Superstar Salaries and Soccer Success:
The Impact of Designated Players in Major League Soccer

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Abstract

This study estimates the relationship between production and salary structure in Major League Soccer (MLS), the highest level of professional soccer (association football) in North America. Soccer production, measured as league-points-per-game, is modeled as a function of a team's total wage bill, the distribution of the team's wage bill, and goals per game. Both the gini coefficient and the coefficient of variation are utilized to measure salary inequality. The results indicate that production in MLS is negatively responsive to increases in the salary inequality; this effect is consistently significant when using the coefficient of variation to measure dispersion.

I. Introduction

Economic theory indicates that the distribution of salaries can affect the productivity of workers and firms. In the theory of tournaments, Lazear and Rosen (1981) discuss the possibility that greater salary inequality can lead to more worker effort and increased productivity. However, cohesion theory (Levine, 1991) implies firms may be able to increase the productivity of workers by equalizing salaries, since a more equal salary distribution will increase unity within the firm. The implication is that firms with more equal salary distributions will be more productive than similar firms with less equal salary structures. The present study attempts to shed light on the question of the connection between salary structure and productivity using professional sports data. Specifically, this paper analyses the possible effect of a Major League Soccer (MLS) team's payroll distribution on production using data on all MLS salaries from the 2005 through the 2012 seasons. 2007 was an important date in MLS history, as it was the first year of the designated player rule that allowed teams to sign players for salaries in excess of the salary cap. Thus, the data allow for an analysis of the distribution of MLS salaries before and after a significant change in the rules which help define the structure of salaries.[1]

The professional sports industry has proven to be a fruitful area for salary-related studies, since detailed data exist on player salaries, which is not the case in most other industries (Kahn, 2000). Unsurprisingly, the inequality of payrolls within professional sports teams has been a topic of recent research, much of it on leagues in North America.[2] Major League Baseball (MLB) has been extensively studied, with most studies finding a negative relationship between team success and intra-team payroll inequality as predicted by Levine's cohesion theory (Richards and Guell, 1998; Bloom, 1999; Depken, 2000; DeBrock et al., 2004; Jewell and

[1] The reader will note that Major League Soccer is properly referred to as "MLS" not "the MLS," in much the same way as Major League Baseball is referred to as "MLB" rather than "the MLB."
[2] An exhaustive review of this literature using sports data is given in Katayama and Nuch (2011). The existing literature on non-sports firms is reviewed by Franck and Nuesch (2011).

Molina, 2004). The National Basketball Association (NBA) has also been studied, but the relationship between salary dispersion and team success is found to be insignificant (Berri and Jewell, 2004; Katayama and Nuch, 2011) or positive and significant as predicted by tournament theory (Simmons and Berri, 2011). Less studied North American sports leagues include the National Hockey League (Sommers, 1998) and the National Football League (Frick et al., 2003).

As noted by Katayama and Nuch (2011, pp. 1204 and 1205), the difference in results between MLB and the NBA can be explained by the cooperative nature of the two games. Since basketball requires substantial coordination among the five players on the court, an NBA player may be conditioned to ignore salary inequality as long as other (higher-paid) players are contributing to his current success and future earnings potential. In MLB, outcomes are often determined by individual play, so players may be more selfish when making salary comparisons. Soccer is a sport that combines the individual-production aspects of baseball and the cooperative-production aspects of basketball, making it an interesting game in which to examine the influence of salary dispersion on team success. Although many soccer matches are decided on the basis of individual match ups and individual skill, extensive integration of play is required for a team to be successful. Franck and Nuesch (2011) analyze the relationship between salary inequality and team success in the German Bundesliga. The authors find a U-shaped relationship, suggesting that teams with little salary inequality would see decreased productivity with increases in inequality (validating cohesion theory) and teams with greater inequality would see greater production with increased salary inequality (supporting tournament theory).

This paper advances the literature by placing the discussion of payroll inequality and team success in the context of North American Major League Soccer. The case of MLS is of particular interest regarding the possible effects of intra-team salary inequality. First, MLS is a professional league with a relatively short history, which has only recently seen significant

differences in salaries and salary dispersion among teams. Second, MLS has yet to gain a strong foothold in the North American sports entertainment market, implying that any change in the league's business model needs to be evaluated based on its potential impact on league profitability and survival. Third, MLS is the only major professional sport in North America that has a single-entity ownership structure, so it presents a unique case in terms of league structure.

