

# Is There Salary Discrimination by Nationality in the NBA?: Foreign Talent or Foreign Market

Journal of Sports Economics

13(1) 53-75

© The Author(s) 2012

Reprints and permission:

[sagepub.com/journalsPermissions.nav](http://sagepub.com/journalsPermissions.nav)

DOI: 10.1177/1527002510391617

<http://jse.sagepub.com>



Chih-Hai Yang<sup>1</sup> and Hsuan-Yu Lin<sup>1</sup>

## Abstract

The authority of the National Basketball Association (NBA) over the past decade has actively internationalized the game by recruiting potential international players and expanding overseas markets. This article examines the determinants of salaries for NBA players, aiming to identify the existence of nationality discrimination on players' salary and whether the market size of international players' home countries matters to their compensation. Based on an unbalanced panel data of 618 NBA players between the 1999-2000 and 2007-2008 seasons and employing the technique of two-stage double fixed-effect model, the empirical results suggest that international players seem to receive a lower salary than that of their U.S.-born counterparts, *ceteris paribus*, suggesting the existence of salary discrimination by nationality. However, international players who come from a large economy receive preferential labor market treatment, highlighting the importance of the home country market to their salaries. The player characteristics such as positions, height, draft, and a team's local market size indeed play crucial roles in determining players' salaries. The authors also find that U.S.-born White players tend to be paid less than U.S.-born Black players. It may reflect the fact that more WHITES tend to be Bench players or the possibility of racial discrimination.

---

<sup>1</sup> National Central University, Jhongli, Taiwan

## Corresponding Author:

Chih-Hai Yang, Department of Economics, National Central University, 300 Jhongda Road, Jhongli 320, Taiwan

Email: [chyang@mgt.ncu.edu.tw](mailto:chyang@mgt.ncu.edu.tw)

**Keywords**

wage, nationality discrimination, market size, international player, NBA

**Introduction**

Along with the rapid progress of information and communication technology (ICT), the National Basketball Association (NBA) has begun to expand its global territory through various channels such as (live) telecasts, NBA-licensed merchandise sales, introducing international players, and overseas preseason games. The number of international players increased steadily from 35 in the 1999-2000 season to 80 in the 2006-2007 season, accounting for 18% of rosters. As the sports economics literature has widely examined the question of racial salary discrimination in the NBA, the upsurge in international players in the NBA inspires an emerging interesting question of whether salary differentials exist by nationality. Is the NBA a labor market, which differentiates between its U.S.-born players and international players?

How have international players fared relative to players trained in the United States? The Yugoslavian national team that won the World Basketball Championship in 2002 broke the unbeaten streak of the NBA's "Dream Team," pushing NBA teams to unearth neglected talent of international basketball players. While international players are probably talented and worth paying higher salaries, NBA teams may overpay for international players compared with incumbent players. The famous hypothesis of the "winner's curse" argues that teams may overestimate the marginal revenue players bring in the free agent market. Specifically, when international players have no basketball experience in the United States, NBA teams lack comparative information regarding their true talent and are apt to overestimate their talent, tending to pay a higher salary (Eschker, Perez, & Siegler, 2004).

Alternatively, international players are perhaps paid lower, giving the appearance of salary discrimination by nationality. Teams with limited experience, facing the difficulty of accurately evaluating international player talent, adopt a conservative stance on paying international players a high salary. More importantly, the NBA is widely recognized as the "Basketball Sanctuary" in which every basketball player is eager for an opportunity to play for an NBA team. Compared with the limited demand for players, the worldwide source of players gives NBA team's stronger bargaining power to negotiate salaries with international players. Specifically, NBA teams generally pay a considerably higher salary than that of European leagues, suggesting that the economic rent enjoyed by signing on with an NBA team also provides an important incentive for international players.<sup>1</sup> International players are apt to accept an offer with nationality salary discrimination because the offered salary is probably much higher than what their home countries or other basketball leagues pay. Thus, the question of whether nationality salary discrimination exists in the NBA is an emerging interesting issue. How have international players fared relative to U.S.-born players in the NBA? To our best knowledge, only one study,

Eschker et al. (2004), has examined how international NBA athletes have fared relative to players trained in the United States. The rare study suggests the need for more empirical studies.

Research widely recognizes customer discrimination as one source of discrimination in the NBA, which can lead to salary inequalities across race. For instance, Kahn and Sherer (1988), Koch and Vander Hill (1988), Bodvarsson and Partridge (2001), and Burdekin, Hossfeld, and Smith (2005) provided evidence that Black players are paid significantly less than their White counterparts, after controlling for on-court performance. The “customer discrimination” hypothesis suggests that teams lose revenue and profits when they adopt color-neutral hiring practices, a practice that it is unlikely to disappear in the long run (Nardinelli & Simon, 1990). Applying this concept, foreign fans should prefer watching NBA games with their compatriot players. For example, the addition of Yao Ming to the Houston Rockets as the first overall pick of the draft in 2002 has the potential to influence fan interest and marketing growth. As reported by the *New York Times* in December 15, 2002:

Of the 120 N.B.A. games to be broadcast in China this season, 30 will involve the Rockets. Some games have the potential to reach up to 280 million households, roughly equal to the entire population of the United States. This gives corporate sponsors a chance, through advertising placards shown on television, to gain entry into a consumer market of 1.2 billion people.

NBA games indeed have become the most popular sport in China today. The famous Chinese player, Yao Ming, joining the Rockets, has obviously increased fans and revenue.<sup>2</sup> While customer discrimination is hard to disentangle from other influences in differentiating salary, the scarcity of excellent international players, especially coming from a large economy, can lead to bidding up wages beyond levels explained by personal characteristics and on-court performance. Market size regards “nationality discrimination” as an alternative. Pedace (2008) utilized a “market test” approach to examine the existence of nationality discrimination in the English professional soccer league and provided some evidence for this possibility.

The current study investigates the potential difference in salary between international and American NBA players, attempting to contribute in line with the empirical literature by providing the following three distinct types of empirical evidence. First, while the influx of international players in professional sports has become prevalent during the past decade, the investigation on the potential difference in salary between international and local players remains scant. Based on salary information of NBA players, this study provides new evidence on whether there is nationality discrimination in salary. Second, although research has widely adopted the wage equation to identify discrimination to apply to panel data, the unobserved individual premium correlated to time-invariant variables plagues this approach, resulting in biased estimates on time-invariant determinants. This study

adopts the two-stage double fixed-effect model to clarify the issue of nationality discrimination. Race, nationality, and the existence of a sport league in international players' home countries are typically time invariant in the short term, preventing the ability to distinguish their salary effects from the ordinary least squares (OLS) or panel data estimates of the wage equation. Drawing the individual-specific wage premium from the first-stage fixed-effect model, the second-stage estimates identify the effects of nationality and overseas market size on international players' salaries. Third, this study collects a much newer data set of individual NBA players during 2000-2008 and uses the topical investigation to compare with existing findings based on bygone data for a dynamic view of international players' salaries in the NBA.

