BORN IN THE USA: NATIONAL ORIGIN EFFECTS ON TIME ALLOCATION IN US AND SPANISH PROFESSIONAL BASKETBALL

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This paper examines national origin bias in professional basketball in both the North American National Basketball Association (NBA) and Spanish professional league (Liga ACB). Past studies into racial bias find mixed results. In contrast, our study provides consistent evidence that players born in the USA receive preferential treatment in both the USA and Spain in terms of receiving additional time on the court.

Keywords: national origin discrimination; professional basketball

JEL Classifications: Z2; Z22; J7

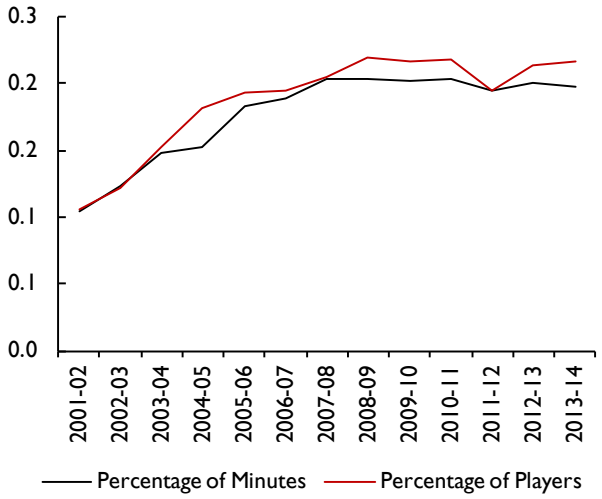
1. Introduction

Basketball, like American football, is strongly identified with the United States, partly because of US dominance in recent international competitions.[1] But unlike American football, basketball is truly a global game. For example, the New York Times reported in 2012 that about 300 million people play basketball in China.[2] That same year, Forbes.com reported that fans from 215 different countries were expected to watch the National Basketball Association (NBA) Finals and the games were broadcast in 47 languages. Forbes.com noted that the NBA expected 278 million fans to follow the Finals via social media networks.[3] Henry Abbott of ESPN.com reported in 2010 that surveys show that basketball is now the most popular sport among young people around the world.[4]

The identification of basketball with the United States, though, might lead to a bias in the evaluation of talent in the sport. It is possible that people might conclude that players from the United States are simply better at the game invented in their country.[5] In other words, although the game is played worldwide, basketball might suffer from what is called 'national origin discrimination'.[6]

The US Equal Employment Opportunity Commission (USEEOC)[7] defines 'national origin discrimination' as treating employees "unfavorably because they are from a particular country or part of the world, because of ethnicity or accent, or because they appear to be of a certain ethnic background (even if they are not)." In addition, the USEEOC notes that US law "forbids discrimination when it comes to any aspect of employment, including

Figure 1. Percentage of NBA minutes played and players not born in the USA



Source: basketball-reference.com.

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hiring, firing, pay, job assignments, promotions, layoff, training, fringe benefits, and any other term or condition of employment."

This paper estimates national origin discrimination in two of the most prominent international basketball leagues: the National Basketball Association (NBA) and the Spanish Liga ACB. The majority of players in the NBA are from the United States. The number of players born outside the United States, though, has increased from about 1 per cent in the early 1980s to nearly 20 per cent today and, as figure 1 illustrates, playing time by players not born in the USA increased from around 10 per cent to more than 20 per cent in the 21st century.[8]

The Spanish Liga ACB is among the most prominent professional leagues in the world. Spain won the silver medal in both the 2008 and 2012 Olympic Games. And the ACB is often ranked as one of the top basketball leagues in Europe. Like the NBA, the ACB also employs players from around the world. As table 1 notes, only about one-third of minutes in the ACB go to players born in Spain. Meanwhile, about 25 per cent of minutes go to players born in the USA and about 40 per cent go to players born in places other than Spain or the USA. As the ACB is one of the most lucrative European leagues, many American players choose to play in Spain, something that is likely to happen if they have not been drafted or signed to a guaranteed contract by a team in the NBA.

So in both the NBA and the Spanish ACB we see that workers are drawn from places around the world. Do differences in national origin impact player evaluation?

