The Changing Role of Race in the NBA: a Draft Ordering Approach

Brandon Stichka

November 16, 2009

Abstract

Does the selection of players in the annual National Basketball Association Draft exhibit racial discrimination? We construct an original data set spanning the 1950-1999 regular seasons in order to answer this question. Utilizing an unexplored player valuation system, and a much longer horizon, we avoid many of the difficulties encountered by earlier researchers who typically focused on salary in this uncompetitive market. On average, teams select equally-performing black players slightly later in the draft ordering than their white colleagues. Black players consistently perform above the level non-parametrically predicted by their draft ranks. This effect is most noticeable in the 1950s, and 1960s. There is renewed growth in this unequal treatment in the 1990s, and possible explanations for this resurgence are offered.

*Heinz College, School of Public Policy and Management, Carnegie Mellon University. bstichka@andrew.cmu.edu. I thank my advisors Lowell Taylor, Shamena Anwar, and Mel Stephens for their guidance, comments, and suggestions throughout the development of this paper. I also thank my colleagues Scott Ashwood, John Gardner, Keith Hunter and Matt Snodgrass, for their input and alternative perspectives. Further, I thank Dean Spears for his endless patience and helpful discussions and commentary. All mistakes are my own.
1 Introduction

Is a black athlete in the National Basketball Association (NBA) who performs as well as a white player equally rewarded? Utilizing an original data set, we argue that while black players do perform better on average than white players, they are selected later in the NBA Draft. Further, there is evidence that black players are performing at a higher level than that associated with their draft order selection and other player characteristics of interest. We interpret these disparities in rank and performance as discrimination and present evidence that other interpretations are unlikely.

The allure of utilizing data from the NBA, and sports more generally is the extensive availability and depth of information about individuals in the labor market. Nowhere else are we able to know so much about those involved in the production process. This has been the trail followed by several other researchers over the years, typically using different data and methodologies. This separation in practices has lead to numerous different results regarding the role of race in the NBA. The most abundant focus of research thus far has been the impact of player race on earnings, controlling for various iterations of performance for a small period of time. There are many difficulties when using salary data due to the nature of labor negotiations, and market power of the economic actors involved. This is compounded by the typically small time frames under consideration selected by the researchers.

In this new study, we move away from these troublesome scenarios by considering an unexplored player valuation system in the NBA Draft, and broaden the time frame considered to the last half of the twentieth century. This eliminates the uncertainties of team monopsony power, labor agreements between the league and the National Basketball Players Association, and the impact of short term trends.
2 Salary and Player Value in the NBA

We describe the causes and implications of player salary controls throughout the history of the NBA, and the weaknesses these issues trigger in their use as a measurement of player value. These weaknesses are concerning enough to warrant the use of an alternative assessment metric when evaluating player value to his team.

2.1 Salary and Race in the NBA

The interaction between the race of a player and his earnings in the NBA has been a topic of interest to several researchers over the years, with examples of this work found in Kahn and Sherer (1988), Brown, Spiro and Keenan (1991), Jenkins (1996), Hamilton (1997), Dey (1997), Gius and Johnson (1998), Bodvarsson and Brastow (1999), McCormick and Tollison (2001), and Eschker, Perez, and Siegler (2004). The nature of these investigations is to collect the salary data for the entire league over a very brief period of time, and to regress it on various performance measurements, and player characteristics, including a racial indicator variable, and to interpret a statistically significant coefficient on this indicator as evidence of discrimination, and its absence as equality.

For this general strategy to be appropriate, we must be certain that the relationship between a player’s performance and his earnings is largely driven by the interaction of competitive market forces. In a competitive market, wages should be equal to the marginal product of labor, so any racial difference in wages at the same level of productivity could indicate discrimination; amidst non-competitive institutions, market power and strategic imbalance could explain wage inequality, even in the absence of discrimination.

2.2 Salary Gaps and Discrimination; an Historical Example

The overall theme of this section is to indicate that we cannot always trust variation in salary across racial groups to be an indication of unequal treatment. An example of salary
disparity not coinciding with the discrimination of the period can be found in the career of Leroy “Satchel” Paige, an African American professional baseball player from 1926 to 1966.

As reported in Ehrenberg and Smith (2003) drawn from Burk (2001) and Rogosin (1983), the salaries earned by professional athletes are sometimes subject to near total domination by the power structure of their employers. In the middle part of the twentieth century, the owners of the segregated Major League had complete monopsony power over their labor market through official rules, and gentlemen’s agreements. Teams agreed to only compete with each other for playing talent in the amateur draft by refusing to pursue players associated with another team. Players, upon signing a contract, were subject to the reserve clause, a statute indicating that at the completion of the contract the team had the right to extend said contract for an additional year, including the reserve clause itself. Once a player was under contract with a specific team, he had no opportunity to sell his services to other employers in the Major League.

In the prime of his career Satchel Paige was the highest paid professional baseball player in the country, earning well over the average salary in the segregated Major League, in large part due to the absence of collusive agreements in the alternative leagues, such as the Negro Leagues, as well as other profession baseball organizations throughout the world. Given this situation and the likelihood that there were other athletes able to sell their services in the competitive markets of these other leagues, we would find that black athletes were earning a salary premium at the time, after controlling for performance. Does this mean that there was no discrimination present in professional baseball at the time? Certainly not, as the ultimate form of discrimination was in place, since black athletes were strictly prevented from participating.

We use this example to show that salary discrimination is one avenue in which the preferences of team decision makers can manifest, but that it is also subject to the structure of the market in which players and teams operate. If teams have control over salaries beyond that of competitive employers, they will be altered in ways that are not determined by ability.
and value to the team, regardless of the race of the player.

2.3 The Option Clause

The most important consideration regarding player salaries for the first several decades of the NBA is the option clause, the mirror image of the reserve clause found in professional baseball. This clause would bind a player to the team that held his contract for the length of said contract, and allow the team holding it to renew said contract in its entirety for one additional year. When this option was exercised, teams also included the option clause itself, effectively binding a player to a single team for the entirety of his career, baring release or trade. The option clause was eliminated from the NBA in 1976 as part of the Oscar Robertson Agreement (NBPA). For the 25 years in which the option clause existed, it barred individual players from selling their services in a competitive market, giving monopsony power to the team holding their contract, and preventing us from viewing salary earned as a proper measurement of player value to his team.