The rest of this article is organized as follows. Internationalization of the NBA section highlights the internationalization process of NBA in terms of foreign telecasts and influx of international players. Literature Review section summarizes a brief literature review. Empirical Specifications, Estimating Techniques, and Data section addresses the empirical specifications and describes the dataset used for empirical analyses. Empirical Results section employs the two-stage double fixed-effects model to examine the role of nationality and home market size on influencing international players' salaries. This study first displays and discusses the determinants of NBA players' salaries obtained using a fixed-effect panel data model in the first stage. The second-stage estimates examine the effects of nationality and market size of the home country on international players' wage premium to identify the existence of nationality discrimination. The final section presents concluding remarks.

## **Internationalization of the NBA**

Founded in 1946 as the Basketball Association of America (BAA), the National Basketball Association (NBA) was renamed as the NBA in 1949. During the hard years of the 1950-1960s, the league faced competition from the newly established American Basketball Association (ABA), resulting in a bidding war between the two leagues. In the 1976 season, the NBA and ABA reached a settlement to merge into a single league. The NBA added four ABA franchises to the NBA, raising the number of franchises in the league to 22 teams and establishing the modern NBA framework.<sup>3</sup>

Compared with other professional sports in North America, NBA operations have not been so successful. In 1984, NBA's market value was only \$15.5 million. Specifically, 17 of the 23 teams nearly went into bankruptcy. In the same year, David Stern became the fourth Commissioner of the NBA. He ushered in an era of commercialization and internationalization for the NBA through various strategies, taking the game to new heights of popularity and profit. Among various NBA transformation strategies, internationalization has been one of the most important and

**Table 1.** NBA's Telecast's Contracts

Contracted Season	Media	Contract Value	Value/Year
1953-1954	DUMONT	\$39,000/13 games	—
1954-1955 to 1972-1973	NBC, ABC	—	—
1973-1974 to 1975-1976	CBS	\$27 million/3 years	\$9 million
1976-1977 to 1977-1978	CBS	\$21 million/2 years	\$10.5 million
1978-1979 to 1981-1982	CBS	\$74 million/4 years	\$18.5 million
1982-1983 to 1985-1986	CBS	\$91.9 million/4years	\$22.975 million
1986-1987 to 1989-1990	CBS	\$173 million/4years	\$43.25 million
1990-1991 to 1993-1994	NBC	\$601 million/4years	\$150.25 million
1994-1995 to 1997-1998	NBC	\$ 892 million/4 years	\$223 million
1998-1999 to 2001-2002	NBC	\$1.616 billion/4 years	\$404 million
2002-2003 to 2007-2008	ABC/ESPN/TNT	\$2.4 billion/6 years	\$400 million
2008-2009 to 2015-2016	ABC/ESPN/TNT	\$7.54 billion/8 years	\$942.5 million

Note. NBA = National Basketball Association.

Source: Compiled by the authors.

effective.<sup>4</sup> Two major strategies for promoting NBA as a popular sport globally included (live) telecasts and introducing international players.

### *Expanding Overseas Markets by Telecasts*

Under Stern's watch, the first reform step of the NBA was to promote the game not only nationally but also globally to attract more attendances and fans. In the mid-1980s, the arrival of Michael Jordan, together with existing famous players Larry Bird and Magic Johnson, took the game to higher popularity and ushered in a new era of commercial bounty for the NBA. More importantly, the rapid progress of ICT provided an excellent chance to raise the game's visibility through various media channels.

Table 1 summarizes the statistics of NBA's broadcast contracts in domestic telecasts. The annual telecast royalty fee increased sharply since the early 1980s, due to both the healthy development of the NBA and aggressively negotiating with media enterprises. The NBA's 1988-1990 television contract with CBS was valued at \$43.25 million annually. Entering the 1990s, NBA's broadcast partner changed to NBC and TNT and obtained a single season contract of \$150.25 million for 4 years during the 1990-1991 to 1993-1994 seasons. Today, the NBA's contract with ABC and ESPN has hit a high value of \$942.5 million annually. Clearly, by the turn of the decade, the NBA was a thriving sports league acquiring benefits through telecasts.

Acknowledging the importance of media on NBA's long-term development, the league began actively expanding overseas markets, especially in developing countries, via overseas telecasts and utilizing the Internet to mediate the game to potential foreign fans. Construction of an official website has substantially improved NBA visibility around the world, providing not only a channel to mediate fans and players

or the league but also attracting younger worldwide fans to watch the game via low-charge online broadcasts on the league's official website.

A more critical strategy for expanding overseas markets is adopting a royalty-free or low-royalty policy of telecast contracts for developing countries. This strategy mainly comes from David Stern's recognition that an intensive array of telecasts helps to foster potential fans' interest in and loyalty to the game. In contrast with the policy of charging a high royalty in the United States, the charged royalty for developing countries depends on their degree of development and basketball popularity. The NBA has generally charged a low amount or no royalty fee for broadcasting the game at the early stage of introducing the game in developing countries. For instance, the telecast contract with Mongolia, Namibia, and Kuwait was valued at only \$10,350, \$22,550, and \$52,375 for one season during their first-time introduction of telecasting NBA games.

Such a strategy was particularly successful when applied to the China market. During 1991-1998, NBA provided contents of games to CCTV of China without any charge, allowing free broadcast of NBA games to China. Even more, NBA assisted CCTV in its live broadcast of the NBA All-Star game and NBA Finals at its own expense.<sup>5</sup> While the league inevitably suffered losses in the China market in the 1990s, this strategy enabled the league to obtain long-term commercial benefits due to the booming population of basketball fans. China has become the largest overseas market of the NBA, as the league currently produces 12 telecasts in China and reaches more than 280 million families. According to the league's managing director in China, Mark Fisher, NBA games attracted 6 million viewers a night during the 2006-2007 season and increased to 14-16 million during the 2007-2008 season, on average. By the 2008-2009 season, the game broadcasted in 215 countries through 41 languages, suggesting that the NBA has been very successful in promoting itself through electronic mediums.

### *Introduction of International Players in the NBA*

To expand overseas markets, introducing international players is a complementary strategy with telecasts. The influx of international players in the NBA roughly separated into two periods by 1989 when the Federation Internationale de Basketball (FIBA) decided to eliminate the distinction between amateur and professional players. This enabled eligibility to all players for FIBA competitions, including the Olympics.