Studies into discrimination frequently examine wages or hiring. Because we do not have salary data from the ACB and only three years of performance data,[9] we will focus our attention on 'job assignments'. Specifically, we analyse whether or not national origin impacts the allocation of minutes per game in the NBA and ACB.

Table 1. Percentage of minutes played by players of different national origins in the ACB: 2011/12–2013/14

Season	Spain (%)	USA (%)	Non Spain/Non USA (%)
2013/14	34.5	22.8	42.6
2012/13	32.7	27.7	39.6
2011/12	32.0	26.9	41.0
Average	33.1	25.8	41.1

Source: RealGM.com.

Our inquiry will be organised as follows. The next two sections will discuss rules to limit discrimination in the European Union, as well as past studies into discrimination in professional sports. This will be followed by a discussion of a model designed to explain the allocation of minutes in the NBA and ACB. This model will offer evidence of national origin discrimination in both leagues. In the conclusion we speculate about the source of the discrimination our study has uncovered.

2. Anti-discrimination in European sports: laws and detours

Laws in the United States with respect to national origin discrimination are designed to apply to both sports and non-sports industries alike. And in the United States teams do not have rules in place to limit foreign participation in sports. In Europe, on the other hand, professional sports teams have historically limited foreign participation. In basketball only two out of five players (40 per cent) on the court could be from foreign countries (Primault, 2007). This all changed with the Bosman ruling. In 1995 the European court of justice ruled case number C-415/93 in favor of Jean-Marc Bosman and confirmed the freedom of movement for workers. In addition it banned restrictions on the number of foreign players from teams that were allowed to deploy.[10]

Concerns regarding an influx of low priced foreign players led leagues to introduce a so-called home-grown quota which set a minimum number of local players that clubs must include on their squad. Irrespective of nationality, players are referred to as being home-grown if they spend a predetermined period of time (usually three years) with the club itself or any club within the respective national association. Precise regulations depend on the respective sport and league. From an economic standpoint clubs are given incentives to invest in their own talent instead of acquiring talent from foreign leagues (Frick, 2007). So there is no minimum quota for American or Canadian players in the NBA whereas the Spanish ACB requires that a minimum of five players (on a roster with twelve players) must be registered with a Spanish club for three seasons between the youth and senior categories for every team in the Spanish ACB league (FIBA International Migration Report 2012). Hence, national origin 'discrimination' is explicitly part of professional sports in Spain.

The rules adopted by the Spanish ACB make it clear – without the need for any further empirical analysis – that national origin plays a role in who is named for the team. However, we focus on whether or not national

origin discrimination can be found in the allocation of playing time. Before turning to this, we briefly review past research on discrimination in professional sports.

3. Research on discrimination in professional basketball

The literature on wage discrimination in professional sports suggests that the existence and magnitude of racial discrimination depends on the observation period, estimation technique and the use of control variables.[11] More relevant for our approach is a closer look at the literature on nationality and its impact on remuneration. Unlike race – which is often difficult to judge by simply looking at the player[12] – where a player was born is a matter of fact.[13]

The study of national origin with respect to salaries in basketball tends to provide mixed results. While Eschker *et al.* (2004) as well as Yang and Lin (2012) find a negative salary effect for foreign players in the NBA, Hoffer and Freidel (2014) estimate a wage premium of around $900,000 per season. The observation period appears to be critical as a) signing international players became more lucrative in recent years and b) the outside options for players improved as international leagues expanded. One difficulty with the study of salaries is that pay is a function of how the decision-maker thinks the player will perform in the future. The researcher, though, can only use past performance as a proxy of this forecast.[14]

Playing time should be more closely linked to current performance. Although past research has not looked at national origin and playing time, there has been investigation of the link between race and playing time. For example, Schroffel and Magee (2012) offer evidence of an own-race bias by coaches, suggesting that with respect to the allocation of playing time coaches favour players who are of the same race.[15] This result, though, is contrasted by earlier findings from McCormick and Tollison (2001), who find no difference between black and white coaches with regard to playing time allocation of black and white coaches.

It is possible that the study of race suffers from an inability to identify it properly. Hence, we turn to our study of national origin and the allocation of playing time in the NBA and Spanish ACB.

4. National origin and time allocation

In order to measure the impact of origin on playing time allocation we apply regression and Oaxaca-Blinder decomposition techniques, following two different approaches for regular season basketball in the NBA and the ACB.

