Can Ranking Nationalities Explain the Salary Discrepancies in Talent Driven Markets?*

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Abstract

Discrimination based on nationality occurs when people perceive value in a worker's nationality regardless of their true underlying ability. The case could be argued for Major League Soccer (MLS), which has previously expressed a desire to impress Hispanic markets through player acquisitions. This paper focuses on the rank of a group of employees' nationality rather than assuming all employees from one continent represent similar backgrounds and confirms the presence of Rosen (1981) superstars in the sample years. Wage premiums ranged from 28% to 60% for the majority of top ranking countries.

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1 Introduction

"The phrase 'Brazilian soccer player' is like the phrases 'French chef' or 'Tibetan monk.' The nationality expresses an authority, an innate vocation for the job–whatever the natural ability."

Alex Bellos, author of *Futebol: The Brazilian Way of Life*

A Brazilian soccer agent told author Alex Bellos a story about exporting Brazilian players overseas, "It's sad to say, but it is much easier selling, for example, a crap Brazilian than a brilliant Mexican. The Brazilian gets across the image of happiness, party, carnival. Irrespective of talent, it is very seductive to have a Brazilian in your team." There are a number of individual issues involved in the labor negotiation process, but the main focus is on salaries and benefits. Salaries in markets with superstars, as noted in seminal work by Rosen (1981) and Adler (1985), can result in long right–tailed distributions with a few select individuals receiving very large salaries. Salary and output differences in those talent-driven markets are attributed to either small differences in talent, which result in large shifts of demand, or in the dependency of awareness among consumers. Regardless of the driver of salary differences, superstars command significantly higher wages in these markets.

From here on, talent driven markets are characterized by markets with many eligible suppliers that are not perfect substitutes for each other because of inherent ability. In talent driven markets, employees often feel underpaid, owners and managers feel the opposite, and customers are usually stuck somewhere in between. Researchers of these talent driven labor markets have varying opinions on employee pay, but the majority follow the "superstar status" foundation, which bases an employee's earnings on expected productivity. Expected productivity is most often captured by using an employee's previous output to gauge future success. For example, a software engineer that produces a certain amount of code for a company can expect to generate a similar amount in the upcoming year as well. The goal of this paper is to examine employee valuation using owner and customer preferences to gauge the marketability of certain nationalities. Ideally, understanding how a certain nationality impacts salaries could be telling; many talent laden industries have few employees representing individual countries, which could result in extreme over and under evaluation because of relatively few data points. Previous work in sports markets collectively attribute salary differences to nationality based on continents or geographic regions, which might have the same perverse effect of individual country specifications. We instead examine how an employee's nationality ranks relative to their colleagues, rather than assuming collective characteristics among people from the same continent.

Rankings are a popular tool across many different areas of labor economics, but it appears to be absent from markets that involve specialized talent. Rankings in education are often used to measure the impact of school quality on future earnings, and find that a portion of future earnings are due to an individual's inherent potential. Unlike rankings in educational literature, talented workers send signals based on their nationality, which is beyond their control. This unchosen signal, like race, is not indicative of an employee's ability. The paper is outlined in the following way: Section 2 briefly examines previous literature on measuring the value of employee's nationality in academia and sports, Section 3 provides the theoretical foundation and hypotheses, Section 4 introduces the study of using Major League Soccer as a means to measure nationality preferences, Section 5 describes the data, Section 6 lists the empirical specifications and assumptions, Section 7 contains the results and their intuition, while Section 8 concludes and provides further research.

2 Literature Review

The wage literature for talent driven markets is fairly in-depth and spans a few key industries. In their investigation of academic salaries at public universities, Moore et al. (1998) found that foreign faculty members are not paid significantly different than their domestic counterparts. While a simple foreign/domestic designation may be too broad to detect a preference for particular nationalities, Hammermesh and Pfann (2012) find that economists that earn their degrees from English-speaking universities are less likely to be named a fellow of the Nobel Committee or the American Economic Association, but does not report the effect of English-language education on salaries. Toutkoushian et al. (2007) find that self–reported Asian faculty members, on average,

report earning higher salaries compared with white faculty members across a variety of academic fields. While race is closely tied with ethnicity, there are various racial categories that span multiple continents and do not represent a clear "source" of preference for nationalities.

In the sporting industry, where nationalities are more easily controlled for, authors focus on measuring the productive inputs of a player and measure their output as either contributions to winning or their salary. Numerous studies have applied superstar effects for sports teams to estimate the wage premium associated with this status, while others have focused on evaluating the pay-for-performance link. Early on, the treatment of nationalities was flexible or nonexistent, with most authors dividing athletes into their respective continents. Not all studies devote a section to nationality (Lucifora and Simmons, 2003; Wilson and Ying, 2003; Pedace, 2008) in the determination of player salary, but the ones that do (Garcia-Del-Barrio and Pujol, 2007) often find mixed results, which may be due, in part, to lax treatments of nationality. Since 2007, few studies classify players into specific groups. Broad classifications, as those in Lucifora and Simmons (2003) and Garcia-Del-Barrio and Pujol (2007), ignore the heterogeneity among players and assume that all foreigners are similar in skills and desirability. Dividing players into continents (Wilson and Ying, 2003) or continent and mixed-regions (Pedace, 2008; Kuethe and Motamed, 2010) recognizes that different regions of the world play different styles of soccer, and thus have different characteristics. These treatments of nationalities have only revealed that a nationality premium exists, but it does not identify what drives the salary premium.[1]

3 Theoretical Foundation

Competitive industries exists where hiring bias may still occur because customer preferences reward owners that discriminate, however, owner preferences or co-worker discrimination cannot remain in the long–run (Becker, 1971). Companies that acknowledge this pressure from customers can be rewarded through increased sales if they obtain employees that customers want to interact with (Kahn, 1991).

Consider a manager that must choose between two identical employees. The traditional profit maximization condition implies that an employee's wage is equal to the value of their marginal product of labor. A firm's profit function is the difference between their revenue, which is based on the overall employee talent level and costs, which are the sum wage bills for a given amount of talent. For two identical employees with equal amounts of talent, the manager should be indifferent.

For the case instead where firm i's customers prefer domestic employees (d), those preferences enter the firm's profit equation as a range between zero and one to represent a share (s_i) of the firm's overall total level of talent (T_i). If foreign nationalities are discounted relative to domestic talent, firms choosing to employ people with "non-desirable" nationality characteristics could attain the same level of production with a lower wage bill. However, firms that cater to customer preferences can employ the same level of talent, and therefore success, at a higher wage if the profit increase justifies such a hire. If a manager must choose between two employees with identical talent levels, but each having different nationality traits, then the $MR_A \geq MR_B$ for a firm whose customers prefer employees from country A. The resulting wage should follow that $w_A \geq w_B$ to satisfy the profit maximizing first order conditions.

Wilson and Ying (2003) extend a model developed by Bodvarsson and Patridge (2001) that captures the effect on the share of talent a firm employs based on owner and customer preferences for domestic talent. Bodvarsson and Patridge (2001) note that in the short run, owner discrimination can remain if inputs are not perfect substitutes.[2] We assume the firm i maximizes a weighted utility function of the share of talent, s_i, and profits, which are denoted π_i:

$$U_i = \beta s_i + (1 - \beta)\pi_i \tag{1}$$

where a firm's profit function is comprised of revenue generated from production (w_i), as well as customer preferences for a share of talent (s_i) and the cost associated with acquiring talent. The share of domestic talent is $s_i = \frac{t_{id}}{t_{id}+t_{if}}$, such that

$$\pi_i = R_i[w_i(T_i, s_i), s_i] - c(s_i)T_i \tag{2}$$

In this framework, overall production ($w_i(T_i, s_i)$) can be dependent on the level of talent a firm chooses to hire, as well as the on the share of nationalities chooses to employ. The ability for the nationality share to impact production may arise from co–worker discrimination. Total revenue for a firm ($R_i[w_i(\cdot), s_i]$) depends on the production of the firm, as well as any lingering gains from customers preference for nationalities.

