

Equal Pay on the Hardwood: The Earnings Gap Between Male and Female NCAA Division I Basketball Coaches

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This article examines the earnings gap between male and female National Collegiate Athletic Association (NCAA) head basketball coaches. Within women's basketball, female head coaches earn base salaries 9% higher than males. Estimates from a human capital earnings model suggest that differences in job performance and institution-specific gender segregation explain this earnings gap. The base salaries of women's head basketball coaches of both sexes are also compared to those of men's head basketball coaches. Women's head coaches of either gender earn about 50% of the base salary of the average men's head coach. The earnings differential between women's and men's basketball coaches is attributable to occupation and not the coach's gender, thus prestige from men's sports, customer discrimination, and the preferences of athletic directors may explain this gap.

A large body of evidence shows that women earn less than men. This “earnings gap” appears in broad measures of earnings and extends to narrow occupational groups. Controlling for differences in education and experience narrows but does not completely eliminate this gap.¹ In this research, I examine the base salaries of head basketball coaches at National Collegiate Athletic Association (NCAA) Division I institutions to learn more about earnings differences between females and males. This setting is interesting for several reasons. First, Zimbalist (1999)



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TABLE 1: Summary Statistics, Academic Year 1990-1991

Variable	Women's Basketball		Men's Basketball
	Female Head Coaches	Male Head Coaches	
Mean base salary	41,026	36,245	71,762
Median base salary	38,621	35,450	67,404
Years head coaching experience	8.8	6.2	9.4
Career won-loss percentage	0.510	0.490	0.527
Institutional characteristics			
Mean basketball revenues	27,336	19,209	748,047
Mean enrollment	12,519	8,379	10,817
Other female coaches (%)	0.54	0.29	0.43
Private institutions (%)	26	36	30
Historically Black institutions (%)	2	9	5
Urban institutions (%)	69	62	66
Division I-A institutions (%)	46	31	40
Sample size	140	98	238

recently showed that the issue of earnings differences between male and female head basketball coaches has become the center of the public policy debate on gender discrimination. Second, female/male earnings ratios in higher education, but not in the athletic department, have been extensively investigated. Third, an easily quantifiable measure of job performance, career winning percentage—which should be correlated with unobservable factors that affect earnings, such as motivation, skill, and ability—is readily available for head basketball coaches.

The NCAA periodically surveys member institutions to assess compliance with Title IX regulations.² This study uses data from the 1990-1991 survey of Division I institutions, the largest athletic programs in the NCAA. The survey contains data on the gender and base salary of women's and men's head basketball coaches as well as a considerable amount of additional data on intercollegiate athletic programs. After dropping institutions with missing observations, 238 of the 279 Division I institutions that offered both men's and women's basketball in 1990-1991 remained. The survey data were matched with institutional data from the Integrated Postsecondary Education Data System (IPEDS)³, the career won-lost record, and years of head coaching experience data from *1991 NCAA Basketball* (National Collegiate Athletic Association, 1990).

EARNINGS DIFFERENCES WITHIN WOMEN'S BASKETBALL

Table 1 shows summary statistics for both women's and men's head basketball coaches.⁴ Within women's basketball, female head coaches earn more than their male counterparts; the median ratio of female-to-male base salary is 1.09. This

median female-to-male salary ratio is unusual because even within narrow occupational groups, women typically earn less than men. Why should women's head basketball be different? Fleisher, Goff, and Tollison (1992) point out that although competition exists in the market for NCAA head coaches, the pool of potential head coaches possesses some market power. If female head coaches possess more market power than male head coaches, then female head coaches could command a salary premium. This additional market power might come from a relatively smaller pool of qualified females, due to the reduced opportunities for females to compete in intercollegiate athletics before the passage of Title IX, if the size of the pool of qualified females today depends on the number of females who competed in women's intercollegiate basketball in the past.

Gender segregation by establishment (or job cell) represents another possible explanation for the gender gap in earnings. Groshen (1991) and Carrington and Troske (1995) found evidence of gender segregation by establishment within occupations. This gender segregation explained much of the observed female/male earnings gap in their data.