We estimate equation (1) to study the allocation of minutes in the NBA. The dependent variable is minutes per game. A player had to play in at least 30 games (out of 82) and average six minutes per game to be included for a season in the data set (for the ACB a player had to be on the court in at least 15 out of 34 games). In other words, players who hardly ever played during a season were excluded for that season and that season only. Naturally injuries and suspensions of players can reduce the playing time they receive but missing games for these reasons does not impact on minutes per game in a dramatic fashion. Players being injured or suspended for a longer period are missing due to our data restrictions.

The list of explanatory variables employed is given in table 2 and includes performance statistics, talent indicators and players' characteristics. This list begins with a collection of box score statistics for the season being examined. Except for TOPER, ADJFG, and FT, each of these statistics is a per 48 minute measure. As player duties and statistics vary by their position on the court, all measures have been adjusted for position played.[16] By calculating performance on a 48 minute level, measures may exceed the maximum number of fouls allowed according to the rules (which stands at six in the NBA and five in the ACB).

In addition to a player's performance on the court, we also consider a player's height (also adjusted for position played), games played,[17] age and age squared,[18] a dummy variable for players born in the USA, and draft position. Equation (1) illustrates the specific model being estimated while table 2 notes the descriptive statistics of the dependent and independent variables employed. As one can see, about 82 per cent of our sample were born in the United States.

$$\text{Minutes per Game} = \gamma_j + \beta_1 \text{ Productivity} + \beta_2 \text{ DraftExperience} + \gamma_1 \text{Height} + \gamma_2 \text{Games Played} + \gamma_3 \text{Age} + \gamma_4 \text{SquaredAge} + \gamma_5 \text{DUSA} + \varepsilon_i \quad (1)$$

Where Productivity = Vector of player statistics including Points, Adjusted Field Goal Percentage, Free Throw Percentage, Rebounds, Turnover, Steals, Assists, Blocks and Personal Fouls.
Draft Experience = Vector of variables interacting Draft Position and Experience.

Draft position is an indicator for expected talent. Prior research[19] has found that decision-makers in the NBA

have difficulty ignoring sunk costs. Specifically, research has shown that draft position influences minutes per game even after one controls for on-court performance. We address this issue by multiplying a player's draft position by a dummy variable for each year of experience. We account for up to ten years of experience, so DFTXP represents ten additional independent variables. If sunk costs are ignored, draft position should stop being significant after decision-makers have been able to see how well a player actually plays in the NBA.

Equation (1) was estimated across data from the NBA from 2001/2–2013/14.[20] The results are reported in table 3. Before discussing the issue of national origin we should note that these results indicate that draft position appears to impact playing time in the NBA until a player's sixth season in the league. In other words, decision-makers in the NBA do not appear to let sunk costs be sunk. In addition, age follows the expected pattern[21] while players who are relatively tall (relative to position played) receive more minutes. And except for TOPER, the performance factors are statistically significant and of the expected sign.[22]

Turning to national origin, one can see that a player born in the USA sees an estimated 1.2 additional minutes after controlling for performance and the other factors we believe impact minutes per game.

The approach offered in table 3 is often seen in the sports economics literature. Non-sports studies, though, often employ the Oaxaca-Blinder (Oaxaca, 1973; Blinder, 1973) decomposition method. This decomposes the gap in minutes per game into explained and unexplained portions. Here, the explained portion of the gap is characterised by differences in observed endowments. The remaining unexplained part is characterised by differences in returns to performance and may therefore capture discrimination. Table 4 indicates that minutes per game are 1.3 higher for players with US nationality.

Table 2. Descriptive statistics of variables in equation (1) for the NBA 2001/2–2013/14

