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Is the Sports Media Color-Blind?

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Abstract

Examinations of racial discrimination hinge upon the ability of the researcher to accurately measure worker productivity. To overcome this difficulty, researchers have utilized data from professional sports. Unlike many industries, professional sports provide an abundance of performance measures for the individual worker. Unfortunately, the abundance itself may pose a problem, as researchers face a number of plausible measurements of worker performance. As we show, the choice of measurements does impact the results. Additionally, we show that race can also be measured in a variety of ways and that choice also appears to influence the reported findings. Such results indicate that prior research on the topic of racial discrimination may need to be reconsidered.

Keywords: racial discrimination, professional sports, media bias

Introduction

Scoop Jackson of ESPN.com says that he often tells the following story when he is asked to speak at a high school or college:[1]

> *I ask everyone to tell me how many black professional basketball players they know. Depending on the size of the room, 90 percent of the time, the students say they can name most of the players in the NBA.*
>
> *There are roughly 350 players in the League, about 85 percent of them black. We usually round to about 300 — therefore, the students claim to know for a fact that there are 300 professional basketball players.*

> *Then I ask them to name 300 black sportswriters.*
>
> *The room always gets eerily quiet. Beyond mortuary.*
>
> *Michael Wilbon's name comes up, Stephen A.'s, "that black man with the beard who's on 'SportsReporters' a lot" gets mentioned (for the record, William C. Rhoden), and, if they're seriously official with their sports journalist knowledge, Phil Taylor and Ralph Wiley will get nods.*
>
> *Past that, more silence.*
>
> *Then I make a point.*
>
> *"Do you know why you can't name 300 black sportswriters?" I say to them. "Because 300 of us don't exist."*
>
> *The room becomes less quiet. Mumbling. Private conversations break out.*
>
> *Then I make the point: "Which means you all have a better chance to make it to the NBA than you do doing what I do for a living."*

The scarcity of black sports writers leads to an interesting research question. As Jackson notes, most of the players in the NBA are black. But most of the sports writers – who determine many of the post-season awards – are white.[2] So one might wonder, does race play a role in the voting for these awards?

The nature of this role is difficult to predict. It could be that white voters would discriminate against black players. In this case, black players would get fewer votes than their performance might indicate. Then again, there is a sentiment that blacks are simply better at basketball. If this sentiment was shared by many white voters, then blacks might get more votes than their performance would suggest.

The issue of the impact of race on worker evaluations is not a new subject for researchers in economics. The perpetual gap between the wages paid to whites and members of other ethnic groups has led researchers to question whether or not such differences are due to discrimination. The standard methodology followed in these studies involves regressing a decision variable — such as wages or employment — upon measures of productivity and race.

There are two issues with these studies. First, how does one measure productivity? In most industries, measures of worker productivity are scarce. Hence, economists have studied racial discrimination for decades in the context of professional sports. Professional team sports provide one with a plethora of productivity and decision measures. Such abundance—as we will note—presents its own challenges.

Going beyond the issue of productivity measurement, we will also highlight the issue of how one measures race. Traditionally studies have utilized a simple dummy variable to measure race. In addition to this traditional approach, we also provide a continuous measure of race. Consequently, we show that how one measures race also presents additional challenges.

These challenges will impact what we report with respect to our study of bias among sportswriters. Additionally, we think these challenges also lead one to reconsider previous studies of racial discrimination inside and outside of professional sports.[3]

The decision to be examined

Although studies of professional basketball have examined the role of race in the determination of employment[4] and playing time,[5] most frequently researchers have focused upon player wages.[6] The study of wages is problematic because a firm's wage offer is a function of the employer's expectation of future productivity. This is a factor that cannot be measured with precision at the time the contract is signed. As noted, the finding of racial bias depends crucially upon a researcher controlling for worker productivity. If past productivity does not equal future output, the findings reported from studies of player wages may be questionable at best. Hanssen and Anderson (1999) suggested an alternative approach. These authors, in an examination of racial bias in professional baseball, examined the fan's voting for starting players in Major League Baseball's mid-season All-Star game. The advantage of this approach is that voting patterns are not generally a statement about future performance, but rather votes are offered in response to both past and present player characteristics. Unfortunately, a difficulty with fan voting is that votes do not typically need to be justified to any other person. Consequently, as noted by Hanssen and Anderson, fans can vote for a player for any number of reasons, a fact that may hamper the researchers attempt to quantify the determinants of the voting pattern.

In contrast, honors bestowed by members of the media are generally attacked and defended by other members of the press.[7] The need to justify one's choices may lead people to more often base their votes on factors that can be quantified; or, at the very least explained. Consequently, the link between the objective measures of worker productivity and media's voting pattern may be stronger than the link between worker productivity and wages, employment, or the fans voting for the All-Star game.