2.4 The NBA Draft and New Players

The annual NBA Draft serves as the primary method through which new talent is brought into the league. Specific to this discussion, when a team uses one of its selections to draft a player, that team gains exclusive signing rights to that player for one year. These rights can be traded within the league, but if the selected player wishes to play in the NBA during that year, he must sign with the team that holds his signing rights, and thus is prevented from selling his services in the competitive market.

A high profile rookie can also exercise a great deal of market power after being selected in the earliest portion of the NBA Draft, as he represents a potentially massive gain to the team selecting him. In certain cases, these early draft selections have been able to extract incredibly large salaries from the team holding their signing rights, salaries that are well in excess of their realized performance in the league. Teams, while not obligated to sign these
players, can and do relent, granting some of their demands. These situations mean that for players just entering the league, we cannot view their salary as a proper measurement of his value to his team.

2.5 Collective Bargaining Agreements and Salary Limits

Prior to the 1983 Collective Bargaining Agreement, there was no official limit on the amount a team was allowed to pay its players. After an extended period of growing financial instability on the part of the teams, the National Basketball Players Association and the team owners entered into a new collective bargaining agreement in which they became partners. Salaries paid to players would be tied to league revenue according to preset limits (APBR). Further limits have been established to prevent unchecked upward growth of salaries for individual players. These rules do not constitute a hard price ceiling, but do serve to limit growth.

At the other end of the hierarchy, there are hard price floors for veteran players that are largely determined by tenure in the league. Collective Bargaining Agreement rules stipulate that veterans will receive these minimums and teams will not receive the full burden of these salaries as regards the team level salary cap. This is done in order to prevent age based discrimination for marginal players (NBPA).

These two artifacts create a degree of separation between performance and value for league veterans. Those exhibiting the highest level of performance will have the upward growth of their salaries constrained by team level salary cap rules, and the statutes regulating individual contract sizes. Those at the other end of the performance spectrum will have their salaries inflated above the level dictated by their ability in order to protect more senior athletes. This means that players who have served many years in the league, and are operating at upper and lower levels of performance will have their salaries altered by contractual rules, instead of being determined by market forces, preventing us from using their salaries as a proper measurement of their value to their team.
2.6 The Impact of Individual Salary Limits

The intent of salary caps in the NBA is to simultaneously limit the upward growth of team payrolls, based on the argument of competitive balance in the league, and to limit the upward growth of individual salaries of players. As these are limits on upward growth, salary caps will most severely impact those at the top of the earnings hierarchy. If we believe that earnings are imperfectly tied to player performance, then those at the very top of the earnings hierarchy are likely to be the players amassing the largest performance statistics. As will be shown extensively in later sections, black players in the NBA possess a statistically and practically significant advantage in all of the performance measurements considered. Additionally, black athletes have been the majority in the league since the 1970s. Therefore, it is probable that black athletes are subject to salary cap restrictions more often than are white athletes. If we then only consider the impact of race and performance on salary, we will see a black penalty due to the interaction of race, performance and the salary cap.

All of these mechanisms, combined with the inherent vagaries of salary reporting, introduce enough confounding factors to separate earnings from player value.

3 The NBA Draft

If anti-competitive market institutions separate wages from marginal products, even in the absence of discrimination, might the NBA Draft rank be a better indicator of player value to his team? We describe the structure and characteristics of the annual NBA Draft and the economic nature of the process. A discussion of the attributes by racial group and the potential advantages of using the NBA Draft as compared to the previous approaches used to identify racial discrimination follow.
3.1 General Characteristics

The NBA Draft is the annual procedure in which the various teams within the NBA have the opportunity to select new players from the population of eligible prospects throughout the world. Prior to the actual selection process, every team receives the right to one pick in each round of the draft. The number of rounds in the draft has generally diminished as time has passed, with the earliest draft often exceeding ten rounds, while the most recent iterations are explicitly limited to two rounds. These rights of selection can be traded among willing teams based on the standard trade rules, and can be revoked as punishment for violations of league rules.

The way in which selection order is determined has gone through many variations throughout the history of the NBA Draft. In the earliest years, selection occurred in reverse order of the final standing from the previous season, with the last placed team receiving the first selection and so on.

Territorial picks altered this strict reverse ranking process. In the earliest days of the NBA, a team could surrender its first round selection in order to obtain the draft rights to a player that had strong ties to their geographic area. This had the intent of maintaining strong local followings in the era before national and international broadcasting, when team often struggled to stay financially solvent.

This process stood until the 1966 NBA draft. This year, the league eliminated territorial picks, and a coin flip determined the first selection in the first round. The coin flip distributed the first and second selection between the teams that finished last in their respective conferences. The remaining teams followed the traditional reverse order of their win-loss records from the previous season.

Beginning in 1985, the level of randomization increased substantially. When the order of selection was first established, it generally followed a reverse order of the final standings among the teams at the completion of the previous season. The exceptions to this occur
among those who are eligible for the first several selections in the first round. This structure, if left unmodified would create a moral hazard, adding utility to amassing a losing record to secure an early draft selection. The league has implemented various lottery systems over the years to determine the order of the first portion of the first round to combat such unethical actions (Quinn 2008).

The lottery system beginning in 1985 merely consisted of taking the logos of the 7 teams that did not qualify for the playoffs, placing these logos in envelopes, randomizing them, and placing them in the order of selection prior to opening them. The number of teams participating in the lottery was reduced to three prior to the 1987 NBA Draft, increasing the likelihood that teams with the worst regular season record would receive better draft selections.

In 1990, the lottery changed substantially, adding increased weight to the probability that the team with the worst record would receive the first selection. This concept of weighted lotteries has remained, even as the system has been further refined (nba.com) 1.

3.2 The Currency of the NBA Draft

We have already acknowledged that players in the NBA do not have their salary explicitly determined by market forces, but rather are heavily influenced by the statutes of the CBA, which are set a priori. What then is the representation of comparative value to agents involved in the decision making process? Harkening back to the most fundamental discussion of costs in economics, we must frame the NBA Draft not in terms of dollars and cents, but in terms of forgone alternatives and opportunity costs.

In the earliest stages of the NBA Draft, upon completion of the order assignment, but prior to alterations due to trades, each team is entitled to one pick in each round, baring those rights being stripped due to violations of league rules 2. These draft rights are clearly a

---

1Numerous resources have additional details regarding the actual assignment of selection order. http://www.nba.com/features/inside_lottery_050524.html is a prime example.

