The Effect of Foreign Players on Pay and Performance in Major League Soccer

Simon Medcalfe[1] and Rebecca Smith[1]

[1]*Augusta University*

Simon Medcalfe is a professor of economics and finance in the James M. Hull College of Business. His research and teaching interests include sports and applied microeconomics.

Rebecca Smith is an executive assistant at the RCF Group, a tax and investment planning firm based in Atlanta, GA. She graduated from Augusta University with an MBA in December 2016, where she began work on the current paper.

Abstract

Over the last ten years, Major League Soccer (MLS) has attracted many overseas players. This study examines the role country of birth plays in salary determination, team performance on the pitch, and fan attendance in Major League Soccer for the 2007 through 2014 seasons. Players born in the U.S. earn less than equally productive foreign-born players. However, there is much heterogeneity amongst these foreign-born players. Players born in France, Gambia, Argentina, Brazil, Columbia, and Costa Rica earn salary premiums relative to their productivity. Players born in Trinidad and Tobago earn less than their productivity would suggest. There is little evidence that foreign born players impact team performance on the pitch but may have a positive effect on attendance.

Keywords: Major League Soccer; Salary; Attendance; Nationality; Team Production

Introduction

Major League Soccer (MLS) is the top division of professional soccer in the United States and Canada and has seen an increase in demand for its product over the last 15 years. Total attendance at regular season games increased from a league low of 2,215,019 in 2002 to 8,270,187 in 2017. During this time the league increased the number of teams from 10 to 22, resulting in average attendance increasing from 15,822 in 2002 to 22,113 in 2017. MLS is ranked as the seventh biggest soccer league in the world, based on total and average attendance. With league expansion and a growing presence within the international market, MLS clubs are attracting international players with the potential to further boost attendance and revenue. As Lee and Harris (2012) stated, MLS reached "a crossroads with an increasing focus on the recruitment of high-profile and high earning overseas players" (p. 106). Brown (2005) argued that "MLS must become a destination for the best players in the world" (p. 58).

In order to attract top international talent, increase attendance at soccer matches, and improve TV ratings (Apostolov, 2012) MLS implemented the Designated Player

Rule (DPR) which allowed clubs to sign a maximum of three players with compensation and acquisition costs above the club's salary cap. David Beckham, the first player signed under the rule, earned an annual guaranteed salary of $6.5 million in 2007 with the Los Angeles Galaxy. For Beckham and other designated players, the MLS club had a financial responsibility for all the compensation above the designated player's budget that varied with the player's age. Not all designated players are foreign players, and not all foreign players are designated players. Since the implementation of the DPR, only 20 players have been from the United States or Canada. In addition to the DPR, beginning in 2008, each MLS team had eight international roster spots, however, these spots are tradeable, so some teams may have more than eight international players and some teams may have fewer. The introduction of international roster spots and a salary cap was in part a response to the demise of the North American Soccer League in 1984, which has been attributed to escalating salaries paid to international stars (Duru, 2010).

MLS is not alone in strategically pursuing international players with the National Football League (NFL), National Basketball Association (NBA), and Major League Baseball (MLB) also attempting to become more attractive by signing foreign players and scheduling more games outside of the United States (see Tainsky and Winfree (2010) for MLB and Eschkler, Perez, and Siegler (2004), Hill and Groothuis (2017), and Yang and Lin (2012) for NBA studies). However, MLS is unique in the major league sports landscape of the United States as the only league to limit international players on team rosters (Duru 2010).

In addition, MLS is unique relative to other international soccer leagues in several ways. First, it does not have promotion and relegation. Second, the league is organized as a single entity structure with players signing contracts with the league rather than individual clubs. Designated players may choose the MLS team they will play for, but all other players are allocated to teams by MLS (Decurtins, 2017). This monopsony power has resulted in salaries representing as little as 25 percent of revenues in 2007 compared to 50 to 60 percent in other US professional leagues, and up to 70 percent in European soccer leagues (Twomey and Monks, 2011), making it difficult for MLS to attract mid-range foreign players without "top star status" (Decurtins, 2017). Third, MLS has a team salary cap and other salary restrictions that are non-existent elsewhere in international soccer. In 2014 the collective bargaining agreement (CBA) between the Major League Soccer Players Association and MLS set a salary budget or cap of $3.1 million per club. The CBA also defined minimum salaries for senior roster players and additional players beyond the first 24 roster spots per club. As noted earlier, teams could exceed the salary budget via the DPR.

This study examines the role country of birth plays in salary determination, team performance on the pitch, and fan attendance in Major League Soccer for the 2007 through 2014 seasons. We extend the existing literature on these issues by classifying players by country of birth. Previous studies (Celik and Ince-Yenilmez, 2017; Kuethe and Motamed, 2010; Reilly and Witt, 2007) have used a broader classification, using region of birth. Using region or country of birth may not be a good indicator of professional soccer potential, especially as many soccer players born in one country join development programs in a different country (e.g., Freddy Adu and Lionel Messi). We use two measures of pay, base salary and guaranteed compensation. Previous studies

have used either base salary (Celik and Ince-Yenilmez, 2017; Reilly and Witt, 2007) or guaranteed compensation (Kuethe and Motamed, 2010), but none have used both to test for robustness over salary specification. We use a larger number of seasons and include a larger number of productivity variables than previous studies, including a measure of player experience not used before in the literature—whether a player's previous club was in one of the top five European leagues. Moreover, studies that have analyzed the relationship between country of birth and performance have not taken the next step to understand how the number of foreign players on a team influences team performance on the pitch and fan attendance.

We find that there is considerable heterogeneity with players born in some countries enjoying a sizeable salary premium, while others suffer a salary discount. These premiums and discounts are robust to salary and compensation specifications. We find limited evidence that foreign-born players affect performance on the pitch, but African and Central American players have a positive effect on attendance.

Literature Review

MLS is a relatively new league in the United States, having started in 1996, and this short history is reflected in few academic studies of the league. The league's expansion coincided with an increase in the academic study of various elements of the league. Similar to other sports, scholars have analyzed a wide range of phenomenon related to MLS, including determinants of attendance, such as the Champions World™ series of matches between top European teams on US soil (Brown, 2005), All-star players (Forest, Simmons, & Szymanski, 2004; Jewell & Molina, 2005; Villa, Molina, & Fried, 2011), new stadiums (Argeris & Nagel, 2013; Deschriver, Rascher, & Shapiro, 2016; Gomez-Gonzalez, Garcia-Unanue, Sanchez-Sanchez, Ubago Guisado, & del Corral, 2016; Love, Kavazis, Morse, & Mayer, 2013; Parrish, 2013), and designated players (DeSchriver, 2007; Lawson, Sheehan & Stephenson, 2008; Parrish, 2013). Other studies have examined fan rivalry (Anders & Rotthoff, 2014; Cobbs, Sparks, & Tyler, 2017; Tyler, Morehead, Cobbs, & DeSchriver, 2017), fan preferences (Larson, Jensen, & Bowman, 2011), TV ratings (Paul & Weinbach, 2013), determinants of pay (Celik & Ince-Yenilmez, 2017; Kuethe & Motamed, 2010; Reilly & Witt, 2007), and the role of the single entity legal structure on player transfers and salaries (Decurtins, 2017).

Our paper draws on two lines of analysis from previous studies of MLS. First, the relationship between individual player performance and their pay. Second, the relationship between payroll, team performance, and fan attendance. Many US professional sports leagues have publicly available data on each player's salary and performance. This has led to many studies of the relationship between pay and performance in major league sports, starting with Scully (1974). Soccer traditionally has not had publicly available datasets on salaries, especially in Europe and South America, where soccer is the major sport. MLS does however make salaries publicly available via the players' association. Several studies (Celik & Ince-Yenilmez, 2017; Kuethe & Motamed, 2010; Lee & Harris, 2012; Reilly & Witt, 2007) have used this data to examine the role of country of birth or citizenship in the pay and performance relationship.

The first analysis of the relationship between pay and performance in the MLS was Reilly & Witt (2007), who found US citizens earned significantly less than non-US citizens in the 2007 season. Using mean and median OLS regression, they found statistically significant positive relationships between base pay and age, seasons played

in the MLS, games started in 2006, and if the player had played for his international side. Strikers and midfielders earned more than defenders. Besides analyzing just one season, their study was limited by classifying players simply as U.S. or non-U.S. citizens. They also only included a dummy variable if the player had experience in any European League. The coefficient on this European dummy was positive, but it takes no account of which league a player was in before MLS.

