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CLAREMONT McKENNA COLLEGE

SOCIAL NETWORK: THE CASE OF MAJOR LEAGUE SOCCER AND FACEBOOK LIKES

SUBMITTED TO

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BY

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FOR

SENIOR THESIS

SPRING 2012

APRIL 23, 2012

Abstract

The rise of Major League Soccer in the United States has taken place during an influential spread of social media. This paper conducts an empirical analysis of the effects of several variables on the Facebook “likes” of individual Major League Soccer Facebook homepages. Variables from previous sport demand studies are re-analyzed and applied in this study to determine similarities and differences to Facebook “likes”. Results from the analysis indicate social media is affected differently than attendance rates. Facebook “likes” are most affected by population size, unemployment and Hispanic composition as well as player salary rather than wins or attendance.

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I. Introduction

Commonly referred to as the world's favorite sport, soccer dominates the international sports arena and is passionately followed by avid fans. The beloved sport dates back to the mid-1800s and is so deeply engrained in some societies that even governments invest heavily in their local soccer clubs[1]. Yet, amidst the fervor, soccer has struggled to make its way to American soil. That is, until now: Major League Soccer (MLS) is America's longest lasting and most successful professional soccer league.

From its first season in 1996, MLS has nearly doubled in size and remains financially stable: a feat its predecessor, the National American Soccer League (NASL) failed to accomplish. As an infant industry, MLS was forced to adapt to a highly competitive and hostile environment. Soccer had crumbled in the U.S. professional sport arena and was largely ignored at the international level. NASL was notorious for lacking media attention, diminishing fan support over time, and facing constant financial difficulties that would inevitably lead to the folding of the league. MLS had the advantage of learning from the mistakes NASL had made, but they would have to find success on their own. Against these odds, MLS founders believed it could make American sports fans see the light.

MLS had to be perfect or it would undoubtedly simmer out as NASL had. Therefore, decisions were carefully thought out before the league was launched. First, MLS chose to organize itself as a single-entity. This means teams are centrally owned by MLS and

[1] Stefan Szymanski and Andrew Zimbalist, *National Pastime: How Americans Play Baseball and the Rest of the World Plays Soccer.* (Washington D.C.: Brookings Institute Press, 2005)

player contracts are negotiated by the league rather than by individual teams. As a result, MLS players are paid under 30% of league revenues compared to over 40% in the England Premier League, over 50% in the NBA, and around 60% in the NHL, MLB, and NFL[2].

The cost savings in the single-entity approach comes with setbacks. Cost reduction in human capital limits the leagues development; the best players will opt for higher pay in international leagues. Without these players, the league is at risk of losing fan support as quality of play is diminished. Foreseeing these future implications, MLS introduced the Designated Player Rule which removes the salary cap for up to three players per team. Shortly after the rule was established, soccer sensation David Beckham was acquired by the Los Angeles Galaxy. His presence immediately grabbed the attention of Americans and fan support increased significantly[3].

The next major decision MLS would consider was whether to invest in soccer specific stadiums. NASL had chosen to cut costs by playing in NFL stadiums. However, football stadiums are larger than soccer stadiums and do not have the correct field lines. NASL games ended up looking unprofessional in these conditions. Understanding the importance of legitimacy, MLS decided to invest in soccer specific stadiums. The investment would give MLS an identity as well as provide teams their own resources[4].

Finally, MLS had to make strategic marketing decisions in order to gain fan support. To survive as a sports league, media attention is essential but MLS knew the majority of Americans would be disinterested in the league at first. As a result, MLS began

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[2] Beau Dure, *Long Range Goals: The Success Story of Major League Soccer* (Washington D.C.: Potomac Books, Inc., 2010), 100

[3] Robert A. Lawson et al.,"Vend it Like Beckham: David Beckham's Effect on MLS Ticket Sales," *International Journal of Sports Science* 3, no. 4 (2008)

[4] Dure 2010, 60

marketing toward the Hispanic community where soccer was already an established pastime. The decision was made with the idea the league would easily find initial support from this audience, gain strength, and be able to spread influence elsewhere[5].

As a new phenomenon in America, relatively few studies have been done on MLS. As the league is likely to continue its rise, several variables can be examined to measure the leagues popularity. Past sports demand studies have focused on ticket sales as a measurement of demand; however, as the world is changing into one of media dominance, this may not be an accurate measure of demand as fans are now able to watch matches on TV and receive information on the internet. Given these changing times, a better dependent variable should be one that incorporates more than just game attendance. I attempt to capture this movement by observing the number of Facebook "likes" for a given team.