A nationality bias would alter marginal costs such that a firm's management board must pay a premium for domestic talent because the preferences of owners or customers discount certain talent. If a nationality bias was not present, we expect no wage premiums to exist. However, a nationality bias alters the marginal cost of talent such that

$$c_i(s_i) = c_{i0}[1 + (s_i - s^*)^2] \quad if \quad s_i > s^* \tag{3}$$

where s^* represents the share of talent in the labor pool that is available to be hired and c_{i0} is the constant marginal cost of talent if no nationality bias occurs.

Expanding equation (1) by substituting equation (2), we express the firm's utility function as:

$$U_i = \beta s_i + (1 - \beta)(R_i[w_i(T_i, s_i), s_i] - c(s_i)T_i) \tag{4}$$

The first order conditions for firm i are:

$$\begin{aligned} t_d: \ & \beta s_{t_d} + (1-\beta)[R_w(w_{T_i} T_{t_d} + w_d s_{t_d}) \\ & + (R_d s_{t_d}) - c_d s_{t_d} T - c(s) T_{t_d}] = 0 \end{aligned} \tag{5}$$

and

$$\begin{aligned} t_f: \ & \beta s_{t_f} + (1-\beta)[R_w(w_{T_i} T_{t_f} + w_d s_{t_f}) \\ & + (R_d s_{t_f}) - c_d s_{t_f} T - c(s) T_{t_f}] = 0 \end{aligned} \tag{6}$$

where subscripts represent partial derivatives. To solve for the optimal level of talent, set equation (6) equal to equation (5), and reduce to find that:

$$t_d = s^* T + \frac{\beta}{2(1-\beta)c_0} + \frac{R_w w_d + R_d}{2c_0} \tag{7}$$

$$t_f = (1 - s^*)T - \frac{\beta}{2(1-\beta)c_0} + \frac{R_w w_d + R_d}{2c_0} \tag{8}$$

If management had no nationality preferences ($\beta = 0$), the share of domestic talent within the firm is indeterminate, but would be no more than the share of talent available in the labor force ($s*$). If management has nationality preferences, the domestic share, s_i, would be larger than the talent share available in the talent pool. To compensate for the increased demand in the limited amount of talent, the marginal cost of that talent increases. The last term shows the relationship between the optimal share of talent given the marginal revenue of production with that talent ($R_w w_d$) and the additional marginal revenue generated from customer preferences (R_d). If customers were indifferent between nationalities, such that the share of nationality would have no effect on marginal production, the entire right term collapses to zero.

Hypothesis 1: Customers and/or owners have a preference for domestic employees over foreign employees. In order to fulfill management's nationality preferences, firms must be willing to pay a higher price per unit of domestic talent hired. The same concept can be extended beyond domestic and foreign talent into any realm where customers or owners may have preferences for one group versus another.[3] To start, if owners are more likely biased in favor of their consumers' nationalities, Canadian firms would offer premiums for Canadian employees, whereas firms from the United States would offer premiums for employees from the United States. Using ordinary least squares, these collective nationality preferences, along with preferences for USA employees, or preferences for North American employees, are tested by collecting nationality information by continent for soccer players in Major League Soccer.

Hypothesis 2: Customers and/or owners prefer employees from "talent rich" areas over "talent poor" areas. If customers actually prefer foreign employees to domestic employees, we should expect to see

premiums or discounts based on regions, which has previously been examined in Major League Soccer by Kuethe and Motamed (2010), who found that South American soccer players earned wage premiums compared with American soccer players. Following their logic, as well as Wilson and Ying (2003) who found premiums for Brazilian soccer players, we posit that owners or customers have a preference for specific types of countries within regions, rather than regions as a whole. The foundation of this research revolves around the notion that fans actually prefer subcategories of regions, rather than regions as a whole.

Hypothesis 3: Discrimination only occurs in certain quantiles of the salary range. Toward the end of Kuethe and Motamed (2010), the authors present the case that superstars have a greater effect at the end of a salary distribution rather than at the beginning. Likewise, employees may already be sorted into classes based on their talent level, in which case, quantile regression could uncover preferences hidden in certain ranges. For firms looking to acquire highly talented individuals, their marketability is important from a return on investment standpoint. If management can increase their marginal revenue by hiring a "preferred" group, we should expect nationality rankings to be significant in the higher quantiles. For a firm looking to fill a low–end position and spend near the minimum for an employee, their marketability may not be paramount; in which case, the rank of the employee's nationality is expected to be insignificant.

4 Evidence from Major League Soccer

Previous work in soccer salary estimation characterizes athletes from different geographic regions based on continental association or regionalized zones within their continent. Just as individual states are unique from one another, countries differ from each other within a continent. Fédération Internationale de Football Association (FIFA), the governing body of international soccer, ranks over 204 countries on a monthly basis based on the performance of a county's national team in international competitions. This ranking serves as a proxy measure of the soccer "culture" in a particular country. Just as India is well known for cricket, Australia for rugby, and the United States for basketball, FIFA's rankings help discover which countries are renowned for producing quality soccer players. Using this knowledge, we estimate a player's nationality premium simply from country association, regardless of whether they actually play for their country's national team.

Prior studies grouping players by continent make a strong, yet often unwritten, assumption that the continent is homogenous across countries. While in fact many fans may see players from South America as all Hispanic, a player's nationality is unique to their country. By breaking continents into more specific regions, we address some of the heterogeneity in the area. Ideally, a country-specific variable would be used, but the sample size in most studies is not sufficient for that level of specificity. Considering the data we introduce, there are some countries with only one or two representatives, while the average country (excluding USA) has around six representatives. Using country specific fixed effects with such a small sample would result in biased estimators because of outliers. Yang and Lin (2012) attempt to measure salary discrimination in the National Basketball Association (NBA) by using the gross domestic product (GDP) and the existence of a domestic league within a player's home country to measure the effect on a player's salary. The GDP approach simply implies other alternatives exist for players in their home country outside of basketball, while the presence of a home league is ambiguous since the NBA is considered the best league in the world. Both measures ignore the quality of a player's domestic league in their salary estimation. The ranked approach, which has yet to be explored in sports literature, assumes that countries in the top fourth of their continent are viewed as more desirable than countries in the bottom three-fourths. While heterogeneity may still be present among the ranked system, it is greatly reduced from the assumption that all countries in the continent are similar, and more practical than applying individual country-specific fixed effects.

Given Major League Soccer's unique structure, the league manages all player contracts, rather than at team-level in an attempt to limit rapid growth of player salaries that doomed the North American Soccer League.[4] Still lacking a significant national television contract, MLS relies heavily on gate revenue, which may or may not be a function of player nationalities. If clubs appeal to fan preferences, we should continue to see the number of international players increase to capitalize on fan preferences, however; statistical discrimination may put higher values on certain discrimination.

In the United States, Major League Soccer is considered a developmental league, which has a wide array of foreign players showcasing their talent. A combination of Kuethe and Motamed's (2009) approach, coupled with a more decentralized approach to nationality, yields the uniqueness of our ranked nationality approach to estimating wages. Major League Soccer's unique league structure makes this application interesting, with costs negotiated at the team-level, but administered in the league office. MLS actively promotes competitive balance between teams through revenue sharing, salary caps, and player drafts. Unlike many European leagues where teams have the ability to overbid for talent, MLS teams are forced to make constrained decisions. By isolating budgetary concerns, teams must choose players to maximize revenue since costs are predetermined. If a team can increase revenue by selecting marketable nationalities, we expect wages for certain classes of nationalities to be higher, but disproportionally higher for top nationalities based on possible owner preferences or statistical discrimination.

