirectorU is a website and learning platform which provides news and insights related to college athletics (AthleticDirectorU, n.d.). As part of their 2017 study of women's college basketball coaching contracts, AthleticDirectorU along with the Spencer Fane Collegiate Athletics Legal Team and USA Today reviewed all forms of financial compensation for women's college basketball head coaches from autonomous five conferences. The data obtained were from the 2016-2017 season and is publicly available on the AthleticDirectorU website. AthleticDirectorU obtained information for this dataset through public-records requests to all 65 universities in autonomous five conferences. Because private universities are exempt from public-records requests, the dataset does not include information from the 12 private universities in autonomous conferences¹. Public universities in Pennsylvania are also exempt from public records requests. Therefore, data from Pennsylvania State University and the University of Pittsburgh was not included in the dataset. The remaining 51 universities were the final sample for this study.

The AthleticDirectorU dataset includes five types of coaches' pay data. Two types of pay were the focus for this study; base salary and total university compensation. Definitions for each of these pay components are in Appendix I. The AthleticDirectorU dataset also includes the coach's name, the university's name, and the university's conference affiliation.

Biographical information (typically found on a university's athletics webpage) for each coach in the AthleticDirectorU dataset was used to identify coach's sex. If the biographical information contained he/his pronouns, the coach was identified as male. If the biographical information used she/her pronouns, the coach was identified as female. If biographical details on

¹ Nine private universities did not report data to the AthleticDirectorU dataset. Three private universities (Duke University, Notre Dame University, and Baylor University), however, did report coach's salary data to the AthleticDirectorU dataset. In order to have a dataset with universities facing similar financial conditions and restrictions, however, I excluded all private universities from this study.

a coach were not on a university's athletics webpage, I found past news stories about the coach and used the same pronoun strategy to identify the coach's sex. If the news story used he/his pronouns when referring to the coach, the coach was identified as male. If the news story used she/her pronouns when referring to the coach, the coach was identified as female.

Statistical Methodology

To answer research question one, I compared the arithmetic mean and median values of base salary and total university compensation for male and female women's basketball coaches. To answer research question two, a counterfactual decomposition method known as the Kitagawa–Blinder–Oaxaca (KBO) decomposition was used. Evelyn Kitagawa (1955) initially developed this decomposition technique. Blinder (1973) and Oaxaca (1973) later popularized the technique. The goal of the KBO decomposition method is to decompose the total gap in a dependent variable between groups into two parts: one part that is due to differences in the mean values of independent variables within groups and a second part that is due to differences in the effects of these independent variables on the dependent variable of interest.

In a study of gendered pay discrimination within the women's college basketball coaching market, KBO would take any pay gap for male and female coaches and decompose it into two parts. The first part would estimate how differences between male and female coaches with regard to human capital and demand-side characteristics explain any gender pay gap. In other words, this first part of the KBO decomposition would show how much differences in endowments lead to differences in pay for male and female coaches. The second part of the decomposition would estimate how much any pay gap is due to differences in how human capital and demand characteristics are valued for male and female coaches. In other words, the second part of the KBO decomposition estimates how much a gender pay gap would still exist if male and female coaches had the same endowment characteristics. This second part of the decomposition is often viewed as a measure of discrimination (Bonnal, Boumahdi, & Favard, 2013; Jann, 2008; Sav, 2000). Although it has been critiqued by some (Blau & Kahn, 2000; Ospino, Roldan Vasquez, & Barraza Narvaez, 2010), the KBO decomposition technique is popular among researchers in multiple disciplines (Hook & Paek, 2020; Johnson & Minuci, 2020; Nieuwenhuis, Van Lancker, Collado, & Cantillon, 2020; Patel, Alhussain, & Sambamoorthi, 2021).