Comparing attendance rates and Facebook "likes", I find both are affected by similar variables. However, highly correlated variables regularly found in sports demand studies, such as wins and attendance, are not found. These differences suggest social media is explained by other variables.

The organization of this paper is as follows: Section II is a literature review of sports demand studies. I focus on attendance variables to better understand what has previously determined demand for soccer. Section III is an analysis of the data chosen for this study. I provide hypotheses for each variable effect on Facebook "likes" in Section IV. Results are presented in Section V and variables are re-analyzed. Summarizing and concluding the study, Section VI addresses the findings that have future implications.

[5] Dure 2010, 11

II. Literature Review

Sports market research has focused on attendance as a measurement of success. Attendance is high when a team performs well and low when they perform poorly. Clearly, attendance rates say a lot about a team. Previous research has tried to explain

attendance by looking at explanatory variables such as ticket prices[6], travel costs, population[7], income, team quality, player quality, game conditions, and competition with other professional sports. Studies within the U.S. have begun to focus on racial composition as another relevant factor affecting game attendance. Research has covered the effects of Hispanic composition within a team's city[8], superstar effects[9], and the single-entity league organizational approach[10]. Because MLS is a young league in the U.S., it is still developing and changing regularly. This makes analyzing the sport difficult as its youth and unique organization are new to researchers. Furthermore, not enough time has passed for outcomes to be realized or clearly observed.

A. Creating a Fan Base

Before accomplishing a strong hold in America, soccer would have to overcome a stigma of immigrant association and the humiliation of past failures. As with any professional sport, broadcasting is essential. As for the MLS, broadcasting to the right audience was and remains an important essential. MLS learned from its predecessor's mistakes by recognizing that in the past, NASL had weak coverage within English speaking channels and were unable to gain support[11]. In order to get a foot in the door, a fan base was a first priority. MLS decided that marketing to an audience where soccer was an established pastime would be the best starting point.

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[6] Richard C. K. Burdekin, "Demand for Attendance: Price Measurement," *Oxford Handbook on Sports Economics*
[7] Bruce Walker, "The Demand for Professional League Football and the Success of Football League Teams: Some City Size Effects," *Urban Studies* 23 (1986)
[8] Todd R. Jewell et al., "An Evaluation of the Relationship Between Hispanics and Major League Soccer," *Journal of Sports Economics* 6, no. 2 (2005)
[9] Robert A. Lawson et al., "Vend it Like Beckham: David Beckham's Effect on MLS Ticket Sales," *International Journal of Sports Finance* 3, no. 4 (2008)
[10] John Twomey et al., "Monopsony and Salary Suppression: The Case of Major League Soccer in the United States," *American Economist* 56, no. 1 (2011)
[11] Fernando Delgado, "Major League Soccer: The Return of the Foreign Sport," *Journal of Sport and Social Issues* 21, no. 3 (1997)

Latin America has a long history of strong soccer leagues and dedicated fans. Coincidentally, Hispanics are the largest and fastest growing minority group in America. Thus, the Hispanic population seemed to be the perfect audience to market. This strategy in practice would reveal a complicated outcome as a surprising relationship would unravel between a city's Hispanic composition and MLS game attendance.

An early study by Jewell & Molina (2005) on game attendance during the first five years of the MLS league suggests the MLS was unsuccessful and/or wrong in its marketing decisions. Yearly attendance data is used as the dependent variable and performance factors, as well as team specific city factors, are used as independent variables. The authors regress yearly regular season attendance on several variables, including racial composition, and find the Hispanic coefficient to be negative. This suggests larger Hispanic populations have a negative impact on attendance, which is ironic given the MLS's obvious attempts to market toward this group.

Without available data on Hispanic preferences, the authors make a few suggestions for this unexpected outcome: (1) Mexican-Americans are dedicated to their home teams and leagues and prefer them over the American league; (2) Cuban and Puerto Rican Americans prefer baseball to soccer; and (3) MLS may have done a poor job marketing itself.

A later study by Lawson, Sheehan & Stephenson (2007) find contrasting results on Hispanic composition. They run a multivariate regression with attendance as a percentage of stadium capacity as the dependent variable. The authors use two different approaches to control for city specific factors. The first, also used by Jewell & Molina (2005), focuses on specific market factors within the home team's city. The second approach

focuses on team specific factors. The authors chose to omit ticket prices as Jewell and Molina had for similar reasons: inconsistent pricing data across teams. The regression is run using Tobit and results for both approaches show a positive relationship between Hispanic composition and game attendance. The authors do not provide any suggestions for the contradicting results.