5 Data

The data was collected from three primary sources, the first being the MLS Player's Union (Union, 2011), which provides an individual player's club, position, and salary for each season. The player's base salary is subsumed in the player's annual average guaranteed compensation, which includes guaranteed bonuses annualized over the contract years, including option years. It does not include any performance or conditional bonuses for the upcoming year. Guaranteed compensation reflects the most accurate measure of salary for each season, even if the player never records a single minute of game action for the season. For the purposes of this study, we analyze player salaries from the 2010-2013 seasons, conditioned on performance factors from the immediate previous season spanning 2009-2012.[5]

The initial data set comprised nearly 2,100 observations across 18 different MLS teams. However, the set was parsed to include only players who were on an MLS team in the previous season and eliminated goalkeepers from the set.[6] Roughly 45% of active players in the league have no MLS experience; however, the average tenure in our sample is roughly three and a half years after excluding players with no experience. This refinement left the data set with 1,138 total observations for a repeated cross-sectional study. The second source of data comprises a player's previous season statistics, which were collected from the MLS website (Soccer, 2011). Their performance was converted into per-game measures for ease of comparison across years and players.

Player nationalities are recorded from their declared nationality, which is publicly available (Strack Zimmermann, 2011). Players wanting to change nationality are barred from international competition for a set period of time, and may only represent one nationality at a time. For this study, we consider a player's declared nationality to be exogenous.[7] The final data set added FIFA rankings for each nationality, which were recorded at March, prior to the season, which would represent the most recent rankings just prior to the start of the MLS regular season. In actuality, there is little difference between any two or three consecutive months, but rankings between years may vary slightly.

6 Empirical Specifications

We modify the standard wage equation slightly, but stay within the extensions developed by Kuethe and Motamed (2010) on estimating sports wage salaries:

$$\begin{aligned} ln(S_{l,t}) = \alpha_0 + \alpha_1 PLAYER_{l,t} + \alpha_2 PERF_{l,t-1} + TEAM_{l,t} \\ +\alpha_3 SUPER_{l,t-1,t} + \alpha_4 NATION_{l,t} + \alpha_5 FX_t + \varepsilon_l \end{aligned} \tag{9}$$

where $PLAYER_{l,t}$ represents a vector of player specific variables, including position dummies for whether a player played forward (FORWARD) or midfield (MIDFIELD), and 0 for both indicating a defender. The standard variables of age (AGE) and age-squared (AGESQ), as well as tenure (MLSEXP) and tenure-squared (MLSEXPSQ) are included in the model. Tenure represents the number of consecutive years the player had

previously played in Major League Soccer. We expect the age factor to have a bigger impact for two reasons. The first is that age captures a level of general experience in the soccer world, specifically for players that play within multiple leagues across their careers. A unique system in professional soccer that is absent from other professional leagues is the presence of transfers and loans. Players can be sent to other leagues during their host league's offseason for training. This complicates the estimation of the number of years of experience because some players "bounce" between leagues on loan while waiting for their primary host league to resume play. Major League Soccer records data only when players are present in their league, and not for other leagues, including the lower levels of the US Pyramid.[8] Players may play in MLS for two seasons, be traded overseas to a European league for three seasons, and come back to MLS for one season. Under this scenario, MLS only records data for the three seasons the player was in their league. The absent data could represent a player overseas or a player who suffered a major injury and was not signed to a contract. For these two primary reasons, experience is limited to include the number of consecutive years prior to the season.

We use lagged statistics as a measure of the player's expected ability for the upcoming season, where $PERF_{l,t-1}$ is a vector of those performance measures. Since player contracts begin before the season starts, using data from 2010 for their 2010 salaries would not work as a predictor of player worth. Hypothetically, at the end of each season, the team manager reviews a player's contribution from the previous year to see if their salary is justified for the upcoming season. To measure a player's performance, we use lagged statistics for the number of goals scored (GOALSPG), assists earned (ASSISTSPG), tens of minutes per game (MINUTESPG), net fouls acquired per game (FOULSPG) which is the difference between fouls acquired and fouls surrendered, and a new measure we introduce known as "intensity" (INTENSITY). The intensity measure is aimed at measuring effort, which has yet to be accounted for in the soccer wage literature. It takes into account the number of yellow and red cards a player earns during the season with the intention of seeing if more cautious players are paid higher. For MLS, in 2011, players earning a red card in a match are ejected from the game immediately, as well as serve an automatic minimum one game suspension and $250 fine. The same system is in place for yellow card accumulations. Players who accumulate five yellow cards during the course of a season face an automatic one game suspension and $250 fine. Players who routinely have high "intensity" measures may see a decrease in pay because their playing style increases the likelihood they will be suspended or they may see an increase in their salaries because coaches view this as a rough proxy of effort. Performance variables are lagged one period in an attempt to accurately capture expected performance for the upcoming season. Career variables are often difficult to calculate because players average only 3.5 years in MLS with most having multiple seasons of experience at different levels.

There are some team $TEAM_{l,t}$ factors that can be controlled and related directly to a player's ability to be paid. If a team is comprised of highly played players, a player may benefit from being associated with a team that spends a lot on employees. The average salary (AVGSALARY) of the team is calculated as the average salary of all other players, excluding the player of interest, in millions of dollars. The standard deviation of player's salaries (STDSALARY) also relates to how a player is perceived on a team, and whether the composition on the team are similarly paid players or a team comprised of a few superstars. If a player joins a new team (NEWTEAM) for the season, it may negatively affect their pay because they have not acquired any firm-specific knowledge. The share of domestic players on the team (TEAMSHARE) may also help a player, who is similar to the share of talent, if a team values a diverse mix of players. Other team specific factors are confined to standard team fixed effects.

An increasing focus of sports wage literature has focused on the superstar status of individuals. Based primarily on Rosen (1981) and the wage premium for superstars, $SUPER_{l,t-1,t}$ attempts to measure a vector of different superstar factors present in MLS. A player's superstar status is defined over four different measurements. The first is whether a player has experience with their national team (NATTEAM) in international competitions. The measure is a simple dichotomous variable for national team experience, where the variable equals 1 if a player recorded minutes for their national team in their career prior to the season, and 0 otherwise. The second measure is a league-specific approach to superstar status revolving around MLS All Star (ALLSTAR) participation, which is open to any active MLS player, regardless of nationality. The variable equals 1 if a player was named to the All Star team during the previous year, and 0 otherwise. A second facet of the All Star participation is whether a player was named to the Starting XI (MLSXI) list. This list is based solely on fan voting, and represents how attractive a player is to the MLS audience. Inclusion on this list involves an automatic spot on the MLS All Star roster, but it does not guarantee a starting spot. The variable equals 1

if a player was named to the Starting XI list for the previous season, and 0 otherwise. The final measure is also unique to MLS and their salary cap structure. Unlike other soccer leagues, MLS has a soft salary cap in place, which limits the amount of money teams can spend on players each season. In order to attract high quality, overseas talent, the MLS instituted a Designated Player Rule, which allows teams to excluded up to two or three players' salaries from salary cap inclusion, depending on the season. This rule was in place when David Beckham went on the market after leaving European soccer. The rule has affectionately been termed the "David Beckham Rule" after he was tagged as a Designated Player for the Los Angeles Galaxy. If a player was tagged as a designated player (DP) for the upcoming season, the variable is equal to 1, and zero otherwise.

The basis of this project revolves around the estimation of variables contained in $NATION_{l,t}$, which is a variety of measures for a player's nationality. The simplest measure is a dichotomous variable that takes the value of 1 if the player plays for a team that matches his nationality. This occurs when a Canadian (CAN) player plays for a team located in Canada or a player from the United States (USA) plays for an American based team. This measure (DOMESTIC) serves as the primary means of measuring our first hypothesis that domestic players earn a premium compared with international players. To see if some type of manager preference is at play, a dichotomous variable is equal to 1 if the coach's nationality matches (COACHMATCH) the player's nationality. To approach the second hypothesis, we use FIFA rankings to assemble a measure of a player's home country relative to others. We create dichotomous variables for each confederation within FIFA to take the value of 1 if a player is from a country which ranks in the top section of each confederation, and 0 otherwise. This measure will show if players from high ranking (soccer rich) countries earn wage premiums relative to their counterparts from lower ranking (soccer poor) countries, which will answer variations on our second hypothesis.