Kuethe & Motamed (2010) used data from 193 players who played in the 2007 season and were under contract in the 2008 season and found, using OLS regression, that players born in South America earned significantly more than U.S.-born players. There was no significant difference in guaranteed compensation between U.S.-born players and players born in Africa, Canada, Central America, Caribbean, Europe, or Mexico. They did not include Asian or Oceania players in their analysis. Guaranteed compensation was also positively associated with age, MLS experience, and whether the player was a designated player, had at least one international cap, or was selected for the all-star game. Player position was not significant.

Using MLS data from 2007 through 2016, Celik & Ince-Yenilmez (2017) classified international players by eleven birth places or regions: North, Central, and South America, Western, Northern, Southern, and Eastern Europe, the Caribbean, Africa, Asia, and Oceania. They found that players born in Western, Northern, and Southern Europe earned higher base salaries than players born in North America. South Americans also earned higher salaries, while Caribbean players earned less. Other significant variables that had a positive relationship with salary were player age, experience in the MLS, if the player was a designated player and had made the national youth team but not the senior side, and had made the international senior side. Midfielders and forwards earned more than defenders. Number of games started and goals per game were also significantly positively associated with higher base salaries. They concluded that place of birth was the most important determinant of player salaries.

Our study extends this line of investigation in two important ways. First, we model the relationship between pay and performance using individual country of birth as well as the broader region, an analysis not yet undertaken with MLS data. There is much heterogeneity within geographic regions and it is not obvious that, for example, a player born in Argentina or Brazil is similar to one born in Venezuela. Second, previous studies (Celik & Ince-Yenilmez, 2017; Kuethe & Motamed, 2010; Reilly & Witt, 2007) that analyzed the relationship between country of birth and salary do not then investigate the consequences of this relationship on important team and club outputs, such as performance on the pitch and attendance.

The relationship between performance on the pitch and payroll is complicated because salaries that may be needed to attract foreign talent may lead to higher but more unequal payrolls. Lee and Harris (2012) found that marquee players increased inequality and had a limited impact on the pitch and urged that income inequality be the subject of future research. Sonntag and Sommers (2014) found in game-specific regressions that an increase in the Gini coefficient decreased the probability of a win in both the 2011 and 2012 MLS seasons, concluding that a team's success varies inversely with salary inequality. Coates, Frick, and Jewell (2016) found that increased salary inequality reduced team production, measured as points per game. Although they also used the Gini coefficient, their preferred measure of salary dispersion was the coefficient of variation. After controlling for wages, players capped at national

level, and expansion teams, they found that increased salary dispersion decreased on field performance. None of these studies included variables capturing foreign-born players. Given that some of these foreign players may be relatively higher paid than U.S. players, this may explain the cause of the salary dispersion.

Previous studies of MLS have found that fans prefer watching better quality teams in newer stadiums, particularly if they include players who were chosen to play in the All-Star game. An as yet unanswered question is if fans prefer watching foreign-born players, as no previous studies of MLS have examined the relationship between a team's roster of foreign players and attendance. We provide answers to this question in this paper.

Methodology and Data

The data on player salaries was gathered for the 2007 through 2014 seasons from the MLS Players Association website (MLSPA). Data on player performance measures was collected from MLS (n.d.) and MLSPA websites. The minimum base salary and guaranteed compensation of MLS players from the seasons reviewed was $12,900. The highest base salary was $6 million and $6.95 million for guaranteed compensation. The average base salary for these seasons was $167,659.73 and $188,227.41 for guaranteed compensation. We use (the log of) base salary and (the log of) guaranteed compensation as alternative dependent variables. In total, we use a panel of 2,913 observations from 1,091 players over 8 seasons.

Initially, our independent variable of interest is the player's Fédération International de Football Association (FIFA) confederation based on country of birth. As mentioned in the literature review, country of birth has been used extensively to identify foreign players. There are six FIFA confederations: UEFA (Union of European Football Associations), CONCACAF (The Confederation of North, Central America, and Caribbean Association Football), CONMEBOL (Confederation Sudamericana De Futbol), CAF (Confederation Africaine de Football), AFC (Asian Football Confederation), and OFC (Oceania Football Confederation). Dummy variables representing FIFA confederations were constructed. A U.S. national was identified with a separate dummy variable and the CONCACAF variable therefore represents players born in a CONCACAF country, except the United States. In the analysis that follows, the omitted variable is U.S. Descriptive statistics of players' age, salary, and average number of seasons played by confederation are shown in Table 1. U.S. players are younger on average (24.71 years) than players from other FIFA confederations, except Africa (24.12 years). Players born in Asia earn less than US players on average (although the number of Asian players—6—is small), while players born in other regions earn more.[1] UEFA players' salary and compensation are over twice that of the CONMEBOL. U.S. players have the longest careers in this dataset at over 3 seasons on average, while UEFA players spend less than 2 seasons in MLS.

A player's salary is a reflection of their position on the field and their expected productivity, therefore we include several position and productivity statistics. A player's position was identified from the MLS website and also the MLS Players Association (MLSPA). Goalkeepers are omitted from this analysis because their productivity

[1] The average salary for OFC is high because there are few players from OFC and Tim Cahill earned $3.5 million in each season he played in MLS.

Table 1. Descriptive Statistics by FIFA Confederation

	Average Age	Average Base Salary	Average Guaranteed Compensation	Number of Countries per Confederation	Number of Players per Confederation	Average Number of Seasons
US	24.71	$112,312.66	$125,864.61	1	491	3.2
UEFA	27.15	$414,112.21	$480,457.58	37	172	1.9
CONCACAF	25.87	$177,117.83	$191,021.96	18	169	2.5
CONMEBOL	26.39	$184,817.81	$205,495.90	10	171	2.2
CAF	24.12	$116,463.28	$135,860.83	21	72	2.8
AFC	27.47	$84,387.94	$90,347.14	3	6	2.8
OFC	28.18	$535,686.95	$557,139.60	2	10	2.2

statistics are measured differently from outfield players. Unfortunately, the MLS website and the MLSPA website did not agree when classifying player position, so we utilize both categories separately. The omitted variable is midfielder/forward. We also include player productivity statistics, such as goals scored, assists, and offences, such as yellow cards and fouls committed. We also include the number of minutes each player was on the pitch in each season. This is a better measure of performance than games played or games started which are often used (Lee & Harris, 2012; Reilly & Witt, 2007) because each of those variables could be the same, whether a player played one minute or ninety. Many of the possible productivity statistics retrieved from the MLS website were highly correlated and were therefore dropped from the analysis. The remaining productivity statistics are not highly correlated with each other or with player position (see Table 2 for correlations).

Besides productivity statistics, a player's salary may be determined by personal characteristics, such as age, experience, and whether they are one of the designated players on a team. A dummy variable equal to unity identifies a designated player. We also create a dummy variable for David Beckham as the player who was responsible for the introduction of the DPR. We include an age variable and its square as many economic studies, especially in sports, find that salary increases at a decreasing rate with respect to age. We include five dummy variables equal to 1 if the player's previous club was in one of the big five European leagues—Premier League in England, Bundesliga in Germany, Ligue 1 in France, La Liga in Spain, or Serie A in Italy. This measure of experience has not been used in previous studies which have used MLS experience (Celik & Ince-Yenilmez, 2017; Kuethe & Motamed, 2010; Reilly & Witt, 2007) or a dummy variable for any experience a player had in any European league (Reilly & Witt, 2007). Using experience in big European leagues is better suited to this study of the relationship between foreign players and performance because it reflects MLS's focus on attracting overseas players. We include a time trend, season, to allow for changes of salary over time in general. This is a better measure of salary changes than using inflation to calculate real salaries because sport salaries are rarely related to general inflation and often increase much faster.