B. The Effects of City size

Results in a study by Walker (1986) show a positive relationship between successful teams, city population, and game attendance. Walker argues teams located in more populous areas tend to have higher attendance rates as well as more successful seasons. The data for the study is taken from league standings of English professional football teams. Walker uses correlations between data on league standings, urban area rankings (taken from rankings of Standard Metropolitan Labour Areas in 1971), and estimates of population share for each team. The positive relationship between city size and attendance is explained by larger cities being better able to attract more spectators and thus generate larger gate revenues. These revenues in turn provide resources for team development and ultimately better team standing within the league.

Later research by Jewell & Molina (2005) on MLS and city size support the findings by Walker. The study uses yearly attendance as the dependent variable and demographic information as the independent variable to determine the effects of city size. The coefficient for population is positive; further evidence that city size plays a part in attendance and success rates

C. Superstar Effects in the Single-Entity System

In an attempt to increase ticket sales, a large and controversial decision was made to sign David Beckham with the Los Angeles Galaxy. He was the first player to be signed outside the salary cap under the single-entity league structure. The greater salary allotment given to Beckham would be the first under the Designated Player Rule (beginning in 2007), which allows one player per team to be signed outside the salary cap. Lawson, Sheehan, & Stephenson (2007) worked to determine Beckham's effect on ticket sales during his first season with the Galaxy. The 2007 MLS season average ticket sales were 16,758 for all games played. The average ticket sales for games with Beckham on the roster were 29,697 and when he saw game time were 37,659. These numbers were found by taking an informal look at the ticket sales for the 2007 season, knowing which games Beckham appeared on the roster and didn't play, and which games Beckham appeared on the roster and did play. To isolate the effects of Beckham exclusively, the authors use a multivariate regression analysis of the 2007 season data along with explanatory variables.

To account for differences in stadium size, the authors observe attendance as a percentage of stadium capacity as the dependent variable. The variables of interest are games with Beckham on the roster and games Beckham played. To control for variations across cities, the authors account for city specific factors: population, income per capita, Hispanic and black compositions, team quality measured by home team points during previous season, and competition from other major league teams. They also include a dummy variable for players who were on the U.S. World Cup team as a measurement of

recognizable star players. Game specific variables include the amount of precipitation[12] and scheduling (i.e games played during the middle of the week or on holidays). Price variables are not included because of inconsistency across teams.

The results of the Tobit test show significant marginal effects for both Beckham on the roster (32.7% ticket sale increase) and Beckham game time (additional 24.3% increase).

The effects on actual wins are much less according to Twomey & Monks (2011). Data for the 2007 season revealed team salaries failed to translate to success rates on the field. For example, the LA Galaxy paid more than double for its roster than any other team in the league, yet they finished third to last. The New England Revolution finished five points below the top team and had the lowest league payroll. Yet, the LA Galaxy's $36 million revenue for the 2007 season more than doubled any other team in the league (the closest being Toronto FC at $17 million).

The findings from the Twomey & Monks (2011) study on team salaries and league success rates suggest that investors are profit-maximizers rather than win-maximizers. Keuthe & Motamed (2009) confirm this with their finding of a convex relationship between age and salary. Two probable explanations are given. First, the incentive to increase attendance creates a market for recognizable players who are at the end of their careers. If MLS was win-maximizing, Beckham's salary would be greatly reduced or even cut. Second, MLS provides young players access to a professional league where they can develop their skills but, as these players mature, they convert to better

[12] Andrew Chupp et al., "Stadium Alcohol Availability and Baseball Attendance: Evidence from a Natural Experiment," *International Journal of Sports Finance* 2, no. 1 (2007)

international leagues. The result is a league where old and famous players are paid enormous amounts and young underdeveloped players receive the bare minimum.

The single-entity structure was successful in containing player salary and allowing the league to develop as a profit maximizing entity. However, set-backs to this approach should not be ignored by MLS management. As discussed by Tavis & Udayan (2008) and Twomey & Monks (2011), the outcomes of wage suppression will result in low growth rates. The fact high salary players are expected to fill seats result in salaries failing to correspond to team success. Player quality and development are missing in this unsustainable model and will be detrimental to the future of the league.