Following this argument, this inquiry will focus on the media's selection of the National Basketball Association's (NBA) Most Valuable Player (MVP) award. Beyond following the work of Hanssen and Anderson (1999), the study of the NBA's MVP award also allows us to examine a decision where—as noted in the discussion of Scoop Jackson's observation—the decision-makers are generally white while the people evaluated are generally black.

The voting for this award is conducted in the following fashion. Each member of the voting media lists five players on his/her ballot. The first person listed receives 10 voting points, the second is worth 7 points, 5 points are awarded for third, with 3 and 1 point awarded for fourth and fifth places, respectively. The player with the most points is given the award.[8]

Voting points will serve as our dependent variable in this study. Our purpose is to understand the role of race in these voting point totals. In order to understand that role, we need to first measure each player's productivity.

Measurements of worker productivity in the National Basketball Association

Unlike most industries, the world of sports offers a wealth of worker productivity data. Such wealth, though, presents a different challenge. Which measure should the researcher employ?

Berri, Brook, and Schmidt (2007) describe two plausible performance indices for NBA players.[9]

First, one can turn to the NBA efficiency measure $PROD_{NBA}$, described in equation (1).

$$\mathbf{PROD_{NBA} = (PTS + TREB + STL + BLK + AST) - (TO + FGMS + FTMS)} \quad (1)$$

where PTS = points scored, TREB = total rebounds, STL = steals, BLK = blocked shots, AST = assists, TO = turnovers, FGMS = field goals missed, and FTMS = free throws missed.

The NBA's efficiency index is quite similar to Dave Heeran's TENDEX system[10] and Robert Bellotti's Points Created model.[11] An apparent problem with these models is that no attempt is made to ascertain the relative value of each statistic. For example, the above model argues that a missed field goal is equal in value to a missed free throw. Given the point value associated with each action, such an assertion seems difficult to justify.

In addition to the arbitrary nature of the measure, Berri and Schmidt (2010) note an additional problem:[12]

> Imagine a player who takes twelve shots from two-point range. If he makes four shots, his NBA Efficiency will rise by eight. The eight misses, though, will cause his value to decline by eight. So a player breaks-even with respect to NBA Efficiency by converting on 33% of his shots from two-point range. From three-point range, a player only needs to makes 25% of his shots to break-even. Most NBA players can exceed these thresholds. Therefore, the more shots most NBA players take the higher will be his NBA Efficiency total. As a consequence, players who take a large number of shots tend to dominate the player rankings produced by this measure.

Berri and Bradbury (2009) also note that NBA Efficiency only explains about 32% of the variation in teams wins.[13] So NBA Efficiency is simply not an accurate measure of each player's contribution to outcomes on the court. However, as Berri et al. (2007) observe, this model does seem to be consistent with player evaluation—as expressed via free agent salaries — in the NBA.

In contrast, the Wins Produced model explains approximately 95% of the variation in team wins. As detailed in Berri (2008),[14] this model begins by estimating the relationship between an NBA team's offensive and defensive efficiency and the number of regular season wins.[15] This estimation indicates that wins in the NBA are determined by a team's ability to gain possession of the ball from its opponent without its opponent scoring and the ability to turn possessions efficiently into points. In other words, a player primarily impacts wins by gaining and keeping possession of the ball (i.e., rebounds, steals, and turnovers) and shooting efficiently (from the field and free throw line).

In contrast to the NBA Efficiency model, the Wins Produced model indicates that inefficient scorers do not have much impact on team wins. Consequently, if we wish to measure how a player impacts wins, the Wins Produced model would be the preferred measure. However—as Berri et al. (2007) report—the Wins Produced model (relative to NBA Efficiency) is not as consistent with the evaluation of players by decision-makers in the NBA. Furthermore, we will demonstrate that the choice of performance measure impacts the evaluation of the link between race and the evaluation of players (as measured via the media's voting for league MVP).

Measuring Race

Before we get to that issue, though, we need to discuss how one measures race. Studies of race frequently consider a simple dummy variable. A few studies, though, have attempted a different approach. For example, Fort and Gill (2000)—in a study of baseball cards—utilized a questionnaire to ascertain "how black" a person appeared. Such an approach provided a continuous measure of race.

Robst, VanGilder, Coates, and Berri (2011)—in a study of the NBA free agent market—also employed a continuous measure. But unlike Fort and Gill (2000), this study built upon a literature examining the role colorism—or intraracial discrimination—plays in understanding disparities across populations.[16]

Such studies require a research measure of a person's skin tone. For our study, we employ an objective measure. Specifically we will employ a measure called the RGB color score, which is derived from a model in which red, green, and blue are combined in various ways to reproduce other colors. This model is referred to as an additive model in which the combination of these three primary colors in differing amounts produce the full range of colors. This measurement is calculated using Adobe Photoshop, which is commonly used by photographers to measure and adjust skin tones in pictures.