Table 2a. Correlation Statistics for Productivity Variables

	Mins	Goals	Assists	Goals per 90 minutes	Scoring percentage	Fouls committed	Fouls suffered	Offside	Yellow card	Red card	Assists per 90 minutes
Mins	1										
Goals	0.408	1									
Assists	0.499	0.485	1								
Goals per 90 minutes	-0.011	0.153	0.041	1							
Scoring percentage	0.124	0.425	0.130	0.292	1						
Fouls committed	0.770	0.384	0.402	0.004	0.112	1					
Fouls suffered	0.710	0.524	0.592	0.032	0.154	0.699	1				
Offside	0.263	0.722	0.343	0.104	0.223	0.288	0.408	1			
Yellow card	0.631	0.208	0.284	-0.018	0.061	0.743	0.494	0.119	1		
Red card	0.204	0.044	0.043	-0.010	0.016	0.263	0.151	0.014	0.260	1	
Assist per 90 minutes	0.086	0.215	0.602	0.027	0.077	0.079	0.217	0.173	0.034	-0.018	1

Table 2b. Correlation Statistics for Productivity Variables and Player Position

	MLS D	MLS DF	MLS DM	MLS F	MLS FM	MLS M	MLS MD	MLSMF
Mins	0.1132	0.0470	0.0296	-0.1572	0.0571	-0.0106	0.0242	0.0070
Goals	-0.3109	-0.0293	-0.0490	0.3647	0.1543	-0.0587	-0.0141	0.0800
Assists	-0.2558	0.0003	0.0083	0.0383	0.1062	0.1543	0.0076	0.1029
Goals per 90 minutes	-0.0892	-0.0081	-0.0167	0.0930	0.0169	0.0055	-0.0060	0.0110
Scoring percentage	-0.1026	-0.0287	-0.0134	0.1767	0.0360	-0.0603	-0.0177	0.0265
Fouls committed	-0.0398	0.0177	0.0031	-0.0337	-0.0225	0.0624	0.0571	-0.0064
Fouls suffered	-0.2092	-0.0010	-0.0211	0.0420	0.0899	0.1284	0.0065	0.0680
Offside	-0.3036	-0.0237	-0.0601	0.5004	0.1084	-0.1527	-0.0231	0.0315
Yellow card	0.0771	0.0319	0.0332	-0.1591	-0.0394	0.0554	0.0476	-0.0135
Red card	0.0834	0.0544	-0.0068	-0.0552	-0.0446	-0.0175	0.0104	-0.0344
Assist per 90 minutes	-0.2685	-0.0141	-0.0105	0.1018	0.0511	0.1489	-0.0039	0.0590

Our Mincer-type equation to be estimated is

$$\text{Log SAL}_{it} = \alpha + \beta_1 \text{FIFA}_i + \beta_2 \text{POSITION}_{it} + \beta_3 \text{PRODUCTIVITY}_{it} + \beta_4 \text{CHARACTERISTIC}_{it} + \varepsilon_{it}, \quad (1)$$

for player i in season t. β_1 is a vector of coefficients on the five FIFA confederation variables; β_2, β_3, and β_4 are vectors of coefficients on player position, productivity statistics, and personal characteristics, and ε_{it} is the error term. The dependent variable is alternatively the log of base salary or the log of guaranteed compensation. A list of variables and summary statistics are presented in Table 3. We estimate a random effects (RE) model because differences across teams have some influence on the dependent variable (salary). Additionally, RE models allow the inclusion of time invariant variables, such as FIFA confederation and country of birth. The alternative fixed effects estimator wipes out all explanatory variables that do not vary within an individual, resulting in imprecise estimates (Kennedy, 2003; Wooldridge, 2002). To control for the possibility of heteroscedasticity we report robust standard errors. We include dummy variables for team, but suppress the results for brevity. The excluded team is Columbus.

Table 3. Variable Definitions and Summary Statistics

Variable	Definition	Mean	Standard Deviation
Base salary (LOG)	Log of MLS player's current base salary	4.9413	0.3905
Guaranteed compensation (LOG)	Log of MLS player's current base salary and all guaranteed bonuses annualized over the player's contract	4.9853	0.4018
Age	Age of player at time of season t (t = 2007–2014)	25.3609	4.2404
Age squared	0.0319Age of player squared at time of season t (t = 2007–2014)	661.1484	223.1322
Premier League	= 1 if player's previous club was in the English Premier League	0.0202	0.1408
Bundesliga	= 1 if player's previous club was in the Bundesliga	0.0144	0.1191
La Liga	= 1 if player's previous club was in the La Liga	0.0079	0.0884
Serie A	= 1 if player's previous club was in the Serie A	0.0031	0.0555
Ligue 1	= 1 if player's previous club was in the Ligue 1	0.0041	0.0640
UEFA	= 1 if player born in a European country	0.1100	0.3130
CONCACAF	= 1 if player born in a North or Central American country excluding the USA	0.1470	0.3542
USA	= 1 if player born in the U.S.	0.5346	0.4989
CONMEBOL	= 1 if player born in a South American country	0.1261	0.3320
CAF	= 1 if player born in an African country	0.0689	0.2533
AFC	= 1 if player born in an Asian country	0.0058	0.0761
OFC	= 1 if player born in an Oceanian country	0.0075	0.0865
Designated Payer	= 1 if player was a designated player in season t	0.0576	0.2330
Beckham	= 1 if player was David Beckham	0.0021	0.0453
MLS D	= 1 if player plays defender position in MLS in season t	0.3376	0.4730

Continued

Table 3. Variable Definitions and Summary Statistics *Continued*

Variable	Definition	Mean	Standard Deviation
MLS DF	= 1 if player plays defender or forward position in MLS in season t	0.0027	0.0523
MLS DM	= 1 if player plays defender midfielder position in MLS in season t	0.0178	0.1323
MLS F	= 1 if player plays forward position in MLS in season t	0.2265	0.4187
MLS FM	= 1 if player plays forward midfielder position in MLS in season t	0.0188	0.1360
MLS M	= 1 if player plays midfielder position in MLS in season t	0.3677	0.4823
MLS MD	= 1 if player plays midfielder defender position in MLS in season t	0.0093	0.0958
MLSPU D	= 1 if player plays defender position in MLSPU in season t	0.3101	0.4626
MLSPU DF	= 1 if player plays defender or forward position in MLSPU in season t	0.0014	0.0370
MLSPU DM	= 1 if player plays defender midfielder position in MLSPU in season t	0.0158	0.1246
MLSPU F	= 1 if player plays forward position in MLSPU in season t	0.2505	0.4334
MLSPU FM	= 1 if player plays forward midfielder position in MLSPU in season t	0.0086	0.0922
MLSPUA M	= 1 if player plays midfielder position in MLSPU in season t	0.3643	0.4813
MLSPU MD	= 1 if player plays midfielder defender position in MLSPU in season t	0.0161	0.1259
Minutes	# of minutes played in season t, in thousands (t = 2007-2014)	1.275	0.866
Goals	# of goals scored in season t (t = 2007–2014)	1.8585	3.0993
Assists	# of assists made in season t (t = 2007–2014)	1.7341	2.4346
Goals per 90 minutes	# of goals scored per 90 minutes in season t (t = 2007–2014)	0.1374	0.8535
Scoring percentage	Scoring percentage (goals to shots ratio) in season t (t = 2007–2014)	7.8019	11.3856
Fouls committed	# of fouls committed in season t (t = 2007–2014)	17.3753	13.7217
Fouls suffered	# of fouls suffered in season t (t = 2007–2014)	16.0305	14.8992
Offside	# of offside ruled in season t (t = 2007–2014)	3.6042	6.8745
Yellow card	# of yellow cards issued in season t (t = 2007–2014)	2.2820	2.2098
Red card	# of red cards issued in season t (t = 2007–2014)	0.1758	0.4330
Assists per 90 minutes	# of assists per 90 minutes made in season t (t = 2007–2014)	0.1124	0.1712

Results

The regression results shown in Table 4 present consistent findings that are robust to different model specifications. Column 2 confirms the descriptive statistics that U.S. players earn 6.9% less than foreign-born players after accounting for position,

Table 4. Random Effects Model Estimates of the Relationship Between FIFA Confederation and Player Salary