Dependent variable	Label	Mean	SD	Minimum	Maximum
Minutes per game	MGM	23.837	8.993	6.091	43.7
Independent variables					
Points[a]	PTS	18.486	5.462	3.31	40.073
Adjusted Field Goal Percentage[b]	ADJFG	0.486	0.053	0.224	0.729
Free Throw Percentage[c]	FT	0.738	0.112	0	1
Rebounds[a]	REB	9.145	2.005	1.32	19.537
Turnover Percentage[d]	TOPER	13.764	3.997	1.755	36.188
Steals[a]	STL	1.361	0.520	0.023	3.581
Assists[a]	AST	2.894	1.667	–3.792	10.912
Blocked Shots[a]	BLK	1.149	0.707	–0.825	6.35
Personal Fouls[a]	PF	4.729	1.355	1.309	13.104
Draft Position, year 1	DFT1	3.337	11.415	0	61
Draft Position, year 2	DFT2	3.239	11.092	0	61
Draft Position, year 3	DFT3	2.839	10.322	0	61
Draft Position, year 4	DFT4	2.732	9.386	0	61
Draft Position, year 5	DFT5	2.332	9.386	0	61
Draft Position, year 6	DFT6	2.052	8.739	0	61
Draft Position, year 7	DFT7	1.844	8.350	0	61
Draft Position, year 8	DFT8	1.556	7.608	0	61
Draft Position, year 9	DFT9	1.426	7.287	0	61
Draft Position, year 10	DFT10	1.117	6.254	0	61
Height[a]	Height	79.012	1.617	70.182	85.754
Age	Age	26.578	4.248	18	41
Age, Squared	SQAge	724.409	236.133	324	1681
Games Played	GM	63.363	15.520	30	82
Dummy Variable, Born in USA	*DUSA*	*0.812*	*0.391*	*0*	*1*

Notes: (a) Each of these variables is calculated relative to position played. (b) Adjusted field goal percentage – or effective field goal percentage – is calculated as follows: [(Points – Free Throws Made)/Field Goal Attempts]. This measure takes into account that players can shoot from two point and three point range. It is detailed at basketball-reference.com. (c) Free throw percentage = free throws made/free throws attempted. (d) Turnover percentage is calculated as follows: [(Turnovers)/(Turnovers + Field Goal Attempts + 0.44*Free Throw Attempts)]*100. This measure – detailed at basketball-reference.com – allows one to compare turnovers across a sample of players who handle the ball more or less.

Table 3. Explaining minutes per game for the NBA: 2001/2–2013/14

Independent variable	Label	Coefficient	Standard error	t-statistic
Points	PTS	0.413***	0.022	19.05
Adjusted Field Goal Percentage	ADJFG	8.802***	1.862	4.73
Free Throw Percentage	FT	8.109***	1.098	7.38
Rebounds	REB	0.347***	0.063	5.51
Turnover Percentage	TOPER	0.049*	0.027	1.78
Steals	STL	0.841***	0.254	3.31
Assists	AST	0.823***	0.072	11.39
Blocked Shots	BLK	0.437**	0.167	2.61
Personal Fouls	PF	–2.478***	0.083	–29.72
Draft Position, year 1	DFT1	–0.114***	0.009	–12.82
Draft Position, year 2	DFT2	–0.088***	0.008	–10.93
Draft Position, year 3	DFT3	–0.062***	0.009	–6.73
Draft Position, year 4	DFT4	–0.057***	0.008	–6.78
Draft Position, year 5	DFT5	–0.049***	0.010	–5.01
Draft Position, year 6	DFT6	–0.039***	0.011	–3.44
Draft Position, year 7	DFT7	–0.021	0.016	–1.31
Draft Position, year 8	DFT8	–0.026*	0.014	–1.79
Draft Position, year 9	DFT9	0.009	0.015	0.60
Draft Position, year 10	DFT10	–0.009	0.014	–0.61
Height	Height	0.329***	0.067	4.90
Age	Age	2.012***	0.312	6.45
Age, Squared	SQAge	–0.038***	0.006	–6.82
Games Played	GM	0.134***	0.008	16.84
Dummy Variable, Born in USA	*DUSA*	*1.159****	*0.226*	*5.12*
Constant term		–50.598***	5.484	–9.23
Season Dummies		included		
Observations	4521			
R–squared	0.67			

Notes: *significant at the 10 per cent level. **significant at the 5 per cent level. ***significant at the 1 per cent level.

This difference cannot be explained by differences in endowments: indeed, endowments would lead non USA players to play 0.09 minutes more than their USA counterparts. Differences in playing time not ascribed to differences in performance are 1.39 minutes per game in favour of players born in the USA.

In sum, the analysis provided in both tables 3 and 4 is consistent with the proposition that coaches in the NBA favour players born in the USA.