D. Other Professional Major Leagues

Cities where professional teams have already been established pose a threat to MLS. The sport markets in these cities are at risk of becoming saturated and are likely to be hostile toward new and different sports. Evidence from the Jewell & Molina study (2005) shows lower MLS attendance rates in cities where an MLS team and National Football League (NFL) team are both located. This suggests soccer and football are substitutes for sports entertainment. Comparing cities with and without a National Basketball Association (NBA) team have an opposite effect; those with NBA teams have greater MLS attendance than those without. This finding suggests soccer and basketball are complimentary goods. Another explanation is these two sports are played at different times of the year and thus avoid game time overlap (MLS during the summer and NBA during the winter).

In the same study, the National Hockey League (NHL) and Major League Baseball (MLB) show no significant effect on MLS attendance. However, when all four major

leagues are in the same city, there is a negative effect on MLS game attendance, possibly due to sport market saturation.

Once again, in contrast to the Jewell & Molina (2005) findings are those found in the Lawson, Sheehan, & Stephenson study (2007). Results from the Tobit test show a significant 16% drop in MLS game attendance when an MLB franchise is within the same city. Furthermore, NFL, NBA, or NHL teams have a positive effect on ticket sales. But again, the opposing results are not discussed within the literature review.

I. Data Collection and Analysis

The dependent variable consists of one time observations of Facebook "likes" taken for each MLS team on February 26th 2012. The independent variables consist of team specific information and information specific to the city in which the team is located. The number of observations is equal to the number of games each team played in the 2010 and 2011 season independently (16 observations in 2010 and 18 observations in 2011). Data for team standings was taken from the MLS website (http://www.mlssoccer.com/schedule). During the 2010 season, there were 16 teams in the league and a total of 30 games played. Each team played two games against the other in a home game and an away game. The Portland Timbers and Vancouver Whitecaps joined the league in 2011, increasing the number of teams to 18 and total games played to 34. The MLS uses a point system to determine league standings; three points are awarded

for a win, one point for a tie, and zero for a loss. MLS also records goals scored and number of wins within a season. While points acquired during the season determine league standing, there are instances where teams with the same record have different points (Kansas City and Columbus tied for 13 wins during the 2011 season but Kansas City had more points), and where teams with less wins have more points (Seattle won two more games than FC Dallas but scored two fewer points). For this study, season wins are used as they closely reflect goals and points. *w2010* and *w2011* measures total 2010 season wins and total season 2011 for each team. The 2012 season was excluded from the data set because the MLS was midseason. Because of this, *likes* represents Facebook "likes" recorded February 26th, 2012, prior to any games played in the 2012 season to avoid changes resulting from games played.

The MLS Players Union, established in 2003 as a collective bargaining representative, publishes annual reports on every contracted player's salary. This data, found on the Major League Soccer Players Union website (mlsplayers.org), includes a base salary and an annual average guaranteed compensation. *Top3* measures the top three highest paid players on a team's roster using the annual average guaranteed compensation numbers. These salaries are then combined and used as a total to be compared among other teams. I have chosen to calculate star player quality this way for two reasons: first, the Designated Player Rule allows up to three players per roster to be paid above the salary cap. Identifying the top three salaries essentially distinguishes these designated players. Second, while star players have previously been determined as those who have

participated on World Cup teams[13] or MLS All Star Games[14] , the MLS profit-maximizing strategy demands recognizable rather than the best performing players. These characteristics are not always analogous; famous players tend to be at the end of their careers but can still attract crowds.

Attendance data for the 2011 season is available on the MLS website. *Attend2011* is the average game attendance for each team measured by taking total season attendance and dividing by total number of games played (17 games played for each team). The average is used because *likes* is a snapshot measure taken after the 2011 season. Therefore, the effects of attendance from game to game cannot be observed on *likes*.

The most recent data available for city specific factors is taken from the 2010 United States Census Bureau. *Pop2010* is the total population, *hisplatino* measures the Hispanic/Latino composition, *unemploy* is the unemployment rate, and *percapita* is per capita income. Data is taken from the MLS team's hometown or from the larger metropolitan area (Colorado Rapids are based in Commerce City, a suburb of Denver.) *Hisplatino* is recorded as a percentage of total population and includes Mexican, Salvadorian, Guatemalan, Honduran, Nicaraguan, Puerto Rican, Peruvian, Cuban, Columbian, Argentinean, and Ecuadorian. As discussed by Jewell & Molina (2005), the large variety of races defined as Hispanic or Latino may distort the data. Including the entire composition will have a downward bias on the results as mainly Mexican-Americans, only a fraction of Hispanics, have an established history of soccer. *Unemploy*

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[13] Todd R. Jewell et al., "An Evaluation of the Relationship Between Hispanics and Major League Soccer," *Journal of Sports Economics* 6, no. 2 (2005)

[14] Todd E.Keuthe et al.,"Returns to Stardom: Evidence From U.S. Major League Soccer," *Journal of Sports Economics* 11, no. 5 (2009)

and *percapita* are included to determine whether MLS is an inferior good; demand increases as income decreases.

