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What drives the number of new Twitter followers? An economic note and a case study of professional soccer teams

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Abstract

This paper examines the factors motivating people to join social networks. In particular, use of Twitter as a medium to get live feeds from sports organizations is analyzed. The focus is on the relationship between the success of professional soccer teams and the number of new Twitter users following teams. Results show that the most successful teams have the highest rates of recruitment of new Twitter followers. This can be explained in terms of the increasing utility received by followers from their favorite team winnings.

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1. Introduction

People join social networks to communicate, seek entertainment, or look for information on any topic of interest: news, rumours, hobbies, travel, reviews, sports, etc. Twitter, a micro-blogging service that enables members to send text messages up to 140 characters to users who follow each other either because of interest, fame or simply friendship (Java, *et al*. 2007), has been one of the major social networking websites spearheading this trend since its introduction in 2006.

Twitter furthers a wide range of goals. It has been used for leading social movements, as a communication channel for spreading news and information, and even for educational purposes. Many businesses have used this social media marketing tool to attract online audiences (see Hong, 2012) and following the feeds of celebrities, sports figures and organizations has also become a popular leisure activity (see Clavio and Kian, 2011).

Soccer teams, as other sports organizations, clubs and athletes, have been involved in this phenomenon or are increasingly preparing to join it in order to stay in contact with their fans, as a part of their communication strategy, as well as to make their name more widely known by using a tool that offers everyday utility and adaptation to today's society. As it is pointed out in Rui and Whinston (2012), the principal motivation of contribuing information in online social networks is to seek attention from others.

One of the main features of Twitter is that users may subscribe to other users' messages or tweets, known as following. Twitter users choose who to follow, so they decide who they want to get information from, or about who or what they want to be updated on. Thus, both individual and institutional Twitter users, such as large associations, companies, public institutions, or sports organizations, among others, may not be only interested in getting as many followers as possible in order to promote their business and get noticed in the marketplace but also concerned with attracting quality users truly interested in the information they provide.

What factors lead an individual to follow a certain Twitter account? Certainly, there may be innumerable aspects of this decision, and furthermore the specific reasons to follow an account may differ in each particular case. From an economic point of view, social networks are challenging markets to understand and model. The general underlying model could be one of consumers deriving utility from the process of joining them itself. However, in the particular case of Twitter users may be willing to follow some Twitter's account to gain extra 'fun and excitement' of the process. Kassing and Sanderson (2010) show that, in the instance of cycling, the use of Twitter provides more utility to fans in terms of both a higher degree of 'lived experience' of the sports event and the opportunity of share their opinion with others.

The case study here focuses on sports organizations. Specifically, in this empirical exercise the interest is on analyzing to what extent the success of professional soccer teams explains the number of new Twitter users following teams, adding to our understanding of this popular online social networking service.

2. Data and model

The data set includes information on the number of Twitter followers between January 13, 2012 and June 26, 2012 for each of the twenty Spanish professional soccer teams playing in

the First Division (*Liga BBVA*) [1]. Those teams without an 'official' Twitter account - an account created and managed by the teams themselves - were excluded from this study. Moreover, because of their extraordinary international scope compared to other teams in *Liga BBVA*, the inclusion of *Real Madrid Club de Fútbol* and *Fútbol Club Barcelona* within the analyzed teams may lead to biased results. These two teams manage their Twitter accounts in many different languages and each has more than 5 million followers. This is more than five times the total sum of the other teams' followers. Thus, both these teams are considered as outliers, and therefore removed from the sample. All in all, this study's sample includes 14 (out of 20) teams (see Table 1).

Table 1: Spanish First Division Soccer teams' twitter accounts and number of followers