Next we turn to the Spanish ACB. Again, the sample for this league only consists of three seasons. In addition, because European leagues do not employ a reverse order draft, this factor is not considered. Otherwise equation (1) is being estimated for the Spanish league.

Table 4. Decomposition results for the NBA: 2001/2–2013/14

Independent variable	Coeff.	Standard error	z-stat.
USA	24.08***	0.15	160.40
Non USA	22.77***	0.29	78.83
Difference	1.31***	0.33	4.03
Explained	–0.08	0.29	0.28
Unexplained	1.39***	0.201	6.91
Observations total	4521		
Observations USA	3671		
Observations non USA	850		

Notes: *significant at the 10 per cent level. **significant at the 5 per cent level. ***significant at the 1 per cent level.

Table 5 reports descriptive statistics. Games in Europe consist of four 10 minute quarters. So the average minutes per game – which were close to 24 minutes per game in the NBA – are only around 20 minutes per game in the ACB. And because the games are shorter, the box score statistics are per 40 minutes. The remaining statistics are calculated in the same fashion as for the NBA.

The estimation of equation (1) for the ACB is reported in table 6.[23] Like the NBA, minutes per game are related

Table 5. Descriptive statistics of variables in equation (1) for the ACB 2011/12–2013/14

Dependent variable	Label	Mean	SD	Minimum	Maximum
Minutes per game	MGM	19.830	5.887	5.135	33.815
Independent variables					
Points	PTS	14.326	4.041	2.548	26.133
Adjusted Field Goal Percentage	ADJFG	0.506	0.07	0.211	0.728
Free Throw Percentage	FT	0.75	0.12	0	1.000
Rebounds	REB	5.456	1.716	–0.641	11.813
Turnover Percentage	TOPER	16.341	5.348	0	41.912792
Steals	STL	1.429	0.485	0.059	3.078
Assists	AST	2.986	1.254	–1.746	8.28
Blocked Shots	BLK	0.375	0.535	–0.843	3.234
Personal Fouls	PF	4.096	1.359	1.108	13.099
Height	Height	78.349	1.52	69.0	87.00
Age	Age	27.76	4.277	18.0	39.0
Age, Squared	SQAge	788.881	237.931	324.0	1521.0
Games Played	GM	31.348	6.994	15.0	46.0
Dummy Variable, Born in USA	*DUSA*	*0.231*	*0.422*	*0.0*	*1.0*
Dummy Variable, Born outside Spain (not USA)	*DnonSpain*	*0.417*	*0.493*	*0.0*	*1.0*

Table 6. Explaining minutes per game for the ACB: 2011/12–2013/14

Independent variable	Label	Coefficient	Standard error	t-statistic
Points	PTS	0.397***	0.053	7.51
Adjusted Field Goal Percentage	ADJFG	5.592	3.23398	1.69
Free Throw Percentage	FT	3.076*	1.549	2.04
Rebounds	REB	0.1556	0.099	1.58
Turnover Percentage	TOPER	–0.075	0.036	–2.11
Steals	STL	1.047**	0.391	2.68
Assists	AST	0.908***	0.190	4.79
Blocked Shots	BLK	0.247	0.311	0.79
Personal Fouls	PF	–1.429***	0.136	–10.70
Height	Height	–0.021***	0.061	–3.42
Games Played	GM	1.554***	0.034	4.56
Age	Age	1.470*	0.705	2.08
Age, Squared	SQAge	–0.023*	0.013	–1.79
Dummy Variable, Born in USA	*DUSA*	*1.791****	*0.445*	*4.02*
Dummy Variable, Born outside Spain (not USA)	*DnonSpain*	*0.963****	*0.289*	*3.33*
Constant Term		–0.464	12,225	0.97
Season dummies		included		
Observations	596			
R-squared	0.487			

Notes: *significant at the 10 per cent level. **significant at the 5 per cent level. ***significant at the 1 per cent level.

to performance statistics like points, adjusted field goal percentage, steals, assists, and personal fouls. Although evidence of height bias doesn't appear, games played does impact minute per game. In addition, age does appear to matter and follows the predicted pattern.[24]

Two dummy variables were used to capture national origin bias. One considered whether or not a player was born in the USA. The second looked at whether or not a player was born somewhere other than Spain or the USA.

