

WHO'S GAME IS IT ANYWAY?
A NEW, MODERN LOOK AT
RACISM AND WAGE DISCRIMINATION IN THE NBA

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Economics

Abstract

This study was inspired by the ongoing discussions of the involvement of racism in the NBA. The goal of this study is to determine the presence of racism in the NBA through a careful study of player and coaches wages based on their productivity. Previous studies from the 80's as well as 90's have shown that there have been incredible wage gaps between white and black players in the NBA(those wages being in favor of the white players).Using a study of 276 players and 30 coaches from the 2009-10 season, salaries will be put into a regression model while holding player and coach productivity constant.. Player and coach salaries will be the dependent variable along with eleven independent variables in the player regression model and 6 independent variables in the coaches' regression model. The results showed that there is a small difference in wages between white and non-white players but not enough to make valid claims of wage discrimination. For coaches, the regression results shows that race does not have a significant effect on salaries but there is still a noticeable salary gap between white and non-white coaches, in favor of white coaches.

KEYWORDS: (National Basketball Association (NBA), Wage Discrimination, Racism)

DEDICATION

I would personally like to thank my mother for always supporting and loving me. You taught me to never give up and to always work hard. I know that I would not be where I am today if it were not for you. I love you.

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Thank you Aju and Dean Edmonds. For everything

Chapter 1

Introduction and Background

The purpose of this research is to test for the presence of wage discrimination based on race in the National Basketball Association (NBA) today. What is the impact of race on player and coaches' salaries? Though it will be used in this study, salaries are not the only measure of racism in the NBA. Previous studies have tested for racism in the NBA based television viewership, the value of trading cards, and arena attendance. Wage discrimination is possible in any workplace, and the NBA is not an exception. There is much evidence of discrimination in the early years of the NBA including major wage discrepancies between white and black players. The motivation for this study stems from Price and Wolfer's study¹ on racism among NBA referees which cast the media spotlight on racism in the NBA again. This study brought about much questioning from the media in reference to the presence of racism in many different areas of the game. There have been numerous events involving the NBA that have brought up the question of racism. In 2009, Elgin Baylor filed a lawsuit against the L.A. Clippers owner Donald Sterling as well as the NBA. Baylor claimed that he had to deal with racism during his 22-year tenure as the General Manager of the L.A. Clippers. Baylor's suit alleged that the Clippers and

¹ Price, Joseph & Wolfers, Justin, 2007. "Racial Discrimination Among NBA Referees," CEPR Discussion Papers 6369, C.E.P.R. Discussion Papers

the NBA engaged in race based salary discrimination. The Clippers' white head coach, Mike Dunleavy, got a four-year, \$22-million contract while Baylor had been receiving a consistent salary of \$350,000 since 2003. His suit alleged that this disparity of pay was "condoned, adopted, and ratified by the NBA". One thing that cannot be denied in today's NBA is that the player population is predominantly black and the team owners and executives are predominantly white. If that racial divide continues, racism and wage discrimination will continue to be an ongoing question with the NBA, whether there is valid evidence or not.

From 1946, the very first year of the NBA, to the present day NBA, we have seen the racial composition of the league change drastically. It was not until the 1950-51 season when the NBA saw its first Black players. Chuck Cooper was the first Black player to be drafted into the NBA when he was selected by Boston and Nat "Sweetwater" Clifton became the first Black player to sign an NBA contract when he signed with New York. Last but not the least, Earl Lloyd became the first Black player to see the floor in a regular-season game. In today's NBA, over 2/3 of the players are black. This is quite the transformation from the first 3 Black players in the NBA but even with an increase in the number of Black players in the NBA, the questions about racism have not subsided. In the earlier days of the NBA, the questions of racism were formed around the lack of color in the NBA. During that time period racism was more accepted across the nation as common behavior. Today, in a society where, at least legally, racism is not accepted, claims of racism bring about much controversy and NBA officials have to address these issues promptly in order to protect the image of the league.

As the commissioner of the league, David Stern has to deal with much of the negative feedback that the NBA receives regarding racism and with complaints coming from the leagues

own players, it makes his job that much more difficult. One of the major controversies of recent years is the Commissioner's implementation of the age limit on incoming NBA players. In 2005 Jermaine O'Neal of the Indiana Pacers labeled David Stern's new rule as a racist act. In an ESPN interview O'Neal stated, "In the last two or three years, the rookie of the year has been a high school player. There were seven high school players in the All-Star Game, so why we even talking an age limit?.... As a black guy, you kind of think race is the reason why it's coming up. You don't hear about it in baseball or hockey. To say you have to be 20, 21 to get in the league, it's unconstitutional. If I can go to the U.S. Army and fight the war at 18 why can't you play basketball for 48 minutes?" O'Neal's comments brought about much controversy from both, the people who agreed with his claims and those who did not. There is such a wide range of views on the subject of racism in the NBA that no clear cut conclusion about a majority opinion presents itself.

If all the NBA players agreed that the people in the front offices were racist there would be a clear case of players against the executives. Instead there are players and coaches on both sides of the argument. When the NBA put into practice their new dress code, this too brought up questions of whether or not the source behind the decision was racially influenced. Numerous articles on the new dress code referred to it as an attempt to "take the bling out of basketball". The new dress code no longer allowed players to arrive or leave official National Basketball Association events (mostly games) wearing baggy shorts, tee shirts, jerseys of any kind, trainers, flip-flops and do rags. Along with clothing restrictions the NBA disallowed necklaces, pendants and medallions being worn on the outside of their clothing, along with wearing headphones or sunglasses indoors. Breaking this dress code results in a fine. Many of the black players in the NBA felt that there was definite racial influence behind this new rule. It seemed as though all of

the clothes and accessories that had been prohibited were consistently and predominantly worn by the Black players. On the topic of necklaces and pendants, Indiana Pacer's guard felt that singling out necklaces was "definitely a racial statement". Allen Iverson from the Philadelphia 76ers voiced his opinion in saying "They're targeting my generation - the hip hop generation,". On the other hand there are players and coaches who agree with the new dress code. Charles Barkley, an NBA Hall of Fame inductee, said in an interview with the Los Angeles Times that he agreed with there being racial influence behind the new dress code but he also stated that that was the exact reason why he approved of the new rule. Barkley was quoted saying,

"Young black kids dress like NBA players," he said. "Unfortunately they don't get paid like NBA players. So when they go out in the real world, what they wear is held against them..... If a well-dressed white kid and a black kid wearing a do rag and throwback jersey came to me in a job interview, I'd hire the white kid. That's reality."

Phil Jackson also agreed with the new dress code when he said, "The players have been dressing in prison garb the last five or six years ... all the stuff that goes on, it's like gangsta, thuggery stuff," . The new dress code requires players to dress in business casual attire- sports jackets and slacks- and many people claim that the goal is to make a predominantly black league more pleasing and welcoming to a predominantly white or older audience.

One aspect that cannot go unmentioned in the discussion of NBA salaries is the NBA's Collective Bargaining Agreement. In this study of wage discrimination, it is important to understand the way that salaries work in the NBA. Every NBA player's contract is negotiated under the guiding principles of the CBA. The CBA is negotiated and finalized between the NBA Players' Association (NBPA) and the NBA. The CBA is a legal contract of the financial rules

and limitations of the NBA. Under the CBA we find the regulations of the salary cap, which is the maximum amount of money that each team has to spend in that year. For the 2010-11 season the salary cap will be \$58.044 million. The tax level for the 2010-11 season was set at \$70.307 million. Any team who exceeds the salary cap will be forced to pay a \$1 tax for each \$1 by which it exceeds \$70.307 million². So even though this study will focus on the salaries of players based on race, it is important to understand that race will not affect the total amount that a team has to spend on its players. Also, under the CBA ruling, NBA rookies drafted in the first round are forced to sign three-year contracts with a team option in the fourth year, which allows the players to renegotiate their contracts after their third year³.

The salary cap can be one of many reasons why we have seen the wage gap between white players and players of color close drastically over the years. With a constraint put on the amount that team management can spend on their players, this should force management to pay the most productive and tenured players the most money. Personal racial preference could result in a poor financial decision for the team in terms of winning. With Black players dominating the NBA population, it makes sense, statistically, that Black players would dominate the group of top paid players. Figure 1.1 shows the 30 highest salaries for the 2010-11 season.