Team	Twitter account	# of Twitter followers in January 13. 2012	# of Twitter followers in June 26, 2012	% Twitter followers increment
Athletic Club	@AthleticClub	35,885	116,157	223.69
Club Atlético de Madrid SAD	@Atleti	70,983	165,348	132.94
Club Atlético Osasuna	@CAOsasuna	11,390	21,393	87.82
Granada Club de Fútbol SAD	@GranadaCdeF	8,879	20,320	128.86
Levante Unión Deportiva SAD	@LevanteUD	14,964	23,782	58.93
Málaga Club de Fútbol SAD	@MalagaCF	35,894	64,977	81.03
Real Betis Balompié SAD	@RBetisOficial	19,707	46,281	134.85
Real Club Deportivo Mallorca SAD	@RCD_Mallorca	4,740	10,928	130.55
Reial Club Deportiu Espanyol de Barcelona SAD	@RCDEspanyol	7,521	20,549	173.22
Real Sociedad de Fútbol SAD	@RealSociedad	6,401	18,906	195.36
Real Sporting de Gijón SAD	@RSG_Oficial	7,872	19,791	151.41
Sevilla Fútbol Club SAD	@SevillaFC	31,451	61,460	95.42
Valencia Club de Fútbol SAD	@valenciacf	67,385	139,708	107.33
Villarreal Club de Fútbol SAD	@VillarrealCF	39,121	55,639	42.22

[1] This is the top official professional soccer competition of national scale in Spain. The competition format follows a double round-robin system where the fourth highest ranked teams at the end of the season qualify for the UEFA Champions League - the top one is crowned champion -, the fifth and the sixth ones qualify for the UEFA Europa League, and the three lowest ranked teams are relegated into the lower division (Second Division - *Liga Adelante* -).

Since the aim of this paper is to analyze the relationship (if any) between the success of soccer teams, proxied by the games won in any of the three competitions in which they participated - *Liga BBVA*, the Spanish King's Cup[2] and the UEFA Europa League[3], and the number of new Twitter followers, the following covariates are used in the model specification:

- ranking: Current position of the team in the *Liga BBVA* table.
- winner_bbva: A dummy variable that takes a value 1 if the team won its previous game in the *Liga BBVA* and a value of 0 otherwise.
- winner_ck: A dummy variable that takes a value 1 if the team won its previous game in the Spanish King's Cup and a value of 0 otherwise.
- winner_eur: A dummy variable that takes a value 1 if the team won its previous game in the UEFA Europa League and a value of 0 otherwise.
- final_ck: A dummy variable that takes a value 1 if the team played the final game of the Spanish King's Cup and a value of 0 otherwise.
- final_eur: A dummy variable that takes a value 1 if the team played the final game of the UEFA Europa League and a value of 0 otherwise.

The number of local fans, which is proxied by the number of each team's season ticket holders, and the stock of Twitter followers, so the number of followers in time t-1 for each team, are also included as specific-individual control variables.

Table 2: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.
# of new Twitter followers (by observation)	656.904	781.986	63	7602
stock of Twitter followers	40,954.09	36,001.42	4,740	16,4327
# of local fans	26,644.93	10,793.97	11,618	48,639
ranking	10.392	5.021	3	20
winner_bbva	0.158	0.365	0	1
winner_ck	0.018	0.134	0	1
winner_eur	0.027	0.163	0	1
final_ck	0.059	0.236	0	1
final_eur	0.052	0.222	0	1

The dependent variable describes the flow of Twitter followers, defined as the number of followers in time t minus the number of previous followers in time t-1. It includes 47 observations for each of the 14 analyzed teams. The number of new Twitter followers for

[2] This is an annual soccer competition for Spanish teams organized and operated by the Royal Spanish Football Federation where the winner qualifies for the UEFA Europa League. The tournament consists of three previous one-legged knockout rounds and a final phase and it includes all the teams from the First and Second Division, 25 teams from the Second Division B and 18 teams from the Third Division. It should be noted that teams from the *Liga BBVA* just entry to the competition in the final phase where the championship becomes into a double-legged qualifying competition.

[3] This soccer competition is organized by the Union of European Football Associations (UEFA). Qualification for playing it is based on the performance of soccer teams in their different national championships. The format follows a quite complicated system including three qualifying rounds, a play-off round, a group stage, a knockout phase, and a final game.

each team has been collected twice a week, every Tuesday – in order to capture the impact on recruitment of new followers based on of outcomes from the past weekend's games, usually played either on Friday, Saturday, Sunday or Monday - and Friday – trying to capture the effect on the number of followers of results from midweek games, usually played between Tuesday and Thursday – for 23 whole weeks. There is an additional observation for each team (reaching the total of 47) corresponding to the beginning of the sample period on January 13, 2012, which was a Friday. The sample represents a balanced panel data set. Table 2 reports the summary statistics of the main variables used in the empirical analysis.