The final piece of our estimation approach captures team and year fixed effects for each player for the year they signed their contract. Table 2 lists the descriptive statistics for our sample. The average for the entire league is on par with European leagues that document their average experience around two to three years. The sample used in this study includes only players with at least one year of experience in the prior season, which removed roughly half of the players in any given year. Roughly 65% of the sample claim the United States or Canada as their nationality, and only 45% of the sample plays for a team in their home country. For each team in the league, roughly 55% of the players come from outside their host country, which is much higher than many European leagues that see about 40% of their players from outside the country.

7 Results

7.1 Preferences for Countries and Regions

We start the estimation using ordinary least squares regression techniques, but correct for heteroskedastic errors using White's (1980) correction.[9] The first step of our process is to replicate the results of Kuethe & Motamed (K&M) using updated data from the 2010-2013 seasons, which can be found in Table 3. Originally, K&M hypothesize that MLS was a league that rewarded young players relative to their elder counterparts, which is opposite of traditional labor markets. Our results shows that MLS may actually be correcting itself and moving toward a more traditional view of age and experience in the labor market. Our first result actually provides a slight preview into our future models and reveals that the addition of four teams since their 2008 study may have made the market for players slightly more competitive, which resulted in some variables losing significance. With our updated data set, we find that wage premiums for South Americans lose significance, while premiums/discounts for Europe, Africa, and the Caribbean become significant.

Table 4 compares individual continents, along with regions in CONCACAF, against players from the United States, which is similar to the most recent work in soccer wage literature by Kuethe and Motamed (2010). In this expanded model, we see significant wage premiums and discounts relative to Americans across the globe. Players from Europe (UEFA) and Africa (CAF) earn wage premiums relative to Americans, while players from Oceania (OFC) and Asia (AFC) suffer discounts. South Americans earn no premium, which is consistent

with our results using the K&M specification. However, when superstars are removed from the analysis, the size of the coefficients are reduced, but remain significant. Non-superstar players from South America are now paid significantly different than players from the United States. The removal of designated players indicates the significant effect that these superstars have on a wide variety of factors beyond nationality. A traditional player that is not categorized as a designated player benefits financially by playing for a team with a large average budget, as well as a team with superstars on it.

Superstar effects play a significant role in the determination of a player's salary, as well as performance variables of assists and goals per game, which is consistent with many previous studies. The age variable's negative coefficient and the positive coefficient with MLS experience is consistent with work by Kuethe and Motamed (2010) who found that the MLS player pool is made up of young players with a few years of experience and older players who come from abroad with little to no MLS experience. Superstars have strong and positive premiums given their past performance, which has been consistent across the literature in Europe and North America. It appears that only non-superstar players from Mexico are not paid significantly different than players from the United States.

7.2 Preferences for Ranked Regions

To explore ranked nationalities, we move to Tables 5, 6, 7, and 8, which breaks the full sample into the four separate confederations. $TOPQUARTER$ is a confederation specific indicator that takes the value of 1 if a player's nationality ranked in the top half of the confederation during FIFA's March poll prior to the start of the season, and 0 otherwise. The tables are again split, when applicable, to compare the subsamples including and excluding designated players.

It appears that players who represent the top countries in CONCACAF earn a significant wage premium of 28% to 38% relative to their counterparts in lower ranked countries. This implies that either fans or owners place high premiums on players from top ranked countries. This is consistent with the results from Table (4), which showed that players from Caribbean nations had the largest wage discounts relative to players from the United States. Players from the top half of CONCACAF typically hail from the United States, Mexico, Jamaica, and Costa Rica.

Table 6 also confirms signifiant wage premiums for players from the top quarter of UEFA. Players hailing from countries like England, Germany, Spain, and Italy earn 53% to 60% more than players from lower ranked countries. Even though the ranked nationality approach is significant for the top quarter of UEFA, the constant values are also significantly higher than those of CONCACAF, which coincides with the results from in Table (4) that showed Europeans earning wage premiums approximately 30% higher than players from the United States. A key take away can be gleaned from studying the countries represented in top quarter of UEFA. Prior studies grouped countries geographically, usually by continent, but occasionally by regions within continent. Classifying players from Western Europe would include top countries like England, France, Italy, Germany and Spain, but it would also include some very low ranked countries like Scotland, Wales, Ireland, and Belgium.

Table 7 covers the results from CAF, which does not contain a designated player over the sample period. The results show that players from the top countries do not earn any significant wage premiums compared with African players from low ranking countries. So even though players from African countries are paid higher than USA players, as was shown in Table 4, once the analysis turns to only players in CAF, there is not a significantly financial benefit from representing a top African nation. This may be partially explained by the overall inability for African national teams to perform well in international competitions, which limits their exposure to North American audiences.

The final table for the ranked nationality approach, Table 8, analyzes the results for CONMEBOL. In previous literature, South American players were consistently found to have wage premiums compared with other nationalities. Contrary to previous studies, players from top ranked South American counties actually earn wage discounts compared to their lower ranked counterparts. In our grouped model, players from CONMEBOL earned significant wage premiums relative to players from the United States. Though, once we focus solely on players from South

America, players from top countries like Brazil, Argentina, and Uruguay earn at least 11% less than their lower counterparts. While the opening quote from Alex Bellos may extol the ease at which agents may sell a Brazilian player, it does not appear that these players are generating a salary commensurate with a perception of high quality. This may also be a product of MLS teams pursuing a policy to recruit South American players in the mid-2000s. A key assumption in the Bodvarsson and Patridge (2001) theoretical model of player wage discrimination is that discrimination only occurs in the short run. It may be possible that the market for South American players is correcting previous wage premiums. A second theory revolves around the notion that highly productive players from the top ranked countries in South America do not compete in MLS, but are recruited by European teams. It may be that players are forced to take pay cuts in order to move to the United States, even though they become one of the highest paid players in MLS, or that only second–tier players from the top countries are competing in MLS and have degraded the nationality signal.

7.3 Collective Preferences

A third alternative to the ranking system was instituted, which clusters all players together, and measures how a player's country ranked within the entire FIFA sample. Table 9 shows the division of players based on different rankings in FIFA. It could be possible that fans do not actually recognize nationalities based on continents, but are able to recognize which countries are the best in the world.

Nearly all players represent a country in the top half of FIFA, but very few represent Top 10 or Top 20 countries. As the classification of a player's country narrows to include only the best teams in the world, the measure of top rank becomes significant for the top third, top quarter, and top twenty teams. Players from the Top 10 countries may be experiencing the same effect as discussed with players from CONMEBOL. Players from Top 20 countries earn approximately 13% more than other nationalities, but not significantly different for Top 10 players.

7.4 Preferences Across the Salary Range

The final approach in Table 10 takes a simultaneous quantile regression approach to measure the effect of these variables at different salary levels. Quantile regression makes the assumption that players are endogenously clustered around salary levels because the owners know something about their "true skill level." By using quantile regression, we can focus on the conditional median of a given quantile (rather than a conditional mean for OLS regression). This allows us to find the factors that influence the median for a given quantile. By using this method, we seek to uncover nationality preferences at different levels. If owners are looking to purchase a star player, they may be interested in choosing a nationality that is marketable, whereas spending the league minimum to fill a roster spot would not require an investment in the players' marketability. The quantile regression presented below removes the players that were tagged as Designated Players in an effort to understand what factors affect the majority of players.

To measure the rank for quantile regression, we control for confederations, the regions in North America, and a binary variable that takes the value of 1 if a player's nationality is in the top quarter of their confederation. We find that the ranking of a player's nationality becomes significant between the 50th and 85th quantile, which most likely represents starters with significant playing time or those with considerable minutes as a substitute. Various variables change significance depending on which area is targeted, showing that different "types" of players are valuable for different attributes. Performance measures matter most in middle quantiles, while a player's superstar status matters most in upper quantiles. Although the rank of nationalities is insignificant across some quantiles, collective nationalities do matter for higher quantiles.