The color in the RGB color model can be described numerically by indicating how much of each of the red, green, and blue color is included. Each of the primary colors can vary from the minimum amount (no color) to the maximum amount (full intensity). The color values in Adobe Photoshop CS3 Extended are reported in a range between 0 and 255. Full intensity red would be reported as 255, 0, 0. A white image would be reported with high values (closer to 255) for red, green, and blue. A black image would be reported with low values (closer to 0) for red, green, and blue (Wright, 2006).

All images are from the NBA website. Using an image leveling tool of Photoshop, the players' photos are normalized to eliminate bias due to camera or photograph differences. The RGB values are observed from three facial areas, the forehead, right cheek, and left cheek of each sample point. The R's, G's, and B's for each area are averaged to eliminate significant variation of color over different sections of the face. Summing the average R, G, and B for the three areas yields a value between 0 and 765 (255 + 255 + 255). A smaller RGB score is indicative of a darker colored player, and a higher score suggests a lighter skinned player.

In addition to employing the actual RGB score, we also constructed three dummy variables: Dark, Medium, and Light. Dark is equal to 1 if a player is black and has an RGB score that is 300 or lower. Medium is equal to 1 if a player is black and has an RGB score between 301 and 350. Light is equal to 1 if a player is black and has an RGB score that is 351 or higher. The omitted or reference category is comprised of non-black players. Finally, the simple dummy variable Race is defined as 1 for black players and 0 for white.

Modeling Voting for the NBA's Most Valuable Player Award

We now have two options with respect to the measurement of player productivity and we have three approaches to the measurement of race. To complete our model, we need to consider a few additional explanatory variables.

The MVP award has been granted since 1956. Historically, the award has been dominated by front-court performers, specifically centers. Of the 49 awards granted, only

Bob Cousy, Oscar Robertson, Magic Johnson, Michael Jordan, Allen Iverson, Steve Nash, Kobe Bryant, and Derrick Rose won the award while playing primarily in the back-court. Consequently, it is possible that a player's position matters, but how this matters is unclear. Again, historically this award went to big men. However, in the years we examine (1996 to 2012), guards have won the award seven times and traditional big men (i.e., power forwards and centers) have won the award seven times. Thus, it is unclear if position will matter across our sample. Nevertheless, to capture this effect, we employ two dummy variables. DBIG is equal to one if a player is a center or power forward. DGUARD is equal to one if a player is a point guard or shooting guard.

The relationship between the media and the player can also be important. We would expect several factors to impact this relationship. First, more experienced players should be better known by the media, so we expect a player's age to positively impact votes received. Additionally, market size should also matter.[16] Teams in larger markets tend to get more media exposure than teams playing in smaller cities. Consequently, market size could also matter.[17]

There are two more issues that may impact the media's vote. First is whether or not a player has won in the past. The impact of past awards is not easy to predict. On the one hand, it could be that members of the media wish to spread this award around. On the other hand, it could that members of the media favor past award winners. To ascertain which is true, a variable has been added to measure the impact of winning this award in the past five years.[18]

Finally, it is possible the media's perceptions of a player is impacted by the quality of the team employing the player. Specifically, players from better teams, measured via team wins (TMWINS), should elicit more votes from a media focused on identifying winners and losers.

Given our list of independent variables, our model of voting points is described by equation (2).

$$\mathbf{VP_n = \beta_0 + \beta_1 RACE + \beta_2 AGE + \beta_3 TMWINS + \beta_4 MARKET + \beta_4 DBIG + \beta_5 DGUARD + \beta_6 PMVP5 + \beta_6 PROD + e_i} \quad (2)$$

Where RACE = simply dummy variable, RGB variable, or three dummies (Dark, Medium, Light)
TMWINS = Team Wins
MARKET = Population of city where team is located
DBIG = Dummy variable, big man (center or power forward)
DGUARD = Dummy variable, guard (points guard or shooting guard)
PMVP5 = Past MVP's won, weighted for last five years
PROD = NBA Efficiency or Wins Produced

Empirical Findings

To estimate equation (2) we began by collecting data across 17 seasons, beginning with the 1995-96 campaign and ending with 2011-12. We wished to consider all players who may have been seriously considered for the MVP award; if a player received consideration for the All-NBA team, he was included in our sample. In all, our sample consisted of 736 player observations, with 273 of these observations having a value of VP greater than zero.