Measuring salary inequality using both the gini coefficient and the coefficient of variation, this study finds support for the cohesion hypothesis. Specifically, there is a negative relationship between salary inequality and production for MLS teams, implying that increases in salary inequality tend to decrease team-level production, all else constant. As expected, teams with higher wage bills tend to more productive. Thus, MLS teams that choose to expand their wage bills can expect to increase productivity, but they also face a tradeoff in terms of diminished productivity in as much as the increased wage bill also increases salary inequality.

2. Superstar Salaries in MLS

Major League Soccer is the top division of professional soccer in the United States and Canada. Teams from ten US cities made up MLS in its inaugural season of 1996: Washington, DC (DC United); Foxborough, MA (New England Revolution); East Rutherford, NJ (NY/NJ MetroStars); Tampa Bay, FL (Mutiny); Columbus, OH (Crew); Dallas, TX (Burn); Kansas City, MO (Wiz); Denver, CO (Colorado Rapids); Los Angeles, CA (Galaxy); and San Jose, CA (Clash). Two more teams, Chicago, IL (Fire) and Fort Lauderdale, FL (Miami Fusion), were added in 1998. MLS contracted to ten teams for the 2002 season by eliminating both Florida franchises (Tampa Bay and Ft. Lauderdale/Miami). MLS expanded again to 12 teams in 2005, adding another Los Angeles-based team (Chivas USA) and a team based in Salt Lake City, UT (Real Salt Lake).

Recent MLS expansion has taken the league into Canada with the addition of the Toronto, ON (Toronto FC) franchise in 2007. In 2008, MLS added a 14th team, making the decision to revive the San Jose Earthquakes to replace the original San Jose franchise, which had moved to Houston, TX (Dynamo) in 2006. Further expansion has increased the size of MLS to 19 teams, adding Seattle, WA (Sounders FC) in 2009, Philadelphia, PA (Union) in 2010, Portland, OR (Timbers) and Vancouver, BC, Canada (Whitecaps FC) in 2011, and Montreal, QC (Impact) in 2012.[3] The league is expected to add a 20th team at some point in the near future, and MLS Commissioner Don Garber has recently stated (Borg, 2011): "I believe we will be larger than 20 teams."

Among professional soccer leagues, MLS is unique in several ways. First, it has a closed-league system, in that there is no promotion and relegation. In this way, the league structure is more like that of other North American sports, such as the National Football League, than professional soccer leagues in Europe. Second, MLS has a single-entity structure. Specifically, the league has an ownership interest in all teams, thereby controlling player contracts, salaries, sponsorships, and broadcasting. In terms of controlling player contracts, players sign with the league and not with individual teams, so that players are contracted to MLS, rather than to the franchises themselves. Further, salaries are paid by the league, and for the most part, player movement is determined by MLS. Third, MLS has a "soft" salary cap, similar to that in the National Basketball Association. The salary cap for the 2012 MLS season was set at $2.81 million per team, although several teams exceeded that amount in salaries, for reasons that will be discussed below. MLS believes that the single-entity structure and salary cap are important to

[3] The NY/NJ MetroStars were known simply as "MetroStars" from 1998 to 2006. In 2006, the franchise was sold to Red Bull GmbH and renamed New York "Red Bulls." The Dallas franchise was renamed FC Dallas in 2005, and the Kansas City franchise changed its nickname to "Wizards" in 1997 and then changed the name of the franchise to "Sporting Kansas City" in 2011. The San Jose franchise adopted the nickname "Earthquakes" in 1999, and the team moved to Houston, TX in 2006 and was renamed Houston "Dynamo." A more complete discussion of the history and structure of MLS can be found in Jewell and Molina (2005).

the long-term success of the league. This structure also allows MLS to legally control the escalation of player salaries, maintain greater homogeneity in the quality of teams, improve league competitiveness, and avoid the large versus small market issues that plague other North American sports.[4]