The first influx of international players appeared in the early 1980s. While those players were born outside of the United States, they attended a U.S. college to experience basketball training and drafted through the formal NBA Draft. For instance, Hakeem Olajuwon of Nigeria graduated from the University of Houston and was picked first in the 1984 NBA Draft. Patrick Ewing of Jamaica received a bachelor's degree from Georgetown University and was picked up as the first overall draft pick in 1985. At that same time, Detlef Schrempf of Germany was

**Table 2.** Statistics of International Players in the NBA, 1999-2008

Season	(1) International Players <sup>a</sup>	(2) International Players <sup>b</sup>	(3) Total Players	(1)/(3) Ratio (%)	(2)/(3) Ratio (%)
1999-2000	35	12	419	8.35	2.86
2000-2001	45	19	422	10.66	4.50
2001-2002	51	25	418	12.20	5.98
2002-2003	62	37	406	15.27	9.11
2003-2004	66	40	416	15.78	9.62
2004-2005	78	52	440	17.73	11.82
2005-2006	77	54	430	17.91	12.56
2006-2007	80	53	428	18.69	12.38
2007-2008	76	51	421	18.05	12.11

Note. NBA = National Basketball Association. <sup>a</sup>An international player is defined as a player who was foreign born. This is the official definition of international players by the NBA. <sup>b</sup>An international player is defined as a player who was foreign born and did not attend a U.S. college.

selected eighth overall by the Dallas Mavericks when he graduated from the University of Washington.

As for international players who were foreign born and did not attend a U.S. college, following pioneers like Georgi Glouchkov (Bulgaria) and Dražen Petrović (Croatia) who joined the NBA in the late 1980s, an increasing number of international players moved directly from their home countries to start in the NBA. Table 2 displays the number of international players on official rosters and its ratio to all players since the 1990-1991 season.

The figure in column 1 is the number of international players according to the NBA's definition of a player born outside of the United States. Alternatively, Eschker et al. (2004) proposed a narrow definition of international players as NBA basketball players born outside of the United States, who did not attend a U.S. college, shown in column 2. As column 1 indicates, the number of international players (NBA's definition) grew steadily from 35 in the 1999-2000 season to 80 in the 2006-2007 season and then slightly decreased to 76 in the 2007-2008 season. Given that the annual number of official rosters is very similar, the corresponding ratio of international players to total players increased stably from 8.35% to higher than 18%.

Adopting the narrow definition, the number of international players increased from 12 in the 1999-2000 season to 48 in the 2005-2006 season, and then decreased slightly. Correspondingly, international players accounted for only 2.86% of official rosters in the 1999-2000 season, while this ratio increased to over 12% in recent years.<sup>6</sup> One point worth noting is that the number of international players upsurged sharply during the 2002-2005 period. As mentioned previously, the Yugoslavian national team that won the World Basketball Championship in 2002 pushed NBA teams to scout for talented international basketball players. David Stern argues that setting up NBA training camps and exhibition games globally as well as the influx of international players into the league have played a considerable role in developing the character of the NBA in the 21st century.

The royalty-free (or extremely low) policy along with the introduction of international players has raised billions of fans outside the United States. Due to national emotions, foreign fans tend to support the NBA teams that recruit their compatriots as players and prefer to watch those teams' games. This enables the league to earn greater profits through a variety of channels, such as licensed merchandises, an increasing royalty, gate receipts, advertisement revenue, and foreign sponsors. For instance, Yao Ming of China and Dirk Nowitzki of Germany have created huge marketing figures for the league.<sup>7</sup>

Drawn from the abovementioned discussion, the market size of international players' home countries may play a critical role in differentiating their salary, because creating a new and larger market can contribute significantly to the league's revenue. The possibility of nationality discrimination or nationality premium on salary is hard to judge. The NBA likely pays international players a lower salary, because it regards them as a catalyst for a booming foreign market. Alternatively, talented international players probably receive a nationality premium due to the accompanied huge benefits from their home country brought on by an international player joining the league.

## **Literature Review**

The potential difference in salary due to players' specific characteristics in the professional sports industry is a long-standing issue among economists. A large body of empirical literature has devoted itself to discussing the racial differences in players' salaries in the NBA.<sup>9</sup>

Professional sports, including the NBA, have been economically positive to Blacks by offering them a chance to escape poverty and for some to leave the ghetto (Mogull, 1974). On the other hand, professional sports are unique in their anachronistic conservative nature, where team managers and owners keep athletes under rigid control. In the early 1970s, Black athletes comprised more than 50% of NBA players, though their success was not always readily accepted and appreciated as reflected in their asymmetrical compensation, that is, racial



discrimination in salary. This wage discrimination appeared not only in the 1970s (Mogull, 1981; Scott, Long, & Somppi, 1985) but also persisted into the 1980s. Using 1984-1985 data, Brown, Spiro, and Keenan (1988), Koch and Vander Hill (1988), and Wallace (1998) employed a clever model to control for other determinants of player salaries that yielded a Black disadvantage of more than 12–14%. Kahn and Sherer (1988) investigated racial differences in 1985-1986 salaries of individual NBA players. Controlling for a variety of productivity and market-oriented variables for the endogeneity of player draft position, they found a significant Black compensation shortfall of about 20%. More specifically, their compensation and attendance results are consistent with the idea of customer discrimination.<sup>9</sup>

The structure of the NBA has changed substantially in several key respects since the late 1980s, including the entry of new franchises, an increase in the level of free agency, the set-up of a salary cap, and so on. This development seems to provide an abundance of economic advancement opportunities for both White and Black players, implying the wage gap may have disappeared (Dey, 1997). Therefore, some studies have utilized a more recent dataset to reexamine this issue and have confirmed that the NBA is a racially equal market (e.g., Dey, 1997; Hamilton, 1997; Gius & Johnson, 1998; Kahn & Shah, 2005). That is, there has been no significant racial wage differential between Black and White players in recent years.<sup>10</sup>

Along with the influx of international players into the NBA, the issue regarding international players' salaries has become an emerging research question. Specifically, the revenue of this league increasingly relies on global markets, implying that famous international players might be prerequisites for attracting more foreign fans. Only one study has explored the question of whether there is a significant wage gap based on nationality in the NBA. Eschker et al. (2004) examined the determinants of salaries for players in the NBA to investigate how international players have fared relative to players trained in the United States. Their empirical estimates suggest owners paid international players a *large* premium over other players of similar skills and characteristics for the 1996-1997 and 1997-1998 seasons, after which the premium *disappeared*. Why did international players receive a temporary premium? The authors claim it is likely attributable to a "winner's curse" experienced by NBA teams before investing significant resources in scouting and evaluating international players—that is, NBA teams overestimated the marginal revenue produced by international players at the initial stage of introducing foreign athletics. Once teams gained experience in evaluating foreign player talent and devoted more efforts to scouting international talent, this winner's curse disappeared.<sup>11</sup>

Reviewing the literature, a systematic examination of potential differences in NBA players' salary by nationality remains rare, suggesting the need for more empirical answers. Specifically, research has never examined whether international players receive a wage premium paid for foreign markets