In this study, coaches' pay (Y) was predicted to be a function of individual and university characteristics (X) plus an error term (ϵ). Because each individual and university characteristic has the potential to have a differential impact on the pay of male and female coaches, the KBO decomposition begins with the estimation of group-specific regression equations of the following form:

$$\text{Pay}^{\text{Males}} = X^{\text{Males}} \beta^{\text{Males}} + \epsilon^{\text{Males}} \quad (1)$$

$$\text{Pay}^{\text{Females}} = X^{\text{Females}} \beta^{\text{Females}} + \epsilon^{\text{Females}} \quad (2)$$

where the same set of covariates (X) are applied to each group. Using these formulas, the male-female gap in mean pay is given by:

$$\text{Pay}^{\text{Males}} - \text{Pay}^{\text{Females}} = X^{\text{Males}} \beta^{\text{Males}} - X^{\text{Females}} \beta^{\text{Females}} \quad (3)$$

The overall male-female pay gap is then decomposed into a gap that is attributable to differences in the level of covariates X and a gap attributable to differences in the beta coefficients β using the following formulas:

$$\text{Pay}^{\text{Males}} - \text{Pay}^{\text{Females}} = \Delta X \beta^{\text{Males}} - \Delta \beta X^{\text{Females}} \quad (4)$$

$$\text{Pay}^{\text{Males}} - \text{Pay}^{\text{Females}} = \Delta X \beta^{\text{Females}} - \Delta \beta X^{\text{Males}} \quad (5)$$

Where $\Delta X = X^{\text{Males}} - X^{\text{Females}}$ and $\Delta \beta = \beta^{\text{Males}} - \beta^{\text{Females}}$. Equations 4 and 5 can be written as

$$\text{Pay}^{\text{Males}} - \text{Pay}^{\text{Females}} = \Delta X \beta^{\text{Females}} + \Delta \beta X^{\text{Females}} + \Delta X \Delta \beta \quad (6)$$

so that the gap in mean pay can be thought of as deriving from a gap in endowments ($\Delta X \beta^{\text{Females}}$), a gap in coefficients ($\Delta \beta X^{\text{Females}}$), and a gap arising from the interactions of endowments and coefficients ($\Delta X \Delta \beta$).

Equation 6 allows for the statistical analysis of whether male and female coaches are paid according to their characteristics and whether female coaches receive unduly lower remuneration for their X characteristics. This unduly remuneration for X characteristics is often considered an indicator of discrimination in decomposition studies. While the mathematical proof of equation 6 is beyond the scope of this paper, readers are encouraged to see O'Donnell, Van Doorslaer, Wagstaff, and Lindelow (2008), Jann (2008), and Elder, Goddeeris, and Haider (2010) for a more thorough treatment of the KBO decomposition.

Study Covariates

The covariates used to explain pay differences between male and female coaches were grounded in human capital, demand-side, and local cost characteristics. Two human capital characteristics were included in model estimations. First, models controlled for a coach's total number of wins as an NCAA head coach through the 2015-2016 season. Second, models controlled for the number of times a head coach took a team to the NCAA Women's Final Four during their careers (through the 2015-2016 season). These variables were used as proxies for coaching ability. Presumably, wins and Final Four appearances would be higher for better quality coaches. According to human capital theory, better coaches should be rewarded in the market with higher pay regardless of sex. Data on career coaching wins was obtained from the NCAA Championships statistics website. Data on the number of times a head coach took a team to the Final Four was obtained by reading each coach's biographies and coaching records.

Two demand-side factors were included as regressors. The first was the university's total athletics department revenue in the 2015-2016 academic year. The belief was that coaches in richer athletics programs likely get paid more than coaches in poorer athletics programs. The second demand factor included in regression models was average women's basketball home game attendance in 2015-2016. Game attendance is one of the best available proxies for how much demand there is for entertainment from women's college basketball at a given university. At universities where demand was higher, the expectation was that a coach's pay would also be higher. Attendance could also serve as a proxy for the amount of revenue generated by women's basketball at a university. Athletics department revenue information was obtained from the College Athletics Financial Information (CAFI) dataset managed by the Knight Commission on Intercollegiate Athletics. Women's basketball attendance information was obtained from the NCAA Championships statistics website.

The final covariate in regression models was median rent for a three-bedroom apartment within the zip code where a university is located. Given the differences in cost of living for different communities within the United States, coaches working in areas with high cost of living may be paid more. Median rent was used as a proxy for the overall cost of living in a community. These data were obtained from the U.S. Department of Housing and Urban Development's Office of Policy Development and Research.