Since its inception, MLS has not been an unmitigated financial success, measured as overall profitability or as profitability for individual franchises. Forbes Magazine (Schwartz and Badenhausen, 2008) reports that the league brought in total revenues of $166 million in 2007, or a little less than $13 million per team. Compare that to the $3 billion in revenue for the 2010-11 season in the National Hockey League, the smallest of the big four North American professional sports leagues (Plunkett Research, 2011). Clearly, MLS has a long way to go to reach the status of a major sport in North America. In addition, MLS lost $20 million in 2007, and only three teams had positive net earnings. One team, Los Angeles Galaxy, accounted for over 20% of league revenue in 2007, an outcome at least partially attributable to the arrival of David Beckham to the team that year. In addition, the Forbes report shows a clear distinction between the revenues of large- and small-market teams, indicating that the league's single-entity structure has not eliminated the financial gaps associated with market size. The top five revenue-producing teams are from the 2nd, 3rd, 5th, and 9th ranked media markets in the US (Los Angeles, Chicago, Dallas, and DC) and the largest media market in Canada (Toronto), while the bottom three revenue-producing franchises are located in the 32nd, 33rd, and 34th ranked US media

[4] Although beyond the scope of this study, the topic of the legality of the single-entity concept is important. Please see McCann (2010) for a detailed discussion of the legal issues in sports. For MLS, the major benefit of single-entity status is that the league is legally allowed to engage in "anti-competitive behavior" like collusion to drive down player salaries and restrict player movement. MLS's single-entity status was affirmed in the case of *Fraser vs Major League Soccer* (US Court of Appeals, 1st Circuit, No. 01-1296, March 20, 2002).

markets (Kansas City, Salt Lake City, and Columbus).[5] Further, LA Galaxy had revenues more than seven times that of the bottom club (Kansas City).

MLS has been comparatively successful in its attempt to keep the league competitive on the field. In the league's early history, this did not seem the likely outcome. As noted by Jewell and Molina (2005), DC United won three of the first four MLS championships, termed the MLS Cup. However, in the 13 years since, seven different franchises won the MLS Cup (with DC United winning once). All nine of the remaining original franchises have participated in an MLS Cup final, with only Dallas, New England, and New York failing to win at least one championship. In total, eight franchises have won the MLS Cup in the league's 17 years of existence, although three teams have won the title on four occasions (DC United, 1996, 1997, 1999, 2004; San Jose/Houston, 2001, 2003, 2006, 2007; LA, 2002, 2005, 2011, 2012). Compare this to the NFL, generally considered the North American sports league with the highest degree of parity; in the last 17 years, 11 different teams have won the Super Bowl, with only one team winning as many as three titles (New England, 2002, 2004, 2005).

Against the back drop of a fairly competitive league with a need to find ways to generate new revenue, enter David Beckham. As chronicled in Grant Wahl's (2009) book "The Beckham Experiment," MLS became aware of that Beckham might be available after his contract with Real Madrid CF ran out at the end of the 2006-07 Spanish Primera Liga season. The basic economics of a Beckham deal was a no-brainer for MLS: Sign a world-class superstar who could still play at a relatively high level and who would likely generate revenues in excess of what he cost the league. However, the appeal of having Beckham attached to the league was broader than what he brought in short-term finances. His strongest appeal was in the upgrade he would bring to the league's profile in North American and abroad. Unfortunately, there were some potential

[5] US media ranking is from Gorman (2008).

negatives associated with bringing Beckham to MLS. Among the many issues involved with signing a player of Beckham's stature, the problem of fitting his contract under the league's tight salary structure was arguably the most challenging. In 2007, Beckham's first in the league, the salary cap was set at $2.1 million per team, and Beckham would cost more than twice that amount. Further, if MLS could find a way to massage the salary cap to fit Beckham, what would that do to the competitive nature of the league?

In the end, the opportunity to sign David Beckham was just too good for MLS to pass up. As a response to the Beckham opportunity, MLS established the designated player rule in 2007. Sometimes called "the Beckham rule" for obvious reasons, it is designed to allow clubs to expand their teams with high-profile players, the first of whom was David Beckham. Although Beckham's relationship with the league and his MLS club Los Angeles Galaxy has been somewhat rocky, the impact his signing has had on MLS is clear: The introduction of the Beckham rule in 2007 allowed franchises with larger markets and deeper pockets to spend more on designated players and circumvent the restrictions of the salary cap.