2As an example, the Minnesota Timberwolves were stripped of several draft picks due to salary cap tampering.
precious commodity, representing the main avenue through which a team acquires new talent. In the context of our examination, the actual selection rights a team possesses become the currency of the NBA Draft.

With this currency in hand, the decision makers for the individual teams must attain the highest possible value of these draft rights through the selection of the best player available. Thus, we can treat the relative ordering of the players selected in the NBA Draft as an indication of their comparative value to those making the selection decisions.

3.3 Black Players in the NBA Draft

Beginning in 1950, the NBA and the NBA Draft were officially racially integrated. The first black player to be selected in the NBA Draft was Chuck Cooper, selected in 1950 in the 2nd round, 13th overall by the Boston Celtics. For the rest of this decade, black players would be selected infrequently, sometimes having no representation in the earliest rounds of the draft. Throughout the 1950s, 21 black players were selected in the first two rounds of the NBA Draft, accounting for 14% of those selected.

The following decade, the representation of black athletes would increase almost four fold, to 82 selections, with their fraction drafted jumping to 45%. The 1970s would see the number drafted increase again to 261 selections, representing nearly three quarters of those chosen. The peak of this proportion is found in the 1980s, in which 379 athletes, nearly 80% of those drafted in the first two rounds were black. The raw number of black athletes selected in the NBA Draft would increase in the 1990s to 422 but the fraction of total draftees this represents fell to approximately 76%.
3.4 Foreign Characteristics in the NBA Draft

In the earliest days of the draft, there was very little participation by those born outside of the United States. For the first 20 years considered, two players born outside of the United States were selected. Things did not change substantially in the 1970s, a decade in which four players born outside of the United States were drafted into the NBA. The 1980s saw the first meaningful change in the representation of foreign born athletes. There were 33 players, almost 7% of those drafted, born outside of the United States. This change continued in the 1990s, in which 61 players, over 11% of those drafted, were foreign born.

Foreign professional experience shows a similar change throughout the history of the NBA Draft. For the first decade considered, no players entered the NBA after participating in other professional leagues. In the 1960s and 1970 two players possessed professional experience outside of the NBA, one in the 1960s, and one in the 1970s. The 1980s saw a slight increase in this participation as seven players selected in the NBA Draft had professional experience in another league. The 1990s represent the first decade in which players with foreign professional experience are found in meaningful numbers, as well as a reasonable fraction of those drafted. This decade saw 34 players with foreign professional experience drafted, representing over 6% of those chosen in the NBA Draft throughout the 1990s.

4 Theoretical Background

We discuss potential causes of disparate draft ‘market’ value by racial group for NBA Players, and demonstrate the separation between demand side effects and supply side effects.
4.1 Potential Determinants of Value Differences

To investigate the nature of draft selection in the NBA in a robust manner, we must examine two separate and vital questions. First, do black players receive different treatment in the NBA Draft as compared to white players? If so, what is the underlying force or forces responsible for this separation? We use Tobit model estimation to investigate the first question. The second question is slightly more elaborate, involving the consideration of alternative potentialities.

Active discrimination on the part of those making the selections is not the cause of all potential selection divergences. Discrimination is a property of demand; market value differences could be the result of supply differences. The potentiality that market participants do not view black players and white players as equivalent market goods is the driving feature of any economic explanation of disparate selection treatment.

There are several situations in which demand for black players and white players will differ due to unequal treatment. These are the most common forms of active discrimination. When fans’ preferences exhibit a higher level of demand for white players as compared to black players, teams will receive larger returns for investing in white players. As Becker noted, competitive markets will generally eliminate employer discrimination, but will not have a direct effect on consumer discrimination. This in turn will lead us to observe an alternate demand structure. When basketball teams exhibit a higher level of demand for white players as compared to black players we will observe an alternate demand structure. When for any reason those demanding the services of professional basketball players exhibit a higher level of demand for white players as compared to black players we will observe an alternate demand structure. In all of the scenarios listed above, the demand curve for black players shifts down and to the left, reducing the market value of black players through the execution of market forces.

On the other side of the comparative statics, we observe the impact of differential supply.
If black athletes and white athletes have unequal access to other avenues of professional sports, favoring white players, we will see an alternative supply structure. If black athletes typically have lengthier careers as compared to white athletes, we will see an alternative supply structure. When for any reason we observe a greater willingness to supply professional basketball services at any level among black athletes as compared to white athletes, we will observe an alternate supply structure. In all of the scenarios listed above, the supply curve for black players shifts down and to the right, resulting in reduced market value of black players through the execution of market forces.

While we have enumerated many potential occurrences that all individually result in reduced market value for black players as compared to white players in the NBA, these conditions are by no means mutually exclusive. It is perfectly realistic to observe more than one of these phenomena operating in conjunction with any of the others, further altering the nature of market value in the NBA.

At this point, we have only proposed explanations for prospective observations. What must come next is a plan of action to investigate these hypothetical circumstances more fully. To explore the potential for team-based drafting discrimination, we will consider the racial composition of draft cohorts entering the NBA and how this composition is associated with performance, and the nature of selection disparity in the NBA Draft.

5 Data and Sources

We compile an original data set from several sources, creating one observation per player career. These data include career performance statistics, racial characteristics, positional characteristics, player height, country of origin, previous professional experience, and draft selection information. They include 1928 players from 1950 to 1999.

---

5.1 Description and Definition of Variables

Draft order selection is a reverse ordinal ranking of the relative desirability of players who will potentially enter the NBA in a given year. This ordering is contingent upon the sequence in which the NBA teams are assigned draft rights. It is simply recorded as the order of the selection for the player under consideration, with a value of one indicating that this player was the most desirable for that draft year and proceeding downward. We also take into account players that entered the NBA through non-draft channels as the baseline comparison group.

Characteristics concerning a player’s country of origin, foreign professional experience, and the possibility of being drafted from high school are also of interest. For those born outside of the United States, we record their foreign birth with an indicator variable taking the value of one if they were born outside of the United States and zero otherwise. Similarly, we record those that have played professionally in the ranks of other basketball leagues around the world. Finally, a select few players have been drafted immediately after completing high school. To account for this we also construct an indicator variable.

Career length performance statistics in this examination include games played, minutes played, points scored, minutes played per game, and points scored per game. Racial characteristics are accounted for by an indicator taking the value of one if a player is observed to be black and zero otherwise.