Table 1: Summary Statistics for Variables Employed

Variable	Mean	Standard Deviation	Minimum	Maximum
Voting Points	77.47	231.19	0.00	1286.80
Dummy Variable, Race	0.84	0.36	0.00	1.00
RGB	363.71	108.26	168.67	637.00
Dummy Variable, Dark	0.34	0.48	0.00	1.00
Dummy Variable, Medium	0.16	0.37	0.00	1.00
Dummy Variable, Light	0.33	0.47	0.00	1.00
Age	27.39	4.13	19.00	40.00
Team Wins	47.57	10.82	12.00	72.00
Market Size	4,780,098	4,377,485	968,858	18,300,000
Dummy Variable, Big Man	0.44	0.50	0.00	1.00
Dummy Variable, Guard	0.39	0.49	0.00	1.00
Past MVP Wins, last 5 years	0.31	1.19	0	9
NBA Efficiency, per game	20.88	3.94	7.34	33.82
Wins Produced, per game	0.12	0.06	-0.09	0.30
Adjusted Field Goal Percentage	0.50	0.04	0.41	0.68
Free Throw Percentage	0.77	0.09	0.41	0.95
Points, per game	19.24	4.71	4.56	34.18
Rebounds, per game	6.92	1.68	1.73	13.13
Steals, per game	1.22	0.44	0.27	2.76
Assists, per game	4.21	1.45	1.03	9.15
Blocked Shots, per game	0.88	0.58	-0.61	3.58
Personal Fouls, per game	2.56	0.56	0.78	4.21
Turnover Percentage	12.96	2.84	5.30	29.67

Table 1 reports for this sample values of the descriptive statistics tabulated for the dependent and independent variables listed in equation (2) and additional statistics employed to measure the performance of an individual NBA player.

Following convention, most of the player statistics employed are tabulated on a per-game basis. The specific statistics employed follow from the literature and include points scored, total rebounds, steals, assists, blocked shots, turnover percentage,[19] adjusted field goal percentage,[20] and free throw percentage. Additionally, we also will consider each player's per-game performance according to the NBA efficiency measure ($PROD_{NBA}$) and Wins Produced ($PROD_{WP}$). With respect to the latter, the average player in our sample produces 0.12 wins per game. Over an 82 games season, such a performance is equivalent to nearly 9.6 wins. We should also note that the average player in our sample is 27.4 years old and comes from a winning team. Finally, with respect to the issue of race, 84% of our sample is black and the average player has a RGB score of 363.71.

With data in hand, we next turn to the estimation of our model. As noted, we considered all players who received consideration for the All-NBA team. Only 273 of these players, though, also received consideration for the MVP award. Given the nature of our dependent variable, we estimated equation (2) as a TOBIT model. The results are reported in Table 2.[21]

Table 2: Estimation of Equation (2)

Dependent Variable: Log of voting points for MVP award, normalized for number of voters
Estimation Method: Censored (TOBIT)
Left censored observations: 463
Uncensored observations: 273
Robust standard errors
Years: 1995 to 2012
t-stats below each coefficient

Variable	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e	Model 2f
Dummy Variable, Race	0.28***			0.58*		
	1.84			3.03		
RGB		-9.44E-04***			-2.52E-03*	
		-1.93			-3.99	
Dummy Variable, Dark			0.47*			0.97*
			2.84			4.75
Dummy Variable, Medium			-0.02			0.20
			-0.14			0.85
Dummy Variable, Light			0.24			0.32
			1.41			1.52
Age	0.01	0.01	0.01	-0.06*	-0.07*	-0.06*
	0.79	0.52	0.88	-3.32	-3.73	-3.39
Team Wins	0.06*	0.06*	0.06*	0.06*	0.06*	0.06*
	9.69	9.65	9.67	8.01	7.97	8.01
Market Size	-1.94E-08	-1.91E-08	-2.48E-08***	-3.17E-09	-2.91E-09	-1.20E-08
	-1.56	-1.49	-1.89	-0.19	-0.17	-0.70
Dummy Variable, Big Man	-0.66*	-0.65*	-0.62*	-0.15	-0.12	-0.06
	-4.23	-4.13	-3.93	-0.74	-0.61	-0.29
Dummy Variable, Guard	0.27***	0.29**	0.29**	0.08	0.13	0.15
	1.83	1.96	1.97	0.38	0.64	0.76
MVP Wins, Past 5 years	0.12*	0.12*	0.12*	0.40*	0.41*	0.40*
	3.90	3.91	3.86	9.07	9.20	8.94
NBA Efficiency, per game	0.29*	0.28*	0.28*			
	19.32	18.77	18.43			
Wins Produced				8.87*	8.93*	8.63*
				7.07	7.11	6.97
Observations	736	736	736	736	736	736
Pseudo R-Squared	0.30	0.30	0.31	0.15	0.15	0.16

* - significant at the 1% level
**- significant at the 5% level
*** - significant at the 10% level

We consider six different formulations of equation (2). Three utilize NBA Efficiency as the measure of performance while three employ Wins Produced. Across all six formulations the story, with respect to race, team performance, and player performance, is similar when we consider statistical significance. A player is more likely to be an MVP if he is darker in skin tone, plays for a winner, and is a productive player. The

Table 3: Estimating Equation (2) with a Collection of Player Performance Statistics