Table 7. Decomposition results for the ACB: 2011/12–2013/14

Independent variable	Coeff.	Standard error	z-stat.	Independent variable	Coeff.	Standard error	z-stat.
	Spain vs non Spain				Spain vs USA		
Spain	18.77***	0.42	43.9	Spain	18.77***	0.42	43.9
non Spain	20.43***	0.28	71.83	USA	22.05***	0.47	47.28
Difference	–1.66***	0.51	–3.23	Difference	–3.28***	0.63	–5.18
Explained	–0.42	0.41	–1.01	Explained	–1.75***	0.5	–3.5
Unexplained	–1.24***	0.4	–3.14	Unexplained	–1.53***	0.51	–3.01
Obs. total	596			Obs. total	347		
Obs. Spain	209			Obs. Spain	209		
Obs. non Spain	387			Obs. USA	138		

Notes: *significant at the 10 per cent level. **significant at the 5 per cent level. ***significant at the 1 per cent level.

As table 6 notes, both factors are significant at the 1 per cent level. And the size of the effect is comparable to the NBA sample. In the ACB a player born in the USA receives about 1.8 additional minutes per game after we control for performance and the other factors that impact playing time.

So players from the USA receive a boost in playing time in both the USA and Spain. Apparently, decision-makers are biased in favour of USA players. The success of USA players in international competition suggests that the USA has 'better' players but we control for performance. The fact that USA players are still given preferential treatment controlling for performance is suggestive of coach bias in favour of US players. It is notable, however, that non-US players born outside Spain also spend more time on court than Spanish born players, *ceteris paribus*, though the effect is not as large as the effect of being a USA player.

Table 7 presents results from the Oaxaca-Blinder decomposition where we compare US players with those from Spain, then Spanish versus non-Spanish non-US players.

In a comparison of players from Spain and the USA, differences in performance and other observables explain around 53 per cent of difference in playing time, leaving 47 per cent of the difference unexplained. Around 25 per cent of the difference in playing time between Spanish and non-Spanish non-US players is explained by observable differences.

Table 8 offers an estimate of the economic significance of the player performance statistics employed. The rules of the game indicate that personal fouls will tend to have the largest impact on minutes per game. Beyond fouls we find that scoring dominates in both leagues, and factors such as shooting efficiency, rebounds, and turnovers are of less importance to determine playing time. Prior research from Berri (2008)[25] indicates that wins in basketball are primarily determined by a team's ability to gain and keep possession of the ball (i.e. rebounds, turnovers, and steals) and shoot efficiently. Furthermore scoring totals – which tend to be the focus of decision-makers in basketball – are a function of a player's shot attempts. Shot attempts, though, are often just taken from teammates.

Table 8 notes that minutes per game – in both the NBA and ACB – are primarily dictated by a player's per-minute scoring. So the evaluation of players in both leagues is not only similar with respect to the evaluation of players born in the USA, we also see the same bias in favour of scorers.

Table 8. Impact of one standard deviation on minutes per game in NBA and ACB

Independent variable	Impact of a one standard deviation change in NBA sample	Impact of a one standard deviation change in ACB sample
Personal fouls	–3.22	–1.99
Points	2.48	1.65
Assists	1.3	1.08
Rebounds	0.63	not significant
Free throw percentage	0.47	not significant
Adjusted field goal percentage	0.43	0.46
Steals	0.34	0.5
Turnover percentage	0.28	not significant
Blocked shots	0.22	not significant

Note: Estimated coefficient from above regressions must be significant at the 10 per cent level or better to be included in table.

5. Concluding observations

Studies of racial bias in sport tend to provide very mixed results. In contrast, our study of national origin bias provides a surprisingly clear result. In both the NBA and ACB we see evidence that players born in the USA receive preferential treatment even after we control for performance. The magnitude of the difference ranges between 1.2 and 1.4 minutes for the NBA and the ACB. Since NBA games are 48 minutes while ACB games are 40 minutes the impact is larger for the ACB. Given the average playing time of players in our sample of around 20 minutes per game, the unexplained difference in playing time accounts on average for an extra 7 per cent playing time given identical performance.

Our empirical study into the allocation of minutes in the NBA and the Spanish ACB indicates that national origin plays a role in the decisions of coaches. But such a study doesn't tell us why coaches are making such decisions.