Dummy variables for individual major leagues were included to account for sport preferences within cities. *nfl, mlb, nba,* and *nhl* represent National Football League, Major League Baseball, National Basketball Association, and National Hockey League, respectively. These leagues were chosen because they are the most popular among U.S sports fans. Each major league is assigned a "1" if located in the same city as an MLS team. *Majorleague* is the total number of major leagues located in the same city and is included to account for sport market saturation. Additionally, *notsoccerspecific* is a dummy variable indicating whether an MLS team has its own soccer stadium. An MLS team is assigned a "1" if they do not have their own stadium and play in a stadium shared by other sports leagues.

I. Hypotheses

The uniqueness of this study must be recognized before hypotheses can be made about variable relationships. Firstly, MLS is relatively new compared to major leagues within the U.S. and soccer leagues abroad. This makes it difficult to compare the league to more established sports. Secondly, the current growth of MLS is occurring during an important societal shift towards social media. Social media has arguably become one of the most important marketing strategies for companies. Because of the changing times, new variables are being introduced and old variables must be re-analyzed. Thirdly, the dependent variable used in this study is unlike any other study. Sports studies have typically used attendance as the dependent variable because it is useful in understanding team popularity, revenues, and failures. In this study, Facebook "likes" are used in an attempt to capture the increasing importance of social media.

Several difficulties have arisen during this study in measuring *likes* for MLS teams. First, unlike attendance, *likes* are continuously updated; the current number reflects total number of people who have "liked" the page. There is no historical database for *likes* which makes observing changes in the past challenging. While I have one "snapshot" of *likes* (taken February 26th), the numbers are constantly increasing. Furthermore, because it is a combined total, net change cannot be observed. To account for this, total season wins and average game attendance were used rather than individual wins and game attendance. The remaining independent variables have been widely used among sports demand studies; unemployment, Hispanic composition, city population, major leagues, stadium capacity, star players, income and poverty rates.

With the observations mentioned above in mind, the following provides predictions on variable relationships. It is reasonable to assume a team with more wins will have more *likes*; winning teams draw media attention. Thus, I predict a positive relationship between *likes* and season wins for both 2010 and 2011. Similarly, attendance and *likes* should have a positive relationship as more people who attend games will also "like" their team's homepage.

Star players, measured as the highest paid on their team's roster, are more likely to increase gate revenues than produce wins[15]. Because MLS is argued to be profit-maximizing, rather than win-maximizing[16], it is no surprise that players drawing the most fans will be the most sought after and paid the highest amounts. Whether these highly paid players effect *likes* is an important question for social media. I predict these famous players will attract media attention and positively affect *likes* for their team.

Hispanic and Latino compositions have shown mixed results as to whether they help or hurt MLS attendance. For this study, I predict they will have a positive relationship with *likes* because MLS has made Spanish easily accessible on their website (mls.net). Spanish speakers who have navigated the MLS website without difficulty are likely to search their favorite teams on Facebook as well. Furthermore, soccer is more widely accepted in this community and I predict this will have a positive impact on *likes.*

MLS teams located in larger cities may have an advantage over smaller cities with regard to attendance rates[17], but I predict a smaller effect on *likes*. Attending a game

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[15] Robert A. Lawson et al., "Vend it Like Beckham: David Beckham's Effect on MLS Ticket Sales," *International Journal of Sports Finance* 3, no. 4 (2008)
[16] John Monks et al., "Monopsony and Salary Suppression: The Case of Major League Soccer in the United States," *American Economist* 56, no. 1 (2011)
[17] Bruce Walker, "The Demand for Professional League Football and the Success of Football League Teams: Some City Size Effects," *Urban Studies* 23 (1986)

requires time and money. “Liking” a Facebook page is costless and practically effortless. Additionally, “liking” a page can be done from around the world. Facebook is neither restricted by geographic obstacles nor is it limited due to population rates. Therefore, *likes* should not be greatly hindered by population as attendance has been.

Unemployment rates and per capita income should not affect *like.* As mentioned previously, the act of “liking” a Facebook page is costless and requires little time (not accounting for costs associated with purchasing a computer or internet access), thus economic variables should not matter.