Dependent Variable: Log of voting points for MVP award, normalized for number of voters
Estimation Method: Censored (TOBIT)
Left censored observations: 463
Uncensored observations: 273
Robust standard errors
Years: 1995 to 2012

Variable	Model 2g	Model 2h	Model 2i
Dummy Variable, Race	0.03		
	0.19		
RGB		-4.02E-04	
		-0.81	
Dummy Variable, Dark			0.15
			0.88
Dummy Variable, Medium			-0.06
			-0.35
Dummy Variable, Light			-0.02
			-0.08
Age	0.03**	0.03***	0.03***
	2.03	1.87	1.79
Team Wins	0.07*	0.07*	0.07*
	10.70	10.70	10.68
Market Size	-3.20E-08**	-3.21E-08**	-3.47E-08**
	-2.47	-2.48	-2.56
Dummy Variable, Big Man	0.04	0.05	0.07
	0.28	0.33	0.43
Dummy Variable, Guard	0.35*	0.36*	0.37*
	2.67	2.71	2.75
MVP Wins, Past 5 years	0.03	0.04	0.04
	1.19	1.22	1.33
Adjusted Field Goal Percentage	-0.24	-0.17	-0.25
	-0.17	-0.12	-0.17
Free Throw Percentage	-0.04	0.02	0.07
	-0.06	0.02	0.10
Points per game	0.21*	0.21*	0.20
	12.99	12.88	12.83*
Rebounds per game	0.17*	0.17*	0.17*
	4.58	4.67	4.63
Steals per game	0.23***	0.22***	0.23***
	1.91	1.84	1.92
Assists per game	0.22*	0.22*	0.21*
	5.66	5.77	5.07
Blocked Shots per game	0.45*	0.45*	0.43*
	4.47	4.43	4.26
Personal Fouls per game	-0.41*	-0.43*	-0.41*
	-3.77	-3.88	-3.78
Turnover Percentage	0.04***	0.05**	0.05**
	1.86	2.02	2.15
Observations	736	736	736
Pseudo R-Squared	0.35	0.35	0.35* - significant at the
1% level			

**- significant at the 5% level
*** - significant at the 10% level

impact of age, market size, and position depends on how we specifically formulate the model.

Two issues need to be highlighted with respect to race. First, the traditional approach to measuring race (i.e., utilizing a simple dummy variable) indicates that black players are favored. When we consider skin tone, though, a more subtle story is told. Specifically, lighter-skinned black players don't seem to benefit as much from their race as darker-skinned black players. This can be highlighted by looking at the models that employ the Dark, Medium, and Light dummy variables. Of these, only Dark is statistically significant. This would suggest that only darker-skinned black players are favored by the sport media.

We see another important issue when we turn to economic significance. Consider what we see when the RGB score is used to measure race. In Model 2b, we see a coefficient on RGB that is significant at the 10% level. And when we turn to elasticity—measured at the mean value of RGB[22]—we see that a 10% change in a player's RGB score (i.e., the player is becoming whiter)—lowers a player's voting points by 3.4%.

In model 2e, though, we see a somewhat different story. Again, RGB is statistically significant (now at the 1% level). The elasticity estimate, though, indicates that a 10% increase in a player's RGB score reduced voting points by 9.2%.

The difference between these two models is simply how we measure performance. In model 2b we employ the NBA Efficiency model; in model 2e we use Wins Produced. Our choice of productivity measures seems to impact dramatically the estimated impact race has on outcomes.

Beyond the issue of race and productivity, we would also note that these results indicate that the sports media have trouble separating a player from his team. In other words, a player with better teammates will receive more MVP votes than an equivalent player on a lesser team. In addition, the NBA Efficiency model—which is a poor model of player performance—seems to be more consistent with the sports media evaluation (as indicated by the Pseudo R-squared). And again—regardless of which performance metric we employ—it appears the sports media tends to think blacker players are simply better.

One could stop at this point and be satisfied with a fairly good story. However, there is one more approach that we could try. The studies that have examined race and professional basketball have tended to measure player productivity with a collection of player statistics (as opposed to an index of performance). When we take this approach —as noted in Table 3—part of our story changes.

The results from Table 3 suggest that the collection of box score statistics—as opposed to employing an index—does a better job of capturing the evaluations of the sports media. When we take this approach, the statistical impact of race vanishes. Thus, it seems very clear that how we measure performance impacts the story we tell with respect to race.