8 Conclusion & Future Research

This study fills a gap in the discrimination literature by exploring a more detailed measure of nationality for specific industry. Rankings have been used in various categories across other labor and education economics topics, but not in sports or other talent driven labor markets. While previous studies ignore the heterogeneity among countries within continents, the ranked nationality approach attempts to cluster nationalities based on perceived value. Throughout the results, various clusters were found to exhibit what appears to be the effect of customer or owner discrimination. The only other study to evaluate Major League Soccer found wage premiums for players from South America. After extending the sample to include additional years of data, wage premiums for players from top countries ranged from 25% to 60% depending on the confederation, while discounting top players from South America. The most unique result may be the wage discounts associated with players from South America. Overall, South Americans earn significantly different wages compared with players from the United States, but within the continent, top ranked countries suffer wage discounts. However, when looking at South Americans in the quantile regression, it appears that only players already in the top earnings categories are earning premiums from being South American. This may explain why previous studies found support for South Americans earning wage premiums, which may have outliers in small sample sizes.

Some of the differences between the current study and previous work on soccer may be a function of league structure. Overall, Major League Soccer is perhaps a more balanced league because of league design. Because of their setup, superstar premiums may be deflated relative to European leagues, while nationality premiums for some groups may be inflated. For example, Brazilians have routinely been found to garner wage premiums in Europe, while the current study shows that Brazilians (relative to lower countries in South America) earn wage discounts. Overall, the top Brazilian players are playing in leagues at home or in Europe, while average Brazilians may play in MLS to market themselves for a jump to Europe. This may be untrue for the lower ranked countries, whose best players are coming to MLS as a springboard. This slightly more homogenous collection of talent (relative to European leagues) allows for a better test of nationality premiums than unconstrained clubs who can spend millions for players.

Table 1: Common Abbreviations

Abbreviation	**Full Meaning**
AFC	Asian Football Conference
ALLSTAR	Named to the All-Star team in the previous season
CAF	Confederation of African Football
CAN	Canadian nationality
CAR	"Other" Caribbean nations located in CONCACAF; not Mexico, USA, or Canada
CONMEBOL	Confederación Sudamericana de Fútbol
CONCACAF	Confederation of North, Central American, and Caribbean Association Football
DOMESTIC	Canadian playing for a Canadian team or American playing for a US team
DP	Designated Player for the current year
FIBA	Fédération Internationale de Basketball Association
FIFA	Fédération Internationale de Football Association
INTENSITY	Intensity measure related to the number of yellow and red cards in a season
MEX	Mexican nationality
MLSXI	Named to Major League Soccer's Starting XI during All-Star Week
MLS	Major League Soccer
MLSEXP	Major League Soccer experience (years)
NATTEAM	Recorded a cap for their country's national team
OFC	Oceania Football Conference
UEFA	Union of European Football Associations
USA	United States of America nationality

Table 2: Descriptive Statistics for Major Variables of Interest

Category	Variables	Mean	Std. Dev.	Min	Max
	lnW	11.62874	0.8168046	10.39207	15.68731
Player					
	AGE	26.52982	4.092171	17	38
	MLSEXP	3.490061	2.806187	1	15
	FORWARD	0.2480553	0.4320709	0	1
	MIDFIELD	0.4295592	0.4952273	0	1
Performance					
	ASSISTSPG	0.0863475	0.1135191	0	1.5
	GOALSPG	0.0914153	0.1359245	0	1
	MINUTESPG	6.610618	2.224269	0.1	9
	FOULSPG	-0.1016636	0.5667718	-5.857143	3
	INTENSITY	0.6418323	0.6948496	0	4.6
Team					
	AVGSALARY	170782.6	111474.6	88483.86	597432.4
	STDSALARY	273838.3	365130.6	53265.04	1458053
	NEWTEAM	0.0293863	0.1689599	0	1
	TEAMSHARE	0.5669836	0.1694054	0	0.8571429
Superstar					
	DP	0.0579084	0.2336711	0	1
	NATTEAM	0.4088159	0.4918277	0	1
	ALLSTAR	0.0656871	0.2478415	0	1
	MLSXI	0.031115	0.1737035	0	1
Nationality					
	COACHMATCH	0.2791703	0.4487854	0	1
	DOMESTIC	0.4485739	0.4975634	0	1
	CAN	0.0406223	0.197499	0	1
	MEX	0.011236	0.1054482	0	1
	CAR	0.1063094	0.3083665	0	1
	UEFA	0.0717373	0.2581639	0	1
	CAF	0.0639585	0.2447848	0	1
	AFC	0.0095073	0.097083	0	1
	OFC	0.0034572	0.0587218	0	1
	CONMEBOL	0.1071737	0.3094678	0	1

Table 3: Ordinary Least Squares Regression Results Compared Against Kuethe & Motamed (2007)

Variable	K&M (2007) Results	K&M (2077) Specifications
Constant	41.05 (1.82)***	11.276 (0.796)***
AGE	-0.31 (0.41)**	-0.042 (0.060)
AGESQ	0.01 (0.00)**	0.001 (0.001)
MLSEXP	0.30 (0.07)**	0.109 (0.021)***
MLSEXPSQ	-0.02 (0.01)***	-0.007 (0.002)***
FORWARD	-0.03 (0.19)***	-0.262 (0.059)***
FORGOALS	1.15 (1.51)	1.502 (0.445)***
FORGOALSSQ	-0.64 (2.68)	-0.323 (0.650)
MIDFIELD	-0.05 (0.14)	-0.148 (0.053)***
MIDASSISTS	1.99 (1.51)	1.425 (0.731)**
MIDASSISTSSQ	-0.56 (3.29)	-2.673 (1.584)*
ASSISTS	†	1.199 (0.474)**
ASSISTSSQ	†	-1.796 (0.918)*
AF	-0.02 (0.19)	0.185 (0.072)***
EU	0.02 (0.19)	0.357 (0.086)***
SA	0.61 (0.18)***	0.105 (0.067)
MEX	-0.11 (0.42)	0.199 (0.217)
CAN	-0.09 (0.29)	-0.052 (0.107)
CAR	-0.23 (0.17)	-0.258 (0.061)***
NATTEAM	0.49 (0.12)***	0.433 (0.041)***
DP	2.33 (0.37)***	1.255 (0.140)***
ALLSTAR	0.45 (0.32)	0.625 (0.095)***
FORGOALS*ALLSTAR	4.40 (2.80)	-0.943 (1.134)
FORGOALSSQ*ALLSTAR	-6.97 (4.02)*	2.433 (2.029)
MIDASSISTS*ALLSTAR	6.32 (5.75)	-2.837 (1.328)**
MIDASSISTSSQ*ALLSTAR	-21.17 (17.95)	6.522 (2.283)***
Team Fx	Yes	Yes
Year Fx	††	Yes
Adjusted R^2	0.67	0.58

Notes: Standard errors are reported in parenthesis

† In the outline of Kuethe & Motamed's data section, they describe including a measure of average assists per game (ASSISTS), but do not report this value in their OLS Results in Table 3.

†† In K&M's original study, they only used one season of data for their estimation. The updated approach makes use of four seasons of data, so year dummies were included.