The five covariates included in regression models for this study are certainly not an exhaustive set of factors that could influence coaches' pay. Given the size of this dataset, however, I needed to restrict the number of covariates in the models. Howell (1997) notes that while there is no clear rule on the number of predictor variables given the sample size in a regression model, some methodologists suggest that your sample size should exceed the number of predictors in your model by at least 50. For this study, I have a sample size of 51 universities and five covariates, meaning that my sample is four fewer than what would be suggested by R. J. Harris (2001). This deviation from the Harris principle is relatively slight and would not invalidate the findings of this study. However, the small sample size did limit the number of covariates included in model estimations. Based on the findings from previous work on college coaches' pay, however, I am confident that the models estimated here include the most salient determinates of coaching pay for women's college basketball head coaches.

Findings

Table 1 provides descriptive statistics for the pooled dataset. In 2016-2017 at public NCAA Division I universities in autonomous five conferences, the average women's basketball head coach earned a base salary of \$371,000, with the highest paid coach earning a base salary of \$825,000 and lowest paid earning a base salary of \$175,000. The median base salary was just under \$350,000. The average total compensation for head coaches was \$596,000 ranging from \$235,000 to \$1.27 million. Median head coach compensation was \$550,000.

Table 1
Summary Statistics for Study Variables

	Mean (Standard Deviation)	Median
Base Salary (\$)	371,547 (140,299)	349,313
Total Compensation (\$)	596,238 (249,008)	550,000
Total Wins	309 (217)	294
Final Four Appearances (%)	0.41 (0.92)	0
Total Revenues (\$)	109,998,538 (30,623,536)	104,823,057
Attendance	3,713 (2,681)	2,858
Median Rent (\$)	1,306 (336)	1,194
<i>N</i>	51	

Table 2 provides descriptive statistics for male and female coaches. In comparison to female head coaches, male head coaches had slightly higher average total wins and worked at universities with slightly higher per game attendance for women's basketball. On the other hand,

female coaches had on average more final four appearances, worked at richer athletics departments, and coached in areas with higher cost of living. In general, however, each of these variables was fairly evenly distributed between male and female coaches.

Table 2
Summary Statistics for Study Variables by Head Coach's Sex

	Male Coaches	Female Coaches
Base Salary (\$)	424,187 (176,565)	340,293 (104,594)
Total Compensation (\$)	617,783 (291,338)	583,446 (224,212)
Total Wins	315 (204)	306 (228)
Final Four Appearances (%)	.315 (.67)	.468 (1.04)
Total Revenues (\$)	108,959,531 (31,732,897)	110,615,449 (30,443,909)
Attendance	3,903 (2,536)	3,601 (2,799)
Median Rent (\$)	1,226 (264)	1,354 (368)
<i>N</i>	19	32

Note: Standard deviation in parentheses

The average base salary for male head coaches was \$424,186. For female head coaches, the average base salary was \$340,293. Male base salaries were nearly \$84,000 higher in 2016-2017. Median base salaries for males (\$465,000) was also higher than median base salary for females (\$330,000). When looking at total compensation, the male-female pay difference shrinks. Male head coaches earned on average around \$617,783 in total compensation during 2016-2017, while female head coaches earned \$583,445 (a difference of around \$34,000). Median total compensation for male head coaches (\$586,012) was higher than median compensation for female head coaches (\$515,000).

One-tailed t-tests were used to assess whether male coaches earned more than female coaches. Because the variances of male and female pay variables were not equal, I estimated unequal variances t-tests. The base salary of male coaches was significantly higher at the .05 confidence level ($t(49) = 1.88, p = .035$). With total compensation, however, the sex difference was not statistically significant ($t(49) = -0.44, p = .33$). Because the sample in this study is inclusive of the entire population of interests, we interpret statistical significance slightly differently than if we were using sample data for inference. These t-tests suggest that in an alternative state of the world, we are confident that the true mean value of male women's basketball coaches base salaries would be higher than that of female coaches. With total compensation, however, we lack sufficient evidence that male coaches earn more than female coaches (Abadie, Athey, Imbens, & Wooldridge, 2014).