Additional permanent player characteristics include player height in inches and position played. Typically, a player is so narrowly specialized at the top professional level that he will be limited to one primary position and potentially one secondary position played in isolated situations. The result is that a player will spend most of his career playing the same position season after season.

Table 1 about here.
6 Descriptive Statistics

It will be shown that black players in the population possess a statistically and practically significant advantage in performance capacity. Additionally this performance advantage is accompanied by a slight disadvantage in relative valuation as indicated by the NBA Draft.

6.1 Summary Statistics and Comparison of Means

Table 2 about here.

Among the positional variables, we see that approximately 17% of all considered players played center, with 45% playing forward and 38% playing guard. This deviates slightly from the expected distribution of one center, two forwards, and two guards on the court at any time.

Players born outside of the United States, or participating in professional leagues other than the NBA represent approximately 7% of the players considered, while players drafted immediately after high school represent one percent of players.

A given player can be expected to participate in over 370 games over the course of his career, with a high level of variation around this mean. Minutes played presents a similar situation, with an expected value of approximately 9320, but with massive deviation. This nature of performance statistics accompanied by a wide dispersion is repeated throughout the performance variables. The clear exception to this is player height. This variable has a much smaller level of dispersion around the mean.

The first items of interest are the disparities among the positional and height variables. The proportion of centers among white players is more than twice the proportion among black players. Black players have a noticeably larger proportion playing guard, with no statistically significant difference between the proportions playing forward. White players are also found on average to be taller than black players by nearly one inch.
Over the course of their career, on average black players are found to participate in almost 80 additional games, as compared to white players. This is accompanied by an advantage of almost 3000 minutes played as well. For all of the remaining performance statistics, black players on average possess a statistically and practically significant advantage as compared to white players.

Additionally, we find that there is no statistically significant difference between the proportion of black players and white players entering the league through channels other than the NBA Draft. There is a statistically significant difference in the draft selection of black players and white players. We find white players on average are selected approximately three positions earlier than black players.

The nature of foreign birth and foreign professional experience tells an interesting story. Approximately 3.4% of black players considered were born outside of the United States, or played professionally in a foreign league, while approximately 13.3% of white players considered have foreign characteristics. Players drafted immediately after completing high school tell the exact opposite story. For the time frame under consideration, a very small number of players were drafted as underclassmen, all of whom are black.

We can say with confidence that noteworthy differences exist among black players and white players in the following areas of interest: height, position played, average selection rank, games played, minutes played, points scored, minutes played per game, and points scored per game.

7 Model

Do black athletes in the NBA receive disparate treatment as compared to their white colleagues after controlling for the standard aspects of ability and production? In order to investigate this, we need a structural form that allows for the relative valuation of players to be associated with their performance in the league. If this valuation system were truly race-
neutral, then we would observe that performance in the NBA is predicted by this metric, and racial considerations would not contribute.

We have already established that player salary is far enough removed from individual ability as to not be sufficient for our needs. As an alternative, we have demonstrated that the NBA Draft can be used as a relative comparison across the players relying on the underlying ability of those being drafted. With this in mind, we can construct the following model.

\[ p_{i,t+1} = \beta_1 D_{1,i} + \beta_2 D_{2,i} + \ldots + \beta_n D_{n,i} + \alpha B_i \]  

Where \( D_{k,i} \) is an indicator variable taking the value of one if a player was drafted with selection \( k \) in some iteration of the NBA draft, and zero otherwise, and \( B_i \) is an indicator variable taking the value of one if a player is observed to be black and zero otherwise.

Given this structure, we are able to test the hypothesis that there is no racial discrimination in the NBA through the evaluation of the \( \alpha \) coefficient on \( B_i \). If black athletes receive no disparate treatment then we should observe a coefficient that is not statistically different from zero. On the other hand, if this coefficient is statistically different from zero, black athletes are not receiving equal treatment.

The nature of this unequal treatment can be determined by the sign on this coefficient. The NBA Draft, as a rating of player ability should account for the larger portion of player ability and performance. A negative coefficient on the racial indicator variable indicates that black athletes are performing on average below the level of white players drafted in the same relative position. A positive coefficient indicates that black athletes are performing on average at a higher level than white athletes drafted in the same selection order. Thus, a positive coefficient represents under valuation while a negative coefficient represents over valuation.

Alterations in this model can be made in order to broaden the scope of the investigation. Of particular interest are the roles of position played, foreign birth and professional
experience, and the changing impact of racial characteristics through time. To pursue these objectives, we generate indicator variables for time considerations and construct the following model.

\[ p_{i,t+1} = \beta_1 D_{1,i} + \beta_2 D_{2,i} + \ldots + \beta_n D_{n,i} + \alpha_{1950} B_i \delta_{1950,i} + \ldots + \alpha_{1990} B_i \delta_{1990,i} + \beta_F F_i + \beta_G G_i \] (2)

Where \( D_{k,i} \) and \( B_i \) are defined as above, and \( \delta_{1950,i} \) is an indicator variable taking the value of one if a player was drafted in the years 1950-1959 inclusive, and \( F_i \) and \( G_i \) are indicator variables taking the value of one if a player was observed to play forward or guard respectively. As was the case in the previous model, if black athletes receive no disparate treatment then the various \( \alpha \) coefficients will not be statistically different from zero. Negative coefficients indicate favorable treatment above that predicted by ability rank, and positive coefficients indicate unfavorable treatment below that predicted by ability rank.

8 Results

Utilizing a concise model relating player draft selection ordering to performance, we demonstrate that black athletes have been systematically drafted lower than their performance capacity would justify. An expanded model shows the alteration in this effect over time, indicating that this is a reasonably dated phenomenon, but has seen resurgence in recent decades.

8.1 Behavior of Economic Agents

In order to proceed with this analysis, two core assumptions regarding the nature of participants in the NBA must be made. First, we assume that teams in the NBA care exclusively about winning games. Second, we assume that to ensure they win as many games as possible, teams will draft the best player available to them at the time of their selection.
8.2 Preliminary Findings

The first aspect that must be evaluated is the reliability of draft order selection as a predictor of performance for those entering the NBA. To verify this, we consider the following specification, estimated through Tobit regressions for each of the performance measurements used.

\[ p_{i,t+1} = \beta_1 D_{1,i} + \beta_2 D_{2,i} + \ldots + \beta_n D_{n,i} + \beta_{1950} I_{1950,i} + \ldots + \beta_{1999} I_{1999,i} \]  

(3)

This structure allows the impact of the varying draft order selections to enter the model in a completely nonparametric way, capturing more of the overall impact of ranking in the NBA Draft. With these results in hand, we construct predicted performance values for each player selected in a baseline year, in order to see the general trend associated with changing draft order selection. We observe the following.