$*$ 10% significance level

$**$ 5% significance level

$***$ 1% significance level

Table 4: Ordinary Least Squares Regression Results for Previous Treatment of Nationality

Categories	Variables	Full Sample Including Designated Players	Full Sample Excluding Designated Players
	CONSTANT	11.373 (0.794)***	11.550 (0.719)***
Player			
	AGE	-0.082 (0.060)	-0.103 (0.055)*
	AGESQ	0.002 (0.001)	0.002 (0.001)**
	MLSEXP	0.081 (0.021)***	0.083 (0.019)***
	MLSEXPSQ	-0.005 (0.002)***	-0.005 (0.002)***
	FORWARD	0.038 (0.058)	0.052 (0.054)
	MIDFIELD	-0.007 (0.044)	0.020 (0.040)
Performance			
	ASSISTSPG	0.449 (0.194)**	.0371 (0.183)***
	GOALSPG	0.718 (0.192)***	0.646 (0.185)***
	MINUTESPG	0.066 (0.010)***	0.068 (0.009)***
	FOULSPG	0.047 (0.033)	0.054 (0.032)*
	INTENSITY	0.078 (0.026)***	0.099 (0.023)***
Team			
	AVGSALARY	1.220 (1.570)	2.580 (1.170)**
	STDSALARY	-0.335 (0.437)	0.735 (0.337)**
	NEWTEAM	-0.250 (0.121)**	-0.291 (0.118)**
	TEAMSHARE	-0.090 (0.148)	-0.044 (0.141)
Superstar			
	DP	1.232 (0.140)***	
	NATTEAM	0.392 (0.042)***	0.366 (0.041)***
	ALLSTAR	0.302 (0.094)***	0.269 (0.095)***
	MLSXI	0.073 (0.148)	0.069 (0.155)
Nationality			
	COACHMATCH	-0.024 (0.053)	-0.034 (0.050)
	CAN	-0.136 (0.108)	-0.175 (0.103)*
	MEX	0.206 (0.220)	-0.094 (0.117)
	CAR	-0.280 (0.066)***	-0.213 (0.062)***
	UEFA	0.354 (0.088)***	0.247 (0.079)***
	CAF	0.134 (0.073)*	0.124 (0.072)*
	AFC	-0.166 (0.212)	-0.380 (0.117)***
	OFC	-0.929 (0.090)***	-0.849 (0.115)***
	CONMEBOL	0.024 (0.074)	0.165 (0.070)**
Specifications			
	Year Fx	Yes	Yes
	Team Fx	Yes	Yes
	N	1133	1066
	Adjusted R^2	0.59	0.469

Notes: Standard errors are reported in parenthesis
The dependent variable of analysis is the $ln(Wage)$ conditioned on performance variables from the previous season. Both models compare a subset of North America and other confederations to measure wage differences with players from the USA. Designated Players are removed from the second specification to see the effects of a more common set of players.
$*$ 10% significance level
$**$ 5% significance level
$***$ 1% significance level

Table 5: Ordinary Least Squares Regression Results for Players Representing CONCACAF Countries

Categories	Variables	CONCACAF Sample Including Designated Players	CONCACAF Sample Excluding Designated Players
	CONSTANT	11.649 (0.814)***	12.073 (0.781)***
Player			
	AGE	-0.119 (0.062)*	-0.156 (0.060)***
	AGESQ	0.002 (0.001)*	0.003 (0.001)***
	MLSEXP	0.099 (0.022)***	0.112 (0.021)***
	MLSEXPSQ	-0.006 (0.002)***	-0.007 (0.002)***
	FORWARD	0.065 (0.063)	0.072 (0.059)
	MIDFIELD	0.037 (0.046)	0.053 (0.043)
Performance			
	ASSISTSPG	0.160 (0.212)	0.075 (0.199)
	GOALSPG	0.521 (0.218)**	0.682 (0.208)***
	MINUTESPG	0.058 (0.011)***	0.063 (0.010)***
	FOULSPG	0.058 (0.037)	0.044 (0.036)
	INTENSITY	0.100 (0.026)***	0.091 (0.025)***
Team			
	AVGSALARY	1.270 (1.710)	2.020 (1.330)
	STDSALARY	-.597 (0.466)	-0.737 (.378)*
	NEWTEAM	-0.249 (0.128)*	-0.251 (0.127)**
	TEAMSHARE	-0.190 (0.168)	-0.093 (0.160)
Superstar			
	DP	1.399 (0.230)***	
	NATTEAM	0.432 (0.042)***	0.412 (0.041)***
	ALLSTAR	0.291 (0.103)***	0.313 (0.107)***
	MLSXI	0.117 (0.165)	-0.010 (0.171)
Nationality			
	COACHMATCH	0.089 (0.049)*	0.060 (0.048)
	TOPQUARTER	0.322 (0.083)***	0.250 (0.076)***
Specifications			
	Year Fx	Yes	Yes
	Team Fx	Yes	Yes
	N	841	819
	Adjusted R^2	0.56	0.471

Notes: Standard errors are reported in parenthesis
The dependent variable of analysis is the $ln(Wage)$ conditioned on performance variables from the previous season. Both models estimate the effect of factors on the salary for players only representing CONCACAF nations. Designated Players are removed from the second specification to see the effects of a more common set of players.
$*$ 10% significance level
$**$ 5% significance level
$***$ 1% significance level

Table 6: Ordinary Least Squares Regression Results for Players Representing UEFA Countries

Categories	Variables	UEFA Sample Including Designated Players	UEFA Sample Excluding Designated Players
	CONSTANT	14.773 (2.934)***	12.382 (3.225)***
Player			
	AGE	-0.277 (0.199)	-0.114 (0.232)
	AGESQ	0.005 (0.004)	0.002 (0.004)
	MLSEXP	-0.023 (0.113)	-0.122 (0.110)
	MLSEXPSQ	-0.003 (0.011)	0.008 (0.012)
	FORWARD	0.141 (0.291)	0.267 (0.369)
	MIDFIELD	-0.023 (0.267)	0.284 (0.358)
Performance			
	ASSISTSPG	0.621 (0.883)	0.945 (0.996)
	GOALSPG	0.634 (0.663)	0.062 (0.889)
	MINUTESPG	0.122 (0.038)***	0.121 (0.044)***
	FOULSPG	0.051 (0.159)	-0.092 (0.257)
	INTENSITY	-0.057 (0.098)	0.066 (0.134)
Team			
	AVGSALARY	-6.780 (4.610)	-03.970 (5.600)
	STDSALARY	2.540 (1.440)*	1.13 (1.770)
	NEWTEAM	0.177 (0.229)	-0.081 (0.263)
	TEAMSHARE	0.335 (0.390)	0.000 (0.469)
Superstar			
	DP	1.465 (0.406)***	
	NATTEAM	0.718 (0.242)***	0.527 (0.245)**
	ALLSTAR	0.809 (0.470)*	0.238 (0.424)
	MLSXI	-0.470 (0.477)	0.205 (0.468)
Nationality			
	COACHMATCH	0.011 (0.265)	-0.161 (0.214)
	TOPQUARTER	0.465 (0.169)***	0.425 (0.212)**
Specifications			
	Year Fx	Yes	Yes
	Team Fx	No	No
	N	83	65
	Adjusted R^2	0.812	0.41

Notes: Standard errors are reported in parenthesis
The dependent variable of analysis is the $ln(Wage)$ conditioned on performance variables from the previous season. Both models estimate the effect of factors on the salary for players only representing UEFA nations. Designated Players are removed from the second specification to see the effects of a more common set of players.
$*$ 10% significance level
$**$ 5% significance level
$***$ 1% significance level

Table 7: Ordinary Least Squares Regression Results for Players Representing CAF Countries

Categories	Variables	CAF Sample Excluding Designated Players
	CONSTANT	11.468 (3.407)***
Player		
	AGE	-0.090 (0.262)
	AGESQ	0.001 (0.005)
	MLSEXP	0.075 (0.176)
	MLSEXPSQ	-0.013 (0.023)
	FORWARD	-0.186 (0.365)
	MIDFIELD	-0.337 (0.307)
Performance		
	ASSISTSPG	2.363 (0.843)***
	GOALSPG	1.325 (0.713)*
	MINUTESPG	-0.005 (0.048)
	FOULSPG	0.232 (0.185)
	INTENSITY	0.129 (0.135)
Team		
	AVGSALARY	8.630 (5.280)
	STDSALARY	-2.680 (1.740)
	NEWTEAM	0.060 (0.320)
	TEAMSHARE	0.517 (0.547)
Superstar		
	NATTEAM	0.094 (0.188)
Nationality		
	TOPQUARTER	-0.045 (0.182)
Specifications		
	Year Fx	Yes
	Team Fx	No
	N	74
	Adjusted R^2	0.201