The designated player rule is essentially an exemption to the salary cap, similar to exceptions in past NBA collective bargaining agreements that allowed teams to re-sign their own free agents at salaries that exceeded the salary cap. In the case of the NBA, these exceptions (the most well-known of which being the "Larry Bird exception" for veteran free agents) benefit teams by ensuring that they have an advantage in signing their own players, and they benefit players by effectively removing some of the downward pressure on wages implied by the cap. In MLS, the designated player rule allows the league to sign players of higher quality than would be possible under a hard cap, effectively expanding the pool of potential players and increasing the quality of the league overall. As originally established, individual teams were allowed up to two designated players (DPs). The first DP counted $400,000 against the salary cap, and teams were

free to pay as much as they liked above that amount to the DP. The first $400,000 was paid by the league, while anything above that amount was paid by the team. Teams could also sign a second designated player, which would count $325,000 against the cap, with any salary above that amount covered by the franchise.

One cannot help but notice that the DP rule tends to favor large-market teams, or at least those franchises that have higher levels of revenue that can afford to pay for the best players. In an attempt to serve the interests of the largest number of MLS teams, adjustments to the DP rule have been made since 2007. As of the 2012 season, there can be up to three designated players per team, although not all teams use these spots. Each DP costs $350,000 against the salary cap, and teams who choose to have a third DP are required to pay an extra $250,000 in tax to the league. Designated players under age 24 count less than $350,000 against the salary cap, and DPs signed in the middle of the season only count $175,000 against the cap. Table One summarizes the adjustments made to the DP rule since it was introduced.

[Insert Tables One and Two Here]

Table Two lists MLS DPs in the 2012 season, their teams, their home countries, and their salaries. Team salary and wage bill data are gathered from the website of the MLS Players (MLSplayers.org, various years) and represent team salary structure for all players contracted to the league at the beginning of each MLS season.[6] The total of all DP salaries in 2012 was $36.5 million, the vast majority of which ($26.4 million or 72%) went to nine players on three large-market teams (Los Angeles, New York, and Toronto). It comes as no surprise that it tends to be

[6] Not all players listed in Table Two are officially categorized as designated players. For instance, Bennie Feilhaber of New England Revolution earns a salary in excess of $350,000, but has a salary cap figure of less than that amount. New England uses allocation money to pay down his salary-cap number, so he is not technically a designated player. The MLS salary data contain information on all players contracted to MLS, including the base salary earned each year as well as yearly average compensation including signing bonuses, marketing bonuses, and agent fees. For this study, players' base salaries are used. Team salary structure is based on a team's roster at the beginning of each season and does not reflect player movement during the season.

the franchises in larger markets that have the most designated players and those making the highest wages.

As a way of leveling the field financially, MLS gives monetary allocations to certain teams that can be used to pay for salaries in excess of the cap. For instance, teams that miss the playoffs are generally given allocation funds for the next season, and teams that lose a player by a transfer to a team outside MLS are given allocation funds as a form of compensation. As mentioned above, if a team has filled two of its DP slots and wishes to acquire a third DP, it may purchase that third slot by making a $250,000 payment to the league. That payment is then split up evenly among all other teams that do not have three DPs in the form of allocation funds. Allocation money is generally thought of as a way that smaller-market teams can stay competitive with larger-market teams in signing high-priced talent. Specifically, the DP rule allows large-market teams to respond to demand for high-priced talent, while the allocation system allows low-revenue teams to stay competitive by effectively raising their salary caps.

3. Data and Methodology

The data set includes yearly observations on all teams that competed in MLS from the 2005 to 2012 seasons based on complete salary data from the MLS Players Association. Of the 19 teams that existed over that period, 12 played for the full eight years, one for six seasons (Toronto), one for five seasons (expansion San Jose), one for four seasons (Seattle), one for three seasons (Philadelphia), two for two seasons (Portland and Vancouver), and one for a single season (Montreal). The total number of team-year observations is 119. Output is measured as the number of league points-per-game (*Points*). Points-per-game is used rather than league points per year to control for a change in the number of regular season games over the sample period; MLS teams played 32 games in 2005 and 2006, 30 from 2007 through 2010, and 34 in the 2011

and 2012 seasons. As in other professional soccer leagues, MLS teams earn three league points for a win and one league point for a tie. MLS differs from many other soccer leagues in that it has a playoff system to determine the eventual champion. Thus, *Points* is a measure of regular-season success in MLS.