Figure 4 about here

Figure 5 about here

Figure 6 about here

Figure 7 about here

Figure 8 about here

For all of the performance measurements considered, we observe a very strong relationship between draft order selection and predicted career performance. For those chosen in the earliest phase of the NBA Draft, players are predicted to perform at the highest levels, we observe a decline that is roughly quadratic in draft order selection, with those selected at the end of the draft predicted to perform much lower than those before them.
8.3 Model Estimation

\[
p_{i,t+1} = \beta_1 D_{1,i} + \beta_2 D_{2,i} + ... + \beta_n D_{n,i} + \beta_{1950} \delta_{1950,i} + \beta_{1990} \delta_{1990,i} + \alpha_{1950} B_i \delta_{1950,i} + ... + \alpha_{1990} B_i \delta_{1990,i}\]

(4)

\[
p_{i,t} = \beta_1 D_{1,i} + \beta_2 D_{2,i} + ... + \beta_n D_{n,i} + \beta_{1950} \delta_{1950,i} + \beta_{1990} \delta_{1990,i} + \alpha_{1950} B_i \delta_{1950,i} + \beta_{F} F_i + \beta_{G} G_i + \beta_{\text{height}}^2 \text{height}_i + \beta_{\text{height}}^2 \text{height}_i^2\]

(5)

Table 3 about here.

The first step taken in evaluating the potential for race-based discrimination in the NBA Draft is to examine the association between race and performance after accounting for draft selection and year of entry specific to each player. This is done with Tobit estimation, owing to the obvious lower limit on NBA performance measurement. The changing nature of racial treatment is of particular interest, thus we begin with time/race interaction terms at the decade level in order to isolate the influences across time.

We use the specifications of equations (4) and (5), regressing five different performance measurements on the controls of interest in order to ensure that the effects we are observing are not isolated to one particular facet of NBA athletes. For each of these performance metrics, we find a positive and statistically significant coefficient on the interaction terms between black and the 1950s, black and the 1960s, and black and the 1990s. We find that, after controlling for relative valuation via the NBA Draft order selection, black players are on average outperforming equally drafted white players. This indicates systematically unequal treatment between the two racial groups in these decades.

It is possible that certain other aspects of individual players are crucial in the determina-
tion of ability and performance. For example, all players drafted straight out of high school in this population are black. The players entering the NBA without college experience typically become hall of fame caliber players or complete busts. If enough of these players are well beyond the average, and all are black, then the racial coefficients will be absorbing this influence, potentially driving the findings thus far.

Another consideration is the role of foreign experience. Perhaps draft decision makers are expressing some preference for those trained in Europe, or other leagues throughout the world. As foreign players in this population are overwhelmingly white Europeans, it is possible that we are observing a preference for foreign players that happens to manifest in the first specification as a preference for white players. In order to address these potential issues, as well as control for other variables of interest, we introduce controls for those drafted straight out of high school, those of foreign birth or professional experience, the position played, and the mean centered height of the player. These results are found in the lower panel of Table 3.

With this battery of new controls, we observe slight changes in the coefficients of interest, but in all performance measurements, we do not see a loss of statistical significance of the race/time interaction terms discussed previously. From this, we can conclude that we are observing systematically different treatment for black players as compared to white players, resulting in black players performing on average at a level higher than that predicted for equally drafted white players.

9 Prior Literature

There are a great many studies that have considered the role of racial characteristics as regards player valuation in the NBA, the bulk of which have utilized salary as their dependent variable of choice. Examples of such works can be found in Kahn and Sherer (1988), Brown, Spiro and Keenan (1991), Jenkins (1996), Hamilton (1997), Dey (1997), Gius and
Johnson (1998), Bodvarsson and Brastow (1999), McCormick and Tollison (2001), and Eschker, Perez, and Siegler (2004). The general structure of all of these investigations is to collect salary data for one year, or a small collection of years, and regress it on various player performance measurements and player characteristics of interest, as well as a racial variable, and to interpret a statistically significant coefficient on the racial indicator as evidence of discrimination. Over the years the results have been mixed, with variations being found among the time frame considered and the population examined.

Those finding indications of statistically significant variation in salary by racial group were most often considering data drawn from the late 1980s (Kahn and Sherer, Brown et al, Bodvarsson and Brastow), either as a stand alone year, or as a comparison against a later period. Other studies were notable due to their null result when considering later years, other groups of interest, or differing methodologies (Jenkins, Hamilton, Dey, Gius and Johnson, Eschker, Perez, and Siegler). The general results of all of the studies mentioned so far can be best described by saying there was evidence of salary disparities by race in the late 1980s when considering all players in the NBA. This disparity dwindled in the early to middle portion of the 1990s, and was not to be seen in the early 2000s. When considering veteran players that had recently signed new contracts, there was no evidence of discrimination even in the early part of the 1980s, but when considering different strata of the salary hierarchy, there was evidence the white superstars were paid above and beyond their productivity and personal characteristics.

This leads into the next category of research considering race and the NBA, that of discrimination on the part of consumers. The most interesting results are those of Kanazawa and Funk (2001). These authors found that when considering Neilson ratings, more fans watched basketball games on television when more white players are present, whether or not they are participating in the game itself. Burdekin, Hossfeld and Smith (2005) find that when team racial composition matches the city in which the team plays, there will be increased revenue. These results follow in the footsteps of Kahn and Sherer, as these...
researchers found that increase the fraction of team members who are white increases home attendance. All of these situations indicate there are conditions under which the return to employing black athletes will be different from that for employing white athletes due to the preferences of consumers.

Bodvarsson and Partridge (2001) attempt to extract the three forms of potential discrimination, also finding evidence that fan preferences are a driving force in the NBA. An alternative mechanism for finding customer discrimination is considered by Stone and Warren (1999). These authors examine the impact of racial characteristics on the valuation of sports memorabilia for retired basketball players, finding that there is no immediate disparity in pricing after controlling for performance characteristics, although there is evidence that there is a premium paid for white athletes that had coaching careers after their playing days are over.