While competition among sports leagues should also be mitigated by the accessibility of Facebook, preferences are not changed. I predict major leagues located within the same city as an MLS team will have a negative effect on *likes*. Competition among leagues may still remain an issue for MLS because of the American disinterest in soccer. There are few obstacles preventing a football fan from “liking” an MLS page. Yet, the established football culture may override any desire to visit an MLS Facebook page. Other considerations, discussed in the Jewell & Molina study (2005), are differences in the timing of game season and differences in styles of play. While I still expect preferences to play a role, these considerations may lessen their effect on *likes.* For example, the MLS spring season will not coincide with the NFL or NBA seasons, allowing it to be less dominated by these popular sports. Also, differences in style of play may attract or repel fans -- games with a lot of stoppages (NFL) vs. few stoppages (NBA and MLS). If my prediction is wrong and the results show either no relationship or a positive relationship, it may be attributed to an increased demand in sports or an absence of American sport preference.

II. Results

The number of observations in this study limits the results of the regression analysis. With only 16 observations (teams in the league) for the 2010 data and 18 observations (addition of Portland Timbers and Vancouver Whitecaps) for the 2011 data, multicollinearity becomes an issue. To deal with this, I have regressed independent variables both separately and in combinations to determine differences in explanatory power. Another difficulty arising from limited observations is finding significant values using basic regressions. The natural logarithm is calculated and used in the regression analysis for this reason. Finally, due to these limits, I have considered p-values up to 20% to be significant.

A. Team specific factors

To determine the effects of team specific factors, I regress *likes* on factors pertaining to individual teams.[18]

$$\ln likes_i = \alpha_0 + \alpha_1 \ln wins2010 + \alpha_2 \ln wins211 + \alpha_3 \ln attend2010 + \alpha_4 \ln attend2011 + \alpha_5 \ln top3 + \alpha_6 \ln notsoccerspec + \varepsilon$$

Results from the regression are given in the table below. As the p-values indicate, no significant results are found from the regression. Including all team specific varaibles could create noise in the data due to inter-variable effects. For example, wins during 2010 may effect 2011 wins and 2011 attendance. To avoid this and to determine isolated

[18] Data for team specific variables found in Appendix, Table 1

effects, I have regressed ln*likes* against team specific variables independantly in the sections below.

ln*likes*	Coef.	Std. Err.	P>t
ln*wins2010*	0.6450012	1.549662	0.686
ln*wins2011*	-0.4300426	1.296797	0.747
ln*attend2011*	0.8036167	2.526526	0.757
ln*attend2010*	0.6968426	2.129387	0.750
ln*top3*	0.2675015	0.4711525	0.583
_cons	-7.731335	11.66702	0.523

Note: number of obs = 16, R-squared = 0.2552

A surprising relationship was found between MLS 2011 season wins, 2011 average game attendance and Facebook "likes". Based on previous win and attendance results in the Walker study (1986), I predicted wins and attendance for each season to have a positive relation with *likes.* Again, my research on relevant literature would lead me to believe season wins and attendance would indirectly increase *likes* due to increased fan support. However, neither *wins2010* nor *wins2011* had any effect on *likes.*

Season 2010 & 2011 Wins

ln*likes*	Coef.	Std. Err	P>t
ln*wins2010*	0.9538874	1.070658	0.388
_cons	8.886491	2.578468	0.004

Notes: number of obs = 16, R-squared = 0.0537

ln*likes*	Coef.	Std. Err.	P>t
ln*wins2011*	0.593053	0.7672264	0.451
_cons	9.724481	1.820222	0.000

Notes: number of obs = 18, R-squared = 0.036

In an attempt to explain the insignificant and unexpected relation between *likes* and *wins2010, wins2011,* I run a regression on wins and attendance to verify the results from

previous studies. Using the same data set but changing the dependent variable from *likes* to *attend2011*, I find a positive relationship between attendance and wins for the 2011 season. While this verifies previous research, it does not help explain the insignificant effect of wins on Facebook "likes".

2011 Season Attendance and Wins

ln*attend2011*	Coef.	Std. Err.	P>t
ln*wins2011*	0.2641286	0.1743587	0.149
_cons	9.13014	0.4136608	0.000

Notes: number of obs = 18, R-squared = 0.1254

The positive and significant coefficients on a*ttend2010* and *attend2011* would not have been surprising had *wins2010* and *wins2011* also been positive and significant. It is rational to assume the more wins an MLS team has, the more fans they will gain, and the more *likes* they will acquire. However, the results cast a confusing picture; teams with higher average attendance rates have higher *likes* relative to other MLS teams, yet teams averaging more wins do not enjoy the same effect on *likes*.