Table 3 provides the results of the KBO decomposition. Because only differences in base salary were significantly different between male and female coaches, the decomposition was only run for that outcome variable. As is the convention with decomposition analyses using salary data (Jann, 2008), base salary was log-transformed in this study. The first section of Table 3 shows that the male head coaches earned a log base salary around 18.3% higher than female head coaches. Only around 8% of that difference could be attributed to endowment differences between male and female coaches. The remaining 92% of the salary gap is due to different returns on endowments for males and females. There appears to be a high level of potential discrimination in male and female college basketball coaches' base salaries at public autonomous five conference universities.

The detailed decomposition in Table 3 offers more information on the factors impacting women's basketball coaches' base salaries. The parameter associated with attendance suggests that if female coaches coached teams that had the same average home game attendance as male coaches, the expected female base salary would increase by 1%. Somewhat surprisingly, if female coaches worked in less expensive areas of the U.S., their salaries would be expected to increase around 4%. When the beta coefficient is negative, as is the case with total wins, it suggests that if females had the same number of career wins as males, the base salary gap would actually increase. From this table, we see that while overall very little of the sex salary gap is explained by differences in group characteristics, the part that can be explained is driven largely by differences in cost of living and home game attendance. We also see that the salary gap would be larger if female coaches had gone to the same number of Final Fours as male coaches.

The last section of Table 3 shows the detailed decomposition of the unexplained variance in women's head coaches' salaries. This detailed unexplained variance helps statistically identify how sex discrimination in pay is occurring. Overall, if male coefficients were applied to female characteristics in the regression models estimated, female head coaches' base salary would be around 17% higher.

Discussion

Sports is lauded by many as one of the most powerful social institutions in the world (Coakley, 2014; Kane, 2011). Often the appeal of sports is the perceived embeddedness of meritocracy and fairness. In the sports world, some argue, a person is successful based only on their talent and the ability to outscore the opponents. Social categories like race, gender, sexual orientation, or socio-economic status are irrelevant when determining who wins or loses in athletics competitions (Washington & Karen, 2001). However, there is evidence that sexism in sports is prevalent (Stage, 2007). This is especially true within college sports.

One of the more frequently discussed issues related to sexism in college athletics is pay inequality. Within college athletics, researchers have noted the existence of pay gaps across men's and women's sports as well as within women's sports. In women's college basketball, most researchers who have studied the male-female pay gap have concluded that the sex of the head coach had no significant impact on pay (Brook & Foster, 2010; Humphreys, 2000; Traugutt et al., 2018). Given the age and statistical methods used in previous research, however, this study looked to reexamine coaches' compensation within women's college basketball to identify whether there was evidence of sex discrimination in pay.

Table 3
*Binder-Oaxaca Decomposition of Base Salary for Male
 and Female Women's College Basketball Head Coaches*

Log Base Salary	
Overall	
Male	12.88 (0.108)
Female	12.69 (0.0551)
difference	0.183 (0.121)
explained	0.0145 (0.0713)
unexplained	0.168 (0.101)
Explained	
Total Wins	-0.00290 (0.0200)
Final Four Appearances	-0.0278 (0.0510)
Total Revenues	-0.00454 (0.0252)
Attendance	0.0103 (0.0318)
Median Rent	0.0395 (0.0477)
Unexplained	
Total Wins	-0.330 (0.161)
Final Four Appearances	0.112 (0.0953)
Total Revenues	0.257 (0.314)
Attendance	-0.0664 (0.222)
Median Rent	-0.609 (0.449)
Constant	0.804 (0.740)
<i>N</i>	51

Note: Standard errors in parentheses

This study's findings present a slightly more complicated picture of gendered pay in women's college basketball than what previous researchers have found. When looking only at base pay, I found that at public NCAA Division I universities in autonomous five conferences, male head coaches earn significantly more than female head coaches. Almost all of this pay gap is unexplained by endowment characteristics and might be attributable to discrimination. However, when looking at total compensation, I did not find a statistically significant difference between male and female coaches.

These findings are important for several reasons. First, these findings help further expose the inequalities faced by females within the U.S. labor market. Feminist theorists and researchers have for decades argued that the wage gap between males and females is a manifestation of structural inequalities within society that privilege males. This study provides evidence that these structural inequalities also exist within the women's college basketball coaching market. Traditional economic theories related to human capital and demand fail to explain the base salary gap between male and female head coaches. This study is certainly not the first to expose the existence of inequality within intercollegiate athletics. However, the findings further cast doubt on college athletics being the meritorious utopia some people believe it is.