Alternative methods of evaluating the potential for race based discrimination have appeared over time as well. McCormick and Tollison (2001) find that the disparity in salaries is most likely being driven by alternative supply structures, with differing elasticities of supply, resulting in black athletes being less responsive to salary alterations. However, this still leaves unanswered the underlying cause of this supply structure disparity. Coleman, DuMond, and Lynch (2008) examined the possibility that racial characteristics play a role in the selection of the NBA’s Most Valuable Player (MVP) award. These authors find that after controlling for team level effects and individual performance measurements, there was no statistically significant impact of racial characteristics on the likelihood of appearing on the MVP ballot or receiving votes in the selection process.

9.1 Reconciliation

The changing nature of salary variation in the NBA is likely explained in the findings of Bodvarsson and Brastow. They find that the expansion of the league in the 1990s weakened the market power of any single team, preventing them from exercising as much control over
the players in the league. This combined with the collective bargaining agreement of 1988 weakened the market power of the individual teams enough to bring salaries of comparable players into step throughout the NBA. This process would continue throughout the rest of the century with additional league expansions and the negotiation of several more collective bargaining agreements.

This is another round of evidence indicating that reliance on player salary as the metric of valuation is at best incredibly fragile, and much more likely to be misleading. This casts doubt on the reliability of those studies considering racial discrimination in wages for NBA players, as we cannot be certain what is observed is actual discrimination, the imposition of market power by team owners against the top performing athletes or players with differing elasticities responding appropriately to market forces. What we do know is that some aspect of the economics of the NBA is leading draft decision makers to undervalue black players as compared to white players in the NBA Draft. One explanation worthy of further consideration is the findings of Kanazawa and Funk, and the changing role of broadcast television.

Table 4 about here.

Table 5 about here.

The role of television audiences in the NBA has been one of the most dynamic revenue streams over the last 40 years, beginning with meager contracts in the early part of the 1970s, and growing into multi-channel multi-billion dollar affairs at the turn of the century. The bulk of this massive revenue gain occurred at the end of the 1980s and continued throughout the 1990s, as broadcast contracts grew from approximately $60 million per year to over $600 million per year. The evidence of Kanazawa and Funk suggests that as the

---

4The most likely cause of this sudden expansion is the rivalry of Larry Bird vs. Magic Johnson, the first very high profile player rivalry that became one of the major focal points of the NBA throughout this decade.
annual broadcasting income increases, there is a greater return to additional white players as compared to black players, since expanding the television audience increases the returns on broadcasting rights. This marginal value disparity could be driving our finding that black athletes are performing at a level higher than that of equally drafted white athletes, as white athletes have non-performance related returns to the team and league at large.

10 Conclusions

We have shown that there is great difficulty in using salary, one of the most common benchmarks for player value, to assess the impact of racial considerations in the NBA. When draft order selection and performance measurements are used instead, we find that there is extensive disparity in the treatment of black players as compared to white players. Specifically, black players are consistently performing at levels higher than those predicted by their typical ranking within the NBA Draft. This effect is concentrated in the first two decades under consideration, with additional evidence that this phenomenon is returning in the most recent decade examined.
Table 1: Definition of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>The height of the player in inches</td>
</tr>
<tr>
<td>forward</td>
<td>An indicator variable taking the value of one if the player was observed to play forward</td>
</tr>
<tr>
<td>guard</td>
<td>An indicator variable taking the value of one if the player was observed to play guard</td>
</tr>
<tr>
<td>selection</td>
<td>The rank within the NBA Draft at which the player was selected</td>
</tr>
<tr>
<td>games</td>
<td>The number of regular season games played by the player</td>
</tr>
<tr>
<td>minutes</td>
<td>The number of minutes played by the player</td>
</tr>
<tr>
<td>points</td>
<td>The number of points scored by the player</td>
</tr>
<tr>
<td>mpg</td>
<td>The average number of minutes played by the player per game</td>
</tr>
<tr>
<td>ppg</td>
<td>The average number of points scored by the player per game</td>
</tr>
<tr>
<td>foreign</td>
<td>An indicator variable taking the value of one if the player was born outside of the United States, or played professionally outside of the NBA</td>
</tr>
<tr>
<td>H.S. draft</td>
<td>An indicator variable taking the value of one if the player was drafted out of high school</td>
</tr>
</tbody>
</table>

Table 2: Descriptive Statistics and Comparison of Means

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Pooled Mean</th>
<th>Std. Dev.</th>
<th>Black Mean</th>
<th>Std. Dev.</th>
<th>White Mean</th>
<th>Std. Dev.</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>78.49</td>
<td>3.47</td>
<td>78.20</td>
<td>3.31</td>
<td>79.10</td>
<td>3.72</td>
<td>−0.90</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>center</td>
<td>0.17</td>
<td>0.38</td>
<td>0.13</td>
<td>0.33</td>
<td>0.28</td>
<td>0.45</td>
<td>−0.15</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>forward</td>
<td>0.45</td>
<td>0.50</td>
<td>0.46</td>
<td>0.50</td>
<td>0.42</td>
<td>0.49</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>guard</td>
<td>0.38</td>
<td>0.49</td>
<td>0.42</td>
<td>0.49</td>
<td>0.31</td>
<td>0.46</td>
<td>0.11</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>undrafted</td>
<td>0.11</td>
<td>0.31</td>
<td>0.11</td>
<td>0.32</td>
<td>0.11</td>
<td>0.31</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>selection</td>
<td>19.39</td>
<td>15.48</td>
<td>20.47</td>
<td>15.81</td>
<td>17.10</td>
<td>14.52</td>
<td>3.37</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>minutes</td>
<td>373.56</td>
<td>352.39</td>
<td>399.07</td>
<td>363.74</td>
<td>319.35</td>
<td>320.56</td>
<td>79.72</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>points</td>
<td>9319.4</td>
<td>10823.87</td>
<td>10271.07</td>
<td>11373.85</td>
<td>7297.28</td>
<td>9239.08</td>
<td>2973.79</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>mpg</td>
<td>16.69</td>
<td>10.52</td>
<td>17.54</td>
<td>10.63</td>
<td>14.88</td>
<td>10.06</td>
<td>2.66</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>ppg</td>
<td>6.94</td>
<td>5.53</td>
<td>7.38</td>
<td>5.64</td>
<td>6.02</td>
<td>5.17</td>
<td>1.36</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>foreign</td>
<td>0.07</td>
<td>0.25</td>
<td>0.03</td>
<td>0.18</td>
<td>0.13</td>
<td>0.34</td>
<td>−0.10</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>H.S. draft</td>
<td>0.01</td>
<td>0.08</td>
<td>0.01</td>
<td>0.09</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>1928</td>
<td>1311</td>
<td>617</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001
| Time Controls | Yes | Yes | Yes | Yes | Yes |
| Draft Selection Controls | Yes | Yes | Yes | Yes | Yes |
| **n** | 1928 | 1928 | 1928 | 1928 | 1928 |