	Base Salary (MLSPA player position)	Base Salary (MLSPA player position)	Base Salary (MLSPA player position)	Base Salary (MLSPA player position)
USA	-.0716*** (.0153)			
UEFA		.1075*** (.0230)	.1281*** (.0271)	.1289*** (.0271)
CONCACAF		.0387* (.0201)	.0562** (.0221)	.0558** (.0221)
CONMEBOL		.1006*** (.0245)	.1567*** (.0256)	.1573*** (.0257)
CAF		.0373 (.0302)	.0506 (.0351)	.0496 (.0352)
AFC		-.1489** (.0619)	-.1607** (.0628)	-.1628** (.0630)
OFC		.0147 (.0964)	.0297 (.1255)	.0304 (.1259)
Designated Player	.4450*** (.0484)	.4398*** (.0486)		
Beckham	.5880*** (.1460)	.5571*** (.1545)	.7058*** (.2113)	.7026*** (.2116)
Age	.1500 (.0185)	.1461*** (.0185)	.1548*** (.0190)	.1556*** (.0191)
Age squared	-.0022*** (.0004)	-.0021*** (.0004)	-.0022*** (.0004)	-.0023*** (.0004)
Premier League	.2389** (.1184)	.2391** (.1193)	.3601** (.1512)	.3610** (.1528)
Bundesliga	.1800* (.1076)	.1744 (.1065)	.1923 (.1383)	.1943 (.1396)
La Liga	.5989*** (.1494)	.6028*** (.1571)	.8562*** (.2077)	.8700*** (.2067)
Serie A	.2210 (.2036)	.1936 (.2107)	.3025 (.2870)	.2987 (.2876)
Ligue 1	.1750 (.1288)	.1664 (.1320)	.1855 (.1437)	.1835 (.1433)
Defender	-.0981*** (.0371)	-.0940** (.0373)	-.1092*** (.0405)	-.1110*** (.0409)
Defender/Forward	-.1132 (.1705)	-.1071 (.1709)	-.1130 (.1505)	-.1178 (.1515)
Defender/Midfielder	-.0923 (.0583)	-.0882 (.0580)	-.1025 (.0631)	-.1041 (.0636)
Forward	-.0646* (.0355)	-.0619* (.0357)	-.0503 (.0388)	-.0499 (.0393)
Forward/Midfielder	-.0624 (.0953)	-.0614 \(.0952)	-.0465 (.1029)	-.0448 (.1043)
Midfielder	-.0951*** (.0358)	-.0936*** (.0360)	-.0920** (.0391)	-.0918** (.0396)
Midfielder/Defender	-.0535 (.057)	-.0521 (.0580)	-.0669 (.0628)	-.0668 (.0631)
Minutes	.0000*** (.0000)	.0000*** (.0000)	.0000*** (.0000)	.0000*** (.0000)
Goals	.0041* (.0022)	.0039* (.0022)	.0031 (.0022)	
Assists	.0009 (.0025)	.0008 (.0025)	.0030 (.0027)	
Goals per 90 minutes	-.0079*** (.0013)	-.0078*** (.0013)	-.0071*** (.0017)	-.0065*** (.0024)
Scoring percentage	.0002 (.0003)	.0002 (.0003)	.0003 (.0003)	.0005* (.0003)
Fouls committed	-.0007 (.0007)	-.0007 (.0007)	-.0008 (.0007)	-.0008 (.0007)
Fouls suffered	.0010* (.0006)	.0010 (0006)	.0012* (.0007)	.0014** (.0006)
Offside	.0022* (.0013)	.0022* (.0013)	.0031** (.0015)	.0039*** (.0013)
Yellow card	.0010 (.0027)	.0009 (.0027)	.0018 (.0025)	.0016 (.0025)
Red card	.0049 (.0068)	.0049 (.0068)	.0064 (.0070)	.0059 (.0070)
Assists per 90 minutes	.0194 (.0289)	.0196 (.0287)	.0140 (.0315)	.0361 (.0245)
Season	.0294*** (.0027)	.0295*** (.0027)	.0327*** (.0028)	.0329*** (.0028)
Constant	-56.6860*** (5.4189)	-56.877*** (5.3987)	-63.3378*** (5.6683)	-63.7635*** (5.7194)
Team	Yes	Yes	Yes	Yes
R^2	0.6055	0.6113	0.5448	0.5418
Observations	2913	2913	2913	2913
Number of groups	1091	1091	1091	1091

Note: Robust clustered standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

productivity, and personal characteristics. However, non-U.S. players are not homogeneous and differ by FIFA confederation. Players who were born in the UEFA and CONMEBOL and CONCACAF regions earn more than similarly productive players from the U.S. UEFA players earned a base salary 11.4% more than U.S. players, all else equal, over the eight seasons examined, while CONMEBOL and CONCACAF players earned 10.6% and 3.9% more respectively (column 3). Players from the AFC earned significantly less (13.8%) than players from the U.S with similar performance on the field. Players from CAF and OFC had no significant salary difference from U.S. players.

Out of the seven MLSPA positions, three were negative and significant: defender, midfielder and forward. Defenders earned 9.0% less than their midfielder/forward counterparts over the eight seasons examined, while midfielders earned 8.9% less, and forwards 6.0% less. Perhaps suggesting that the playmaker role is the most valued position, and that MLS teams value players who can play in a variety of positions over specialty positions.

The productivity variables contain several statistically significant results. Minutes played was positive and significant, as was goals scored. It is noteworthy that goals scored was positive and significant, while goals per 90 minutes was negative and significant. This suggests that MLS teams do a poor job of measuring and rewarding efficiency and only reward absolute performance.

The characteristics variables are as expected, the relationship between salary and age follows the traditional concave pattern, and the coefficients on the designated player and Beckham dummy variables are positive and significant. Designated players earn 55% more than non-designated players, and Beckham earned a 74.6% premium over other equally productive players. If a player's previous club was in the Premier League or La Liga, then the player earned 27.0% or 82.7% respectively more than equally productive players without Premier League or La Liga experience at their prior club. If the player's previous club was in the Bundesliga, Serie A, or Ligue 1, it did not translate into a significant salary premium. The season coefficient suggests that salaries are increasing with time.

We undertake several robustness checks that include omitting the designated player variable (column 4) and the goals and assist variable (column 5). Omitting the designated player variable does increase the coefficient associated with the FIFA variables as they now capture some of the designated player effect since most designated players are foreign. Even though there are no multicollinearity problems (see Table 2) with goals, assists, minutes, goals per 90 minutes, and assists per 90 minutes, the results in column 5 omit goals and assists as independent variables. The coefficient on minutes remains significant and similar in magnitude as column 2. Goals per 90 minutes remains negative and significant with little change in the magnitude of the effect. Importantly, the coefficients on the FIFA variables remains similar to previous specifications.

Column 2 of Table 5 uses guaranteed compensation as the dependent variable instead of base salary, and also uses MLSPA player position. The magnitude of the guaranteed compensation discount for U.S. players is the same (to 2 decimal places) as for base salary and the premium for the UEFA and CONMEBOL variable is similar in magnitude and significance (column 3). The coefficient for CONCACAF is not significant but the coefficient on AFC remains negative and significant. Columns 4 and 5 use MLS player position with guaranteed compensation and base salary without

Table 5: Random Effects Model Estimates of the Relationship Between FIFA Confederation and Player Salary—Alternative Specifications

	Guaranteed Compensation (MLSPA player position)	Guaranteed Compensation (MLSPA player position)	Guaranteed Compensation (MLS player position)	Base Salary (MLS player position)
USA	-.0701*** (.0165)			
UEFA		.1174*** (.0239)	.1134*** (.0242)	.1044*** (.0232)
CONCACAF		.0279 (.0215)	.0271 (.0217)	.0388* (.0203)
CONMEBOL		.0961*** (.0256)	.0960*** (.0257)	.1010*** (.0246)
CAF		.0418 (.0350)	.0410 (.0351)	.0379 (.0302)
AFC		-.1595* (.0704)	-.1646** (0686)	-.1536* (.0604)
OFC		.0045 (.1003)	.0029 (.1003)	.0123 (.0963)
Designated Player	.4555*** (.0485)	.4509*** (.0486)	.4482*** (.0485)	.4367*** (.0485)
Beckham	.6261*** (.1370)	.5861*** (.1471)	.5873*** (.1474)	.5584*** (.1554)
Age	.1123*** (.0196)	.1082*** (.0195)	.1114*** (.0199)	.1493*** (.0186)
Age squared	-.0015*** (.0004)	-.0014*** (.0004)	-.0015*** (.0004)	-.0022*** (.0004)
Premier League	.2185** (.1240)	.2170* (.1251)	.2127* (.1255)	.2349* (.1196)
Bundesliga	.1943* (.0997)	.1853* (.0977)	.1798* (.0931)	.1670* (.1009)
La Liga	.6068*** (.1396)	.6082*** (.1491)	.5971*** (.1490)	.5942*** (.1576)
Serie A	.2932 (.1985)	.2582 (.2055)	.2631 (.2016)	.1988 (.2069)
Ligue 1	.1678 (.1110)	.1551 (.1138)	.1506 (.1126)	.1622 (.1317)
Defender	-.1207*** (.0405)	-.1164*** (.0407)	-.1440** (.0641)	-.1479** (.0636)
Defender/Forward	-.0889 (.2412)	-.0812 (.2420)	-.2199*** (.0642)	-.2184*** (.0637)
Defender/Midfielder	-.1217* (.0695)	-.1184* (.0693)	-.1261 (.0778)	-.1243* (.0751)
Forward	-.0758** (.0379)	-.0732* (.0383)	-.0899 (.0643)	-.1053* (.0639)
Forward/Midfielder	-.0833 (.0965)	-.0816 (.0965)	-.0981 (.0960)	-.1268 (.0881)
Midfielder	-.1084*** (.0389)	-.1074*** (.0392)	-.1049* (.0637)	-.1215* (.0633)
Midfielder/Defender	-.0675 (.0589)	-.0658 (.0596)	-.1439(.1038)	-.1857** (.0940)
Minutes	.0001*** (.0000)	.0001*** (.0000)	.0001*** (.0000)	.0001*** (.0000)
Goals	.0037* (.0022)	.0035 (.0022)	.0034 (.0022)	.0038* (.0022)
Assists	.0017 (.0026)	.0015 (.0026)	.0011 (.0026)	.0004 (.0024)
Goals per 90 minutes	-.0094*** (.0015)	-.0093*** (.0014)	-.0097*** (.0014)	-.0081*** (.0012)
Scoring percentage	.0003 (.0003)	.0003 (.0003)	.0003 (.0003)	.0002 (.0003)
Fouls committed	-.0006 (.0007)	-.0006 (.0007)	-.0007 (.0007)	-.0008 (.0007)
Fouls suffered	.0005 (.0006)	.0004 (.0006)	.0004 (.0006)	.0009 (.0006)
Offside	.0026** (.0013)	.0027* (.0013)	.0027** (.0013)	.0022* (.0013)
Yellow card	.0003 (.0027)	.0002 (.0027)	.0002 (.0027)	.0009 (.0027)
Red card	.0066 (.0070)	.0067 (.0069)	.0077 (.0070)	.0058 (.0068)
Assists per 90 minutes	.0079 (.0303)	.0081 (.0302)	.0076 (.0298)	.0194 (.0286)
Season	.0283*** (.0029)	.0285*** (.0028)	.0285*** (.0028)	.0297*** (.0027)
Constant	-53.8751*** (5.7323)	-54.1383*** (5.7155)	-54.3371*** (5.7083)	-57.1575*** (5.3859)
Team	Yes	Yes	Yes	Yes
R^2	0.5627	0.5690	0.5696	0.6133
Observations	2913	2913	2913	2913
Number of groups	1091	1091	1091	1091