Again, in most industries we don't have very clear measures of worker performance. In sports we have many measures. What our study suggests, though, is that the wealth of performance metrics leads to another problem. Which measure the researcher employs could impact the results uncovered with respect to race. Consequently, we would suggest that researchers employing sports data to examine the topic of race consider a variety of measures of player performance. And past studies that have found,

Table 4: The Elasticity of Statistically Significant Factors in Table 3[23]

Variable	Model 2g	Model 2h	Model2i
Points per game	3.97	3.95	3.93
Team Wins	3.41	3.41	3.41
Rebounds per game	1.19	1.19	1.20
Personal Fouls per game	-1.06	-1.09	-1.06
Assists per game	0.93	0.93	0.88
Age	0.77	0.72	0.72
Turnover Percentage	0.57	0.61	0.66
Blocked Shots per game	0.40	0.39	0.38
Steals per game	0.28	0.27	0.28
Market Size	-0.15	-0.15	-0.17

or not found, racial bias with models that only considered one measure of performance (or race) might need to be reconsidered.

Is there bias?

Our study of racial bias in the voting for the NBA's MVP award indicates that how we measure productivity impacts our findings with respect to race, so it not clear that racial bias exists. However, there is evidence of a different sort of bias.

To see this, let's move beyond statistical significance and consider the economic significance of what is reported in Table 3. Specifically, we estimated—at the point of means—the elasticity of voting points with respect to each statistically significant factor from Table 3.

The results indicate that voting points are primarily driven by points scored per game and team wins. So the key to being named MVP is to be a scorer on a winning team.

This can be seen by just looking at the 17 winners in our sample. Of these players, 15 were the leading scorer on their team. The lone exception was Steve Nash, who won the award in 2005 and 2006 by being the primary assist man on a high-scoring team. In addition, the average team employing these players won 74.4% of their regular season games (about 61 wins across an 82-game season) and the very worst team was the Phoenix Suns, who won 65.9% of their games in 2005-06. In sum, if you are not a leading scorer on a top team, you are not likely to be the MVP of the league.

The importance of this finding can be illustrated by story of Derrick Rose. In 2009-10, the Chicago Bulls won 41 games, a mark that ranked 8th in the Eastern Conference. Derrick Rose—at 21 years of age and in just his second season—led this team in both shot attempts from the field and points scored per game. Across the league, though, Rose was only 12th in points scored per game. For this effort, Rose did not receive any consideration from the sports media for league MVP and only 15 points in voting by the sports media for the three All-NBA teams.[24]

The next season the Chicago Bulls won 62 games, which was the best mark in the entire league. Once again, Rose led his team in shot attempts and points scored. Across the league, he was 7th in points scored per game and 3rd in field goal attempts. The improvement in the team's record and Rose's scoring was clearly noticed by the

Table 5: Evaluating the Chicago Bulls in 2009-10 and 2010-11

Chicago Bulls 2009-10			**Chicago Bulls 2010-11**		
Players Retained	**Wins Produced**	**WP48***	**Players Retained**	**Wins Produced**	**WP48**
Derrick Rose	5.4	0.090	Derrick Rose	10.2	0.161
Luol Deng	7.1	0.128	Luol Deng	9.3	0.139
Joakim Noah	8.8	0.219	Joakim Noah	8.4	0.255
Taj Gibson	5.8	0.127	Taj Gibson	5.2	0.143
James Johnson	0.1	0.005	James Johnson	-0.3	-0.110
Summation	**27.1**		**Summation**	**32.7**	
Players Lost	**Wins Produced**	**WP48**	**Players Added**	**WinsWP48 Produced**	
Kirk Hinrich	4.9	0.095	Ronnie Brewer	9.1	0.245
John Salmons	3.2	0.091	Keith Bogans	4.4	0.146
Tyrus Thomas	2.4	0.171	Carlos Boozer	4.0	0.103
Hakim Warrick	1.0	0.089	Kyle Korver	3.4	0.098
Ronald Murray	0.5	0.036	Omer Asik	3.2	0.155
Acie Law	0.2	0.086	Kurt Thomas	2.7	0.111
Brad Miller	0.2	0.006	C.J. Watson	1.0	0.042
Chris Richard	0.2	0.041	Rasual Butler	0.0	0.085
Joe Alexander	-0.1	-0.118	John Lucas	-0.1	-0.268
Aaron Gray	-0.2	-0.207	Brian Scalabrine	-0.1	-0.076
Devin Brown	-0.4	-0.216			
Lindsey Hunter	-0.6	-0.231			
Jannero Pargo	-1.8	-0.104			
Summation Players Lost	**9.6**		**Summation Players Added**	**27.7**	
2009-10 Wins Produced Total	**36.8**		**2010-11 Wins Produced Total**	**60.4**	
Actual 2009-10 Wins	**41**		**Actual 2010-11 Wins**	**62**	

* - WP848 = Wins Produced per 48 minutes. Average WP48 is 0.100.[25]

sports media. When the season was over, the sports writers named Rose to the All-NBA first team and also named him league MVP.

Was Rose the reason this team improved? To answer this question, we turn to Table 5. This table reports the Wins Produced for each player the Chicago Bulls employed in 2009-10 and 2010-11. The players are separated into three groups.