Table 1 shows evidence of gender segregation by establishment. The variable *other female coaches (%)* shows the fraction of head coaches of women's teams other than women's basketball at institution *j* who are female; it is expressed as a fraction to control for differences in the size of the women's athletic program. At institutions with a female women's head basketball coach, slightly more than half of the other women's teams head coaches are female, whereas at institutions with a male women's head basketball coach, less than one third of the women's teams head coaches are female. At the median number of women's sports teams in the sample (8), this difference is two female head coaches.

The overall female/male earnings gap in Table 1 may overstate the underlying difference between male and female head coach's earnings because the males in the sample have less experience and work at institutions with different characteristics than the females. There are several methods for estimating female/male earnings differentials while controlling for variation in human capital, ability, and institutional characteristics. One commonly used method is an earnings equation

$$W_{ij} = \beta X_i + \gamma Z_j + \eta_{ij}, \quad (1)$$

where W_{ij} is the log of the annual salary of head coach *i* at institution *j*, X_i is a vector of characteristics of head coach *i* that includes work experience and a measure of job performance, Z_j is a vector of control variables that reflect the institution where the coach is employed, η_{ij} is an unobservable equation error, and β and γ are a vectors of parameters to be estimated. Because the dependent variable is measured in logarithms, the parameter estimates from this regression can be interpreted as reflecting approximately the proportional change in salary when the independent variables change.

The dependent variable, base salary of the head basketball coach, does not include earnings from television or radio programs, shoe contracts, summer camps, commercial endorsements, or deferred compensation packages from booster clubs. Many head basketball coaches derive significant earnings from these outside sources, but data on these types of income are not available. The estimated earnings gap between male and female head basketball coaches within women's basketball would be reduced only if female head coaches earned less from endorsements, camps, and media appearances than male head coaches.

Work experience is the years of head coaching experience that head coach i had in 1991; the measure of job performance is head coach i 's career-winning percentage. Human capital theory predicts that the sign of the parameter on these variables should be positive. Increases in experience and superior job performance should increase earnings, other things being equal.

The institution-specific explanatory variables reflect demand-side factors that affect earnings. These factors include the revenues generated by the basketball program, the institution's location and control (public or private), and dummy variables to control for historically Black colleges and universities and membership in Division I-A, the largest athletic programs in the NCAA.

The first two columns of Table 2 show the results of OLS estimation of equation (1). Estimation of equation (1) using all the male and female women's head basketball coaches assumes that the slope parameters for males and females are the same. A Chow test indicated that the data support this assumption.

Female is a dummy variable that takes the value one if the head basketball coach is female. The parameter on this variable captures differences in earnings of male and female head women's basketball coaches. From column one in Table 1, the 9% unadjusted salary gap between male and female coaches falls to 7% when individual and institutional factors are included.

The estimated parameters on the experience and job performance variables both have the predicted sign, but the human capital variable is not statistically significant. Women's basketball coaches who win more games tend to earn more, other things being equal. The experience variable is highly correlated with career winning percentage (the correlation coefficient is about .6), and the experience variable is nearly the same magnitude and statistically significant when winning percentage is excluded, as are the other parameter estimates. Thus, the imprecise estimate of the parameter on experience can be explained by the high degree of correlation between career winning percentage and years of head coaching experience.

The institutional controls all have the expected signs and are significant, with the exception of the location variable, *Urban*, which is nearly significant at the 10% level (the p value is .12). The parameters on the institutional control variables suggest that larger institutions and institutions with major college football programs tend to pay their women's head basketball coaches more and private institutions and historically Black colleges and universities tend to pay their women's head bas-

TABLE 2: Ordinary Least Squares Estimates of Equation (1)