Note: Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

Table 6. Random Effects Model Estimates of the Relationship Between Country of Birth and Player Salary

Country	Number of player-seasons	Base Salary (MLSPA player position)	Base Salary (MLS player position)	Guaranteed Compensation (MLSPA player position)	Guaranteed Compensation (MLS player position)
UEFA	321				
Albania	1	.0607 (.0553)	.0559 (.0556)	.2348*** (.0561)	.2292*** (.0564)
Austria	4	.1579 (.1254)	.1545 (.1278)	.1405 (.1270)	.1394 (.1317)
Azerbaijan	3	.0679** (.0287)	.0677** (.0291)	.0858*** (.0314)	.0849*** (.0325)
Belgium	1	-.0861*** (.0289)	-.0762*** (.0279)	-.1052*** (.0313)	-.0949*** (.0299)
Bosnia	12	.0367 (.1192)	.0248 (.1212)	.1122 (.1646)	.0966 (.1673)
Bulgaria	2	-.2037*** (.0303)	-.2072*** (.0312)	-.2434*** (.0325)	-.2467*** (.0334)
Croatia	7	.3193*** (.0400)	.3187*** (.0405)	.3510*** (.0509)	.3497*** (.0474)
Denmark	4	.2362 (.1576)	.2217 (.1577)	.2015 (.1574)	.1847 (.1580)
England	89	.0314 (.0392)	.0301 (.0404)	.0426 (.0416)	.0402 (.0428)
Estonia	4	-.0154 (.0260)	-.0354 (.0274)	.0644** (.0276)	.0422 (.0290)
Finland	3	.0767 (.1078)	.0557 (.1064)	.2582*** (.0570)	.2343*** (.0584)
France	49	.0798* (.0468)	.0783 (.0483)	.0853* (.0455)	.0825* (.0472)
Germany	8	.1354 (.1700)	.1340 (.1659)	.1748 (.1659)	.1712 (.1615)
Hungary	1	.2932*** (.0359)	.2841*** (.0358)	.2775*** (.0386)	.2676*** (.0388)
Iceland	1	.3271*** (.0296)	.3078*** (.0304)	.3341*** (.0322)	.3120*** (.0327)
Ireland	13	.3060** (.1345)	.3078** (.1347)	.3139** (.1473)	.3160** (.1477)
Israel	2	-.0213 (.0307)	-.0189 (.0316)	-.1008*** (.0335)	-.0980*** (.0343)
Italy	7	-.3111 (.5775)	-.2940 (.5695)	-.1908 (.5751)	-.1731 (.5663)
Latvia	1	.3727*** (.0240)	.3843*** (.0229)	.3310*** (.0260)	.3429*** (.0244)
Lithuania	2	.3877*** (.0464)	.3832*** (.0452)	.3632*** (.0485)	.3576*** (.0471)
Macedonia	1	-.1919*** (.0512)	-.1248*** (.0398)	-.2220*** (.0550)	-.1426*** (.0438)
Malta	1	-.0983** (.0390)	-.1082*** (.0387)	-.1248*** (.0438)	-.1352*** (.0436)
Montenegro	1	.1159*** (.0287)	.1246*** (.0277)	.1643*** (.0323)	.1737*** (.0311)
Netherlands	13	.2722*** (.0756)	.2697*** (.0740)	.2927*** (.0831)	.2938*** (.0790)
Northern Ireland	2	-.1475*** (.0252)	-.1682*** (.0262)	-.1443*** (.0275)	-.1674*** (.0281)
Norway	2	.2083*** (.0306)	.2139*** (.0291)	.1707*** (.0327)	.1868*** (.0306)
Poland	6	.1547* (.0923)	.1533 (.0985)	.1269 (.0962)	.1249 (.1032)
Portugal	3	.0137 (.1279)	.0075 (.1375)	.0457 (.1659)	.0378 (.1767)
Romania	4	.0125 (.0437)	.0103 (.0338)	.0050 (.0454)	.0022 (.0344)
Russia	2	-.2383*** (.0305)	-.2581*** (.0305)	-.2863*** (.0326)	-.3097*** (.0325)
Scotland	30	.0803 (.0659)	.0704 (.0675)	.0857 (.0698)	.0744 (.0717)
Serbia	9	.2355*** (.0408)	.2203*** (.0406)	.2486*** (.034)	.2307*** (.0326)
Spain	10	-.0089 (.1233)	-.0258 (.1250)	-.0144 (.1203)	-.0354 (.1218)
Sweden	8	.2686*** (.0385)	.2467*** (.0378)	.2669*** (.0401)	.2475*** (.0395)
Switzerland	5	.3110*** (.041466)	.3232*** (.0487)	.2891*** (.0413)	.3022*** (.0466)
Ukraine	5	.3018*** (.022307)	.2937*** (.0270)	.2970*** (.0233)	.2878*** (.0262)
Wales	5	.3751*** (.0274)	.3538*** (.0284)	.3419*** (.0288)	.3180*** (.0299)
CAF	201				
Algeria	3	.2376*** (.0443)	.2470*** (.0437)	.2348*** (.0561)	.3275*** (.0469)
Angola	1	-.2772*** (.0324)	-.2774*** (.0332)	-.3550*** (.0354)	-.3550*** (.0361)
Cameroon	17	-.0041 (.0753)	-.0142 (.0754)	-.0163 (.0946)	-.0284 (.0942)