² <http://www.nba.com/2010/news/07/07/salary.cap/index.html>

³ NBA. NBA Player's Association. "NBA Collective Bargaining Agreement." Press Release. NBA Player's Association. 11 Mar. 2009 http://www.nbpa.com/cba_articles.php.

Figure 1.1**30 Highest NBA Salaries for 2010 - 2011 Season**

1. Kobe Bryant (NW)	\$24,806,250
2. Rashard Lewis (NW)	\$20,514,000
3. Kevin Garnett (NW)	\$18,800,000
4. Tim Duncan (NW)	\$18,700,000
5. Michael Redd (NW)	\$18,300,000
6. Pau Gasol (W)	\$17,822,187
7. Andrei Kirilenko (NW)	\$17,822,187
8. Yao Ming (NW)	\$17,686,100
9. Gilbert Arenas (NW)	\$17,730,694
10. Vince Carter (NW)	\$17,300,000
11. Zach Randolph (NW)	\$17,333,333
12. Carmelo Anthony (NW)	\$17,149,243
13. Dwight Howard (NW)	\$16,509,600
14. Kenyon Martin (NW)	\$15,959,099
15. Elton Brand (NW)	\$15,959,099
16. Predrag Stojakovic (W)	\$15,336,000
17. Chris Paul New (NW)	\$14,940,152
18. Deron Williams (NW)	\$14,940,152
19. Jason Richardson (NW)	\$14,444,444

20. Andrew Bynum (NW)	\$13,842,332
21. Brandon Roy (NW)	\$13,520,500
22. Tony Parker (NW)	\$13,500,000
23. Antawn Jamison (NW)	\$13,358,905
24. Chauncey Billups (NW)	\$13,150,000
25. Erick Dampier (NW)	\$13,075,000
26. Baron Davis (NW)	\$13,050,000
27. Al Jefferson (NW)	\$13,000,000
28. Tyson Chandler (NW)	\$12,650,000
29. Richard Hamilton (NW)	\$12,650,000
30. Andre Iguodala (NW)	\$12,345,250

Out of the top 30 salaries in the 2010-11 season only 2 of those players are white and only one of them is in the top ten highest paid players.

The remainder of this paper will consist of four sections: a literature review, a theory chapter, a data and methodology chapter, and a results and conclusions chapter. The literature review will review previous studies that explore racism in the NBA and the effects of race. Following the literature review, the study will examine the economic theories that are relevant to racism in the NBA as well as wage discrimination. In the fourth chapter, data and methodology, the study will provide an in-depth description of the dataset and the methodology in which the

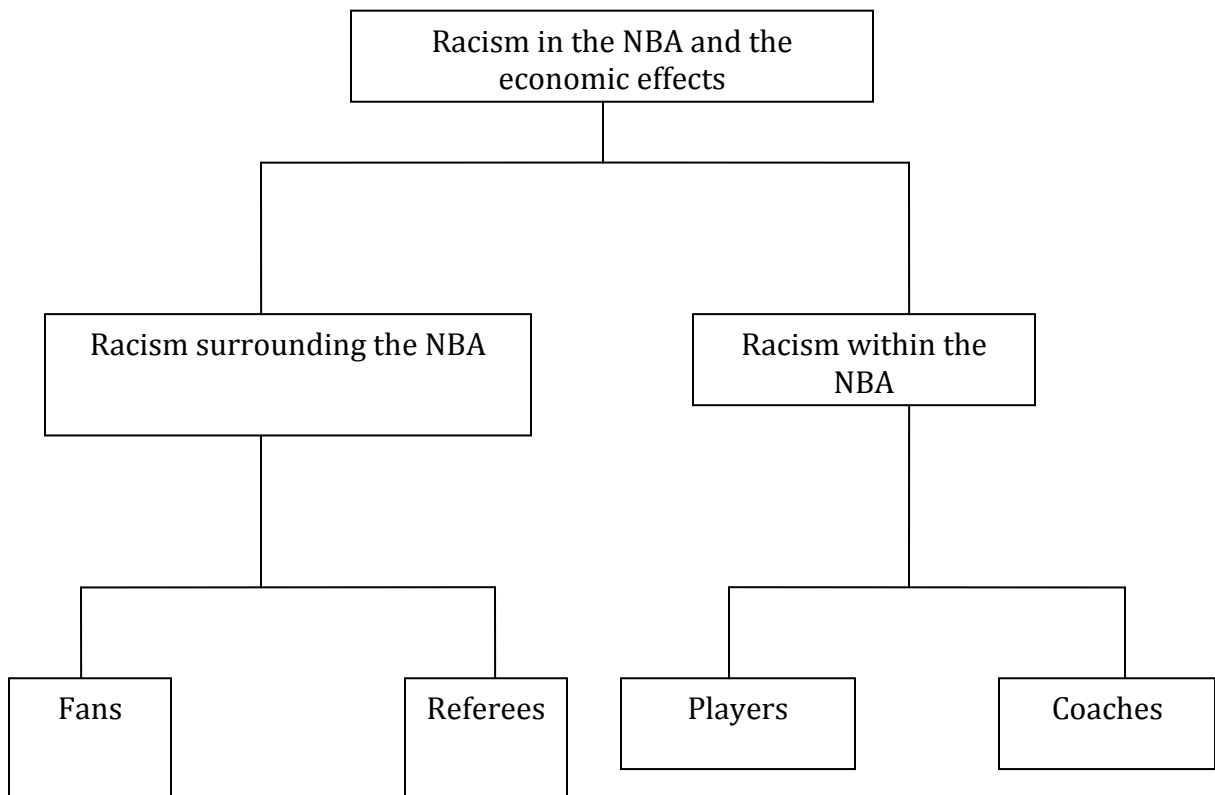
data is used. The final chapter will discuss the results and draw its conclusions on the study of racism in the NBA. Also the final chapter will discuss possibilities for future research.

Chapter II

Literature Review

The purpose of this chapter is to review the previous literature on the subject of racism in the NBA and the effects of race on salary. There are many studies that focus on racism in the general workplace and these studies' theories also apply to the NBA. This section will draw upon many different sources that touch on the subject of racial issues surrounding the NBA. The chapter will open by discussing the previous literature on players, coaches and team management. Next, the chapter will focus on racial issues beyond the immediate team and owners. Finally, the chapter will examine the literature on the effects of race on NBA earnings. Figure 2.1 below shows a visual breakdown of this chapter.

Figure 2.1
Visual Breakdown



Racism within the NBA

Leonard's study focused on the NBA's new policies against high school players. Leonard referred to these new policies as "neither a pure business decision nor a hypocritical move by a league that has long profited off the contributions of young Black males and the popularity of hip-hop"¹. Instead, Leonard connects these new applications

¹ David J. Leonard *Journal of Sport & Social Issues*, May 2006; vol. 30, 2: pp. 158-179.

efforts to monitor and control Black males in and on their way to the NBA. Leonard makes numerous references to hip-hop and its effect on the NBA players and their actions, i.e., the “Palace Brawl” between the Indiana Pacers and the Detroit Pistons.

Robst, VanGilder, Berri, and Coates put together a very interesting article discussing the issues of skin tone within racial groups². Within the African American community, there has been intraracial discrimination since the early days of slavery. Previous studies have been conducted that found a strong relationship between the varying skin tones of African American men and economic outcomes in the workplace. Robst, VanGilder, Berri, and Coates state in their article that in the African American community there is a consistent argument that darker skin tones are less desirable than lighter skin tones by all individuals of all races.

For example, Goldsmith, Hamilton, and Darity found mean hourly wages rose as skin color lightened and that light-skinned Blacks appeared to have similar educational and training backgrounds to Whites rather than darker skinned Blacks. Thompson and Keith also showed that lighted skinned Blacks had more years in school, received better jobs with more prestige, and earned more money than darker skinned Blacks. Overall, a lighter skin tone was related to greater self-worth, perceived attractiveness, self-control, satisfaction, and quality of life³.