The main purpose of this study is to test the hypothesis that salary inequality influences team-level productivity in MLS. A secondary consideration is to test whether cohesion theory or tournament theory better describes MLS production. Salary distribution is measured using the gini coefficient at the team level (*Gini*) or the coefficient of variation at the team level (*CV*). With either theory, ceteris paribus, a higher *Gini* or *CV* will influence a team's productivity; the relationship will be negative if cohesion theory holds and positive under tournament theory. The quality of the team will also influence productivity, as better teams should have higher levels of production. Following the literature on productivity in soccer (e.g., Frick and Lee, 2011), the present study uses the total team wage bill in millions of dollars (*Wage*) as a measure of overall team quality. A larger wage bill correlates with better overall team quality and should be positively related to productivity. As a further measure of team quality, we also include the number of players who have played on their country's national team in international competition (*Nationals*). The expectation is that having players with international experience should be positively correlated with higher productivity, ceteris paribus.

Given the unique institutions of MLS, one would expect that teams with longer histories in the league would be more adept at squeezing productivity out of a given amount of team resources. To measure experience, the present study includes the numbers of seasons each team has existed (*Seasons*), under the assumption that organizations with greater MLS experience will be more productive all else constant. Finally, we include the number of teams each season (*Number*) to control for the influence of league expansion on the average productivity of teams.

Over the sample time frame, MLS expanded from 12 to 19 teams; this 58 percent increase in teams over a short time period likely diluted the available pool of player talent, which may have changed the competitiveness of the league.

The general production relationship is hypothesized as:

(1) $Points_{it} = \Gamma(Gini_{it} \text{ or } CV_{it}, Wage_{it}, National_{it}, Seasons_{it}, Number_{t})$,

where *i* indexes team, *t* indexes year, and $\Gamma(.)$ is a function that maps the dependent variables onto MLS league points-per-game. A priori, the coefficients on *Wage*, *National*, and *Seasons* are expected to be positive, while the remaining coefficients could be either positive or negative. Summary statistics for the included variables are given in Table Three.

[Insert Table Three Here]

4. Results and Discussion

Based on the work of Franck and Nuesch (2011), one might expect the functional form of MLS point production to be non-linear. In the next section, we discuss estimates of equation (1) in log-log form. The coefficients from a log-log specification of equation (1) are shown in Table Four.[7] Column A shows results using the natural log of *Gini* to indicate salary inequality, and the results shown in column B are based on using the natural log of *CV*. Columns C and D shows results from re-estimations of A and B adding team-specific effects.[8] With respect to the relationship between MLS production and salary distribution, Table Four indicates that increases in *Gini* and *CV* are significantly associated with reduced points-per-game, although the

[7] Alternative models were also estimated, including linear, log-linear, and quadratic. Results are available upon request. The log-log model is better than the alternative models in terms of adjusted R^2, and there is no evidence of an inflection point for *Gini* or *CV* as in Frank and Nuesch (2011).

[8] The team-specific effects are suppressed for brevity, but these results are available from the authors upon request. The constant coefficients in columns C and D reflect the excluded team Seattle Sounders FC. The authors also investigate any possible yearly fixed effects, finding no evidence that points-per-game vary by year after controlling for the variables in equation (1).

coefficient on *Gini* becomes insignificant when adding team fixed effects. These results suggest that cohesion theory more appropriately explains this relationship in MLS than does tournament theory. The estimated elasticity of *Points* with respect to changing *Gini* or *CV* shows that MLS production is not highly responsive to changes in the distribution of salaries, as a one percent increase in salary dispersion is predicted to decrease points-per-game by only 0.2 to 0.3 percent depending on the specification. The model with the best fit in terms of adjusted R^2 is reported in column D, using *lnCV* and including team-specific fixed effects.

[Insert Table Four Here]

A team with more *Nationals* has greater productivity, but this effect is statistically insignificant when using team fixed effects. This result is unsurprising as the fixed effects are expected to capture team skill and efficiency not measured in the wage bill. As expected, a team's wage bill is positively related to its point production; however, this effect is only statistically significant when using *lnCV* to measure salary dispersion. As expected, teams with more *Seasons* in the league have greater point productivity. An increase in *Number* is shown to decrease points-per-game, indicating that expansion leads to a higher probability of a game ending in a tie rather than a win/loss.