## Empirical Specifications, Estimating Techniques, and Data

To examine the determinants of NBA players' salaries, this research adopted the standard Mincer-type (1974) earning equation and specified the salary equation as follows:

$$\ln S_{it} = X_{it}\beta + u_i + \varepsilon_{it}. \quad (1)$$

The dependent variable  $\ln S_{it}$  denotes the logarithm of yearly salary for individual player  $i$  at time  $t$ . Here,  $X$  is a vector of player characteristics and performance that may vary over time. The error term  $u_i$  is an individual-specific effect, whereas  $\varepsilon_{it}$  is a White noise error term. Referring to previous studies on examining the determinants of salary in NBA, the empirical equation is specified as:

$$\begin{aligned} \ln S_{i,t+1} = & \alpha_0 + \alpha_1 \text{FORWARD}_{it} + \alpha_2 \text{CENTER}_{it} + \alpha_3 \text{EXP}_{it} + \alpha_4 \text{EXP}_{it}^2 + \alpha_5 \text{AGE}_{it} \\ & + \alpha_6 \text{AGE}_{it}^2 + \alpha_7 \text{GAME}_{it} + \alpha_8 \text{MINUTE}_{it} + \alpha_9 \text{REBOUND}_{it} \\ & + \alpha_{10} \text{ASSIST}_{it} + \alpha_{11} \text{STEAL}_{it} + \alpha_{12} \text{BLOCKED}_{it} + \alpha_{13} \text{PTS}_{it} \\ & + \alpha_{14} \text{CHANGE}_{it} + \alpha_{15} \text{STAR}_{it} + u_i + \varepsilon_{it}. \end{aligned} \quad (2)$$

This study assumes a player's current-year salary to be determined by his personal characteristics and on-court performance in the previous year. FORWARD and CENTER are binary variables that equal to one if a player was a forward or center forward in season  $t$ . Despite that a player's on-court position seldom changes over time, it is also a time-variant variable in the data set, enabling us to include it in the panel specification to examine the potential difference in salaries paid for various on-court positions. Adopting different time span data found contradicting results in the existing literature; therefore, no confirmative sign is expected in priori. The other individual characteristics are seasons of NBA experience (EXP) and age (AGE). Both are expected to have a positive impact on wage accompanied with a decreased marginal effect. Thus, the estimated sign for the coefficient of EXP (AGE) and its square term should be positive and negative.

As on-court performance is the core influence of salary in professional sports industries, this study included six widely recognized indicators of on-court performance in basketball games. GAME denotes the number of games a player plays in a season. A player entering the court more frequently in a season implies that he possesses a stable situation both physically and psychologically and serves as a main force for a team. Therefore, we expect this variable to associate a significantly positive coefficient. MINUTE denotes minutes per game a player show up and this variable is included to distinguish between starters and bench players. We expected a positive sign attached with this variable, because starters are generally paid much higher than bench players. On-court performance variables include rebounds per

game (REBOUND), assists per game (ASSIST), steals per game (STEAL), blocked shots per game (BLOCKED), and points per game (PTS). These variables are the best measures of on-court performance in basketball games and they are expected to have a positive impact on salary. For instance, Gius and Johnson (1998) and Eschker et al. (2004) found that points per game, rebounds per game, assists per game, and blocked shots per game are significant variables.

The dummy variable CHANGE is equal to one if a player changed teams during the previous season. We also included a binary variable STAR that is equal to one if a player was named to the All-NBA team in the previous season. This variable was adopted to control for the possibility that superstars may be paid more than their on-court performance.

The main concern of this study is the roles of nationality and foreign market on differentiating NBA players' salaries. However, the study suffered some obstacles to include these two variables in the earnings equation. Whether a player was foreign born is a time-invariant variable that can be estimated in the cross-sectional regression like in Eschker et al. (2004), while it will be dropped from the estimates in Equation 2 by adopting the fixed effect of the panel data model. The estimates on the effect of foreign market size, which is proxied by the binary dummy of whether an international player's home country has a professional basketball league, also encounter the same econometric problem. Furthermore, some important individual characteristics effecting salary are also time invariant, such as race or whether a player was drafted in the first round.

This study espoused the two-stage double fixed-effect model, adopted by Bartel and Sicherman (1999), to implement the empirical estimation. We first estimated the Mincer-type earning equation (Equation 2) using the standard fixed-effect model. The model enables us to obtain the individual wage premium ( $u_i$ ) that is the fixed part of the wage premium attributed to unobserved heterogeneity among players or market premium. This part can capture compensating wage differentials due to time-invariant characteristics. In the second stage, we regressed the predicted individual-specific wage premium ( $\hat{u}_i$ ) on nationality, foreign market size, race, and other variables. The empirical specifications for all U.S.-born and foreign-born players are assumed as follows.

$$\hat{u}_{i, \text{All}} = \beta + \beta_1 \text{FOREIGN}_i + \beta_2 \text{ROUND1}_i + \beta_3 \text{HT}_i + \beta_4 \text{RACE}_{it} + \eta_i. \quad (3)$$

$$\hat{u}_{i, \text{US}} = \lambda_0 + \lambda_1 \text{ROUND1}_i + \lambda_2 \text{HT}_i + \lambda_3 \text{RACE}_i + \lambda_4 \text{DMKT} + \omega_i. \quad (4)$$

$$\hat{u}_{i, \text{FOR}} = \gamma_0 + \gamma_1 \text{ROUND1}_i + \gamma_2 \text{HT}_i + \gamma_3 \text{RACE}_i + \gamma_4 \text{DMKT}_i + \gamma_5 \text{FMKT}_i + v_i. \quad (5)$$

In Equation 3, FOREIGN is a dummy variable that equals to one if the player is an international player (foreign born). The estimated sign of the variable can be used to test the hypothesis of whether there is a "nationality discrimination" in

salary. A significantly negative coefficient indicates that international players are lower paid, *ceteris paribus*. Alternatively, a significantly positive coefficient implies that there is a “nationality premium” on salary in the NBA. ROUND1 is a binary variable that is equal to one if a player was drafted in the first round. Two individual characteristics are also added: HT is a player’s height in inches and RACE is a zero-one indicator variable that is equal to one if a player is a White man. Hamilton (1997), Gius and Johnson (1998), Burdekin et al. (2005), and Kahn and Shah (2005) concluded that wage discrimination based on race has disappeared from the NBA since the early 1990s, and we therefore expected that the estimated coefficient on the RACE variable is not statistically significant from zero.

In Equations 4 and 5, the additional variable is market size. For U.S.-born players, the domestic market size (DMKT) is measured by the logarithm of average accumulated audience attendance in a player’s home field in the sample periods. As for international players, this study considered not only the U.S. local market size but also the foreign market size (FMKT) where an international player was born. To obtain robust estimates on the potential wage premium of international players brought on by foreign market size, this study employed three measures of foreign market size: the logarithm of the average population of an international player’s home country during the sample period ( $\ln(\overline{POP})_i$ ); the logarithm of average per capita gross domestic product (GDP) of an international player’s home country during the sample period ( $\ln(\overline{PGDP})_i$ ); and a dummy variable equal to one if there is a professional basketball league in an international player’s home country ( $PRO_i$ ). As discussed previously, one important reason for introducing international players is to promote NBA games as a popular sport globally to expand NBA’s overseas markets. A famous international player who can help to attract more foreign fans will possibly be paid a wage premium based on the size of his home country. We therefore expected to have a positive sign attached the foreign market variable.