Variable	Coaches of Women's Basketball		All Head Basketball Coaches	
Intercept	10.16 ^a (0.07)	10.09 ^a (0.06)	10.67 ^a (0.06)	10.63 ^a (0.07)
Female	0.07 ^b (0.04)	0.02 (0.05)	0.07 (0.05)	0.05 (0.05)
Years coaching experience	0.001 (0.004)	0.000009 (0.0004)	0.004 (0.003)	0.003 (0.002)
Career winning percentage	0.32 ^a (0.11)	0.33 ^a (0.11)	0.30 ^a (0.10)	0.31 ^a (0.10)
Historically Black	-0.17 ^a (0.09)	-0.15 (0.09)	-0.22 ^a (0.08)	-0.21 ^a (0.08)
Private	-0.09 ^b (0.05)	-0.09 ^b (0.05)	-0.04 (0.04)	-0.04 (0.04)
Urban	0.065 (0.042)	0.06 (0.04)	0.049 (0.036)	0.05 (0.04)
Revenues	0.086 ^a (0.034)	0.08 ^a (0.03)	0.0012 ^a (0.0002)	0.0010 ^a (0.0002)
Division I-A	0.13 ^a (0.05)	0.14 ^a (0.05)	0.14 ^a (0.04)	0.14 ^a (0.04)
Total enrollment	0.006 ^a (0.003)	0.010 ^a (0.003)	0.007 ^a (0.003)	0.010 ^a (0.003)
Other female coaches (%)		0.26 ^a (0.10)		0.10 (0.08)
Women's basketball			-0.52 ^a (0.05)	-0.51 ^a (0.05)
R ²	0.29	0.30	0.49	0.49
N	238	238	476	476

NOTE: Standard errors are in parentheses; equation (1): $W_{ij} = \beta X_i + \gamma Z_j + \eta_{ij}$.

a. Significant at the 5% level.

b. Significant at the 10% level.

ketball coaches less. Also, the larger the revenues generated by the women's basketball program, the higher the salary paid to the head coach.

The second column in Table 2 adds other female coaches (%), a measure of institution-specific gender segregation, to the model. Because female head basketball coaches appear to be concentrated at institutions that have a higher concentration of female head coaches in other women's sports, gender segregation by job cell may also help to explain the female/male earnings gap in women's head basketball coaches' salaries.⁵ The estimated parameter on the institution-specific measure of gender segregation is positive and significant.⁶ Adding this variable to the empirical model makes *female* insignificant, suggesting that in the specification reported in Column 1, female may proxy for the gender composition of the head coaches at each institution.

Why should the concentration of female head coaches at an institution affect the earnings of female head basketball coaches? Pfeffer and Davis-Blake (1987) studied the relationship between the proportion of women and salaries in administrative offices at colleges and universities. Although they found a negative relationship between the fraction of female administrators and female's salaries, theoretical predictions about the sign of this relationship are ambiguous, and one model, demographic group-power, predicts a positive relationship between the fraction of female employees and female's salaries.⁷ Demographic group-power models, like those developed by Blalock (1967), suggest that if demographic groups have an important effect on the functioning of an organization and the power of these groups depends in part on the relative size of groups, then relatively larger groups could allocate more resources to the salaries of their members. Such conditions could possibly arise within women's sports in organizations such as athletic departments, where the majority male demographic group would be relatively unconcerned about the salary structure within women's athletics.

EARNINGS DIFFERENCES BETWEEN MEN'S AND WOMEN'S BASKETBALL COACHES

An examination of the relative salaries of men's and women's head basketball coaches is also of some interest. Zimbalist (1999) discusses the issue of pay inequity between the coaches of men's and women's basketball teams in the context of several prominent Title IX lawsuits recently filed by female women's head basketball coaches. Table 1 shows that women's head basketball coaches of both sexes earn considerably less than their men's basketball counterparts. The median salary ratios are 0.57 for females and 0.52 for males.

The third and fourth columns of Table 2 show results of ordinary least squares (OLS) estimation of equation (1) using data for all head basketball coaches. These estimates can help to explain the sources of the earnings gap between men's and women's basketball coaches. Pooling the sample in this way assumes that the slope coefficients for men's and women's head coaches are the same. A Chow test indicated that pooling is appropriate. Column 3 omits the variable other female coaches (%), and column 4 includes it.