Referencing the best-fit model of column D, the estimated elasticity of *Points* with respect to changing *Wage* is approximately 0.3. Interestingly, the elasticity of changing *Wage* and the elasticity of changing *CV* are of similar magnitude, implying that the degree of responsiveness of point production to changing salary dispersion and to changing the team wage bill are relatively the same. This implication is extremely important for MLS decision makers: Since signing a high-priced player will likely change the salary distribution as well as increase the wage bill, *an MLS team can expect to have increased point production as long as the percentage increase in the wage bill is larger than the percentage increase in salary inequality.*

As detailed above, David Beckham was the first high-profile superstar signed by MLS, so it seems appropriate to use him as an example. At the start of the 2006 season, LA Galaxy had a coefficient of variation of 1.69 and a total wage bill of $2.66 million. In 2007, LA had a coefficient of variation of 3.52 and a wage bill of $8.36 million. While the addition of Beckham was not the sole reason for these changes in LA's salary structure, his salary was clearly the catalyst behind a 108 percent increase in the coefficient of variation and a 214 percent increase in the wage bill. Based on the best-fit results from Table Four, an increase in *CV* of 108 percent would lead to a decrease in *Points* of 31 percent, while a 214 percent increase in *Wage* would imply an increase in *Points* of 63 percent. In this case, the larger relative change in *Wage* implies that Beckham's addition to LA Galaxy should have led to greater point production in 2006 than in 2007. In fact, LA's points-per-game decreased slightly from 1.22 in 2006 to 1.13 in 2007, probably reflecting the negative influence of other issues such as league expansion.

4.1 Responsiveness of MLS team production to changes in salary inequality

The models estimated in Table Four assume that the elasticity of *Points* with respect to *CV* is constant over teams. However, the numerical impact of changing salary dispersion on point production will differ from team to team, in as much as points-per-game and *CV* vary over teams. Specifically, a given change in *CV* will lead to a larger absolute change in *Points* for teams that have less salary dispersion and/or more points-per-game. Based on the best-fit model of Table Four column D, Table Five lists the predicted numerical changes (i.e., marginal effects) of points-per-game associated with a one unit increase in *CV*, where the marginal effects are evaluated at observed values and averaged for each team.

[Insert Table Five Here]

4.2 Responsiveness of MLS team production to changes in a team's total wage bill

Turning to the relationship between point production and team wage bill, the best-fit model shows an estimated elasticity of 0.29. Table Six shows the absolute marginal effects of increasing a team's wage bill by $1 million on points-per-game, evaluated at observed values for *Wage* and *Points* and averaged for each team.

[Insert Table Six Here]

4.3 Responsiveness of MLS to changes in salary inequality over time

The estimation results also allow for an analysis of changes in the marginal effect of *CV* on *Points* over time. Given the drastic changes in salary structure caused by the introduction of the designated player rule, one might expect substantial changes in team responses to salary inequality as teams adjust to the new salary paradigm. Table Seven lists the estimated marginal effects as the average absolute change in points-per-game associated with a one unit increase in *CV,* evaluated at observed values.

[Insert Table Seven Here]

5. Conclusion

Major League Soccer is unique among North American professional sports leagues. MLS has a single-entity ownership structure, has only been in existence since 1996, and has recently seen a change in intra-team salary structure. Because of its unique characteristics, MLS presents an interesting case in which to study the relationship between salary dispersion and team success. The results from this study indicate a negative relationship between salary inequality and team success in terms of league points. Thus, the present study provides support for the cohesion theory. Further, the best-fit model suggests that increasing salary inequality and the team wage bill work in opposite directions by similar magnitudes, highlighting the tradeoff MLS teams must make when signing high-priced talent.