The second stage estimated the potential effects of foreign nationality and foreign market size on individual wage premium ( $e_{it}$ ) using weighted least squares (WLS), where the weights are the inverse of the standard errors of the dependent variable obtained by the estimating Equation 2.<sup>12</sup>

The data set utilized in this study contains 618 players during the 1999-2000 to 2007-2008 seasons, yielding an unbalanced panel of 3,051 observations. Data on player characteristics and home country information were calculated from a variety of sources. The history of an individual player’s salary, on-court performance, and local market size were mainly collected from various websites, including the official NBA website (NBA.com), Basketball-Reference.com, eskimo.com, and various editions of *The Complete Handbook of Pro Basketball*. Data on international players’ home country characteristics were drawn from the World Bank databank. Table 3 summarizes the definition, basic statistics, and data sources of variables used in this article.

**Table 3.** Variable Definitions and Basic Statistics

Variable	Definition	M (SE)
S	Annual salary (\$1,000)	4040.923 (3743.227)
FORWARD	Dummy variable: equals 1 if a player served as a forward	0.445 (0.497)
CENTER	Dummy variable: equals 1 if a player served as a center forward	0.151 (0.358)
EXP	Experience: seasons in NBA	5.604 (3.664)
AGE	A player's age	26.609 (4.182)
GAME	Games played in a season	62.230 (20.548)
MINUTE	Minutes per game played in a season	23.409 (9.932)
REBOUND	Number of rebounds per game	4.097 (2.530)
ASSIST	Number of assists per game	2.076 (1.890)
STEEL	Number of steals per game	0.739 (0.460)
BLOCKED	Number of blocked shots per game	0.493 (0.558)
PTS	Points per game	9.389 (6.128)
STAR	Dummy variable: equals 1 if a player was named to the all-NBA team more often than half of his NBA career	0.053 (0.224)
FOREIGN	Foreign player: a dummy variable equals 1 if a player is a foreign-born player	0.144 (0.351)
ROUND1	Dummy variable: equals 1 if a player was drafted in the first round.	0.661 (0.474)
HT	Player's height (inches)	79.132 (3.694)
RACE	Racial dummy: equals 1 if a player is White	0.210 (0.408)
DMKT	Local market: average accumulated audience attendance in a player's home city in the sample period (thousands)	703.783 (92.534)
POP	Foreign market: average population of an international player's home country during the sample period (millions)	262.373 (110.509)
GDP	Average per capita GDP of an international player's home country during the sample period (thousands US\$)	36.436 (11.453)
PRO	Dummy variable: equals 1 if there is a professional basketball league in a foreign player's home country	0.977 (0.150)

Note. GDP = gross domestic product; NBA = National Basketball Association. The means and standard errors are calculated by pooling data for the 1990-2000 to 2007-2008 seasons. All monetary figures are deflated to year 2000 prices.

## Empirical Results

### *Determinants of Salary for all Players*

Table 4 displays a series of estimates on the determinants of NBA players' salaries. Column 1 shows estimates obtained by including all variables and it serves as the benchmark model. As some variables are highly correlated, this work implemented various estimates by excluding one highly corrected pair variable to obtain robust results.<sup>13</sup> The current study displays results obtained by the fixed-effect model,

**Table 4.** First-Stage Estimates on Determinants of NBA Players' Salaries

	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE	(6) FE
FORWARD	−0.563*** (0.072)	−0.861*** (0.072)	−0.569*** (0.073)	−0.808*** (0.056)	−0.878*** (0.056)	−0.806*** (0.056)
CENTER	0.669*** (0.065)	0.476*** (0.069)	0.646*** (0.066)	0.410*** (0.038)	0.300*** (0.045)	0.395*** (0.046)
EXP	0.459*** (0.085)		0.472*** (0.086)	0.484*** (0.086)	0.542*** (0.087)	0.486*** (0.086)
EXP × EXP	−0.021*** (0.003)		−0.022*** (0.003)	−0.022*** (0.003)	−0.023*** (0.003)	−0.022*** (0.003)
AGE	0.09 (0.138)	1.047*** (0.069)	0.10 (0.139)	0.12 (0.141)	0.12 (0.142)	0.12 (0.141)
AGE × AGE	−0.004* (0.002)	−0.018*** (0.001)	−0.004* (0.002)	−0.004*** (0.002)	−0.005** (0.002)	−0.004*** (0.002)
GAME	−0.000 (0.0006)	−0.000 (0.0007)	−0.000 (0.0006)	0.000 (0.0006)	0.00 (0.0007)	0.000 (0.0007)
MINUTE	0.013** (0.005)	0.011** (0.006)	0.023*** (0.005)	0.050*** (0.011)		
REBOUND	−0.01 (0.015)	−0.00 (0.016)	−0.00 (0.015)	0.070*** (0.016)		0.045*** (0.011)
ASSIST	0.01 (0.018)	0.02 (0.019)	0.02 (0.018)			0.068*** (0.016)
STEEL	−0.110* (0.060)	−0.120* (0.061)	−0.09 (0.060)		0.209*** (0.052)	0.02 (0.057)
BLOCKED	0.03 (0.055)	0.04 (0.057)	0.03 (0.054)		0.121** (0.054)	0.03 (0.054)
PTS	0.026*** (0.007)	0.033*** (0.008)				
CHANGE	−0.141*** (0.025)	−0.120*** (0.026)	−0.146*** (0.024)	−0.147*** (0.025)	−0.153*** (0.025)	−0.147*** (0.025)
STAR	0.241** (0.100)	0.12 (0.118)	0.280*** (0.099)	0.242*** (0.098)	0.293*** (0.100)	0.244*** (0.098)
CONSTANT	6.083*** (2.151)	−7.376*** (0.890)	5.934** (2.157)	5.933*** (2.179)	6.331*** (2.201)	5.971*** (2.175)
R <sup>2</sup>	.365	.195	.342	.298	.259	.302
Hausman test	476.21***	279.38***	817.09***	940.41***	891.17***	719.83***
Observation	3,051	3,051	3,051	3,051	3,051	3,051

Note. NBA = National Basketball Association. Figures in the parentheses are clustered standard deviations. \*\*\*, \*\*, and \* denote coefficients are significant at the 1%, 5%, and 10% statistical levels, respectively.

because all statistics of Hausman (1978) tests are higher than the critical value at the 1% statistical level, suggesting that the fixed model is more appropriate.