The parameter on female is positive although it is not statistically significant; gender alone does not reduce the salaries of head basketball coaches, other things being equal. The variable women's basketball is a dummy variable that equals one if coach i is the women's head basketball coach and equals zero if coach i is the men's head basketball coach. This variable captures the effect of coaching women's basketball on the earnings of head basketball coaches. The earnings gap between women's head basketball coaches and men's head basketball coaches can be attributed to occupation and not to the gender of the head coach. The parameter on the variable women's basketball implies that women's head basketball coaches earn about half of what men's head basketball coaches earn, even when controlling

for differences in the experience and job performance of the coaches and the revenues generated by men's and women's basketball programs. However, this is not attributable to discrimination based on the gender of the head coach, which would be captured by the dummy variable female.

There are several explanations for this difference in earnings between head women's basketball coaches and head men's basketball coaches. The gap may be due to the prestige associated with men's basketball. Carroll and Humphreys (1999) show that the prestige associated with men's sports will induce athletic directors to overinvest in men's sports staff relative to women's sports staff. This overinvestment could include paying men's basketball coaches more than women's basketball coaches.

Alternatively, the gap could be due to "tastes for discrimination" either by athletic directors or consumers. Becker (1971) conceptualized discrimination as a personal prejudice or taste against associating with a particular group. These discriminatory preferences have more to do with opinions about socially appropriate roles than the desire to maintain social distance between males and females. If an athletic director has tastes for discrimination against women, the athletic director will act as if there is a nonpecuniary cost of employing women and will hire women only if they are paid less than their productivity. Discriminatory preferences held by employers can also lead to segregation by gender, which also appears to be a feature of this data.

Ticket buyers, alumni contributors, and television viewers with tastes for discrimination will act as if there is a nonpecuniary cost associated with purchasing tickets to women's basketball games or watching these games on television. If present, these tastes can also lead to lower salaries being paid to women's basketball coaches and workplace segregation by gender.

Finally, NCAA rules prohibit payments to athletes. The revenue streams generated by some athletic teams suggests that some athletes are not paid their value of marginal product. Instead, this value is captured as part of the monopoly rents earned by NCAA institutions. The earnings gap between men's and women's head basketball coaches may simply reflect that men's head basketball coaches are better able to capture some or all of these monopoly rents than are women's coaches.

SUMMARY AND CONCLUSION

Unlike other narrow occupational groups, female head basketball coaches at NCAA Division I institutions earn as much or more than males. Female head coaches earn about seven percent more than males when individual and institutional factors are controlled for. However, when the gender composition of women's head coaches at each institution is corrected for, the earnings gap disappears, suggesting that demographic group power may affect the earnings gap. This finding is of some interest because despite some theoretical support for such a relationship, no prior empirical evidence of this phenomena has been found.

When the base salaries of men's and women's head basketball coaches are compared, there is no statistical difference between the earnings of males and females. However, women's head basketball coaches earn only about half the salary of men's head basketball coaches, even when accounting for differences in human capital, job performance, and revenues generated by the basketball program. The large gap between salaries of women's basketball coaches and men's basketball coaches may be due to the effect of the prestige of men's sports on athletic director's decisions, tastes for discrimination held by either athletic directors or consumers of intercollegiate athletics, or the ability of men's head basketball coaches to capture more monopoly rents than women's head basketball coaches.

NOTES

1. Gunderson (1989) and Blau and Kahn (1997) have surveyed this literature.
2. The NCAA provided the data from the 1990-1991 survey but did not identify individual institutions. With considerable effort, all of the institutions were identified by the reported enrollment and tuition data after cross-checking these data with data in the U.S. Department of Education's Integrated Postsecondary Educational Data System (IPEDS).
3. These data are available online at <http://nces.ed.gov/index.html>.
4. Revenue data were not collected in the 1990-1991 survey. The revenue data reported in Table 1 were estimated from revenue data collected in the 1994-1995 survey. Details on this procedure are available from the author.
5. Pfeffer and Davis-Blake (1987), Groshen (1991), and Carrington and Troske (1995) found a nonlinear relationship between percent female employees and female earnings. In this case, the smaller sample size does not permit testing for nonlinearities in this relationship.
6. A dummy variable for the sex of the athletic director—five of the ADs in the sample were female—was not statistically significant. Replacing this variable with the fraction of females in the student body was also not statistically significant.
7. A second theoretical explanation, group interaction, predicts a positive and nonlinear relationship that cannot be tested for in this particular sample of data.

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