Different theories offer reasons for why people discriminate against others. Following Becker (1957), it is possible that discrimination simply reflects the employer's tastes. Specifically, employer taste discrimination can cause players of different national origins to be treated differently if the employer prefers (or dislikes) some players for a reason independent of on-court performance.

Phelps (1972) and Arrow (1973) focus on statistical discrimination. Here, the employers have limited access to information about the abilities of the workers. Hence employers use observable characteristics which they believe indicate productivity, often race or nationality. Hence preferred treatment of players can be credited to the athletes' origin (Bryson, Rossi and Simmons, 2014).

The discrimination might also reflect the preferences of customers. The literature notes that one can treat professional sports as a customer-based service sector (Kahn, 2012). Consequently, consumers may prefer certain types of players, resulting in differentiated willingness to pay for trading cards (Stone and Warren, 1999), varying sizes of TV audience (Kanazawa and Funk, 2001) and arena attendance (Brown, Spiro and Keenan, 1991). Customer discrimination can hence directly impact the economic performance of teams. General Managers may consider consumers' tastes not only during hiring and contract negotiation (Hamilton, 1997). Coaches, also hired by the general managers, could follow the general manager's lead to give extended minutes to certain players in response to fan preferences (Kahn, 2012).[26]

Although we cannot conclusively isolate the source of the discrimination, we can note that statistical discrimination is unable to capture the results presented in this paper. After all, decision-makers in sports have an abundance of data on player performance. We cannot, though, differentiate between the preferences of employers and customers. One can simply argue that the allocation of playing time reflects the preferences of coaches. But one could also argue that players from the USA draw more fans to the arena or are increasingly attractive to team sponsors.

We should note that coaches consider factors beyond the extensive list of box score statistics we control for. For example, taking charges, deflecting passes and intimidating shooters are factors a coach could consider that are not in the standard box score. If US-born players perform systematically better than non-US born players with respect to the non-box score factors, then coaches might be justified in giving additional minutes to US born players. In addition, it is possible that externalities between US-born and non US-born players would justify difference in how players are treated. And again, our data would not capture such an effect.

Perhaps further research could look into these non-box score factors. In addition, future research could examine whether the source of any discrimination uncovered is driven by employers' or customers' tastes. One could also expand this study to more leagues outside Spain and the USA. In sum, future research might examine whether or not leagues around the world exhibit a preference for players born in the nation that invented basketball.

NOTES

1 The United States dominated the first Olympic competitions, winning the gold medal in each of the summer games played from 1936 to 1968. In 1972 the Soviet Union managed to win a gold, an outcome repeated in the Soviet Union in 1988. And Yugoslavia won in 1980 (when the US boycotted the game). Professionals began playing in 1992, and with that change the USA again returned to dominance. Except for the 2004 Olympics (where the gold went to Argentina), the gold medal has gone to Team USA in each of the games played from 1992 to 2012. For more see http://www.sports-reference.com/olympics/sports/BAS/mens-basketball.html

2 http://www.nytimes.com/2012/02/05/magazine/NBA-in China.html?n=Top/Reference/Times per cent20Topics/People/Y/Yardley, per cent20Jim?ref=jimyardley&_r=1&pagewanted=all.

3 http://www.forbes.com/sites/aliciajessop/2012/06/14/the-surge-of-the-nbas-international-viewership-and-popularity/.

4 http://espn.go.com/blog/truehoop/post/_/id/19814/is-basketball-taking-over-the-world.

5 During the winter of 1891–92, James Naismith invented the sport of basketball at Springfield College in Massachusetts. For the story of the origins of basketball one is referred to the

website of Springfield College: http://www.springfieldcollege.edu/welcome/birthplace-of-basketball/index#.VFUn5_nF_h4.

6 Discrimination against individuals due to their origin or religious beliefs remains a phenomenon in modern societies. Becker (1957) outlines potential sources of discrimination in labour markets where workers are treated differently despite being equally qualified. The availability of workers' performance, individual characteristics and salaries in professional sports data means it is a fruitful setting in which to test for labour market discrimination (Kahn, 2000).

7 http://www.eeoc.gov/laws/types/nationalorigin.cfm.