² John Robst, Jennifer VanGilder, David Berri, and Corinne Coates *Journal of Sports Economics*, first published on August 15, 2010

³ John Robst, Jennifer VanGilder, David Berri, and Corinne Coates *Journal of Sports Economics*, first published on August 15, 2010

Fort, Lee, and Berri decided to focus on the racial discrimination of NBA coaches. There is a high level of difficulty in effectively measuring a coach's talent level because it can not solely be measured on a coaches winning percentage as different coaches have different levels of talent on their teams. "We examine the difference between retention of African-American and white NBA coaches based on technical efficiency calculations from stochastic production frontier estimates of team win production"⁴. The data showed no disparity in technical efficiency based on the race of the coach. Also showed that the length of a coach's career was based on their technical efficiency and was not affected by their race. This could be due to the fact that there is only one minority-owned team in the NBA so there is not enough data to conduct a valid study.

Price, Lefgren, and Tappen examined the effects of race within the NBA amongst the NBA players. The study focused on the cooperation of fellow employees of the same and different races. The authors found that the players are equally willing to complete an assist to a player of a different race as to the same race⁵. The results demonstrated that NBA players do not focus on race on the court because they all have the same goal, which is to win and get paid.

⁴ Rodney Fort & Young Hoon Lee & David Berri, 2008. "Race, Technical Efficiency, and Retention: The Case of NBA Coaches," *International Journal of Sport Finance, Fitness Information Technology*, vol. 3(2), pages 84-97, May.

⁵ Joseph Price & Lars Lefgren & Henry Tappen, 2009. "Interracial Workplace Cooperation: Evidence from the NBA," NBER Working Papers 14749, National Bureau of Economic Research, Inc.

Koch and Vander Hill tested for racial discrimination in the NBA by looking for salary discrepancies in the 1984-1985 season⁶. Using a study group of 278 players, Koch and Vander Hill estimated an equation for determining player salaries using individual player and team statistics. Within the regression model, the dependent variable is represented by the natural logarithm of the player salaries. The race variable is used as a dummy variable as well. In their results they found that black players are paid \$26,000 less than white players annually. Also, the marginal benefits of the positive variables influence on salaries were higher for white players than for black players. In their results, Koch and Vander Hill found that, holding player statistics constant, annual salaries for white players increased by \$10.47 for each additional 1,000 people in the franchise area and only \$7.27 for black players. In their final conclusions, Koch and Vander Hill stated that the first likely reason for black players receiving lower wages than white players were the possibility of consumer discrimination or team managers basing their decisions on the belief of consumer discrimination. Second, Koch and Vander Hill conclude that the agents of black players may not negotiate as aggressively for high salaries—instead they negotiate for salaries that they believe will be relatively more than the poor backgrounds that the black players come.

Racism surrounding the NBA

The correlation between the racial build of an NBA team and the majority race of the metropolitan area where that NBA team is located has been studied before. Burdekin, Hossfeld, and Smith referred to this as the *customer-discrimination hypothesis*. This theory implies that teams lose revenue and profits when they adopt color-neutral hiring

⁶ James V. Koch and C. Warren Vander Hill, "Is There Discrimination in the 'Black Man's' Game?" *Social Science Quarterly*, Volume 69, 1988: 83-94.

practices⁷. The concept is simple: fans prefer to watch players of their own race.

Burdekin, Hossfeld, and Kiholm's article focuses on the continuing trends of the 1990's. Their study shows that teams located in "whiter areas" saw growth in their revenue when they brought in more white players. Over the years, the number of white players in the NBA has decreased and with this decline the revenue product of a white player has increased.

After questions about fairness arose regarding rulings against African Americans in the NBA's MVP race, B. Jay Coleman, J. Michael DuMond, and Allen K. Lynch conducted a study using NBA voting data from the 1995-2005 seasons in order to determine if there was a pattern showing racist voting against Blacks. The referees of NBA games play a vital role in the way that the game is played. In a heated moment a referee may have to make a decision that can be based on many factors, race being one of them. Price and Wolfers wanted to conduct a study determining the presence of racial discrimination among referee crews⁸. "Commissioner Stern has claimed that NBA referees are the most ranked, rated, reviewed, statistically analyzed and mentored group of employees of any company in any place in the world". As a businessman Stern will naturally say that his refereeing crews are screened for bias but Price and Wolfers study concluded, with significant measures, that there are more personal fouls called against players when that fouls is being called by a refereeing crew of the opposite race.

⁷ Richard C. K. Burdekin, Richard T. Hossfeld, and Janet Kiholm Smith *Journal of Sports Economics*, May 2005; vol. 6, 2: pp. 144-159.

⁸ Price, Joseph & Wolfers, Justin, 2007. "Racial Discrimination Among NBA Referees," CEPR Discussion Papers 6369, C.E.P.R. Discussion Papers

The Effects of Race on Earnings

In a study done by Rascher and Hoang, they questioned the level of racial discrimination in the league based on career earnings. Hoang and Rascher used Lawrence Kahn and Peter Sherer's work as their foundation. Kahn and Sherer were fervent believers in the presence of racism in the NBA. Hoang and Rascher's study accompanied Kahn and Sherer's findings, and showed that white players have a thirty-six percent less chance of being let go by an NBA team than a black player. The white players in the NBA have a 7.5 year career expectancy while black players have a career expectancy of 5.5 years. To top it off, over the course of career white players in the NBA make almost \$500,000 more than black players⁹.

A similar study was done by Groothuis and Hill, as they focused on the differences in white and black players career lengths and how bias could create pay prejudice. Groothuis and Hill believed that the equation for a longer working career was simple: the higher a workers productivity level, the longer that worker will be able to keep his job. The authors wanted to put this equation to the test in the NBA. They understood the power of bias and how bias could completely alter their equation. "Wage equations that use cross sectional data could be biased from the over sampling of high productive workers at long levels of tenure. The survival bias that arises in cross sectional data could possibly bias the coefficients in wage equations. This could lead to false positive conclusions concerning the presence of pay discrimination"¹⁰. The authors used

⁹ Hoang, Ha, and Dan Rascher. "The NBA, Exit Discrimination, and Career Earnings." *Industrial Relations: A Journal Of Economy and Society*, 38 (2002): 69-91

¹⁰ Peter A. Groothuis & J. Richard Hill, 2004. "Exit Discrimination in the NBA: A Duration Analysis of Career Length," *Economic Inquiry*, Oxford University Press, vol. 42(2), pages 341-

NBA player statistics from 1989-2008 to determine player productivity and to determine if the productivity level matched the salary as well as the player's career length.

Kahn and Sherer brought the study of racial differences in salaries to the light in 1988 where they also pointed out customer discrimination¹¹. The study found that the mean compensation for white and black players was very similar. The problem lied in the authors finding of "a significant ceteris paribus black compensation shortfall of about 20 percent". On top of that they also found that exchanging one black player for an "identical" white player would increase home court game crowds from 8,000 to 13,000 fans per season. The author's findings in the study stemmed the concern for racial discrimination in the NBA on an economic level and also displayed the concept of customer discrimination like we saw in Burdekin, Hossfeld, and Smith's study.

Bodvarsson and Brastow applied Becker's theory of employer discrimination, to the NBA. Becker's theory stated, "when institutional change enhances labor mobility, employer discrimination falls because it becomes more costly for employers to indulge tastes for discrimination"¹². Bodvarsson and Brastow wanted to find out why the gap between white and black NBA player's salaries closed significantly between the 1980's

349, April.

¹¹ Kahn, Lawrence M & Sherer, Peter D, 1988. "Racial Differences in Professional Basketball Players' Compensation," *Journal of Labor Economics*, University of Chicago Press, vol. 6(1), pages 40-61, January.

¹² Örn B. Bodvarsson & Raymond T. Brastow, 1999. "A Test Of Employer Discrimination In The NBA," *Contemporary Economic Policy*, Western Economic Association International, vol. 17(2), pages 243-255, 04.

and the 1990's. Many studies placed the blame of the wage gap in the 80's to customer prejudice as well as employer discrimination. With the emergence of the 1988 NBA Collective Bargaining Agreement, as well as the addition of four new teams, the monopsony power fell, increasing the competition within the market. The results from this study showed that the reason that the wage gap closed significantly was due to the employers' decreasing ability to discriminate and still be able to maintain a winning and profiting team.