Country	Number of player-seasons	Base Salary (MLSPA player position)	Base Salary (MLS player position)	Guaranteed Compensation (MLSPA player position)	Guaranteed Compensation (MLS player position)
Congo	18	.1586 (.1124)	.1627 (.1118)	.2220 (.1353)	.2255* (.1355)
Ethiopia	2	.5283*** (.0331)	.5312*** (.0338)	.5452*** (.0343)	.5480*** (.0355)
Gambia	26	.1117** (.0458)	.1109*** (.0411)	.1748 (.1659)	.0965** (.0385)
Ghana	36	.0700 (.0720)	.0674 (.0687)	.0870 (.0820)	.0810 (.0793)
Ivory Coast	3	-.2476*** (.0899)	-.2607*** (.0942)	-.2914*** (.0860)	-.3054*** (.0919)
Kenya	3	-.4110*** (.0515)	-.3850*** (.0335)	-.4227*** (.0516)	-.4009*** (.0362)
Liberia	9	-.0174 (.0728)	.0070 (.0824)	.0166 (.1206)	.0419 (.1332)
Mali	5	.2586*** (.0878)	.2743*** (.0873)	.3494*** (.0813)	.3663*** (.0802)
Morocco	8	.0790*** (.0218)	.0586** (.0236)	.0868*** (.0231)	.0636** (.0251)
Mozambique	1	.0839 (.1104)	.1014 (.1117)	.0860 (.1178)	.1038 (.1191)
Nigeria	17	.1798 (.1155)	.1786 (.1135)	.1475 (.1288)	.1434 (.1285)
Senegal	7	-.0616 (.1090)	-.0727 (.1171)	-.0171 (.1367)	-.0297 (.1463)
Sierra Leone	14	.1617 (.1214)	.1559 (.1260)	.1971 (.1318)	.1902 (.1366)
South Africa	17	-.1475 (.0939)	-.1529* (.0913)	-.1922** (.0970)	-.1978** (.0929)
Tanzania	1	.0136 (.0354)	-.0099 (.0359)	-.0461 (.0403)	-.0730* (.0406)
Uganda	4	.0120 (.0802)	.0084 (.0856)	.0603 (.0956)	.0536 (.1042)
Zambia	2	.0303 (.0278)	.0258 (.0281)	.0153 (.0296)	.0109 (.0301)
Zimbabwe	7	-.1790*** (.0436)	-.1607*** (.0558)	-.1848*** (.0406)	-.1632*** (.0533)
CONMEBOL	368				
Argentina	100	.1142*** (.0420)	.1125*** (.0423)	.1071** (.0439)	.1053** (.0443)
Bolivia	5	.0488 (.2488)	.0513 (.2434)	.0164 (.2631)	.0185 (.2576)
Brazil	102	.1790*** (.0410)	.1738*** (.0405)	.1852*** (.0429)	.1771*** (.0425)
Chile	2	-.0651 (.1382)	-.0294 (.1664)	-.0536 (.1394)	-.0135 (.1714)
Columbia	103	.0917** (.0444)	.0985** (.0448)	.0867* (.0451)	.0940** (.0455)
Ecuador	15	-.1996*** (.0605)	-.2033*** (.0620)	-.2181*** (.0528)	-.2218*** (.0540)
Paraguay	2	.2080 (.1343)	.2107 (.1391)	.2063 (.1355)	.2124 (.1432)
Peru	4	-.0300 (.0598)	-.0353 (.0582)	-.0695 (.0703)	-.0756 (.0695)
Uruguay	19	.0625 (.0706)	.0571 (.0638)	.0690 (.0695)	.0663 (.0632)
Venezuela	17	.1187 (.0956)	.1111 (.1003)	.1058 (.0984)	.0973 (.1035)
OFC	22				
Australia	8	.2737 (.1691)	.2595 (.1727)	.2788 (.1747)	.2659 (.1784)
New Zealand	14	-.1536*** (.0532)	-.1501*** (.0565)	-.1745*** (.0556)	-.1710*** (.0595)
AFC	17				
China	2	-.2031*** (.0255)	-.2085*** (.0258)	-.2509*** (.0283)	-.2569*** (.0287)
Japan	13	-.1694** (.0857)	-.1778** (.0819)	-.1821* (.0935)	-.1912** (.0888)
South Korea	2	-.0294 (.0460)	-.0230 (.0459)	.0038 (.0502)	.0105 (.0502)
CONCACAF	429				
Bermuda	5	-.0710 (.0861)	-.0666 (.0709)	-.1162 (.0722)	-.1131** (.0566)
Canada	105	.0279 (.0285)	.0260 (.0293)	.0002 (.0333)	-.0035 (.0342)
Costa Rica	50	.1480*** (.0432)	.1591*** (.0456)	.1549*** (.0448)	.1652*** (.0480)
Cuba	15	-.0568 (.0934)	-.0521 (.0964)	-.0991 (.0966)	-.0938 (.0984)
El Salvador	6	.0513 (.0549)	.0424 (.0509)	.0313 (.0553)	.0222 (.0500)
Grenada	7	.2819*** (.0353)	.2623*** (.0349)	.3227*** (.0376)	.2984*** (.0371)

Continued

Table 6. Random Effects Model Estimates of the Relationship Between Country of Birth and Player Salary *Continued from page 311*

Country	Number of player-seasons	Base Salary (MLSPU player position)	Base Salary (MLS player position)	Guaranteed Compensation (MLSPU player position)	Guaranteed Compensation (MLS player position)
Guadeloupe	4	-.0656 (.0799)	-.0693 (.0749)	-.0375 (.0935)	-.0418 (.0873)
Guatemala	8	.1879** (.0928)	.1773* (.0974)	.1810 (.1277)	.1688 (.1332)
Haiti	9	-.1113*** (.0306)	-.1265*** (.0293)	-.1484*** (.0320)	-.1651*** (.0292)
Honduras	44	.0637 (.0559)	.0623 (.0538)	.0795 (.0562)	.0767 (.0547)
Jamaica	74	-.0134 (.0358)	-.0101 (.0347)	.0008 (.0422)	.0034 (.0410)
Mexico	52	.0983 (.0680)	.0929 (.0697)	.0710 (.0685)	.0660 (.0700)
Panama	5	.3227*** (.0747)	.3190*** (.0715)	.3281*** (.0822)	.3250*** (.0785)
Puerto Rico	1	-.1278*** (.0311)	-.1233*** (.0307)	-.1793*** (.0324)	-.1743*** (.0317)
St. Kitts	8	-.0172 (.0344)	.0309 (.0241)	-.0520 (.0373)	.0056 (.0265)
St. Vincent	2	-.0309 (.0450)	-.0174 (.0407)	-.0734 (.0502)	-.0627 (.0440)
Trinidad & Tobago	31	-.0812*** (.0305)	-.0780** (.0309)	-.0918*** (.0342)	-.0893*** (.0343)
Turks and Caicos	2	-.1024*** (.0291)	-.1061*** (.0293)	-.1240*** (.0313)	-.1280*** (.0316)
R^2		0.6392	0.6402	0.5979	0.5978

Note: Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

substantial changes in the results. Differences from the base salary regression include significant coefficients on Bundesliga, Defender/Midfielder, fouls suffered, and offside, but overall guaranteed compensation results are very similar to the base salary results.

Players from a FIFA confederation may not be homogeneous. We therefore breakdown the FIFA confederations variable into specific country of birth. The results of rerunning the regressions using both base salary and guaranteed compensation, along with both player position classifications, are reported in Table 6. The other variable results are omitted for brevity but do not change substantially because we are replacing broad geographic definitions with more specific definitions. Some countries have only a very few players as noted by player-seasons. For example, Albania only had one player who played for one season. With such small numbers results may be driven by specific players, not by general considerations of nationality. Looking at countries with more than 25 player seasons, equivalent to 10 players having an average length career in MLS, we report significant premiums for players born in France (8.3%), Gambia (11.8%), Argentina (12.1%), Brazil (19.6%), Columbia (9.6%), and Costa Rica (16.0%). Salary discounts are reported for players born in Trinidad and Tobago (7.8%). Interestingly, players born in countries with big European leagues (England, Germany, Italy, and Spain) do not earn a premium, but playing in the top division of England or Spain—and to some extent Germany—does result in a premium. It is better to play in the English Premier League and the Spanish La Liga than be born in England or Spain. This would suggest that MLS clubs are taking into account playing ability more than country of birth and that the player's previous league is a better proxy for quality than country of birth. There does not seem to be any evidence of systematic nationality discrimination with players from similar countries such as Belgium and

Netherlands, or Ethiopia and Kenya, earning different salaries. Any salary premiums or discounts would therefore seem to be from misjudging future productivity.

Foreign Players, Team Performance, and Fan Attendance

We now turn to our second research question: How has the inflow of foreign players influenced team performance on the pitch and fan attendance? There has been considerable discussion (Coates, Frick, & Jewell, 2016) over whether sports teams are win maximizers or revenue maximizers. If they are the former, they would attract foreign players to boost performance on the pitch. If the latter, they would attract foreign players to boost attendance, inter alia. Performance on the pitch is measured using league points per game (PPG) because MLS teams played 30 games in the 2007 through 2010 seasons and 34 from 2011 through 2014. Attendance is the log of the season average attendance for each team at its regular-season games, log (ATT), and is taken from Wikipedia.