<table>
<thead>
<tr>
<th>games</th>
<th>minutes</th>
<th>points</th>
<th>mpg</th>
<th>ppg</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4)</td>
<td>(4)</td>
<td>(4)</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td><strong>black×1950s</strong></td>
<td>270.0 **</td>
<td>8717.0 **</td>
<td>3816.1*</td>
<td>8.3 **</td>
</tr>
<tr>
<td>(95.1)</td>
<td>(3076.5)</td>
<td>(1765.3)</td>
<td>(2.7)</td>
<td>(1.6)</td>
</tr>
<tr>
<td><strong>black×1960s</strong></td>
<td>142.5 **</td>
<td>5305.5 **</td>
<td>2573.5 **</td>
<td>5.5 ***</td>
</tr>
<tr>
<td>(52.4)</td>
<td>(1700.5)</td>
<td>(872.2)</td>
<td>(1.6)</td>
<td>(0.8)</td>
</tr>
<tr>
<td><strong>black×1970s</strong></td>
<td>10.2</td>
<td>1372.6</td>
<td>956.3</td>
<td>1</td>
</tr>
<tr>
<td>(41.3)</td>
<td>(1268.1)</td>
<td>(667.5)</td>
<td>(1.2)</td>
<td>(0.6)</td>
</tr>
<tr>
<td><strong>black×1980s</strong></td>
<td>−27.6</td>
<td>578.9</td>
<td>468.6</td>
<td>0.4</td>
</tr>
<tr>
<td>(33.4)</td>
<td>(1000.1)</td>
<td>(477.7)</td>
<td>(0.8)</td>
<td>(0.4)</td>
</tr>
<tr>
<td><strong>black×1990s</strong></td>
<td>74.0 **</td>
<td>2662.5 **</td>
<td>1102.2 **</td>
<td>2.7 **</td>
</tr>
<tr>
<td>(27.3)</td>
<td>(740.2)</td>
<td>(341.6)</td>
<td>(0.8)</td>
<td>(0.4)</td>
</tr>
</tbody>
</table>

| Draft Selection Controls | Yes | Yes | Yes | Yes | Yes |
| **n** | 1928 | 1928 | 1928 | 1928 | 1928 |

<table>
<thead>
<tr>
<th>games</th>
<th>minutes</th>
<th>points</th>
<th>mpg</th>
<th>ppg</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5)</td>
<td>(5)</td>
<td>(5)</td>
<td>(5)</td>
<td>(5)</td>
</tr>
<tr>
<td><strong>black×1950s</strong></td>
<td>282.4 **</td>
<td>8861.9 **</td>
<td>3782.0*</td>
<td>8.3 **</td>
</tr>
<tr>
<td>(93.4)</td>
<td>(3029.5)</td>
<td>(1745.2)</td>
<td>(2.6)</td>
<td>(1.6)</td>
</tr>
<tr>
<td><strong>black×1960s</strong></td>
<td>141.5 **</td>
<td>5261.4 **</td>
<td>2545.4 **</td>
<td>5.4 ***</td>
</tr>
<tr>
<td>(52.2)</td>
<td>(1701.7)</td>
<td>(875.6)</td>
<td>(1.6)</td>
<td>(0.8)</td>
</tr>
<tr>
<td><strong>black×1970s</strong></td>
<td>19.3</td>
<td>1499.9</td>
<td>951.2</td>
<td>1.1</td>
</tr>
<tr>
<td>(40.7)</td>
<td>(1264.8)</td>
<td>(667.0)</td>
<td>(1.2)</td>
<td>(0.6)</td>
</tr>
<tr>
<td><strong>black×1980s</strong></td>
<td>−24.5</td>
<td>557.0</td>
<td>412.6</td>
<td>0.2</td>
</tr>
<tr>
<td>(34.2)</td>
<td>(1033.6)</td>
<td>(493.5)</td>
<td>(0.9)</td>
<td>(0.4)</td>
</tr>
<tr>
<td><strong>black×1990s</strong></td>
<td>68.1*</td>
<td>2462.0 **</td>
<td>974.8 **</td>
<td>2.4 **</td>
</tr>
<tr>
<td>(30.3)</td>
<td>(809.0)</td>
<td>(362.7)</td>
<td>(0.9)</td>
<td>(0.4)</td>
</tr>
<tr>
<td><strong>H.S. Draft</strong></td>
<td>123.4</td>
<td>6248.5</td>
<td>4832.7*</td>
<td>4.3</td>
</tr>
<tr>
<td>(96.2)</td>
<td>(3621.5)</td>
<td>(2189.20)</td>
<td>(3.0)</td>
<td>(2.0)</td>
</tr>
<tr>
<td><strong>foreign×black</strong></td>
<td>−35.6</td>
<td>−1656.1</td>
<td>−1094.6</td>
<td>−3.7*</td>
</tr>
<tr>
<td>(70.6)</td>
<td>(2111.9)</td>
<td>(1071.2)</td>
<td>(1.8)</td>
<td>(0.9)</td>
</tr>
<tr>
<td><strong>foreign</strong></td>
<td>−47.9</td>
<td>−41.5</td>
<td>444.9</td>
<td>0.8</td>
</tr>
<tr>
<td>(39.6)</td>
<td>(1154.4)</td>
<td>(550.5)</td>
<td>(1.3)</td>
<td>(0.6)</td>
</tr>
<tr>
<td><strong>forward</strong></td>
<td>−60.1*</td>
<td>−620.8</td>
<td>281.8</td>
<td>−0.2</td>
</tr>
<tr>
<td>(26.2)</td>
<td>(783.2)</td>
<td>(393.5)</td>
<td>(0.7)</td>
<td>(0.4)</td>
</tr>
<tr>
<td><strong>guard</strong></td>
<td>56.2</td>
<td>2893.6*</td>
<td>1926.6 **</td>
<td>3.9 ***</td>
</tr>
<tr>
<td>(40.4)</td>
<td>(1230.8)</td>
<td>(650.6)</td>
<td>(1.1)</td>
<td>(0.6)</td>
</tr>
<tr>
<td><strong>height</strong></td>
<td>22.6 **</td>
<td>573.6*</td>
<td>216.1</td>
<td>0.5*</td>
</tr>
<tr>
<td>(7.5)</td>
<td>(227.5)</td>
<td>(119.0)</td>
<td>(0.2)</td>
<td>(0.1)</td>
</tr>
<tr>
<td><strong>height²</strong></td>
<td>−2.7 **</td>
<td>−67.3 **</td>
<td>−21.0</td>
<td>−0.1*</td>
</tr>
<tr>
<td>(0.8)</td>
<td>(25.3)</td>
<td>(12.7)</td>
<td>(0.0)</td>
<td>(0.0)</td>
</tr>
</tbody>
</table>