MLS is a young league that is yet to gain a strong foothold in the North American market; recent attempts to sign high-priced soccer talent through the introduction of the designated player rule may help the league in its efforts to market the professional game. However, the results from the present study indicate that there will be a cost of signing designated players in terms of lower productivity, if the salaries involved cause significant increases in salary inequality. But, the results also show that increases in a team's wage bill increase productivity, as would be expected if the higher-priced talent is more skilled than existing players. In the end, MLS and the individual teams that comprise the league will need to consider both the cost and benefit in terms of productivity when deciding on whether or not to sign superstar players. Further research is needed to evaluate the impact of the designated player rule on the overall competitiveness of the league, in as much as a competitive league is expected to help the long-term growth prospects of MLS.

An additional consideration for MLS is the influence that superstar players have on attendance and revenues. Lawson et al. (2008) estimate that David Beckham doubled ticket sales for the MLS games in which he played during the 2007 regular season, home and away. The unique structure of MLS sets up an interesting dilemma for the league and teams; individual teams are likely focused on their own revenues and the relationship between winning and attendance, while the league is likely to be highly focused on revenues. Thus, individual teams may be more concerned about mitigating the negative influence of increasing salary inequality to improve point production, and the league may be concerned about signing high-priced talent to drive revenues. How MLS deals with these conflicting priorities is a subject for future analysis and research.

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Table One: History of the Designated Player Rule

Year	*Salary Cap*	*Cost of 1st DP*	*Cost of 2nd DP*	*Cost of 3rd DP*
2005	$1.9 mill	NA	NA	NA
2006	$2.0 mill	NA	NA	NA
2007	$2.1 mill	$400,000	$325,000	NA
2008	$2.3 mill	$400,000	$325,000	NA
2009	$2.3 mill	$415,000	$335,000	NA
2010	$2.6 mill	$335,000	$335,000	$335,000 + $250,000 tax
2011	$2.7 mill	$335,000	$335,000	$335,000 + $250,000 tax
2012	$2.8 mill	$350,000	$350,000	$350,000 + $250,000 tax

Table Two: 2012 Designated Player Salaries

Team	*Player*	*Nationality*	*2012 Salary*
Chicago Fire	Sherjill MacDonald	Netherlands	$360,000
Chivas USA	Juan Pablo Angel	Columbia	$350,000
Colorado Rapids	Conor Casey	USA	$400,000
Columbus Crew	*none*		
FC Dallas	David Ferreira	Columbia	$600,000
DC United	Dwayne DeRosario	Canada	$617,857
Houston Dynamo	*none*		
Sporting Kansas City	*none*		
Los Angeles Galaxy	David Beckham	England	$3,000,000
	Robbie Keene	Ireland	$2,917,241
	Landon Donovan	USA	$2,400,000
New England Revolution	Shalrie Joseph	Grenada	$495,000
	Bennie Feilhaber	USA	$400,000
New York Red Bulls	Thierry Henry	France	$5,000,000
	Raphael Marquez	Mexico	$4,600,000
	Tim Cahill	Australia	$3,500,000
Philadelphia Union	Freddie Adu	USA	$400,000
Portland Timbers	Kris Boyd	Scotland	$1,250,000
Real Salt Lake	Javier Morales	Argentina	$425,000
	Alvaro Saborio	Costa Rica	$350,000
San Jose Earthquakes	*none*		
Seattle Sounders	Freddy Montero	Columbia	$600,000
	Christian Tiffert	Germany	$600,000
Toronto	Torsten Frings	Germany	$2,000,000
	Julian de Guzman	Canada	$1,863,996
	Danny Koevermans	Netherlands	$1,150,000
Vancouver Whitecaps	Kenny Miller	Scotland	$1,221,816
	Eric Hassli	France	$550,000
	Barry Robson	Scotland	$440,000
Montreal Impact	Marco Di Vaio	Italy	$1,000,008

Table Three: Summary Statistics (n = 119)

Variable	*Mean*	*Median*	*Std. Dev.*	*Min.*	*Max.*
Point	1.362	1.382	0.305	0.563	1.971
Gini	0.488	0.472	0.131	0.300	0.832
CV	1.257	0.997	0.708	0.543	3.647
Wage ($mill)	3.347	2.565	2.577	1.396	15.70
National	10.00	10	2.501	4	17
Seasons	10.04	11	5.215	1	17
Number	15.29	15	2.528	12	19

Table Four: Log-Log Point Production Model (n = 119)

Dependent Variable = *lnPOINT*

(Standard Errors in Parentheses)