So we see from the previous literature that there is much to be gathered from the subject of racism in the workplace, more specifically, in the NBA. Kahn and Sherer's 1988 study showed that black players earn less than white players in the NBA due to team owner and customer prejudice. Employer discrimination has been examined by Bodvarsson and Brastow, studying the changes in general manager behavior between the 1980's and the 90's. In the 80's there were no minority team-owners and in the 90's there was only one, so it is difficult to study the effect of the race of the team owner on player salaries. Hoang and Rascher as well as Kahn & Sherer conducted studies on customer discrimination and concluded that replacing a black player with an equally talented white player would increase home court game attendance. Burdekin, Hossfeld, & Smith's 2005 study concluded that white players have a tendency to locate in cities with larger white populations and the teams of these "whiter areas" saw increases in their revenue. With these studies, there is room to investigate the current status of racial discrimination in the 2010-11 season. Does a player's race determine his salary more than his production level in today's NBA? This will be the focus of research in the upcoming chapters.

Chapter III

Theory

The purpose of this chapter is to discuss the theories that pertain to racism in the NBA and economic discrimination. There have been many studies done on the theoretical determinants of players' salaries. This study will focus on the impact of race on NBA players' salaries and, like most of the previous studies, this study will use a basic wage regression model. The chapter will begin with a brief discussion of basic wage regression theory used over the years of wage and salary studies. Next I will discuss relevant theories on racial discrimination in the workplace as well as determinants of racial bias in the NBA. The research in this paper will not be able to determine the precise level of racism within the NBA or the exact source of racism. However, holding statistical measures constant, this research will attempt to discover the numerical significance of racism with regard to salary compensation in the NBA. A linear wage regression will give us a visual representation of the explanatory variables that will be broken down and separated by race.

Relevant Theoretical Considerations

Basic Wage Regression Model

The wage regression model formulated by Mincer is the foundation for the linear-wage regression equations that we see in most sports economic papers. “ The starting point of the human capital accumulation model is the link between wages (observed) and

the quantity of skills owned by an individual (unobserved) in a competitive labor market¹. The basic wage regression equation looks like this:

$$\mathbf{Wt} = \mathbf{Pt.Ht} \quad (3.1)$$

Here (Wt) represents the Wage and is the dependent variable. (Pt) represents the price of a single unit of skills and (Ht) is the human capital, or the total amount of skills². So we see the final equation as

$$\mathbf{\log Wt = \log Pt. + \log Ht} \quad (3.1)$$

Like most of the previous studies done before, this study will use a basic linear-wage regression. This model is traditionally formed like this:

$$\mathbf{\ln S = B'X + u} \quad (3.2)$$

The natural log of the salary is the dependent variable. X represents the vector of explanatory variables; a collection of skills possessed by the workers that can have a determining effect on the outcome of the salary³. U is an error term.

¹ Zimmermann, Klaus F. *Institute for the Study of Labor*
http://www.iza.org/teaching/belzil_ss2005/mincernotes.pdf

² Ibid

³ Industrial and Labor Relations Review Vol. 45, No. 2 (Jan., 1992), pp. 295-310 Published by:
 Cornell University, School of Industrial & Labor Relations: <http://www.jstor.org/stable/2524836>

Racial Discrimination Theory

Becker's primary claim is that Blacks and Whites represent two individual countries engaging in trade with one another. While the Blacks bring labor into the trade, Whites bring capital. If there is discrimination present, Becker uses the term "discrimination coefficient" to describe the tax that blacks are forced to pay in order to compensate Whites for hiring or working along side Blacks. Even though Becker's theory focuses on only Whites and Blacks it can be applied to today's multiracial NBA. Becker's theory on the economics of discrimination consisted of three distinct forms of discrimination: employer, coworker, and customer⁴. Within the NBA, that breaks down to team owners and managers as the employers, coaches, players and referees as the coworkers, and the fans as the customers. Becker's theory stated that an increase in competition decreases discrimination. If a competitive firm is able to produce an equal or better product while employing a majority of minorities, that firm could avoid the presence of a wage gap. "With constant returns to scale, free entry, and the existence of some profit maximizing firms, discriminating employers will be driven out of business by the nondiscriminator(s), and coworker discrimination will lead to equally competitive segregated firms with equal pay for equal work"⁵.

Lester Thurow's theory of discriminatory behavior challenges Becker's model. In *Poverty and Discrimination*⁶, Thurow finds Becker's two party trade theory to be too

⁴ Gary S. Becker (1957, 1971, 2nd ed.). *The Economics of Discrimination*. Chicago, University of Chicago Press

⁵ Ibid

⁶ Lester C. Thurow, 1969. *Poverty and Discrimination* (Washington D.C.: The Brookings Institution)

remedial to produce an accurate theory of discriminatory behavior. Thurow chose to view Whites as utilizing monopsony and/or monopoly power to produce the maximum level of utility. Thurow argues that blacks face monopolies and monopsonies in a world controlled by Whites. He blames the inelasticity of the Black labor supply curve primarily on Black's high unemployment rate among other factors. Because of this, White's are justified in paying Blacks at a wage rate significantly less than their marginal revenue product⁷.

The discriminator may prefer to hire Negro maids, Negro garbage collectors, or to work with Negroes if he can be in a position of authority. He may also prefer to hire Negro labor if it can be exploited to increase his own profits.⁸

Thurow recognizes that some discriminatory acts in the workplace can result in a reduced wage for both Black and White workers. With this, Thurow states that White workers and employer should create as much distance as economically possible between White and Black incomes.

Bodvarsson and Brastow built their theory off of a Beckerian concept stating "when institutional change enhances labor mobility, employer discrimination falls because it becomes more costly for employers to indulge tastes for discrimination⁹.

⁷ Lester C. Thurow, 1969. *Poverty and Discrimination* (Washington D.C.: The Brookings Institution) Chapter VII, pages 111-138.

⁸ Lester C. Thurow, 1969. *Poverty and Discrimination* (Washington D.C.: The Brookings Institution) Pg. 117

⁹ Örn B. Bodvarsson & Raymond T. Brastow, 1999. "A Test Of Employer Discrimination In The NBA," *Contemporary Economic Policy*, Western Economic Association International, vol. 17(2),

When the NBA implemented the 1988 NBA Collective Bargaining Agreement, along with the addition of four new teams, there was a decrease in monopsony power and an increase in market competition, team management could no longer afford to make race-based decisions without possibly losing money. This theory does not state that wage discrimination does not exist but instead that changes in the market can create changes in employers' decision making. In the case of the NBA, changes in the market resulted in a decrease in the wage gap.

There have been previous studies done on the presence of discrimination amongst referees in the NBA. Price and Wolfers applied a Beckerian taxonomy to their theory and focused on taste-based discrimination. The main goal was to analyze the number of fouls called against a player in 48 minutes and then determine if the race variable is significant¹⁰. Price and Wolfers controlled for the various player, team, referee, and game specific characteristics that might influence the number of fouls called. In their equation the i variable represents a player, playing for a team, t , in a specific game, g , officiated by referees, r .

$$\begin{aligned} \text{Foul rate}(igrt) = & \beta_1 \% \text{ white referees}(g) \times \text{black player}(i) + \beta_2 \% \text{ white} \\ & \text{referees}(g) + \beta_3 \text{ black player}(i) + \beta_4 \text{ observable player}(i), \text{ game}(g), \text{ player-} \\ & \text{game}(ig), \text{ team-game}(tg), \text{ referee}(r) \text{ characteristics} + \text{ player fixed effects}(i) \\ & + \text{ referee fixed effects}(r) + \text{ season fixed effects}(g) [+ \text{ observable controls}(itg) \times \\ & \% \text{ white referees}(g) + \text{ black player}(i) \times \text{ stadium}(g) \text{ effects} + \text{ player}(i) \text{ effects} \times \\ & \text{ year}(g) \text{ effects} + \text{ game}(g) \text{ effects} + \text{ game}(g) \text{ effects} \times \text{ team}(t) \text{ effects}] + \varepsilon(igrt) \end{aligned} \quad ^{11}$$

pages 243-255, 04.