| Time Controls | Yes | Yes | Yes | Yes | Yes |
| Draft Selection Controls | Yes | Yes | Yes | Yes | Yes |
| **n** | 1928 | 1928 | 1928 | 1928 | 1928 |

* p<0.05, ** p<0.01, *** p<0.001

Robust Standard Errors in Parentheses
### Table 4: National Broadcast Contracts

<table>
<thead>
<tr>
<th>Network</th>
<th>Contract period</th>
<th>Value</th>
<th>Per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBS</td>
<td>1973-1975</td>
<td>$27 million</td>
<td>$9 million</td>
</tr>
<tr>
<td>CBS</td>
<td>1976-1977</td>
<td>$21 million</td>
<td>$10.5 million</td>
</tr>
<tr>
<td>CBS</td>
<td>1978-1981</td>
<td>$74 million</td>
<td>$18.5 million</td>
</tr>
<tr>
<td>CBS</td>
<td>1982-1985</td>
<td>$91.9 million</td>
<td>$22.975 million</td>
</tr>
<tr>
<td>CBS</td>
<td>1986-1989</td>
<td>$173 million</td>
<td>$43.25 million</td>
</tr>
<tr>
<td>NBC</td>
<td>1990-1993</td>
<td>$601 million</td>
<td>$150.25 million</td>
</tr>
<tr>
<td>NBC</td>
<td>1994-1997</td>
<td>$892 million</td>
<td>$223 million</td>
</tr>
<tr>
<td>NBC</td>
<td>1999-2001</td>
<td>$1.616 billion</td>
<td>$404 million</td>
</tr>
<tr>
<td>ABC</td>
<td>2002-2007</td>
<td>$2.4 billion</td>
<td>$600 million</td>
</tr>
</tbody>
</table>

These data were collected from insidehoops.com and wikipedia.com.

### Table 5: National Cable Contracts

<table>
<thead>
<tr>
<th>Network</th>
<th>Contract period</th>
<th>Value</th>
<th>Per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>1979-1981</td>
<td>$1.5 million</td>
<td>$500,000</td>
</tr>
<tr>
<td>USA</td>
<td>1982-1983</td>
<td>$11 million</td>
<td>$5.5 million</td>
</tr>
<tr>
<td>TBS*</td>
<td>1984-1985</td>
<td>$20 million</td>
<td>$10 million</td>
</tr>
<tr>
<td>TBS*</td>
<td>1986-1987</td>
<td>$25 million</td>
<td>$12.5 million</td>
</tr>
<tr>
<td>TNT**</td>
<td>1988-1989</td>
<td>$50 million</td>
<td>$25 million</td>
</tr>
<tr>
<td>TNT**</td>
<td>1990-1993</td>
<td>$275 million</td>
<td>$38.75 million</td>
</tr>
<tr>
<td>TNT**</td>
<td>1994-1997</td>
<td>$397 million</td>
<td>$99.25 million</td>
</tr>
<tr>
<td>TNT**</td>
<td>1998-2001</td>
<td>$840 million</td>
<td>$210 million</td>
</tr>
<tr>
<td>TNT</td>
<td>2002-2007</td>
<td>$2.2 billion</td>
<td>$367 million</td>
</tr>
</tbody>
</table>

* indicates additional broadcasting on TNT  
** indicates additional broadcasting on TBS  

These data were collected from insidehoops.com and wikipedia.com.
Proportion of Black Draftees by Decade
Prior to 2000

Percent Black

Decade

Figure 1.
Figure 2.

Proportion of Foreign Born Draftees by Decade
Prior to 2000

Percent Foreign Born

Decade

Figure 3.

Proportion of Foreign Professional Draftees by Decade

Prior to 2000

Percent Foreign Professional

0.02

0.04

0.06

Decade
Figure 4.

Estimated Career Games Played
For Those Drafted

Draft Order Selection

Expected Games
Fitted values
Figure 5.

Estimated Career Minutes Played
For Those Drafted

Draft Order Selection

Expected Minutes
Fitted values
Figure 6.

Estimated Career Points Scored
For Those Drafted

Draft Order Selection

Expected Points
Fitted values

0 10 000
0 5000
0 0
0 20 40 60

Expected Points
Fitted values
Figure 7.

Estimated Career Minutes Played Per Game
For Those Drafted

Draft Order Selection

Expected MPG
Fitted values
References


apbr.com
http://www.apbr.org/labor.html

basketball-reference.com
http://www.basketball-reference.com/

checkoutrmycards.com
http://www.checkoutrmycards.com/Players/Basketball

databasebasketball.com
http://www.databasebasketball.com/

insidehoops.com
http://www.insidehoops.com/nba-tv-contracts.shtml

nba.com (1)
http://www.nba.com/history/draft`evolution.html

nba.com (2)
http://www.nba.com/features/inside`lottery`050524.html

nba.com (3)
http://www.nba.com/historical/search/index.jsp

nbpa.com
http://www.nbpa.com/history.php

remembertheaba.com
http://www.remembertheaba.com/ABAArticles/MurphyArticleABA.html

thedraftreview.com
http://www.thedraftreview.com/

wikipedia.com
http://en.wikipedia.org/wiki/NBA`on`CBS
http://en.wikipedia.org/wiki/NBA`on`NBC
http://en.wikipedia.org/wiki/NBA`on`ABC
http://en.wikipedia.org/wiki/NBA`on`USA
http://en.wikipedia.org/wiki/NBA`on`TBS
http://en.wikipedia.org/wiki/NBA`on`TNT