Independent variables include the coefficient of variation, CV, and CV squared, as a measure of salary dispersion because Coates, Frick, and Jewell (2016) found that the coefficient of variation provided the best fit. We include a dummy variable equal to unity for the first two years a team was in a new stadium (this variable was highly correlated with a dummy variable for expansion teams). The stadium variable captures existing teams moving into mainly soccer-specific stadiums and, as mentioned earlier, has been a significant determinant of attendance. We include the log of team salary for each season as a measure of team quality. Additionally, we include goals for per game (GFPG) and goals against per game (GAPG) to reflect team productivity and quality. We include a lagged PPG variable as last season's performance may affect the current season performance and fan attendance. Our dependent variable of interest, constructed from the previous data, is the sum of the number of players from each FIFA confederation on a team roster per season (this is the same as Pedace, 2008). We cannot use country-specific variables in this equation because of the limited observations. Overall, there are 126 team-year observations in the panel data set because the seven teams in their inaugural season do not have a points per game from the previous season. The equations to be estimated are

$$PPG_{jt} = \alpha + \beta_1 CV_{jt} + \beta_2 CVSQR_{jt} + \beta_3 UEFA_{jt} + \beta_4 CONCACAF_{jt} + \beta_5 CONMEBOL_{jt} + \beta_6 CAF_{jt} + \beta_7 AFC_{jt} + \beta_8 OFC_{jt} + \beta_9 laggedPPG_{jt} + \beta_{10} GFPG_{jt} + \beta_{11} GAPG_{jt} + \beta_{12} log(SALARY)_{jt} + \beta_{13} STADIUM_{jt} + \varepsilon_{jt}: \quad (2)$$

$$Log(ATT)_{jt} = \alpha + \beta_1 CV_{jt} + \beta_2 CVSQR_{jt} + \beta_3 UEFA_{jt} + \beta_4 CONCACAF_{jt} + \beta_5 CONMEBOL_{jt} + \beta_6 CAF_{jt} + \beta_7 AFC_{jt} + \beta_8 OFC_{jt} + \beta_9 PPG_{jt} + \beta_{10} laggedPPG_{jt} + \beta_{11} GFPG_{jt} + \beta_{12} GAPG_{jt} + \beta_{13} log(SALARY)_{jt} + \beta_{14} STADIUM_{jt} + \varepsilon_{jt}, \quad (3)$$

for each team j in season t. A Hausman test for fixed versus random effects estimators suggested the appropriate model was random effects. The results in the second column of Table 7 confirm the negative impact of salary dispersion found in Coates, Frick, and Jewell (2016) and Sonntag and Sommers (2014), although the coefficient is not significant. Many of the coefficients on our FIFA confederation variables are negative, indicating that more foreign-born players on a team have a negative effect on performance. However, few are significant at conventional levels. The coefficient on UEFA is negative and significant at the 10 percent level, potentially suggesting that a cause of the decreased onfield performance is driven by UEFA players. The magnitude of this effect is small, an extra European player on a team's roster will decrease points per game by 0.01, or less than half a point across a season. In this specification,

Table 7. Random Effects Model of the Relationship Between FIFA Confederation and Points Per Game

	Points Per Game			
CV	-.0972 (0.0973)		-.0859 (.1073)	
CVSQR	.0282 (0.0235)		.0242 (.0280)	
UEFA		-.0123* (.0073)	-.0116 (.0078)	-.0160 (.0150)
CONCACAF		.0022 (.0044)	.0025 (.0047)	-.0270** (.0135)
CONMEBOL		-.0027 (.0067)	-.0016 (.0075)	-.0043 (.0134)
CAF		-.0032 (.0110)	-.0015 (.0097)	-.0376 (.0224)
AFC		.0033 (.0213)	-.0020 (.0210)	-.0013 (.0391)
OFC		.0192 (.0297)	.0214 (.0281)	-.0177 (.0622)
Lagged PPG	.0727 (0.0448)	.0654* (.0397)	.0687* (.0411)	.2812** (.1363)
GFPG	.6434*** (0.0647)	.6487*** (.0750)	.6491*** (.0733)	
GAPG	-.6915*** (0.0610)	-.7031*** (.0643)	-.6895*** (.0693)	
Log(salary)	.0320 (0.0303)	.0474* (.0244)	.0528 (.0356)	.1090** (.0530)
Stadium	.0153 (0.0310)	.0360 (.0340)	.0349 (.0349)	.1484** (.0713)
Constant	.9135 (0.3978)	.6672 (.4295)	.6128 (.5478)	-.4604 (.7467)
R^2	0.86	0.86	0.86	0.17
Number of observations	126	126	126	126

Note: Robust clustered standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

lagged PPG and salary are positively related to PPG. Overall, the positive coefficient on the salary variable and the negative coefficient on the UEFA variable suggests that win-maximizing MLS clubs face a tradeoff between paying higher salaries and the subsequent increased salary inequality.

When the measures of salary inequality and FIFA variables are both included in the regression (column 4), the coefficient on the UEFA variable is no longer significant. Maybe the results are driven by the GFPG and GAPG variables, so column 5 reports the results of omitting these variables. The coefficient on CONCACAF is now negative and significant while the magnitude of the coefficient on log (salary) increases and the stadium variable is positive and significant. However, R-squared decreases precipitously when GFPG and GAPG are omitted, suggesting the preferred specification is column 3. The lack of robustness in these results suggest that there is little support for foreign players having a beneficial effect on team performance.

Maybe foreign players improve attendance even though they have a little effect on team performance. We estimate equation 3 and find that salary dispersion does not seem to bother fans because attendance is not significantly associated with CV or CVSQR. The number of players on a roster from CONCACAF and CAF does positively and significantly affect attendance. An extra CONCACAF player on the roster will increase attendance by 1.5 percent, and an extra African player will boost attendance by 2.5% (Table 8). Jewell (2017) found that two Mexican players, Cuauhtémoc Blanco and Rafael Marquez increased attendance, and these two players may be driving our

Table 8. Random Effects Model of the Relationship Between FIFA Confederation and Attendance

	Log (Attendance)			
CV	-.0965 (0.1266)		-.0540 (.1286)	
CVSQR	.0291 (0.0342)		.0194 (.0359)	
UEFA		.0017 (.0087)	.0021 (.0086)	.0072 (.0100)
CONCACAF		.0156** (.0070)	.0146* (.0070)	.0143** (.0073)
CONMEBOL		.0067 (.0105)	.0087 (.0101)	.0039 (.0116)
CAF		.0262* (.0153)	.0257* (.0154)	.0239 (.0167)
AFC		-.0442 (.0407)	-.0448 (.0414)	-.0451 (.0485)
OFC		.0118 (.0252)	.0123 (.0241)	.0183 (.0191)
PPG	-.1061 (0.1431)	-.0706 (.1291)	-.0773 (.1251)	.1561*** (.0537)
Lagged PPG	.1988*** (0.0678)	.1731*** (.0642)	.1779*** (.0628)	.1520** (.0622)
GFPG	.2916*** (0.1104)	.2945*** (.1042)	.3013*** (.0978)	
GAPG	-.1059 (0.1690)	-.0906 (.1407)	-.0827 (.1446)	
Log(salary)	.1478*** (0.0499)	.1486*** (.0238)	.1410*** (.02761)	.1368*** (.0270)
Stadium	.1424*** (0.0380)	.1312*** (.0315)	.1328*** (.0320)	.0979*** (.0272)
Constant	7.2153*** (0.7328)	6.9957*** (.4357)	7.1181*** (.4722)	7.168*** (.4327)
R^2	0.40	0.47	0.47	0.44
Number of observations	126	126	126	126

Note: Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

results. However, given that we have 50 Mexican player seasons, our results suggest there is possibly a broader positive effect of CONCACAF players on MLS attendance beyond individual players. Revenue maximizing MLS teams may therefore consider increasing the numbers of Central American and African players on their teams.

Conclusion

This study finds that U.S.-born MLS players earn less than foreign-born players. Specifically, players born in Europe and other countries of the Americas earn more than their U.S.-born counterparts. This supports previous studies that have found players born in other regions of the world often earn more than their U.S.-born counterparts.

We improve on the literature by considering the actual country of birth of players rather than the region of birth used in previous studies and find considerable heterogeneity between countries in the same region. Given the heterogeneous effect by country it seems unlikely that player salary differentials are due to discrimination. It would seem more likely that they are due to the winner's curse with clubs overpaying for foreign players relative to their subsequent performance. A major determinant of salary not previously used in the literature, whether a player's previous club was in one of the top 5 European leagues, was often significant, suggesting a player's previous league is

a better proxy for quality than country of birth. The most important determinant of salary, after being a designated player, is if a player's previous club was in the English Premier League or the Spanish La Liga. Future research would endeavor to enrich this finding with more detail on players' global experience. For example, are other national leagues important, or lower divisions, or length of career abroad?

We develop a new strand of the literature that examines the impact of these foreign born players on team performance and fan attendance. We find limited evidence that increasing the number of players from North and Central America as well as Europe decreases performance on the pitch, although the results are not robust to various model specifications, and any effect is small in magnitude. We find more robust results when analyzing the relationship between foreign born players and attendance. Here, North and Central American players as well as African players increase attendance.