2010 Season Attendance and Likes

ln*likes*	Coef.	Std. Err.	P>t
ln*attend2010*	1.589542	0.9209215	0.106
_cons	-4.208023	8.912519	0.644

Notes: number of obs = 16, R-squared = 0.1755

ln*likes*	Coef.	Std. Err.	P>t
ln*attend2011*	1.578307	0.9706645	0.123
_cons	-4.272691	9.466997	0.658

Notes: number of obs = 18, R-squared = 0.1418

As predicted, *top3* has a positive relationship with *likes*. The result suggests star players successfully attract social media attention. It is important to remember *top3* is

determined by player salary and not by player quality. Player quality would be measured by World Cup participation, number of total goals scored, or number of assists. These variables measure player contributions to the outcome of the game. Player salaries are determined by MLS team managers who value players based on ability to fill seats, not necessarily win games[19]. Therefore, the results indicate *likes* are not necessarily increased due to better player quality, but by player recognition.

Star players

ln*likes*	Coef.	Std. Err.	P>t
ln*top3*	0.5173092	0.3220712	0.128
_cons	3.754003	4.590343	0.425

Notes: number of obs = 18, R-squared = 0.1389

The incentive behind the investment in soccer specific stadiums was to promote legitimacy and create space for teams to practice. The results indicate the investments were worth while; teams without soccer stadiums have 8% less *likes* than teams with soccer stadiums.

Soccer Specific Stadiums

ln*likes*	Coef.	Std. Err.	P>t
notsoccers	-0.8120184	0.6040543	0.198
_cons	11.34027	0.3183646	0.000

Notes: number of obs = 18, R-squared = 0.1015

B. City specific factors

[19] Robert A. Lawson et al., "Vend it Like Beckham: David Beckham's Effect on MLS Ticket Sales," *International Journal of Sports Finance* 3, no. 4 (2008)

I find calculating the natural log for city specific variables does not produce better results as it had for team specific variables. Therefore, I do not calculate natural log for the independent variables. To determine city specific factors I regress combinations of variables as well as individual variables against the natural log of *likes.*

$$\ln likes_i = \alpha_0 + \alpha_1 \ln hisplatino2010 + \alpha_2 \ln pop2010 + \alpha_3 \ln percapita + \alpha_4 \ln unemploy2010 + \alpha_5 \ln majorleagues + \varepsilon$$

The combined regression using city specific factors showed no significant results, again possibly due to inter-variable relations creating noise in the data.

ln*likes*	Coef.	Std. Err.	P>t
hisplatino2010	-1.102115	2.424493	0.659
pop2010	7.59E-07	3.64E-07	0.064
percapita	0.0000216	0.0000491	0.669
unemploy2010	15.62379	16.90093	0.377
majorleagues	-0.1400404	0.1625549	0.409
_cons	9.063705	2.010933	0.001

Notes: number of obs = 16, R-squared = 0.5171

The Hispanic composition within a city has a significant and positive relationship with *likes*. This relationship is consistent with the Lawson, Sheehan, and Stephenson (2007) results. While the dependent variable for this study is different, is it not surprising that Hispanic composition would have a similar positive impact on *likes* due to the history of soccer among this culture.

2010 Hispanic and Latino Composition

ln*likes*	Coef.	Std. Err.	P>t
hisplatino2010	2.280865	1.59008	0.171
_cons	10.57921	0.4599461	0.000

Notes: number of obs = 18, R-squared = 0.1139

The coefficient for *pop2010* is significant and largely positive in relation to the other variable results. In contrast to my prediction, the size of the population does affect *likes.* MLS teams in less populous cities have less *likes,* indicating population is still an obstacle for social media as it has been for attendance. Where larger populations are better able to fill stadiums, it seems they are also better able to increase *likes*.

2010 Population

ln*likes*	Coef.	Std. Err.	P>t
pop2010	6.46E-07	1.97E-07	0.005
_cons	10.2164	0.352464	0.000

Notes: number of obs = 18, R-squared = 0.4008

Not surprisingly, *percapita* does not affect *likes.* Given ticket pricing is not relevant for actions that are free, the per capita income of a city should not effect *likes.* As I argue, Facebook is free and "liking" a page is effortless. Therefore, a persons income does not constrain their ability to "like" an MLS teams homepage.