Notes: Standard errors are reported in parenthesis
The dependent variable of analysis is the $ln(Wage)$ conditioned on performance variables from the previous season. This model estimates the effect of factors on the salary for players only representing CONCACAF nations.
$*$ 10% significance level
$**$ 5% significance level
$***$ 1% significance level

Table 8: Ordinary Least Squares Regression Results for Players Representing CONMEBOL Countries

Categories	Variables	CONMEBOL Sample Including Designated Players	CONMEBOL Sample Excluding Designated Players
	CONSTANT	6.534 (1.922)***	6.350 (2.276)***
Player			
	AGE	0.312 (0.138)**	0.314 (0.165)*
	AGESQ	-0.005 (0.002)**	-0.005 (0.003)*
	MLSEXP	0.172 (0.067)**	0.060 (0.077)
	MLSEXPSQ	-0.011 (0.005)**	-0.001 (0.006)
	FORWARD	-0.286 (0.182)	0.030 (0.225)
	MIDFIELD	-0.044 (0.143)	0.107 (0.168)
Performance			
	ASSISTSPG	0.246 (0.518)	0.312 (0.715)
	GOALSPG	1.735 (0.655)***	0.470 (0.834)
	MINUTESPG	0.004 (0.036)	0.071 (0.042)*
	FOULSPG	0.078 (0.078)	0.048 (0.129)
	INTENSITY	0.053 (0.076)	0.184 (0.079)**
Team			
	AVGSALARY	0.628 (4.240)	-3.030 (4.10)
	STDSALARY	0.052 (1.22)	0.795 (1.240)
	NEWTEAM	-0.122 (0.251)	0.084 (0.217)
	TEAMSHARE	-0.041 (0.460)	0.331 (0.538)
Superstar			
	DP	0.620 (0.200)***	
	NATTEAM	0.056 (0.165)	0.018 (0.249)
	ALLSTAR	0.307 (0.222)	0.177 (0.265)
	MLSXI	-0.350 (0.391)	0.565 (0.344)
Nationality			
	COACHMATCH	-1.279 (0.331)***	-1.517 (0.447)***
	TOPQUARTER	-0.253 (0.112)**	-0.100 (0.135)
Specifications			
	Year Fx	Yes	Yes
	Team Fx	No	No
	N	120	94
	Adjusted R^2	0.52	0.293

Notes: Standard errors are reported in parenthesis
The dependent variable of analysis is the $ln(Wage)$ conditioned on performance variables from the previous season. Both models estimate the effect of factors on the salary for players only representing CONMEBOL nations. Designated Players are removed from the second specification to see the effects of a more common set of players.
$*$ 10% significance level
$**$ 5% significance level
$***$ 1% significance level

Table 9: Ordinary Least Squares Regression Results for Players Representing Countries Grouped by Rank Without Regard to Confederation

Categories	Variables	Countries Ranked in Top Half of FIFA	Countries Ranked in Top Third of FIFA	Countries Ranked in Top Quarter of FIFA	Countries Ranked in Top Twenty of FIFA	Countries Ranked in Top Ten of FIFA
	CONSTANT	11.407 (0.799)***	11.547 (0.783)***	11.437 (0.778)***	11.443 (0.791)***	11.537 (0.790)***
Player						
	AGE	-0.098 (0.060)	-0.103 (0.059)*	-0.098 (0.059)*	-0.095 (0.060)	-0.096 (0.060)
	AGESQ	0.002 (0.001)**	0.002 (0.001)**	0.002 (0.001)**	0.002 (0.001)*	0.002 (0.001)*
	MLSEXP	0.075 (0.020)***	0.076 (0.020)***	0.074 (0.020)***	0.074 (0.020)***	0.075 (0.021)***
	MLSEXPSQ	-0.005 (0.002)***	-0.005 (0.002)***	-0.005 (0.002)***	-0.005 (0.002)***	-0.005 (0.002)***
	FORWARD	0.063 (0.059)	0.064 (0.059)	0.063 (0.058)	0.067 (0.059)	0.062 (0.059)
	MIDFIELD	0.025 (0.044)	0.024 (0.044)	0.026 (0.044)	0.020 (0.044)	0.015 (0.044)
Performance						
	ASSISTSPG	0.408 (0.205)**	0.409 (0.206)**	0.420 (0.206)**	0.403 (0.207)*	0.413 (0.208)**
	GOALSPG	0.784 (0.200)***	0.774 (0.199)***	0.765 (0.197)***	0.757 (0.198)***	0.769 (0.200)***
	MINUTESPG	0.065 (0.010)***	0.065 (0.010)***	0.064 (0.010)***	0.065 (0.010)***	0.065 (0.010)***
	FOULSPG	0.080 (0.034)**	0.074 (0.034)**	0.068 (0.034)**	0.079 (0.034)**	0.080 (0.034)**
	INTENSITY	0.073 (0.026)***	0.073 (0.026)***	0.074 (0.026)***	0.074 (0.027)***	0.074 (0.026)***
Team						
	AVGSALARY	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
	STDSALARY	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
	NEWTEAM	-0.289 (0.126)**	-0.279 (0.125)**	-0.281 (0.124)**	-0.284 (0.124)**	-0.281 (0.123)**
	TEAMSHARE	-0.181 (0.153)	-0.196 (0.151)	-0.195 (0.150)	-0.159 (0.152)	-0.158 (0.153)
Superstar						
	DP	1.280 (0.142)***	1.270 (0.143)***	1.259 (0.142)***	1.258 (0.145)***	1.263 (0.145)***
	NATTEAM	0.281 (0.036)***	0.295 (0.036)***	0.321 (0.037)***	0.290 (0.036)***	0.284 (0.037)***
	ALLSTAR	0.306 (0.099)***	0.303 (0.100)***	0.298 (0.099)***	0.303 (0.099)***	0.306 (0.099)***
	MLSXI	0.104 (0.159)	0.107 (0.160)	0.100 (0.159)	0.121 (0.160)	0.116 (0.161)
Nationality						
	COACHMATCH	-0.017 (0.042)	-0.029 (0.043)	-0.048 (0.043)	0.001 (0.043)	0.006 (0.044)
	TOPRANK	0.184 (0.094)*	0.143 (0.052)***	0.198 (0.044)***	0.113 (0.044)**	0.098 (0.082)
Specifications						
	Year Fx	Yes	Yes	Yes	Yes	Yes
	Team Fx	Yes	Yes	Yes	Yes	Yes
	N	1133	1133	1133	1133	1133
	Adjusted R^2	0.6806	0.5817	0.586	0.5814	0.5759

Notes: Standard errors are reported in parenthesis

The dependent variable of analysis is the $ln(Wage)$ conditioned on performance variables from the previous season. All specifications estimate the effect of factors on the salary for players based on how their country ranks in the entire FIFA sample for a given year. Designated Players are not removed from any specification to see the effects of being a superstar beyond the effects of coming from a top ranked nation.