The first is players retained for each season. This group only consists of five players. In 2009-10, these five players combined to produce 27.1 wins. The next season, these five combined to produce 32.7 wins. Thus, part of the team's improvement in 2010-11 can be linked to the improved play of the player retained. And closer scrutiny reveals that Rose was a big part of that specific story. Specifically, Rose produced nearly five more wins in 2010-11 more than he did in 2009-10.

The team, though, improved by more than 20 wins, so the bulk of the team's improvement cannot be linked to the playing of Rose. This can be seen when we look at the performance of the players lost (i.e., employed in 2009-10 but not in 2010-11) and the players added (employed in 2010-11 but not in 2009-10).

In all, the players lost produced fewer than 10 wins in 2009-10. Because an average player will post a WP48 of 0.100, we can see that only one of the players lost, Tyrus Thomas, was actually above average. In contrast, five of the players added were above average, and these players combined to produce more than 27.7 wins in 2010-11.[26]

Given what we see in Table 5, how did Rose win the 2011 MVP award? The Bulls added a collection of productive players that allowed the team to improve tremendously. In addition, Rose—the team's point guard—increased his shot attempts and consequently increased his scoring totals. Given what we have seen with respect to what primarily determines the voting for the league's MVP, it is not surprising that these two changes resulted in Rose being named league MVP.[27]

Concluding Observations

Our story began with a discussion of the role race might play in the voting for the NBA's MVP award. As Scoop Jackson notes, most sports writers are white while most basketball players are black. Given this situation, one might wonder if race matters in this selection process.

Our initial examination indicated that race might matter, but how one measured race and productivity impacted the reported results. Nevertheless, it did appear that the sports writers favored darker-skinned basketball players in the voting for this award.

This result, though, was cast in doubt by our final approach to the measurement of player performance. When we moved from an index of performance to the employment of a basketball player statistics, the impact of race was no longer statistically significant.

That did not mean, though, that bias vanished from the process. Our results indicate that sports writers are clearly biased towards leading scorers on top teams. Such results indicate that sports writers are not particularly skilled at measuring the impact of individual players on outcomes, and the story of Derrick Rose illustrates that finding.

Although the bias uncovered is interesting, the most important result of this research is that studies of race need to be careful with respect to how race and worker performance is measured. The choice the researcher makes with respect to race and productivity seems to impact the results uncovered. Consequently, we suggest that future studies of race consider a variety of measures of both race and worker productivity.

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Endnotes

[1] http://sports.espn.go.com/espn/page2/story?page=jackson/060713 (posted in 2009, accessed on March 14, 2013). Jackson goes on to quote a study from the Associated Press Sports Editors and Richard Lapchick (director of the Institute for Diversity and Ethics in Sports at the University of Florida). The APSE study looked at how many black sports editors were employed at APSE newspapers in the United States. Out of 305, the study only found four.

[2] We do not know the specific identity of these sports writers. But following Jackson's observation, it is not a stretch to assume that the majority are indeed white.

[3] This is not the first study to look at the voting for the NBA's MVP award. Coleman et al. (2008) also examined this topic. In contrast to the earlier study, this current inquiry considers a variety of measures of both player performance and player race. As we will note, the results of this study do depend on which measures are employed.

[4] See Hoang and Rascher (1999).

[5] See McCormick and Tollison (2001).

[6] For studies examining the relationship between wages and player performance, see Kahn and Sherer (1988), Koch and Vander Hill (1988), Brown, Spiro, and Keenan (1991), Jenkins (1996), Dey (1997), Hamilton (1997), Guis and Johnson (1998), Bodvarsson and Brastow (1998, 1999), Bodvarsson and Partridge (2001), and Eschker, Perez, and Siegler (2004), Kahn and Shah (2005), Berri et al. (2007), and Robst, VanGilder, Coates, and Berri (2011).

[7] To illustrate, Fred Hickman of CNN was the lone media member not to vote Shaquille O'Neal the Most Valuable Player in the National Basketball Association for the 1999-2000 season. When his vote was publicized, members of the press quickly wrote columns both attacking and defending Hickman's choice of Allen Iverson.

[8] Data on voting points can be found at the website of Patricia Bender and at Basketball-Reference.com. Because the number of voters changes from year to year, the maximum number of voting points can also change. Consequently our study normalizes voting points. Specifically, the maximum number of voters was in 2006-07, where 1290 voting points was possible. So for each observation we did the following calculation: (1290/maximum number of votes points in season)*number of voting points player received.

[9] Quirk and Fort (1992), Scully (1995), Jenkins (1996) and Hanssen and Anderson (1999) have all argued that an index of performance provides a more accurate assessment of a player's productivity.

[10] TENDEX was first formulated by Heeran in 1959. Heeran begins with a model identical to the one currently employed by the NBA, but then weights each player's production by both minutes played and the average game pace his team played throughout the season being examined.