3. Empirical findings and concluding remarks

Given the structure of the data set, a panel data analysis is carried out. A Hausman test was conducted in order to choose the appropriate estimator (see Green, 2008, chapter 9). The results of this test suggest that a fixed effects model (the "within" estimator), where the unobserved time-invariant individual effects are allowed to be correlated with the explanatory variables, is applicable to this case.

Baltagi (2008) showed that cross-sectional dependency may be a problem in panel data sets with long time series, as is the case here. A Breusch-Pagan Lagrange multiplier test of independence suggests some evidence of cross-sectional dependence ($p<0.001$), so Driscoll and Kraay standard errors are used to generate robust estimates for the model (see Hoechle, 2007).

Additionally, results from a joint hypothesis test reject the null hypothesis that all the coefficients of the time-observation dummy variables are equal to zero. Therefore, time fixed-effects seem to matter and consequently they are included in the estimation procedure.

Table 3: Fixed effects estimates
Dependent variable is (log of) the number of new Twitter followers of the team

Variable	Coefficient	P-value	Driscoll-Kraay standard errors
(log of) ranking	-0.250	<0.001	0.053
winner_bbva	0.002	0.952	0.028
winner_ck	0.475	<0.001	0.090
winner_eur	0.575	0.001	0.170
final_ck	0.379	0.002	0.114
final_eur	0.358	0.012	0.136
(log of) stock of Twitter followers	-0.112	0.682	0.273
(log of) # of local fans	0.772	0.006	0.265
within R^2	0.628		

Note: Estimated coefficients for time fixed-effects are not reported for clarity and can be provided upon request.

Given the functional form chosen for the model specification where the dependent variable is in logs, the estimated coefficients (x100) of the dummy variables in Table 3 can be interpreted as short-term percentage effects on the dependent variable.

The results suggest that winning has a strong positive effect on the number of new Twitter followers, but only the case of winning in competitions based on qualifying rounds. Thus, to win a round in the Spanish King's Cup, and consequently, to go on in the tournament, leads to an increase of 47.5% in the number of new Twitter followers. Slightly higher numbers of new followers are attracted after wins in the UEFA Europa League,

perhaps explained in part by the European scope of this competition, which extends outside of Spain and involves a larger number of soccer fans. Earning a victory in the *Liga BBVA* (regular national championship) appears to have no statistically significant effect on recruiting new followers. However, the results suggest that the worse a team is ranked in the *Liga BBVA*, the lower is the number of Twitter users that start to follow the team. Reaching the final game in either the Spanish King's Cup or the UEFA Europa Legue provides an increase in followers of around 36-38%.

The results from the empirical analysis of Twitter followers suggest that there is a strong positive relationship between (sport) success and the number of new Twitter followers. As expected, the most successful teams have the highest rates of recruitment of new Twitter followers. This could be explained in terms of the increasing utility received by followers from their favorite team winnings, or even by Twitter users starting to follow the career of just-became popular soccer teams (perhaps due to their recent winnings). On the other hand, the number of previous followers seems not to influence the decision to follow a soccer team, whereas the number of each team's season ticket holders does. As expected, the higher the number of local fans, the higher the ability of teams to recruit new followers. This may provide some evidence on soccer fans being linked to their home-town team.

Overall, it seems that Twitter has somehow changed the traditional way of supporting a soccer team. This social networking service allows teams to keep a worldwide network of "virtual supporters" and it is transforming what it means to be a soccer fan. Thus, the number of Twitter followers matters to soccer teams, not only in terms of popularity and prestige, but also concerning soccer business. An increased number of followers leads to a business growth on the Internet catching the attention of those interested in soccer teams' products (merchandising) and services. In addition, by getting new followers teams easily involves fans in regular updates and information.

Even though other factors should also be taken into consideration when analyzing why someone starts to follow a soccer team, or any other sports, institutional or business Twitter account, it seems that, as in the case of other online services, users' satisfaction have a significantly positive impact on their loyalty (see Kim *et al*. 2008). Soccer teams, in particular, and sports organizations in general, should take this into account in order to have sustained success using twitter as a tool for recruiting new fans and generating a sense of "virtual belonging" towards them.

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