This base pay inequity can have implications for both a university and for individual coaches. Evidence of base pay discrimination opens the university up to lawsuits for violations of the Equal Pay Act and federal non-discrimination laws. These equal pay lawsuits can be significant. For example, in 2018 the University of Denver paid \$2.66 million in backpay and damages to settle an equal pay lawsuit brought by seven female law professors (Flaherty, 2018). Base pay discrimination among coaches also means the university is failing to demonstrate its espoused vision of a fair and equitable society. Colleges and universities are unique settings with academics and coaches who are relatively homogenous in terms of their education/training and the performance of tasks within their occupation (Chen & Crown, 2019). By setting an example of fair treatment towards female employees, colleges can and should be change agents for sex equality in America.

Base pay discrimination can also be harmful to female coaches. Typically only base salary is considered in determining standard employee benefits to which a coach is entitled, such as retirement plan contributions, vacation pay, and university provided life and disability insurance (Belzer, 2017). Base salary can also be important for coaches in the event of early contract termination. Contract buyout obligations often consider only base salary, meaning that if a coach gets fired three years into a five-year contract, he/she/they is entitled only to the base salary portion of their compensation (Belzer, 2017). Therefore, bias in pay can adversely impact female coaches during and after their time coaching at a university.

Despite having lower base salaries, the total compensation for male and female women's basketball coaches was not statistically different in this study. This raises several interesting questions. Are athletics directors, who are predominantly male, offering different compensation packages to male and female coaches based on stereotypical views about male and female employee desires? Do female coaches feel more comfortable negotiating other elements in their contract outside of base salary? Are female coaches more successful at negotiating other elements of their contract outside of base salary? Are negotiation strategies considered more or less masculine or feminine more successful in negotiating base salary versus other forms of compensation?

Investigation of these questions could be guided by gender role incongruity theory and negotiated order theory. Gender role incongruity theory argues that incongruity between a person's social role and the negotiation situation is an overarching factor that affects how males and females respond to negotiation situations, which then affects gender differences in negotiation outcomes (Stuhlmacher & Linnabery, 2013). Perhaps base salary negotiations are done in spaces (physically and socially) that are more congruent with socially created male gender roles. In contrast, broader compensation negotiations (which may include housing or childcare allowances) are conducted in spaces more congruent with female gender roles. Negotiated order theory argues that everyday interactions between different groups of professionals create and recreate organizational structures (or orders) that privilege some people over others. This order in most organizations privileges masculine and discounts feminine practices and assumptions. In some situations, however, order can be redefined within an organization. Due to their position, gender, or other attributes, certain people or groups may be accorded legitimacy to define the situation differently for others even if those definitions fly in the face of an organization's official order (Kolb & McGinn, 2008). Perhaps in contract negotiations around a coach's base salary organizational order privileging masculinity prevails in a way that creates sex pay discrimination. When contract negotiations turn to additional forms of compensation, females are accorded legitimacy to redefine the negotiation in a way that creates more gender equity.

In addition to research investigating the nuanced nature of coaches' salary negotiations, future research should look to expand the scope of our current knowledge. Every previous study on the salaries of women's college basketball coaches, including this one, has focused exclusively on NCAA Division I or autonomous conference universities. Further research should consider collecting data from NCAA Division II and Division III colleges and universities. Research from colleges and universities governed by the National Association of Intercollegiate Athletics (NAIA) as well as community colleges would also be valuable. By collecting data from a wider variety of universities, the higher education community can create more generalized knowledge of the prevalence (or lack thereof) of pay discrepancies between male and female women's basketball coaches.

How can college athletics address the base pay gap within college basketball? A first step might be the hiring of more female leaders in intercollegiate athletics. According to data from the NCAA, 92% of athletics directors at autonomous five conference universities are male (National Collegiate Athletic Association, 2020). These male athletics directors might bring conscious or unconscious bias into their negotiations with female basketball coaches. Perhaps if more female athletics directors negotiated contracts with female coaches, less bias would lead to a shrinking of the sex pay gap. Some evidence suggests that female managers in public organizations, such as the public universities examined in this study, help lower within-firm sex pay gaps (Magda & Cukrowska-Torzewska, 2018).