[11] Robert Bellotti Points Created model, published in 1988, is also quite similar. Bellotti begins with the basic TENDEX model and then simply subtracts 50% of each player's personal fouls. Jeffrey Jenkins (1996), in a departure from the practice of employing a collection of individual player statistics, employed the Points Created index in a study of racial discrimination.

[12] Berri and Schmidt (2010) note that both Game Score and Player Efficiency Rating – two measures developed by John Hollinger – also overvalue inefficient scorers. Both measures are also highly correlated with NBA Efficiency.

[13] Berri and Bradbury (2010) also notes that Games Score and PER explain only 31% and 33% of the variation in wins respectively. These authors also note that even when team defense is incorporated into these measures, explanatory power only rises to about 60%. In contrast, Wins Produced explains approximately 95% of the variation in team wins.

[14] The Wins Produced model connects the player statistics to team wins. The model explains more than 90% of team wins and allows one to connect team outcomes to specific players. This model builds upon earlier work (see Berri and Brook [1999], Berri [1999], and Berri and Krautmann [2006]). The model was detailed in Berri (2008) and Berri (2012). This model was recently updated to account for the diminishing returns associated with defensive rebounds (detailed in Berri and Schmidt (2006)]. For the details of this updated calculation one is referred to Berri and Schmidt (2010) to wagesofwins.com/wins-produced/how-to-calculate-wins-produced/

[15] Offensive efficiency is calculated as points scored divided by possessions employed. Defensive efficiency is points surrendered divided by possessions acquired. Possessions employed (PE) is calculated as follows:
PE = FGA + 0.45*FTA + TO – ORB
Possessions Acquired (PA) is calculated as follows:
PA = Opp.TO + DRB + TMRB + Opp.FGM + 0.45*Opp.FTM

[16] A sample of this literature would include Thompson and Keith (2001), Goldsmith, Hamilton, and Darity (2006), and Gyimah-Brempong and Price (2006).

[17] For market size we utilized – from the U.S. Census – the size of the standard metropolitan area where each team was located. Data for Canadian cities was found at Statistics Canada (n.d.).

[18] The approach to measuring the impact of winning an MVP award in the past follows from Berri, Schmidt, Brook (2004). This paper measured the impact of past titles won on an NBA's gate revenue by including a measure equal to 20 if a team won a title last year, 19 the year before, etc… The variable for any specific year considered the value of all past titles won in the last 20 years. A similar approach was taken for players who won MVP awards in the past. If the player won last year, he was given a 5. If he won two years ago a 4, and so on. If the player won multiple times in the past five years, the numbers were added together (so a win in the past two years would be worth 9). We also tried constructing a similar variable for players who won in the last three years or won in just the past year. It appeared that explanatory power was highest for five years. We thank two anonymous referees for suggesting this variable.

[19] Turnovers and scoring are highly correlated. Turnover percentage is a measure of turnovers that adjusts for this issue. The specific calculation is as follows: 100 * (TO))/ (FGA + 0.44*FTA + TO)

[20] NBA players can attempt field goals from two and three point range. Adjusted field goal percentage is a measure of shooting efficiency that takes into account shooting from each distance. The specific calculation – from basketball-reference.com — is as follows:
[Field Goals Made + 0.5*Three Point Field Goals Made] / Field Goals Attempted.

[21] We should also note that our dependent variable is the log of normalized voting points. In addition, robust standard errors are employed.

[22] We utilized the marginal effects of the TOBIT analysis (as provided by Stata) for the calculation of elasticity.

[23] This list only considers the non-dummy variables.

[24] Brandon Roy was the last player named to the All-NBA third team and he received 87 points. Eight additional players – beyond the 15 players named to the three All-NBA teams — received more voting points than Rose. Voting points data taken from the website of Patricia Bender.

[25] An average team will win 0.500 games in 48 minutes (the length of a game). So therefore an average player in 48 minutes will produce 0.100 wins.

[26] One might think that Rose could have made these players better. Of the ten players added, eight played in the NBA in 2009-10. Had these players maintained the same per-minute performance in 2010-11 as they did in 2009-10, these players would have produced 29.0 wins in

2010-11. With the Bulls, though, these players only produced 24.6 wins. So the veterans added actually played a bit worse with Rose as a teammate. Such a result doesn't indicate Rose makes his teammates less productive. But it certainly is inconsistent with the hypothesis Rose makes his teammates better. We would add, the Bulls also added Tom Thibodeau as head coach before the 2010-11. The Bulls improvement likely led the media to name Thibodeau as coach of the year. But again, the improvement seems linked to the team just adding much better players.

[27] Rose did lead the Bulls in Wins Produced in 2010-11. But in the league, he ranked 21st. The leader—Chris Paul—produced 18.45 wins; or more than eight wins beyond what Rose offered.

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