Our results provide some implications for MLS teams and the league. Fans prefer watching high quality players (designated players or All-Star nominees) in new stadiums. We find that fans also prefer watching players born in Africa or North and Central America. The result for North and Central American players is in contrast to Jewell and Molina (2005) who found that teams located in areas with relatively more Hispanics had lower attendance from 1996 through 2001. It is important that teams understand the changing nature and evolution of their fan base. Teams and the league may therefore consider the value of attracting specific foreign players from certain geographies. Future academic research may consider the causes of this relationship. For example, is it related to the country of birth of the fans? Do fans see different skills in players from certain geographies? Do fans prefer to watch young eager players than aging European stars? Future research may also consider the effect of foreign born players on other measures of fan preference, such as TV ratings or merchandise sales that affect team and league revenue.

The results presented here have other implications for future research. A limitation of this study is that country of birth may not be a good indicator of player quality and therefore earnings. Country of birth has been used extensively in previous studies of MLS and soccer (Celik & Ince-Yenilmez, 2017; Kuethe & Motamed, 2010; Reilly & Witt, 2007), is prominently displayed on the MLS website, and is easily identified and objective. Moreover, if a player is not classified by country of birth, it is not obvious that a player such as Freddy Adu, who was born in Ghana and moved to the US when he was eight after his mother won the green card lottery, should be classified as Ghanaian or American. Future research may establish the relationship between pay and country of youth development. Soccer is a global game and many players develop their career in youth academies in countries other than their country of birth. Finally, future research should consider the implications of attracting overseas players on the competitive balance of the league.

References

Apostolov, S. (2012). Everywhere and nowhere: The forgotten past and clouded future of American professional soccer from the perspective of Massachusetts. *Soccer & Society, 13*(4), 510-535.

Anders, A., & Rotthoff, K. W. (2014). Is home-field advantage driven by the fans? Evidence from across the ocean. *Applied Economics Letters, 21*(16-18), 1165-1168.

Argeris S, & Nagel M. (2013). An investigation of Major League Soccer attendance. *Journal of Venue and Event Management, 4*(2), 64-75.

Brown, S. F. (2005). Can European football spur interest in American soccer? A look at the Champions World™ series and Major League Soccer. *Soccer & Society, 6*(1), 49-61.
Coates, D., Frick, B., & Jewell, T. (2016). Superstar salaries and soccer success: The impact of designated players in Major League Soccer. *Journal of Sports Economics, 17*(7), 716-735.
Cobbs, J., Sparks, D., & Tyler, B. D. (2017). Comparing rivalry effects across professional sports: National Football League fans exhibit most animosity. *Sport Marketing Quarterly, 26*(4), 235-246.
Celik, O. B., & Ince-Yenilmez, M. (2017). Salary differences under the salary cap in Major League Soccer. *International Journal of Sports Science & Coaching, 12*(5), 623-634.
Decurtins, R. (2017). Major League Soccer's exceptionalism in FIFA's transfer system: For how much longer? *Marquette Sports Law Review, 27*(2), 331-354.
DeSchriver, T. D. (2007). Much Adieu about Freddy: Freddy Adu and attendance in Major League Soccer. *Journal of Sport Management, 21*(3), 438-451.
DeSchriver, T. D., Rascher, D. A., & Shapiro, S. L. (2016). If we build it, will they come? Examining the effect of expansion teams and soccer-specific stadiums on Major League Soccer attendance. *Sport, Business and Management, 6*(2), 205-227.
Duru, N. J. (2010). This field is our field: Foreign players, domestic leagues, and the unlawful racial manipulation of American sport. *Tulane Law Review, 84,* 613-674.
Eschker, E., Perez, S., & Siegler, M. (2004). The NBA and the influx of international basketball players. *Applied Economics, 36*(10), 1009-1020.
Forrest, D., Simmons, R., & Szymanski, S. (2004). Broadcasting, attendance and the inefficiency of cartels. *Review of Industrial Organization, 24*(3), 243-265.
Gómez-González, C., García-Unanue, J., Sánchez-Sánchez, J., Ubago Guisado, E., & del Corral, J. (2016). Evidence on soccer-specific stadiums and attendance: The Major League Soccer case. *Revista De Psicología Del Deporte, 25*(3, Supl 1), 19-22.
Hill, J. R., & Groothuis, P. A. (2017). Is there a wage premium or wage discrimination for foreign-born players in the NBA? *International Journal of Sorts Finance, 12*(3), 204-221.
Jewell, R. T. (2017). The effect of marquee players on sports demand: The case of U.S. Major League Soccer. *Journal of Sports Economics, 18*(3), 239-252.
Jewell, R. T., & Molina, D. J. (2005). An evaluation of the relationship between Hispanics and Major League Soccer. *Journal of Sports Economics, 6*(2), 160-177.
Kennedy, P. (2003). *A Guide to Econometrics* (5th ed.). Cambridge, MA: The MIT Press.
Kuethe, T. H., & Motamed, M. (2010). Returns to stardom: Evidence from U.S. Major League Soccer. *Journal of Sports Economics, 11*(5), 567-579.
Larson, B. V., Jensen, R., & Bowman, N. D. (2011). Developing international sports markets: Professional sports selling to new segments with new promotions. *Journal of International Business Disciplines, 6*(2), 9-24.
Lawson, R. A., Sheehan, K., & Stephenson, E. F. (2008). Vend it like Beckham: David Beckham's effect on MLS ticket sales. *International Journal of Sport Finance, 3*(4), 189-195.
Lee, S., & Harris, J. (2012). Managing excellence in USA Major League Soccer: An analysis of the relationship between player performance and salary. *Managing Leisure, 17*(2/3), 106-123.
Love, A., Kavazis, A. N., Morse, A., & Mayer Jr., K. C. (2013). Soccer-specific stadiums and attendance in Major League Soccer: Investigating the novelty effect. *Journal of Applied Sport Management, 5*(2), 32-46.
Parrish, C. (2013). Soccer specific stadiums and designated players: Exploring the Major League Soccer attendance assumption. *International Journal of Sport Management, Recreation & Tourism, 12,* 57-70.
Paul, R. J., & Weinbach, A. P. (2013). Uncertainty of outcome and television ratings for the NHL and MLS. *Journal of Prediction Markets, 7*(1), 53-65.
Pedace, R. (2008). Earnings, performance, and nationality discrimination in a highly competitive labor market as an analysis of the English professional soccer league. *Journal of Sports Economics, 9*(2), 115-140.
MLSPA. Major League Soccer Players Association. (n.d.). Player information. Retrieved from https://www.mlsplayers.org/salary_info.html
MLS. (n.d.). Retrieved from http://www.mlssoccer.com/

Reilly, B., & Witt, R. (2007). The determinants of base pay and role of race in Major League Soccer: Evidence from 2007 league season. School of Economics Discussion Papers 19/07, School of Economics, University of Surrey.
MLS Roster Rules and Regulations. (n.d.). Retrieved from http://pressbox.mlssoccer.com/content/roster-rules-and-regulations
Scully, G. (1974). Pay and performance in Major League Baseball. *The American Economic Review, 64*(6), 915-930.
Sonntag, S. J., & Sommers, P. M. (2014). Work incentives and salary distributions in Major League Soccer. *Atlantic Economic Journal, 42*(4), 471-472.
Tainsky, S., & Winfree, J. (2010). Discrimination and demand: The effect of international players on attendance in Major League Baseball. *Social Science Quarterly,* 117-128.
Twomey, J., & Monks, J. (2011). Monopsony and salary suppression: The case of Major League Soccer in the United States. *American Economist, 56*(1), 20-28.
Tyler, B. D., Morehead, C. A., Cobbs, J., & DeSchriver, T. D. (2017). What is rivalry? Old and new approaches to specifying rivalry in demand estimations of spectator sports. *Sport Marketing Quarterly, 26*(4), 204-222.
Villa, G., Molina, I., & Fried, R. (2011). Modeling attendance at Spanish professional football league. *Journal of Applied Statistics, 38*(6), 1189-1206.
Wooldridge, J.M. (2002). *Econometric Analysis of Cross Section and Panel Data.* Cambridge, MA: The MIT Press.
Yang, C., & Lin, H. (2012). Is there salary discrimination by nationality in the NBA?: Foreign talent or foreign market. *Journal of Sports Economics, 13*(1), 53-75.

Acknowledgement

The authors thank the editor and three anonymous reviewers for helpful and insightful comments that helped immeasurably improve the manuscript.