Workshops for aspiring female women's basketball coaches could also provide information and tips on how to engage in contract negotiations effectively. These workshops could teach negotiation strategies and help female coaches identify ways base pay bias might manifest in contracts. Organizations like the NCAA, or coaching organizations such as the National Association of Basketball Coaches (NABC) or the Women's Basketball Coaches Association (WBCA) could facilitate these workshops.

Finally, unconscious bias or other diversity training for athletics directors can help them identify deep-rooted bias that might impact how coaching contracts are negotiated. While

athletics directors regularly promote the importance of equity and diversity in their departments, they must recognize larger structural sexism within society and how that might influence how they engage in contract negotiations. Training for athletics directors might identify these biases, so they are proactively addressed.

From a theoretical perspective, this study can be seen as a deductive test of two frameworks for understanding the gender pay gap. The findings might contribute to our understanding of the explanatory power of theory when it comes to the gender pay gap. This study was grounded in two competing frameworks; the model of perfect competition and critical feminist theory. The findings offer some support for both frameworks. When pay was defined as base salary, feminist theory offered a more accurate description of the market. When pay was defined as total compensation, perfect competition appeared to offer a more accurate explanation of the market. Perhaps the explanatory power of theoretical frameworks for studying the gender pay gap changes based on how is conceptualized and operationalized. Future researchers should investigate this hypothesis in other sectors of the labor market.

Limitations

Like most research, readers should consider the findings of this study in light of some important limitations. The population for this study, given data availability, was public, NCAA Division I universities in autonomous five conferences. While these are indeed the highest-profile colleges and universities in the U.S. with regard to college sports, they represent only a small fraction of all universities that sponsor women's basketball. Therefore, these findings have limited generalizability outside the population of interest. This limited population of interest means this study excluded data from some of the highest-paid women's basketball coaches in 2016-2017 such as Geno Auriemma (University of Connecticut), Kim Mulkey (Baylor University), and Muffet McGraw (Notre Dame University).

Another concern is data accuracy. Financial data in this study relies on self-reports from university athletics departments. Some have argued that these self-reports contain a large amount of measurement error (Suggs, 2009; Upton & Brady, 2005). However, others offer evidence to suggest that athletics department self-reports may be valid and consistent (Jones, 2019; Tatos, 2018). The validity of these findings is tied to the validity of the data provided by university athletics departments.

In the KBO decomposition, the unexplained part of the differences in the dependent variable is often used as a measure of discrimination. This unexplained part, however, also subsumes the effects of groups differences in unobserved predictors (Jann, 2008). Therefore, important missing variables in regression models can create difficulties in interpreting decomposition findings. As mentioned earlier, given the small sample size, a limited number of covariates were included in regression model estimations. If there are significant predictors of coaches' pay missing from the regression models that are distributed differently among male and female coaches, the KBO decomposition might not fully capture the amount of pay discrimination attributable to sex differences.

Conclusion

This study offers important new evidence related to sexism in college athletics. While there was some evidence of base pay discrimination against female women's basketball coaches,

total compensation between male and female women's basketball coaches was statistically equal. We should applaud athletics departments for their efforts to make total compensation among women's basketball coaches equitable. Any discrimination, however, is harmful and must be eliminated. Athletics departments must continue to be vigilant to ensure that they do not discriminate against female coaches in any aspect of their contracts. I hope this study contributes to our growing understanding of the role sex plays in university employee compensation. I also hope this research serves as a catalyst for future research on the salary negotiation process as well as bias and equity in coaching pay.

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Appendix

Definitions for the compensation variables within the dataset used for this study are below. These definitions were obtained from Spencer Fane (n.d.).

University and University Affiliated Base Salary: Includes base salary only. Salaries reported do not take into account deductions that have, or may, occur because of state government furlough actions or voluntary salary reductions.

Total University Compensation: Base pay plus compensation from the university or a university affiliated entity for media, public relations, endorsements, guaranteed summer camp payments, payments based on ticket revenue when available, personal expense accounts (i.e. expenses taxable to the employee), housing allowances, etc. Deferred compensation and retention payments are included on a pro rata basis if the only circumstances in which the payment would be forfeited are (A) the University terminates the coach's employment for cause, and/or (B) if the Coach resigns from the University.