$*$ 10% significance level

$**$ 5% significance level

$***$ 1% significance level

Table 10: Weighted Least Squares Regression Results for Players Based on the Quantile of Their Salaries

Categories	Variables	.05 Quantile	.010 Quantile	.015 Quantile	.50 Quantile	.085 Quantile	.090 Quantile	.095 Quantile
	CONSTANT	11.902 (1.332)***	10.411 (1.070)***	10.533 (0.979)***	12.015 (1.150)***	13.648 (1.232)***	13.830 (1.112)***	13.830 (1.093)***
Player								
	AGE	-0.116 (0.095)	-0.011 (0.078)	-0.029 (0.073)	-0.164 (0.087)*	-0.233 (0.094)**	-0.215 (0.087)**	-0.180 (0.079)**
	AGESQ	0.002 (0.002)	0.000 (0.001)	0.001 (0.001)	0.003 (0.002)**	0.004 (0.002)**	0.004 (0.002)**	0.003 (0.001)**
	MLSEXP	0.093 (0.034)***	0.086 (0.028)***	0.097 (0.025)***	0.119 (0.025)***	0.074 (0.038)*	0.033 (0.036)	0.029 (0.035)
	MLSEXPSQ	-0.004 (0.003)	-0.003 (0.002)	-0.004 (0.002)**	-0.008 (0.002)***	-0.006 (0.003)*	-0.002 (0.003)	-0.003 (0.003)
	FORWARD	0.039 (0.077)	0.039 (0.077)	0.065 (0.078)	0.103 (0.078)	-0.030 (0.094)	-0.021 (0.106)	-0.112 (0.116)
	MIDFIELD	0.020 (0.062)	0.052 (0.062)	0.059 (0.060)	0.041 (0.057)	-0.008 (0.068)	0.031 (0.069)	-0.009 (0.077)
Performance								
	ASSISTSPG	0.131 (0.250)	0.475 (0.260)*	0.405 (0.269)	0.343 (0.226)	0.301 (0.258)	0.083 (0.283)	0.212 (0.316)
	GOALSPG	0.284 (0.258)	0.721 (0.262)***	0.674 (0.234)***	0.724 (0.259)***	0.835 (0.286)***	0.818 (0.266)***	0.829 (0.254)***
	MINUTESPG	0.018 (0.015)	0.034 (0.013)***	0.048 (0.012)***	0.081 (0.012)***	0.077 (0.016)***	0.060 (0.018)***	0.037 (0.019)*
	FOULSPG	-0.040 (0.048)	-0.028 (0.045)	-0.004 (0.045)	0.076 (0.042)*	0.057 (0.067)	0.085 (0.063)	0.080 (0.064)
	INTENSITY	0.064 (0.044)	0.054 (0.042)	0.105 (0.041)**	0.120 (0.033)***	0.022 (0.038)	0.035 (0.036)	0.009 (0.035)
Team								
	AVGSALARY	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
	STDSALARY	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)*	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
	NEWTEAM	-0.146 (0.218)	-0.191 (0.173)	-0.136 (0.160)	-0.367 (0.178)**	-0.235 (0.196)	-0.239 (0.194)	-0.395 (0.222)*
	TEAMSHARE	-0.236 (0.246)	-0.390 (0.223)*	-0.450 (0.191)**	0.003 (0.181)	0.216 (0.204)	0.212 (0.251)	-0.261 (0.280)
Superstar								
	NATTEAM	0.247 (0.087)***	0.364 (0.076)***	0.351 (0.068)***	0.356 (0.046)***	0.410 (0.056)***	0.426 (0.063)***	0.405 (0.075)***
	ALLSTAR	0.174 (0.396)	0.452 (0.230)**	0.341 (0.162)**	0.382 (0.137)***	0.314 (0.098)***	0.356 (0.106)***	0.294 (0.128)**
	MLSXI	-0.273 (0.511)	-0.535 (0.509)	-0.014 (0.489)	0.064 (0.165)	-0.037 (0.134)	-0.100 (0.146)	-0.121 (0.179)
Nationality								
	COACHMATCH	0.002 (0.078)	-0.012 (0.068)	-0.015 (0.070)	-0.027 (0.063)	-0.088 (0.081)	-0.118 (0.079)	-0.094 (0.083)
	CAN	-0.226 (0.180)	-0.273 (0.168)	-0.316 (0.162)*	-0.110 (0.150)	-0.019 (0.137)	-0.050 (0.152)	0.024 (0.172)
	MEX	0.128 (0.118)	0.073 (0.123)	0.012 (0.138)	-0.038 (0.164)	-0.176 (0.184)	-0.330 (0.188)*	-0.514 (0.182)***
	CAR	-0.192 (0.116)*	-0.305 (0.107)***	-0.277 (0.106)***	-0.096 (0.088)	-0.217 (0.093)**	-0.242 (0.094)***	-0.218 (0.102)**
	UEFA	-0.026 (0.136)	0.071 (0.123)	0.132 (0.113)	0.383 (0.125)***	0.398 (0.132)***	0.233 (0.141)*	0.166 (0.137)
	CAF	-0.138 (0.156)	0.011 (0.153)	0.087 (0.126)	0.240 (0.111)**	0.301 (0.133)**	0.197 (0.143)	0.192 (0.131)
	AFC	-0.207 (0.218)	-0.227 (0.248)	-0.220 (0.265)	-0.276 (0.120)**	-0.616 (0.168)***	-0.451 (0.192)**	-0.792 (0.223)***
	OFC	-0.559 (0.250)**	-0.620 (0.220)***	-0.597 (0.205)***	-0.653 (0.175)***	-1.002 (0.186)***	-1.032 (0.202)***	-1.156 (0.235)***
	CONMEBOL	0.107 (0.154)	0.092 (0.118)	0.089 (0.095)	0.347 (0.109)***	0.387 (0.122)***	0.361 (0.120)***	0.375 (0.109)***
	TOPQUARTER	0.014 (0.101)	0.005 (0.092)	0.058 (0.090)	0.156 (0.070)**	0.178 (0.088)**	0.106 (0.090)	0.082 (0.094)
Specifications								
	Year Fx	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Team Fx	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	N	1066	1066	1066	1066	1066	1066	1066
	Pseudo R^2	0.166	0.203	0.248	0.323	0.283	0.289	0.313

Notes: Standard errors are reported in parenthesis

The dependent variable of analysis is the $ln(Wage)$ conditioned on performance variables from the previous season. All specifications estimate the effect of factors on the salary for players based on how their salary ranks in the entire study sample. Designated Players are removed from all quantiles to measure the underlying nationality effects for all players.

$*$ 10% significance level

$**$ 5% significance level

$***$ 1% significance level

Notes

[1]Superstar research is not the only focus of economics in soccer. Other studies have attempted to relate salary and performance in European and North American soccer, finding that a link does exist (Torgler and Schmidt, 2007, 2010; Lee and Harrs, 2012), while others (Nüesch, 2009) find none exists. Because of the rarity of dependent events outlined in Nüesch (2009), we assume players are paid for expected performance in the upcoming season, which is often highly correlated with results from the previous season. The key to the pay-for-performance debate is that performance measures become the dependent variable with salary lagged as an independent variable. Since salary from the current season may be endogenous, authors tend to use lagged salary to avoid endogeneity issues because a player's salary between any two consecutive years is often highly correlated.

[2]This is a reasonable assumption considering the general substitutability of soccer players, musicians, chefs, and academics; however, these employees are typically constrained in their position.

[3]It is of varying opinion whether the NBA's Houston Rockets (MLB's Seattle Mariners) maintained contracts with Yao Ming (Ichiro Suzuki) for his talents and for their ability to reach the Chinese (Japanese) market.

[4]For a detailed look at the history of professional soccer in the United States, see Jewell and Molina (2005).

[5]The correlation between guaranteed compensation and base salary is .883.

[6]Field players may not be perfect substitutes for one another, but have a much higher degree of substitutability than a goalkeeper and a field player because of the high degree of specialization for keepers.

[7]FIFA only allows players to represent nationalities that players hold citizenship with, as well as being able to provide a "clear connection" to any country they want to represent.

[8]The US Pyramid represents the structure of the soccer leagues in the United States. Unlike international leagues, the US Soccer Federation does not relegate or delegate teams between the levels in the pyramid.

[9]Few previous studies cited the presence of heteroskedasticity in their models, but after performing a Breusch-Pagan Test for Heteroskedasticity within Stata 10.2, it reveled a $\chi^2 > 36$ indicating the presence of heteroskedasticity within the data.

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