All estimates are quite similar except for the statistical significance on some variables, and they are broad as anticipated. The estimated coefficient of a forward is significantly negative, suggesting that, compared with guards, forwards were paid a lower wage in the NBA in the 2000s. This result is consistent with the finding in Eschker et al. (2004) that forwards were paid a lower wage than guards were in the NBA in 1999-2001. Specifically, center forwards obtain a wage premium, as the estimated coefficient of CENTER is positive and significant at the 1% statistical level in all estimates. This finding is consistent with Dey's (1997) claim that centers receive a higher wage relative to forwards and guards. The interpretation is the recent transformation of NBA game styles toward the so-called power basketball, resulting in the growing important role center forwards play. Indeed, NBA teams' offense strategy may vary across time, suggesting no confirmative conclusion on wage premium for positions. For instance, Gius and Johnson (1998) and Kahn (1998) found no significant difference in salary between forwards, centers, and guards.

This research expected personal characteristic variables to have a positive impact on wage accompanied with decreased marginal effect. The variable of experience is associated with a significantly positive and negative coefficient in the first-order and square term, suggesting that experience plays a critical role in differentiating salary in the NBA, *ceteris paribus*. As variables of experience and age are highly correlated, age variable also associates with a significantly positive and negative coefficient in the first-order and square term when excluding the experience variable in column 2. As for the variables differentiating between starters and bench players, GAME is not as expected to exert a significant influence on determining salary. Alternatively, minutes per game (MINUTE) a player shows up has a positive and significant effect on salary, implying that starters may enjoy a wage premium.

Intuitively, players' on-court performance should be the main influencing factor of salary in professional sports. However, estimates in column 1 seemingly suggest that only points per game contribute strongly to raising a player's salary, but the effect of number of steals is negative, against the expectation. When separating on-court performance into defensive and offensive records, estimates in columns 4-6 show that the number of rebounds, assists, steals, and blocked shots contribute strongly to raising a player's salary. Overall, various on-court records are critical for determining salary, especially for points per game.

The estimated coefficient on CHANGE is negative and significant at the 1% statistical level in all estimates, suggesting that players changing teams in the previous season are paid significantly less. This finding is consistent with that in Eschker et al. (2004). The changing team experience generally signals that players' previous NBA team does not attempt to give a tender offer, implying some problems experienced by that player. As expected, the coefficient of STAR is significantly positive in most estimates, supporting the existence of a "superstar" effect on wage premium.

**Table 5.** Determinants of Individual Player's Wage Premium

Variables	(1) All Players	(2) U.S.-Born Players
FOREIGN	-0.174*** (0.043)	
ROUND1	0.254*** (0.025)	0.300*** (0.025)
HT	0.031*** (0.003)	0.046*** (0.004)
RACE	-0.013 (0.035)	-0.162*** (0.04)
DMKT		0.576*** (0.134)
CONSTANT	-2.614*** (0.264)	-7.691*** (0.908)
Observation	3,051	2,611

Note. Figures in the parentheses are clustered standard deviations.

\*\*\* denotes coefficients are significant at the 1% statistical level.

Superstars generally receive a high wage premium due to their contribution in attracting more fans and creating additional revenue for teams.

### *Do Nationality and Foreign Market Affect Salary?*

Calculating the wage premium ( $\hat{u}_i$ ) that is attributed to unobserved individual-specific heterogeneity from column 1 in Table 4, this work next examined how the time-invariant (or less invariant) variables, including nationality, race, and foreign market size, affect individual wage premium. Table 5 illustrates the estimates for all players and U.S. players using WLS.

As shown in column 1, the coefficient on the FOREIGN variable is negative and significant at the 1% statistical level, suggesting less pay for international players. Specifically, the magnitude of estimated coefficient indicates NBA teams pay international players 17.4% below other players with similar skills and characteristics. Does this result imply the existence of "nationality discrimination" on wage in NBA? Compared with the study conducted by Eschker et al. (2004), an interesting story on how NBA teams evaluate foreign talent arises. In the early stage of introducing international players, NBA talent evaluators faced difficulties in scouting foreign-born players and then paid a large premium above other players in the 1996-1997 and 1997-1998 seasons, after which the premium disappeared. This temporary premium is likely attributable to a "winner's curse" (Eschker et al., 2004). After long experience in recruiting international players, NBA teams have established a system to evaluate potential international players and now conservatively invest significant resources in international players. Growing popularity of the NBA game worldwide has attracted a larger amount of young and talented players to strive for access to the "Basketball Sanctuary" from around the world. The increasing supply of potential international players and a slow growing demand for NBA players gives NBA teams a stronger bargaining power to negotiate salaries with international players. Therefore, the salary premium due to nationality turned from positive in



**Table 6.** Comparison of Average Minutes per Game by Race

		White Players	Non-White Players
All players	Mean	20.507	24.182
	Standard deviation	9.408	9.927
	# of observation	642	2,409
American players	Mean	19.455	24.526
	Standard deviation	9.03	9.872
	# of observation	374	2,237
International players	Mean	21.976	19.71
	Standard deviation	9.741	9.576
	# of observation	268	172

1996-1998 to indifferent in 1998-2002 (Eschker et al., 2004) and then to significantly negative in this study.<sup>14</sup>

As expected, the draft (ROUND1) and height (HT) coefficients are both significant, consistent with findings in most existing studies. Players picked in the first round draft generally have higher potential and receive more pay, after controlling for other factors.<sup>15</sup> The significantly positive coefficient of height seemingly signals potential, even if that potential is unrealized. The possible reason is that NBA games have recently paid more attention to “air supremacy.” For instance, some famous center forwards, such as Tim Duncan, Shaquille O’Neil, and Yao Ming, are taller than 7 feet. As for the racial variable, the attached coefficient is not significant, implying that there is no discrimination based on race. This finding is consistent with recent studies using data for the post late-1980s period, such as Dey (1997), Gius and Johnson (1998), and Burdekin et al. (2005).

When we narrow down to focus on only U.S. players, estimates in column 2 depict several interesting findings. First, while variables ROUND1 and HT remain associated with a significantly positive coefficient, the coefficient of RACE turns out to be significantly negative at the 1% statistical level. As mentioned previously, many studies have found no statistically significant difference between Blacks and Whites since the early 1990s in the NBA. Alternatively, our estimates indicate that pay for U.S. White players is about 16.2% less than non-White players, after controlling for a wide variety of personal characteristics and on-court performance. In fact, U.S. White players’ average annual salary is US\$3.228 million, which accounts for only 76.18% of non-White U.S. players’ average annual salary (\$4.232 million) in our data set. The contradicting result inspires us to suspect a possible scenario of whether racial discrimination of NBA wage has transformed from Blacks to Whites. This current single study cannot confirm that such racial discrimination has reversed to White players. One possible interpretation is that many Black players’ are starters, whereas most White players serve as bench players in the NBA. As depicted in Table 6, the average minutes per game of U.S.-born White players is 9.030 min,

**Table 7.** Determinants of International Players' Wage Premium in the NBA

Variables	(1)	(2)	(3)	(4)
ROUND1	0.049 (0.077)	0.002 (0.076)	0.009 (0.077)	0.049 (0.077)
HT	-0.040*** (0.011)	-0.032*** (0.011)	-0.035*** (0.011)	-0.034*** (0.012)
RACE	0.479*** (0.063)	0.338*** (0.065)	0.272*** (0.081)	0.520*** (0.087)
DMKT	0.962** (0.475)	1.249*** (0.466)	1.311*** (0.461)	0.877* (0.465)
Foreign market				
ln POP	0.095*** (0.019)			0.107*** (0.023)
ln PGDP		0.048** (0.024)		0.056** (0.026)
PRO			0.227** (0.102)	-0.143 (0.133)
CONSTANT	-3.729 (3.506)	-5.947* (3.487)	-6.159* (3.368)	-3.727 (3.534)
R <sup>2</sup>	.169	.138	.139	.176
Observation	440	440	440	440

Note. Figures in the parentheses are clustered standard deviations.