¹⁰ Price, Joseph & Wolfers, Justin, 2007. "Racial Discrimination Among NBA Referees," CEPR Discussion Papers 6369, C.E.P.R. Discussion Papers

¹¹ Ibid

Price and Wolfers agreed that β_1 is the important coefficient, as it determines if there is a significant own- race preference among NBA referees. Alternatively phrased, the β_1 coefficient on *%White referees*Black player* captures the *differential* impact of the racial composition of the refereeing crew on black players relative to white players¹². Below, Figure 3.3 shows a table displaying the percentage of different race referees in the NBA from 2005 up until the present season.

Figure 3.3

Racial Breakdown of NBA Referees (2005-10)

		%	#
2009-10	White	56%	33
	African- American	41%	24
	Latino	3%	2
	Asian	0%	0
	Other	0%	0
	Women	2%	1
2008-09	White	56%	34
	African- American	39%	24
	Latino	5%	3
	Asian	0%	0
	Other	0%	0
	Women	2%	1
2007-08	White	58%	34
	African- American	37%	22

¹² Ibid

	Latino	5%	3
	Asian	0%	0
	Other	0%	0
	Women	2%	1
2006-07	White	64%	38
	African- American	32%	19
	Latino	3%	2
	Asian	0%	0
	Other	0%	0
	Women	2%	1
2005-06	White	62%	38
	African- American	34%	21
	Latino	3%	2
	Asian	0%	0
	Other	0%	0
	Women	2%	1

***Source:** http://www.ncasports.org/Articles/2010_NBA_RGRC.pdf

The concept of customer discrimination is a little more complex than coworker or employer discrimination. The employer's discrimination can be based on the customers' discrimination. An employer may pay more money to the workers that customers prefer simply because retaining those specific workers brings in more profit than if the employer was to lose those workers due to insufficient compensation. According to Kahn, the workers who are not preferred by the majority customers, but have a personal

comparative advantage in the affected job, will either need to accept lower pay, if they remain in the customer sector, or else move to the noncustomer sector, where their comparative advantage is lost¹³. Unlike employer and coworker discrimination, customer discrimination cannot be eliminated through increased competition.

Bergmann builds his theory around Edgeworth's previous study¹⁴. Edgeworth based his theory on the concept of over-crowding. According to Edgeworth, the wages of black employees would have no choice but to be decreased due to white employers who refuse to hire blacks. This differs from Becker's white employer/buyer compensation theory or Thurow's monopoly/monopsony theory. With such a large number of black workers going after a small number of jobs where white employers will hire them, the market supply gets too crowded and wages are forced downward. Bergman takes Edgeworth's theory and uses it in her study to assess the economic losses from discrimination of sex, education, as well as race. Bergmann gathered data from the Census Bureau's Current Population Report (1969) on consumer income for 1967¹⁵. In her findings Bergmann states "national income has probably been little affected by the inefficiencies induced by discrimination. Discrimination is thus shown to be nearly a zero-sum-game between white and black workers"¹⁶.

¹³ Kahn, L. M. 1991a. 'Customer Discrimination and Affirmative Action.' *Economic Inquiry*, 29(3): 555-571.

¹⁴ Edgeworth, F.Y. "Equal Pay to Men and Women." *Journal of Economics*. Volume 32, 1922: 431-457

¹⁵ Barbara R. Bergmann, "The Effect on White Incomes of Discrimination in Employment," *The Journal of Political Economy*. Volume 79, Number 2. 1971: 301.

¹⁶ Ibid

It makes sense that there are many employers who recognize the level of discrimination within their market and decide to implement a non-discriminating style of employment. This allows the non-discriminating employer to achieve the same level (or in some cases, better) of production by employing the most productive workers but at a much smaller cost. We see the evidence of this in the NBA during the late 1950s and early 1960s when the Boston Celtics' decided to employ black players during a time when it was highly looked down upon¹⁷. Below is Figure 3.4, showing another table displaying racial and gender percentages of team majority owners in the NBA from 1997 up until the present.

Figure 3.4
Majority Owners

		%	#
2009-10	White	98%	49
	African- American	2%	1
	Latino	0%	0
	Asian	0%	0
	Other	0%	0
	Women	12%	6
2008-09	White	98%	43
	African- American	2%	1

¹⁷ Lawrence M. Kahn, 2009. "The Economics of Discrimination: Evidence from Basketball," NCER Working Paper Series 40, National Centre for Econometric Research.

	Latino	0%	0
	Asian	0%	0
	Other	0%	0
	Women	7%	3
2007-08	White	97%	35
	African- American	3%	1
	Latino	0%	0
	Asian	0%	0
	Other	0%	0
	Women	8%	3
2006-07	White	98%	44
	African- American	2%	1
	Latino	0%	0
	Asian	0%	0
	Other	0%	0
	Women	6%	3
2005-06	White	98%	44
	African- American	2%	1
	Latino	0%	0
	Asian	0%	0
	Other	0%	0
	Women	6%	3
2004-05	White	91%	50

	African- American	9%	1
	Latino	0%	0
	Asian	0%	0
	Other	0%	0
	Women	5%	3
2003-04	White	96%	25
	African- American	4%	1
	Latino	0%	0
	Asian	0%	0
	Other	0%	0
	Women	12%	3

(Up until the end of the 2002-03 season Majority Owners were 100% White)

Source: http://www.ncasports.org/Articles/2010_NBA_RGRC.pdf

Today in the NBA, non-white players make up more than 80% of the total population of players and 13 out of the 30 NBA teams have non-white head coaches. With players of color in the majority, and a slowly increasing number of non-white coaches, there is less space for co-worker or employer prejudice against non-white employees. There is much evidence of the decrease in the wage gap between whites and non-whites, a gap that was much more noticeable in the earlier years of the NBA. Customer prejudice, on the other hand, can still be found. Kahn's examples of customer prejudice indicate that fans may prefer to see players of their own race. When two equally

talented black and white players become free agents at the same time, team management will choose the white player based on the evidence that he will bring in more fan revenue. If white fans discriminate against non-white players, the white player is more likely to have a larger fan club, creating a greater media following. Even with discrimination being much less evident in the front offices of NBA teams, team owners still have to respond to customer discrimination and customer preference. If the white player puts more fans in the stands and more money in the pockets of the team owners, and the non-white player is of equal talent, that makes for a pretty easy decision for the team owners in terms of who to hire.

This study will implement Bodvarsson and Brastow 's theory of the decrease in wage discrimination due to the drastic changes made in the NBA market. I predict that race will not be significant in determining a player's salary in the 2009-10 season because employers can not run the risk of basing players' wages on race rather than productivity because another team may be willing to pay a player more to produce for that employers team. The employer who chose not to pay the player his deserved amount because of his race will lose that players productivity which can result in a financial loss for that employer and his team.

Chapter IV

Data and Methodology

This chapter will discuss the data that is collected for this cross sectional study. All of the data used in this study is collected from the 2009-10 NBA season in order to find the presence of discrimination in a given season. There are 276 players and 30 coaches used in this study. The dependent variable will be each player and coach's salary for the 2009-10 season. The in-game statistics were collected from Rodney Fort's *Sports Economics Sports Business Data*¹ and I found coaches statistics and both coach and player salaries using the Altius Directory. The first section of this chapter will discuss the data put into the model in detail. Figure 4.1 exhibits a chart displaying variable names, definitions, and sample statistics. Next the regression equations used in this study will be presented. The third section will discuss, in detail, the dependent and independent variables, and also explain the dummy variables individually. This chapter will end after discussing the econometric methodology used to run this study's regression.

¹ Fort, Rodney. *Rodney Fort's Sports Economics*. 2010. n.d.
<http://www.rodneymfort.com/index.htm>

Figure 4.1

INDEPENDENT VARIABLES		
1	Average Points Per Game	PPG
2	Average Rebounds Per Game	RPG
3	Average Assists Per Game	APG
4	Average Steals Per Game	SPG
5	Average Blocks Per Game	BPG
6	Player Race	WHITE
7	All Star	AS
8	Player Position	POS
9	Winning Percentage	WINP

10	Hall Of Fame	HOF
11	Championships	CHAMP
12	Team Value	TMV
13	Team Payroll	TMP

The mean, standard deviation, median, maximum, and minimum of each independent variable are listed below in Figure 4.2.