8 The international players employed by the NBA examined in our dataset are drawn from 54 different nations. European nations are the most common nationality observed (outside the USA). But players are also drawn from Africa, South America, Asia, Australia, and other North American nations. The international search for talent is likely related to the issue of the "short supply of tall people" (see Berri *et al*., 2005).

9 For the ACB we are relying on data from RealGM.com. This site reports for the 2011/12–2013/14 seasons data on performance and personal characteristics of the players employed (including age and national origin). For the NBA we will be utilising data from basketball-reference.com. This site also reports performance data and personal characteristics.

10 The liberalisation of the labour market in sports was followed in detail by the economic literature to analyse the impact on player migration and remuneration as well as its consequences for clubs and leagues (e.g. Milanovic, 2005; Frick, 2007, 2009; Groot, 2008; Lee & Fort, 2012).

11 Berri (2006) offered an extensive literature review of past studies. This review illustrated that results varied in the literature. More recently, Robst *et al*. (2011) failed to find evidence of discrimination while Groothuis and Hill (2013) – in a comprehensive study of wage and employment discrimination in the NBA – noted that evidence of racial discrimination depended on how the model employed was constructed.

12 This point was made by Fort and Gill (2000). It was also noted in a study of bias in the sports media by Berri, Van Gilder, and Fenn (2014).

13 However, nationality can be changed by the player to circumvent restrictions for usage of foreign players. If a player has citizenship for the country he is playing in, he is treated as a domestic in our data.

14 In addition – as noted in Berri and Schmidt (2010) and Berri, Schmidt and Brook (2006) – the evaluation of this past performance is inconsistent with how that performance actually impacted outcomes in the NBA.

15 Price *et al*. (2013) do not find any own-race bias for players, showing that cooperative behaviour on the basketball court is independent of teammates' race.

16 Performance relative to position is calculated following the approach taken originally in Berri, Schmidt, and Brook (2006). Specifically, the average per 48 minute performance in a player's primary position was subtracted from his per 48 minute performance. Then the overall average per 48 minute performance (across all positions) was added back to the outcome of the first step. This gives us a measure of performance that can allow comparisons across all positions. Without this step the inclusion of players at different positions is problematic, since performance varies systematically across position played. Specifically, big men tend to get rebounds and not many assists or steals. Smaller players tend to get fewer rebounds and more assists and steals.

17 Games played are included as a proxy for injury. But it also reflects the evaluation of the coach.

18 The squared term is necessary because we suspect a younger player might earn more minutes with experience while older players might see playing time decline with age (Fair, 1994).

19 Prior research into this topic was offered by Staw and Hoang (1995) and Camerer and Weber (1999). Each of these authors examined the escalation of commitment in the NBA, defined by Camerer and Weber (pp. 59–60) as follows: "when people or organizations who have committed resources to a project are inclined to 'throw good money after bad' and maintain or increase their commitment to a project, even when its marginal costs exceed marginal benefits." Both of the aforementioned studies offer evidence that, after controlling for the performance of the player, where a player was chosen in the draft still impacts the amount of playing time the player receives after the first two years of the player's career and the completion of the rookie contract. Such a result indicates that NBA decision-makers cannot let sunk costs go.

20 The estimation of this model included team specific fixed effects and robust standard errors.

21 The model indicates minutes per game reach a maximum at 26.6 years of age.

22 TOPER is found to be positive and significant. This means that players are rewarded for being more careless with the ball. Many 'stars' tend to score in large numbers but are also somewhat careless with the ball, a result that is consistent with a failure of decision-makers to evaluate inefficient stars (as detailed in Berri and Schmidt, 2010).

23 The estimation of this model includes team specific fixed effects and robust standard errors.

24 The model indicates that minutes per game peak around 32.1 years of age in the ACB.

25 This was also noted in Berri, Schmidt, and Brook (2006), Berri, Brook, and Schmidt (2007), and Berri and Schmidt (2010). The focus on scoring has also been seen in past studies of the NBA draft (see Berri, Brook, and Fenn, 2010) and the media's voting for the NBA's MVP award (see Berri, Fenn, and Van Gilder, 2012).

26 Even if no fan preference exists towards a certain type of player it can still be favourable to award additional playing time in response to referee bias. Such behaviour would be consistent with Price and Wolfers (2010), who offer evidence that calls made by referees are impacted by the race of the players in the game.

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