\*\*\*, \*\*, and \* denote coefficients are significant at the 1%, 5%, and 10% statistical levels, respectively.

significantly shorter than that of U.S.-born non-White players, 9.872 min. The finding suggests that most U.S.-born White players are probably not starters and are therefore paid a lower salary than their U.S.-born non-White counterparts.

Finally, the estimated magnitude of the coefficient on the DMKT variable is significantly positive, lending evidence that the size of the local market positively correlates with player salaries. Teams located in a large market (normally big cities) may pay higher salaries to players relative to their counterparts located in small markets, because a large market implies more potential attendance and more revenue for the host team.

Since international players do not receive a wage premium, *ceteris paribus*, do international players receive a wage premium brought on by a larger market size of their host counties? Table 7 reports a series of estimates on the determinants of international players' individual-specific wage premiums.

Table 7 presents four alternative specifications. This work measures the home market size of international players by the average population during the sample period ( $\ln(\overline{POP})_i$ ), average per capita GDP during the sample period ( $\ln(\overline{PGDP})_i$ ), and whether there is a professional basketball league in an international player's home country ( $PRO_i$ ). Estimates in Model 4 include all of the three measures. Empirical results obtained in various specifications are similar.

Compared with results based on all players or U.S.-born players, findings drawn from international players are quite different. The main findings summary is below. First, whether an international player is picked in the first round draft does not significantly relate to his salary. A possible reason is an international player may have professional experience in his mother country. Second, the variable HT is found to associate with a significantly negative coefficient in all estimates, contradicting results obtained using all players (Table 5). While a taller player is apt to receive more pay on average, most outstanding or potential international players serve as guards (or are usually shorter) and receive more pay. Third, the coefficient of the

racial variable (RACE) is positive and significant at the 1% statistical level, suggesting that a White international player receives more pay than non-White international players do. Despite that, the existence of racial salary differentials for international players in the NBA explains this finding, the current study conservatively documents this argument. International players come mainly from European countries and only a few Asian and African non-White players came to the NBA in the 2000s.<sup>16</sup> Fourth, similar to U.S.-born players, international players enjoy a wage premium brought on by a larger local market where an NBA team locates.

As the NBA has been aggressively expanding its global market via various channels such as global telecasts, overseas pre-season games, licensing NBA merchandises, and introducing international players, how does foreign market size influence international players' salaries? Is there a wage premium for international players due to a larger home country market? As shown in Models 1–3, coefficients of various measures of foreign market size are all positive and significant at a conventional statistical level. This finding provides strong evidence of the existence of a wage premium brought on by market size of international players' home country, *ceteris paribus*. Even though all three measures are included simultaneously, two of the three coefficients remain significantly positive. These results are consistent with findings in Pedace (2008) that there is nationality discrimination for professional sports players' salaries due to the market size of their home countries. The series of estimations adopting various measures of FMKT verify the robustness of estimates on the effect of foreign market size on international players' salaries. For instance, to deepen the China market, a Chinese player, the Bucks picked Yi Jianlian as the sixth ranking in the first round draft in 2007. While his on-court record was not as good as expected after joining the Bucks, he received an annual salary of \$3.19 million with the Nets during the 2009–2010 season. Part of the high salary probably considers the China market.<sup>17</sup>

## Concluding Remarks

Since the mid-1990s and onward, the rapid advancement of information, computer, and telecommunication technologies has enabled the NBA to promote its games to the world easily via various channels. Until now, NBA games have become one of the most popular professional spectator sports in the world. The internationalization of the NBA has introduced increasingly more international players over the past two decades. The issue of racial salary differentials has been a long-standing question in professional sports industries, which inspires an emerging interesting question of whether a wage differential exists between international players and U.S.-born players due to nationality. Introducing international players is one of many effective strategies to expand global markets for the NBA. Is there a wage premium for international players brought on by the market size of their home countries?

This article adopted an unbalanced panel data set of 618 NBA players during the 1999-2000 to 2007-2008 seasons and employed the two-stage double fixed-effect model to examine NBA salary determinants. Estimates in the first stage using the fixed-effect model indicated that positions, NBA experience, and on-court performance are key factors in differentiating salaries. Between-season player movement represents a “lemon market” that signals a player has experienced some problems and therefore contributes negatively to salary.

Calculating the wage premium of individual-specific heterogeneity from the first-stage estimates, this study used WLS to implement the second-stage estimation that examines the determinants, especially for time-invariant variables of the individual wage premium. The second-stage estimation draws several interesting and important findings. First, international players receive a 13–18% lower salary on average, after controlling for a variety of personal characteristics and on-court performance. This result contradicts the findings in Eschker et al. (2004) of a temporary premium for international players due to the “winner’s curse,” shedding light on the possibility of “national salary differentials” in NBA.

Second, the wage premium analyses of U.S.-born players show that White players no longer receive a wage premium. White players are, in contrast, paid less than their non-White U.S.-born counterparts are, *ceteris paribus*. As Black players have recently dominated the NBA player market and have an average better on-court record, this finding probably reflects the fact that White players tend to be bench players and are paid less than their Black counterparts. Alternatively, it is also possibly due to the racial discrimination.

Third, adopting various measures of foreign market size indicates that all estimated coefficients of foreign market size are significantly positive. This finding highlights the importance of foreign market size on differentiating international players’ salaries. In practice, the professional sports industry is aggressively expanding global markets by introducing famous international players. Therefore, international players from a large economy have the advantage to receive a wage premium brought on by foreign market effect.

### **Acknowledgment**

We like to express our appreciation to two anonymous referees and the editor Leo Kahane for providing invaluable comments and suggestions. As usual, all errors of omission and commission are ours.

### **Declaration of Conflicting Interests**

The author(s) declared no conflicts of interest with respect to the authorship and/or publication of this article.

### **Funding**

The author(s) received no financial support for the research and/or authorship of this article.