Figure 4.2

Non-White Players

Variable	Points Per Game	Team Win Percentage	Assists Per Game	Rebounds Per Game	Blocks Per Game	Steals Per Game	Team Value	Team Payroll
Mean	9.57	0.51	2.11	4.12	0.46	0.7	323.84	63353329.83
St. Deviation	6.89	0.14	1.95	2.57	0.53	0.44	86.32	10062347.01
Median	8.35	0.51	1.4	3.4	0.29	0.64	303	62251869
Max	31.6	0.81	11.6	12.8	3.31	2.14	543	82440784
Min	0	0.16	0	0.4	0	0	225	42223168

White Players

Variable	Points Per Game	Team Win Percentage	Assists Per Game	Rebounds Per Game	Blocks Per Game	Steals Per Game	Team Value	Team Payroll
Mean	9.51	0.52	1.95	3.51	0.4	0.73	348.08	55501559.94
St. Deviation	6.65	0.14	1.92	2.38	0.46	0.65	51.25	8542559.52
Median	7.95	0.51	1.25	2.85	0.24	0.59	356	54699276
Max	26.7	0.77	7.2	10.7	2.03	3.7	409	65000230
Min	0.3	0.22	0	0.5	0	0	262	41961743

Regression Model

In order to analyze salary discrimination amongst NBA players and coaches I will use as a fundamental empirical model of wage regression in a given season:

Regression Model

Player Model

$$\ln \text{Salary}(i) = \text{PPG}(i) + \text{RPG}(i) + \text{SPG}(i) + \text{BPG}(i) + \text{APG}(i) + \text{WINP}(i) + \text{WHITE}(i) + \text{TMV}(i) + \text{TMP}(i) + \text{POS}(i) + \text{AS}(i) + u(i)$$

(4.3)

For Coaches

$$\ln \text{Salary}(i) = \text{WINP}(i) + \text{WHITE}(i) + \text{TMV}(i) + \text{TMP}(i) + \text{HOF}(i) + \text{CHAMP}(i) + u(i)$$

(4.4)

In Equation 1, each individual player will be represented by the symbol i . the Salary variable represents the player's annual salary. The independent variables in the equation are abbreviated and you can see their full definitions in figure 4.2. The WHITE variable represents the dummy variable for white players and is the key independent variable that I will focus on. The variable u is a disturbance summarizing unmeasured influences on

salary². Regression Equation 2 will be similar in style but the *i* variable will represent each individual coach and there are fewer independent variables. As you can see, the independent variables are different than those used for the players, as there are different measures of productivity and success for coaches.

The dependent variable in this study is the player's current year salary. Using the *Altius Directory* the study is able to use the current 2010 player salaries while using the final season statistics from the 2009-2010 season for the independent variables.

The list of variables that are represented by the variable *X* consists of player performance variables. Points per game, rebounds per game, steals per game, and blocks per game are the in-game variables that will go into the list of *X* variables. For coaches we will look at winning percentage, total games coached in the season, and Hall of Fame elected coaches. There are also team and market factors that will be analyzed. The incomes of racial groups by state as well as the racial build of the team's location will be important in analyzing the presence of consumer discrimination as a side project. The key variable within the regression equation that will aid us in evaluating the level of discrimination is the race variable, WHITE. "The equation forces the *ceteris paribus* racial pay differential to be the same regardless of performance level, although some authors have investigated whether there are interaction effects between a player's race and some explanatory variables such as playing experience or the racial makeup of the community"³.

The WHITE variable will be used as a dummy variable in this study. White players

² Lawrence M. Kahn, 2009. "The Economics of Discrimination: Evidence from Basketball," NCER Working Paper Series 40, National Centre for Econometric Research.

³ Lawrence M. Kahn, 2009. "The Economics of Discrimination: Evidence from Basketball," NCER Working Paper Series 40, National Centre for Econometric Research.

will be represented by the number 0 and non-white players will be represented by the number 1. There are many cautions against using the WHITE coefficient as the final measure of the level of discrimination against black players. There are many factors that go unmeasured and there are many control variables in this study. Kahn states that the WHITE variable may be interrelated with factors that go unmeasured like teamwork. Teamwork has a major affect on productivity, which in turn affects pay. In this study, even with controlled X variables, these unmeasured factors can be highly influential on our results; if black players have higher levels of unmeasured productivity, then the WHITE coefficient will understate the extent of salary discrimination, while if white players are more productive in ways we can't measure, then the opposite will be true⁴. There are many unmeasured factors that can inflate or deflate both white and black players production statistics.

Dependent Variable

Player salary is the dependent variable during this study along with thirteen independent variables. The point of this thesis is to determine the significance level of race on player salaries as well as the correlation between race and the other independent variables. In this study we will find the means of each variable, split between white and non-white players in order to examine the discrepancy between white and non-white players on numerous bases. Using *Database Basketball* I was able to find every NBA

⁴ Lawrence M. Kahn, 2009. "The Economics of Discrimination: Evidence from Basketball," NCER Working Paper Series 40, National Centre for Econometric Research.

player's salary from the 2009-2010 season.

Independent Variables

Using thirteen independent variables I plan to examine the impact of racism on players and coaches salaries. These in-game variables will allow us to see if there is a racial divide statistically as well as economically in the NBA.

Race is the most important independent variable in this study. Though it is not basketball related like the rest of the independent variables it still plays a very important role in the NBA, on as well as off the court. There is a very clear and visible racial divide in the NBA. On the court we see that the majority of the players are Black. Off the court we see that most of the coaches are white and just about all of the team owners are white. As a dummy variable, the number 0 in the regression will represent white players while the number 1 will represent non-white players.

The ability to score in the NBA is not based on race but I would still like to see if white players, on average, score more or less points than non-white players in the NBA. People turn on their televisions and buy tickets to games so that they can see players score. I think it is obvious that there should be a salary gap between all-star LeBron James and Wally Szczerbiak based on talent level rather than race. But what about the difference in salary between two equally talented players, one white and one non-white? That is what this study will try to examine. Points Per Game (PPG) will be examined to

determine if there is a significant gap between white and non-white players points per game averages.

Even though the NBA sells on its offensive players, defense is still valued among teams in the NBA. The management and coaches place high value on players who specialize in defense. Joakim Noah, a non-white forward for the Chicago Bulls, has a very specific role on the team. That role consists of rebounding on the offensive and defensive backboards. His primary job is to block and alter shots on the defensive end. Steals, blocks, and defensive rebounds are the three main defensive statistics kept in the NBA. This regression will only use blocks (BPG) and steals (SPG) as the defensive statistics. Both steals and blocks will be put into the regression in order to hold player statistics constant and determine the presence of racism in the League. The defensive statistics will also be split up between white and non-white players differences in means between the two groups.

Assists per game (APG) is the next variable that will be put in the regression model. There is a very mixed racial compilation of guards in the NBA. Statistically the guards in the NBA acquire the majority of the League's assists as they have the ball in their hands more often than the forwards and centers, though forwards and centers are capable of completing assists as well. Finding the means of assists for whites and non-

white players will show us if there is a significant difference in the number of assists between the two racial groups.

The final in-game variable that will be in the regression is Average Rebounds Per Game (RPG). Again, this variable allows us to keep the in-game statistics constant and we will be able to determine whether or not there is a noteworthy discrepancy in rebounds per game between whites and non-whites.

Along with the race variable (WHITE), player position (POS) is a dummy variable that is not an in-game statistic. I chose to use this variable because we have seen the racial build drastically change from the earliest days of the NBA. With these changes there has been much talk about players of specific races being able to play a specific position better than any other race. In the 2009 season twenty of the thirty highest paid players in the NBA played in a guard position. I plan to look into what percentage of the highest paid players in the NBA play a guard position or a post position and within those two groups I will break down the racial build of each. The players who play in a guard position, meaning either the point guard or shooting guard, will be represented by the number 0. Players that can play the post position, the shooting forward, power forward, or center, will be represented by the number 1.