Per Capita Income

ln*likes*	Coef.	Std. Err.	P>t
percapita	-0.0000163	0.0000458	0.727
_cons	11.65232	1.341518	0.000

Notes: number of obs = 16, R-squared = 0.009

That income variables should not affect *likes* was true for *perpita.* However, results for *unemploy* show income variables do effect *likes.* The unemployment rate within a city increases number of *likes* but per capita income fails to show the same effect. This suggests income and unemployment are not related. Walker (1986) attributed the positive unemployment and attendance relationship to soccer being an inferior good. The result in this study cannot be directly due to soccer being an inferior good because *likes* do not cost anything. A potential explanation for the result may the unemployed have more free time to surf the web.

2010 Unemployment

ln*likes*	Coef.	Std. Err.	P>t
unemploy2010	28.5472	10.47504	0.015
_cons	8.439199	1.009684	0.000

Notes: number of obs = 18, R-squared = 0.317

A regression including all four major leagues do not produce significant results. Separately, coefficients for *nfl* and *nba* are significant and coefficients for *mlb* and *nhl* are insignificant. NFL and NBA teams located in the same city as MLS teams decrease and increase *likes,* respectively. MLB and NHL show no effect on *likes.* These results do not say whether *likes* are affected by sports market saturation, or whether preferences for football and basketball are greater than demand for soccer.

Major League Teams

ln*likes*	Coef.	Std. Err.	P>t
nfl	-1.138884	0.4232038	0.019
mlb	0.9543824	0.5019125	0.080
nba	0.4132985	0.4169461	0.340
nhl	-0.1388736	0.3606003	0.706
_cons	10.66565	0.4805295	0.000

Notes: number of obs = 18, R-squared = 0.5026

ln*likes*	Coef.	Std. Err.	P>t
nfl	-0.5838247	0.3736952	0.138
_cons	11.56879	0.3939093	0.000

Notes: number of obs = 18, R-squared = 0.1324

ln*likes*	Coef.	Std. Err.	P>t
mlb	0.4040897	0.3738607	0.296
_cons	10.66572	0.4984809	0.000

Notes: number of obs = 18, R-squared = 0.068

ln*likes*	Coef.	Std. Err.	P>t
nba	0.8036937	0.378068	0.049
_cons	10.31101	0.4543812	0.000

Notes: number of obs = 18, R-squared = 0.2202

ln*likes*	Coef.	Std. Err.	P>t
nhl	0.4156183	0.3337778	0.231
_cons	10.69909	0.4309052	0.000

Notes: number of obs = 18, R-squared = 0.0883

I. Conclusion

Social media has become an essential part of any business model. Sports franchises are no exception. Introduced in the midst of Facebook and other online media sources, MLS has had to embrace this model. To capture the shift in demand measurements from attendance data, this study uses Facebook likes as an alternative measure of team popularity. The greatest implication found in this study is the insignificant relationship between number of team wins during the 2010 and 2011 seasons and Facebook "likes". Previous research has repeatedly shown wins increase attendance rates. Yet, this study concludes social media may be unaffected by the success rates of MLS teams. While attendance increases *likes,* the indirect relationship expected to persist between wins and *likes* was not found.

Perhaps the findings on star players can shed light on the curious relationship between wins and *likes.* Star players, or those with the highest salaries, attract fans but do not necessarily produce wins for their team. This could be why teams with the highest paid players have greater *likes* but not wins. The Los Angeles Galaxy's David Beckham is the perfect example. He is one of the highest paid MLS players and has increased Galaxy gate revenues yet, he has been injured for the majority of his MLS career.

Beckham's salary is driven by the incentives found in the single-entity approach. The incentives in this organization are revenue based; player salary is lost to the leagues financial gain. Therefore, it can be argued that teams demand players who increase revenues, which, as we have seen, are not necessarily players producing wins.

At first glance, it seems MLS has a strong and advantageous business strategy. They are producing high revenues and seeing fan support increase. In the beginning, the single-entity approach was essential for financial survival. As an infant industry, containing player salary is vital with tight budgets. Now, it's a detriment to its future. As the league continues to develop, low wages will negatively affecting player quality; better players are leaving for higher wages abroad. Even with the implementation of the Designated Player rule, low salaries continue to be an issue among the majority of athletes not included.

This study has begun to uncover the impact of social media and the driving forces behind it. Further research in this area should be done to better understand the effects of social media. Twitter accounts among players are widely used and followed by fans. Data from Twitter could reveal useful information on social media and efficient use of these resources.