	A	***B***	***C***	***D***
lnGini	-0.3109*		-0.2667	
	(0.1808)		(0.2077)	
lnCV		-0.2171**		-0.2912***
		(0.0887)		(0.1000)
lnWage	0.1304	0.1810*	0.1687	0.2958**
	(0.1094)	(0.1028)	(0.1409)	(0.1244)
lnNational	0.1962**	0.1834**	0.1150	0.0775
	(0.0926)	(0.0917)	(0.1142)	(0.1106)
lnSeasons	0.0927***	0.0903***	0.2473***	0.2498***
	(0.0253)	(0.0250)	(0.0887)	(0.0857)
lnNumber	-0.3971*	-0.4176**	-0.7468**	-0.9352***
	(0.2454)	(0.2057)	(0.3406)	(0.2908)
constant	0.3523	0.6454	1.7309**	2.4609***
	(0.5401)	(0.5503)	(0.8486)	(0.8297)
F-test for team fixed effects			$F(18, 95) = 1.24$	$F(18, 95) = 1.52$*
adjusted R^2	0.1392	0.1610	0.1709	0.2256

* = significant at 10% level; ** = significant at 5% level; *** = significant at 1% level.

Table Five: Marginal Effect of *Point* wrt *CV*

By Team, ranked by *Average CV*

team	*n*	*marginal*	*average CV*	*average Point*
Los Angeles Galaxy	8	-0.170	2.739	1.494
New York Red Bulls	8	-0.221	2.117	1.356
Chicago Fire	8	-0.349	1.742	1.438
Toronto	6	-0.223	1.509	1.013
Montreal Impact	1	-0.247	1.457	1.235
Seattle Sounders	4	-0.370	1.441	1.667
Portland Timbers	2	-0.332	1.311	1.118
Vancouver Whitecaps	2	-0.241	1.249	1.044
Sporting Kansas City	8	-0.419	1.135	1.385
FC Dallas	8	-0.405	1.128	1.433
DC United	8	-0.398	1.122	1.424
New England Revolution	8	-0.399	1.008	1.345
Chivas USA	8	-0.424	0.907	1.177
Colorado Rapids	8	-0.438	0.893	1.315
Columbus Crew	8	-0.519	0.844	1.445
Real Salt Lake	8	-0.515	0.826	1.326
San Jose Earthquakes	5	-0.525	0.790	1.338
Houston Dynamo	8	-0.593	0.778	1.560
Philadelphia Union	3	-0.439	0.776	1.168

Table Six: **Marginal Effect of *Wage* wrt *CV***

By Team, ranked by *Average Wage*

team	*n*	*marginal*	*average Wage*	*average Point*
Los Angeles Galaxy	8	0.073	8.076	1.494
New York Red Bulls	8	0.108	7.098	1.356
Vancouver Whitecaps	2	0.071	4.345	1.044
Toronto	6	0.090	4.218	1.013
Montreal Impact	1	0.098	3.725	1.235
Seattle Sounders	4	0.138	3.666	1.667
Chicago Fire	8	0.142	3.370	1.438
Philadelphia Union	3	0.121	2.910	1.168
Portland Timbers	2	0.127	2.818	1.118
DC United	8	0.172	2.668	1.424
FC Dallas	8	0.169	2.582	1.433
Sporting Kansas City	8	0.173	2.426	1.385
San Jose Earthquakes	5	0.163	2.425	1.338
Colorado Rapids	8	0.175	2.359	1.315
Houston Dynamo	8	0.212	2.340	1.560
Columbus Crew	8	0.191	2.315	1.445
Real Salt Lake	8	0.172	2.264	1.326
New England Revolution	8	0.200	2.232	1.345
Chivas USA	8	0.169	2.199	1.177

Table Seven: Marginal Effect of *Point* wrt *CV*

By Year

	n	*marginal*	*average CV*	*average Point*
2005	12	-0.393	1.137	1.385
2006	12	-0.392	1.095	1.352
2007	13	-0.335	1.502	1.372
2008	14	-0.338	1.524	1.364
2009	15	-0.389	1.359	1.347
2010	16	-0.444	1.178	1.375
2011	18	-0.413	1.125	1.327
2012	19	-0.426	1.182	1.380