The All-Star variable (AS) I found important to add to the model after reading the previous study by Coleman, DuMond, and Lynch on racism in MVP voting in the NBA⁵. I am using a single season for my study so I thought it would be interesting to see what percentage of the white and non-white players have been selected to the NBA All-Star game at some point in their careers. The NBA All Star game selects the twenty-four best players in the NBA. I plan to examine the percentages of white and non-white All-Star selections to see if there is a significant racial majority amongst NBA All-Stars. As another dummy variable, the number 1 will represent the players who have been selected for an All-Star game and the number 0 not will represent those who have not.

Team Value (TMV) and Team Payroll (TMP) are the next two variables in the model. These two variables will allow us to see if there is a pattern between a player's race and the teams value and payroll. Is it possible that teams with higher values and higher payrolls acquire white players, which in turn earns them more money? Or is it the non-white players that the more wealthy teams make a point to grab? After running the regression we will be able to break down the mean Team Values and Team Payrolls by race and determine if there is a positive relationship between a player's race and the teams value as well as payroll.

⁵ An Examination of NBA MVP Voting Behavior : Does Race Matter? B. Jay Coleman, J. Michael DuMond and Allen K. Lynch *Journal of Sports Economics* December 2008 vol. 9 no. 6 606-627

The second regression will be for coaches, as the in-game statistics for the players do not apply to the coaches. There will be four independent variables in the coaches' regression, race (WHITE) included, and the first is career winning percentage (WINP). A coaches winning percentage is maybe the most important statistic a coach can have as it measures his level of success and speaks for his coaching abilities. Over the years we have seen a very noticeable increase in the number of non-white coaches in the NBA. In this study we will try to see if there is a noticeable difference in win percentages between white and non-white coaches. The results may be able stir up hypothesis about the hiring of coaches of specific races.

Hall of Fame (HOF) and championships (CHAMP) are the last two variables in the coaches' regression. As another measure of a coach's success, to be inducted into the Hall of Fame is the ultimate honor for a coach in any sport. To be inducted into the Basketball Hall of Fame places an individual among the elite persons ever involved in the game whether it is as a player, coach, or contributor to the game. With the increase in coaches of color of the years, it could be beneficial to see if with this increase has also spurred an increase in the number of coaches of color in the Hall of Fame. As a coach, every season is dedicated to winning the championship. Calculating the mean championships between white and non-white coaches could lead to further studies questioning the racial preference of coaches.

Econometric Methodology

The data is regressed to begin the process of identifying racial bias in the NBA. There are two separate regression equations; one for the players and the second is for the coaches. An Ordinary Least Squares estimator is used to measure the individual significance of each independent variable. The variable that we will focus on primarily is the race (WHITE) variable. Within the regression, the t-statistic represents the significance level of each individual variable. If the t-statistic has an absolute value of 1.96 or greater, it represents a significant variable. Along with running the regression, the means of each independent variable will be calculated for white and non-white players separately in order to see the differences of each variable by race.

Figure 4.5 shows my predictions for the significance levels of each individual variable put into the two regression models. The + symbol represents a variable that I predict to be positively significant in the model. The – symbol represents a variable that I predict to be insignificant in this study. I will explain my reasoning for these predictions in the following chapter and I will compare my predictions to the results.

Figure 4.5

Average Points Per Game	PPG	+
Average Rebounds Per Game	RPG	-
Average Assists Per Game	APG	-
Average Steals Per Game	SPG	-
Average Blocks Per Game	BPG	-
Player Race	WHITE	-
All Star	AS	+
Player Position	POS	+

Winning Percentage	WINP	+
Hall Of Fame	HOF	+
Championships	CHAMP	+
Team Value	TMV	-
Team Payroll	TMP	-

This chapter discussed, in detail, each applicable variable in this study. It also discussed the econometric methodology used to analyze the regression model. The following chapter will examine the results of the regression and the data analysis. The results will allow us to draw conclusions on the theory of racial bias in the NBA and also create ideas for future studies.

CHAPTER V

RESULTS AND CONCLUSIONS

This final chapter will discuss the results from the regression analysis of the empirical models. The regression results from two separate models will be presented. The first model is the Ordinary Least Squares (OLS) regression method used to explain players' salaries. The second model is another OLS model used to explain NBA coaches' salaries. After presenting and analyzing the results from both models, the final section of this chapter will discuss the conclusions drawn from the research as well as discuss the flaws and limitations experienced in this study. The final chapter will end discussing possibilities for future research.

Results: Player OLS

By using in-game statistics, each player is held accountable for his on production level. Whether a player is white or not, his productivity level will be based on what he produces in the game. In this regression I used the natural log of each player's salary. The reason for this is to find the rate of return of the marginal increase of each of the significant variables. This will tell us what percentage increase of a player's salary will he receive for a one-unit increase in the significant statistic.

TABLE 5.1 gives the complete statistical summary of the results from the regression analysis using the OLS method for NBA players. Our data shows us that the highest annual salary in this study is \$21,000,000 in the given season. The lowest annual

salary is \$197,087 and the mean salary is \$5,586,316. Those numbers represent the entire group of players that were used in this study. Looking at the breakdown we see that for non-white players the maximum annual salary is \$21,000,000, the minimum salary is \$197,087, and the mean salary for non-white payers is \$5,812,564. For white players the maximum annual salary is \$18,084,000, the minimum is \$302,200, and the mean is \$5,171,397. So we see that there is a small gap between the averages of white and non-white players' salaries. In our model, the t-statistic will be used to test the significance level of each independent variable. For the data to be significant at a 5% confidence level, the t-statistic must have a value greater than 1.96. T-statistics are evaluated using absolute values; this means a negative value greater than 1.96 is still statistically significant

TABLE 5.1
Regression Results 1

Variable	Coefficient (t-Statistic)
APG	94926.35 (0.61)
AS	6650111 (11.96)*
POS	451122.6 (1.01)
PPG	25948.92 (0.79)
BPG	447426.4 (0.76)
SPG	104370.9 (0.17)
TMP	0.014265 (0.59)
TMV	3710.858 (1.16)

WHITE	272700.8 (0.43)
RPG	-54710.41 (-0.45)
WINP	2255200 (1.6)
R-squared	0.377995
Adjusted R-squared	0.354254
Mean dependent var	5689239

* Significant at 5% confidence level $> |1.645|$

The R-squared for this regression shows that you can explain only 37.7995% of the variation in the annual salaries of NBA players with the independent variables that were chosen for this study. This data shows us that there are many more variables that go into determining a player's salary. Finding the correct variables will only help our cause in finding the presence of racial bias in the NBA.

The key variable in this study that I wanted to examine was the race (WHITE) variable and the regression results show us that this variable was insignificant. With a t-statistic of 0.431635, we see that the race variable was pretty far from being significant in this study and we see in the previous chapter that I predicted this variable to be insignificant. My prediction was based on the continual growth of minorities in the NBA that over the years has caused the white players to become the

minorities of the NBA. After examining Price, Lefgren, and Tappen's study¹ on racism among employees, it makes sense that NBA players would not focus on the race of the players that they share the floor with because they are all playing for money and it is not only players of the opposite race that can affect a player's income. A white player can be the reason why another white player may lose a game or lose the finals, which can affect that losing white player's income. Karl Malone and John Stockton, a black power forward and a white point guard, worked together throughout their careers to become maybe the best two-man combo to ever play the game. Bodvarsson and Brastow's study showed that the cause of the decrease in the wage gap between the 1980's and 90's was due to the decrease in the monopsony power². Since then, the level of market competition has only increased and we have seen the numbers of non-white players skyrocket.

The one variable in this regression model that was significant was the All-Star (AS) variable. The All-Star variable's t-statistic was very high at 11.96140. I predicted this variable to be significant because there is much information that can be gathered from a player being selected as an All-Star. Each year the twenty-four best players from the NBA are selected to play in the All-Star game. With that selection we see the best scorers, defenders, shot blockers, and passers in the League. Out of

¹ Joseph Price & Lars Lefgren & Henry Tappen, 2009. "Interracial Workplace Cooperation: Evidence from the NBA," NBER Working Papers 14749, National Bureau of Economic Research, Inc.