## Notes

1. The average salary of star players of European leagues approximates US\$ 1 million. On the other hand, the average salary of NBA players was US\$ 5.356 million during the 2007-2008 season.
2. According to statistics surveyed by *Forbes* in September 2008, the wealth of Leslie Alexande, the owner of the Houston Rockets, increased sharply to \$1.2 billion, or about 15 times that in 2007. Leslie Alexande claimed that Yao Ming joining his team was one of the main growth sources, because it opened up the China market.
3. For the development of the NBA, please refer to Hubbard and Stern (2000).
4. For a series of strategies adopted to promote the NBA, see Hubbard and Stern (2000) and their comprehensive discussion.
5. The NBA began to charge a royalty fee for broadcasting the game in China since 1999 and onward. Unfortunately, this study cannot obtain detailed information on the contracts.
6. The start of the 2009-2010 NBA season marks 83 international players from 36 countries and territories on official rosters. Among the 30 teams, 27 teams have at least one international player.
7. For the ranking of top NBA players' marketing figures, please see <http://www.jonesonthenba.com>.
8. Khan (2000) provided a comprehensive discussion on the racial difference in salary for sport industries in the United States, including baseball, basketball, hockey, and football. As for the same issue in the European football league, please see, for example, Szymanski (2000) and Frick (2007).
9. Since then, another line of research focuses on examining customer discrimination in NBA. See Burdekin et al. (2005) for a brief review.
10. However, using data on Nielsen ratings for locally televised NBA basketball games for the 1996-1997 season, Kanazawa and Funk (2001) found strong evidence that viewership increases when there is greater participation by White players. Higher Nielsen ratings allow NBA teams to realize greater advertising revenues, meaning the marginal revenue product of White players exceeds that of comparable Black players. Moreover, Kahn and Shah (2005) argued there are larger and usually statistically significant racial differentials in total compensation favoring White players, and Whites have statistically significantly longer contract durations.
11. Pedace (2008) conducted another study to test the existence of nationality discrimination by focusing on the English professional soccer league.
12. Results for the first stage are available upon request.
13. Experience and age are highly correlated to reach a correlation coefficient of .9. Variables of minutes per game, defensive, and offensive records are also highly correlated.
14. Eschker et al. (2004) found that the estimated coefficient for the international player variable has been negative since the 1999-2000 season. Specifically, its magnitude has become steadily larger with the passage of time.
15. Since players selected in the first round of the draft typically enjoy a wage premium, the discrimination against foreign players may also make them less likely to be chosen in the

first round, thereby offering an additional drag on their wages beyond the amount implied by the foreign-born dummy.

16. Among international players, White players apparently experience longer minutes per game than their non-White counterparts did, suggesting that non-White international players tend to be bench players. See Table 6.
17. Previous studies found racial sorting of players in the NBA. Foreign players from certain parts of the world may be more valuable to some NBA teams than others are. For example, cities with a larger Chinese population have more incentive to hire Chinese players. Players also have preferences for particular teams, but in a competitive player market, they do not have sufficient market power to select teams.

## References

- Bartel, A., & Sicherman, N. (1999). Technological change and wages: An interindustry analysis. *Journal of Political Economy*, 10, 285-325.
- Bodvarsson, O. B., & Partridge, M. D. (2001). A supply and demand model of co-worker, employer and customer discrimination. *Labour Economics*, 8, 389-416.
- Brown, E., Spiro, R., & Keenan, D. (1991). Wage and nonwage discrimination in professional basketball: Do fans affect it? *American Journal of Economics and Sociology*, 5, 333-345.
- Burdekin, R., Hossfeld, R., & Smith, J. (2005). Are NBA fans becoming indifferent to race? Evidence from the 1990s. *Journal of Sports Economics*, 6, 144-159.
- Dey, M. S. (1997). Racial differences in National Basketball Association players' salaries: A new look. *American Economist*, 4, 703-705.
- Eschker, E., Perez, S., & Siegler, M. (2004). The NBA and the influx of international basketball players. *Applied Economics*, 3, 1009-1020.
- Frick, B. (2007). The football players' labor market: Empirical evidence from the major European leagues. *Scottish Journal of Political Economy*, 5, 422-446.
- Gius, M., & Johnson, D. (1998). An empirical investigation of wage discrimination in professional basketball. *Applied Economics Letters*, 5, 703-705.
- Hamilton, B. H. (1997). Racial discrimination and professional basketball salaries in the 1990s. *Applied Economics*, 2, 287-296.
- Hausman, J. (1978). Specification tests in econometrics. *Econometrica*, 4, 1251-1271.
- Hubbard, J., & Stern, D. S. (2000). *The official NBA basketball encyclopedia* (3rd ed.). New York, NY: National Basketball Association.
- Kahn, L. (2000). The sports business as a labor market laboratory. *Journal of Economic Perspective*, 1, 75-94.
- Kahn, L., & Shah, M. (2005). Race, compensation and contract length in the NBA: 2001-2. *Industrial Relations*, 44, 444-462.
- Kahn, L., & Sherer, P. (1988). Racial differences in professional basketball players' compensation. *Journal of Labor Economics*, 6, 40-61.
- Kanazawa, M. T., & Funk, J. P. (2001). Racial discrimination in professional basketball: Evidence from Nielsen Ratings. *Economic Inquiry*, 3, 599-608.
- Khan, L. M., (2000). The sports business as a labor market laboratory. *Journal of Economic Perspectives*, 14, 75-94.

- Koch, J., & Vander Hill, W. (1988). Is there discrimination in the Black man's game. *Social Science Quarterly*, 6, 83-93.
- Mincer, J. (1974). *Schooling, experience, and earnings*. New York, NY: Columbia University Press.
- Mogull, R. (1974). Racial discrimination in professional basketball. *The American Economist*, 1, 11-15.
- Mogull, R. (1981). Salary discrimination in professional sports. *Atlantic Economic Journal*, 9, 106-110.
- Nardinelli, C., & Simon, C. (1990). Customer racial discrimination in the market for memorabilia: The case of baseball. *Quarterly Journal of Economics*, 10, 575-595.
- Pedace, R. (2008). Earnings, performance, and nationality discrimination in a highly competitive labor market: An analysis of the English professional soccer league. *Journal of Sports Economics*, 9, 115-140.
- Scott, F., Long, J., & Somppi, K. (1985). Salary vs. marginal revenue product under monopoly and competition: The case of professional basketball. *Atlantic Economic Journal*, 13, 50-59.
- Szymanski, S. (2000). A market test for discrimination in the English professional soccer leagues. *Journal of Political Economy*, 10, 590-603.
- Wallace, M. (1988). Labor market structure and salary determination among professional basketball players. *Work and Occupation*, 1, 294-312.

## Bios

**Chih-Hai Yang** is a professor in the Department of Economics at the National Central University. His research interests are in economics of innovation, international economics, East Asian economics, as well as tourism and sports economics.

**Hsuan-Yu Lin** is a Ph D student in the Department of Economics at the National Central University currently. He received his Master degree from the National Central University in 2009 and this paper was rewritten from his master thesis. His current areas of interest include sports economics and international economics.