² Örn B. Bodvarsson & Raymond T. Brastow, 1999. "A Test Of Employer Discrimination In The NBA," Contemporary Economic Policy, Western Economic Association International, vol. 17(2), pages 243-255, 04.

the 53 white players in this study, 8 of them have been selected to at least one All-Star Game in their careers. Out of the 224 non-white players who made this study, 52 of them have been selected to at least one all-star game in their careers. That shows that roughly 15% of the white players get selected to the All-Star game and approximately 23% of the non-white players. Statistically, I think that those percentages are close enough to deny the claim of racism.

The points per game (PPG) variable was surprisingly insignificant in this study. This variable was one of the few variables that I predicted to be significant in this model. One of the main reasons why I predicted the race variable to be insignificant is because today's NBA is run on economics instead of the egos and personal beliefs that it used to be. Fans pay to see players score. Kobe Bryant scored 81 points in a single game. LeBron James lit up the Madison Square Garden and scored 52 points. This is what people pay to see and it should come as no surprise that these are two of the highest paid players in the sport. Talent does not discriminate and it has become clear that great basketball players can come in any skin color and any size. Hopefully future research can explain why this variable turned out to be insignificant.

The next variable that was the closest to being significant was the winning percentage (WINP) variable. With a t-statistic of 1.595476, we see that the variable is positive but not quite significant. While winning is important, from a business point of view a team can have one or two exciting players that still bring in paying fans

even though they may not have a winning record. In Houston, TX fans still fill the Houston Toyota Center to watch the Houston Rockets and more importantly to watch Tracy McGrady and Yao Ming. From 2005 until this present season the Houston Rockets have missed the playoffs twice and lost in the first round of the playoffs 3 times. They are not considered a very strong team in the Western Conference but fans still fill the arena to come watch these two All-Star players and both of those players are in the top ten highest paid players in the NBA.

The next variable in this regression that I predicted to be insignificant was average Rebounds Per Game (RPG). This variable's t-statistic was negative and insignificant at -0.452312. This data shows us that, through this study, average rebounds per game are not significant in determining a NBA player's salary. Looking at the racial data breakdown we see that non-white players do average more rebounds per game than white players do, 4.119 to 3.506 respectively. This small difference is not enough to provide evidence of a racial divide in this specific statistic.

The assists per game (APG) variable turned out to be far from significant in this study. I predicted this variable to be insignificant because the NBA places much more value on the player that scores the ball than the player who passes the ball to him for the score. With a t-statistic of .613630 we see that assists per game does not have much economic value in the NBA. This could be due to the fact that many of the highest paid players in the NBA are the highest scoring players and they are not

expected to distribute the ball. Basketball fans are well aware of LeBron James' superb ability to pass the ball but fans are more interested in his ability to score. If that is what the fans want, and the fans are paying to come see him, it only makes sense that his scoring abilities are what team management is predominantly interested in as well. Also, assists come in small portions in relation to scoring. When a high scoring player gets a double-double, with assists included, it is common for him to have twenty or more points and maybe ten or eleven assists. It is much more difficult to average double figure assists than it is to average double digit points.

With a t-statistic of .759898, we see that Blocks Per Game (BPG) is positive but not significant. This is one of the two defensive variables used in this regression model. I predicted both defensive variables to be insignificant in this study simply because I feel that offensive production is valued more in the NBA. As we look at the racial breakdown of blocks per game we see that white players average around .400 blocks per game while non-white players average around .457. So there is a slight difference between the two averages but not enough to argue the presence of a racial divide.

Average Steals Per Game (SPG) is the final defensive variable. The regression results showed that steals per game were far from significant with a t-statistic of 0.165526. This t-statistic shows us that steals per game are not valued economically in this study. This does not come as a surprise because, as I explained in the previous

paragraph, offensive statistics are valued more than defensive statistics in the NBA. But again we see a miniscule difference between the average steals per game between white and non-white players. White players average around .728 steals per game while non-white players average almost .700 per game.

The player position (POS) variable proved my prediction wrong and turned out to be insignificant with a t-statistic of 1.006861. I was under the impression that players of a specific position would make a noticeable amount more than the other. Out of the 224 non-white players, 120 of them played the forward or center position. Of the 53 white players in this study, 37 of them play in the forward or center position. We see that there is an even distribution of guards and forwards between the two racial categories.

The final two variables of the first regression equation are Team Value (TMV) and Team Payroll (TMP). As I predicted, both of these variables were insignificant in this study. Team Payroll's t-statistic was 0.593466 and Team Value's t-statistic was 1.155739. They were both positive but my prediction for these both to be insignificant was based on the fact that with the Collective Bargaining Agreement every team has to abide by the League's salary cap. The salary cap is the same for every team so no team can spend more than another.

This following section will discuss the second regression that I ran using the Ordinary Least Squares method for coaches' salaries. TABLE 5.2 gives the complete

statistical summary of the results from the regression analysis using the OLS method for NBA coaches.

TABLE 5.2
Regression Results 2

Variable	Coefficient (t-Statistic)
TMP	0.046055 (1.55)
TMV	7724.046 (1.67)
HOF	670129.0 (0.57)
WINP	-4565830 (-2.57)*
CHAMP	1334666 (1.43)
WHITE	-303934 (-0.55)
<u>R-squared</u>	0.390947
<u>Adjusted R-squared</u>	0.230670
<u>Mean dependent var</u>	3152000

* Significant at 95% confidence level $> |1.645|$

The one significant variable in this regression model was winning percentage (WINP) with a t-statistic of -2.574836. I predicted that this variable would be significant because a coach's winning percentage is his only statistic that measures

his coaching abilities in the eyes team management in the NBA. When a team is looking for a new coach, if possible, they look at his ability to win games. There are many outside factors that go into a coach's skills but many of those talents are intangible and immeasurable. On paper, a coach's winning percentage is his one in-game statistic that measures his productivity. The average winning percentage for non-white coaches in the NBA in the past season was 0.549 and 0.453 for white coaches. This shows that black coaches in the past season won close to 10% more of their games than white coaches did.

Both variables, Hall of Fame (HOF) and Championship (CHAMP) turned out to be insignificant in this study in contrast to my predictions. The Hall of Fame variable produced a t-statistic of 0.566495 while the Championship variable had a t-statistic of 1.426046. I predicted these both to be significant because I thought that they were both extra measures of a coach's success. Even though they are in a way, I believe that the data is too scarce to produce a significant variable. Out of the 30 NBA coaches last season only 3 have been inducted into the Hall of Fame and only 4 have won at least 1 NBA championship. Those numbers are too low to find noteworthy evidence of racism among coaches.

Similar to the situation in the first regression equation, Team Value (TMV) and Team Payroll (TMP) were both insignificant. I predicted these both to be insignificant again because of the Collective Bargaining Agreement and the NBA's

salary cap. Team Payroll's t-statistic was 1.548916 and Team Value's t-statistic was 1.670687.

Finally, the last variable to be examined is the race (WHITE) variable. The t-statistic for this variable was negative and insignificant at -0.554118. I did predict the WHITE variable to be insignificant because, similar to players, I believe that the NBA has reached a point where the main focus is on talent rather than social preference. With so much money to be made, team managers no longer look at skin color but instead focus on who can bring the organization the most financial success. While I did predict for the variable to be insignificant, the data analysis shows us that white coaches, on average, make almost \$700,000 more than black coaches.

Conclusions

This study has attempted to answer the question of whether or not there is racial bias in the NBA among players and coaches. Using in-game statistics for players and success measures for coaches, the data was gathered and split racially by white and non-white players and coaches in order to measure the differences between the two groups. The results have shown us that among the NBA players, the marginal differences in the statistical averages are not sizeable enough to make distinct claims of racism. Even though there are not even numbers between the white and non-white players, within their own respective groups the averages are similar enough to see that the two groups are reasonably balanced. The regression results from the second model for coaches show that the race variable is not significant but we see from the

data analysis that there is a noticeable gap between the annual salaries of white and non-white coaches.

The results from this study show us that more data is needed to answer the hypothesis in question of whether or not there is a racial bias in player and coach salaries. The data analysis is straightforward and gives valid statistics but the R-squared from the regression results shows that changes need to be made to the independent variables in order to produce a more valid study. Future research with new and improved methods can give us a clearer and more precise picture of the racial state of the NBA.

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