The Effect of Brazilian Soccer Club Infrastructure and Player Experience on Individual Player Success

Felipe P. Araújo[1], Karen C. Miller[1] and Christopher K. Manner[2]

Abstract

The aim of this study was to examine the effect of club infrastructure and player experience on success among Brazilian soccer players. To achieve this purpose, 15 players were selected from the top five Brazilian soccer clubs, based on the number of games played during the 2009 – 2011 seasons. From this sample of 225 observations, a multiple regression analysis was performed. Although the model explained a relatively small portion of the total variance, club infrastructure was found to have a statistically significant positive correlation with individual player success. Using these findings, coaches and club administrators can recognize the value of investing in training facilities, practice fields, and other forms of infrastructure as a means of improving player performance.

1. Introduction

Brazilian soccer players hone their skills in large, privately-owned clubs. These clubs invest a significant amount of resources to develop successful players. Anecdotal evidence suggests that the infrastructure of soccer clubs is an important factor in the development of successful players (*Corrêa, Alchieri, Duarte, &Strey, 2002*).

That is, players trained in clubs with modern, well-equipped facilities often have a better chance of professional success. However, the impact of infrastructure investment on individual player success has never been empirically tested.

---

[1] McAfee School of Business Administration, Union University, Jackson, TN.
[2] McAfee School of Business Administration, Union University, Jackson, TN.
Phone: (731) 661-5108, Email: cmanner@uu.edu

Therefore, the present study attempts to identify a relationship between the quality of soccer club facilities and the success players achieve in the Brazilian soccer league. The significance of this study lies in providing evidence for the value of investing in infrastructure as a means of developing better players. In addition, the impact of player experience on success will be investigated.

2. Literature Review

2.1. Success in Soccer

Soccer is one of the most popular sports worldwide and a broad literature has arisen on various aspects of the sport. Most of the relevant studies are based on the elite players in the sport (Mohr, Krustrup, &Bangsbo, 2005). With the increasing emphasis on talent development, there is a consensus among coaches and sport scientists that a comprehensive, sport-specific investigation would aid in more clearly defining the success factors in soccer (Vanderford, Meyers, Skelly, Sterwart, & Hamilton, 2004).

Successful soccer players must possess moderate to high aerobic and anaerobic power, have good agility, joint flexibility and muscular development, and be capable of generating high torques during fast movements (Reilly, Bangsdo, & Franks, 2000). However, soccer is a tactical, intellectual, team sport. An efficient organization of the team is required for the optimal development of players' abilities, control of opponents, and the successful resolution of a match. In addition to outperforming their opponents, successful players must collaborate with their teammates (Filgueira& Greco, 2008). A player with outstanding individual performance typically will not be considered successful unless his team is winning. As such, a soccer player's success should be seen not only as what the player has accomplished individually, but mainly as what his team accomplishes as a group.

2.2. Brazilian Soccer Club Infrastructure

Most elite Brazilian soccer clubs have training facilities that include a practice field, locker rooms, a gym, a dining hall, living quarters, medical equipment, and swimming pools. Generally, these soccer clubs are privately owned and operated. In some situations, the government owns stadiums, which clubs rent for their home games.

Marins and Paoli (2010) have identified four major components of club infrastructure. (1) Physical installations include the main training facility, auxiliary training facilities, administrative areas, support departments, and leisure areas. (2) Material resources are essentially the medical, nutritional, and physiotherapy facilities that are available. (3) Human resources are the coaches and clinical/administrative staff available. (4) Logistics involves access to the training centers and distance from key locations, such as the stadium or airport.

Previous research has shown that the quality of athletic facilities has a significant effect on player attitudes. For example, Pujals and Vieira (2002) found that poor club infrastructure may cause feelings of failure and pessimism in soccer players, leading to a lack of motivation. In the Unites States, the quality of athletic facilities is an important factor influencing high school athletes in their college choice (*Letawsky, Schneider, Pedersen, & Palmer, 2003*).

2.3. Player Experience

In addition to club infrastructure, the individual player's experience and background is likely to play a critical role in his success. Studies have shown that more experienced athletes exhibit higher levels of self-confidence (Lázaro, Casimiro, & Fernandes,2003). According to Filgueira and Greco (2008), novice players often become preoccupied with insignificant elements of the game, whereas more experienced players have better and faster decision-making skills.

3. Method

3.1. Sample

The data used in this study comes from the rosters of five division one Brazilian soccer clubs from 2009 to 2011. The clubs were chosen based on the average number of points received by the International Federation of Football History and Statistics (IFFHS. The IFFHS awards points based on the club's performance and the importance of each game during the sample period. In particular, for each tournament a set number of points is awarded to a team for winning (or tying) the game.

The 15 most active players from each club were selected. This limited the sample to only those players who would have contributed to their team's success. The final sample consisted of 225 observations.

3.2. Dependent Variable

The dependent variable for this study was the individual player's success (IPS). As noted earlier, because of the collaborative nature of soccer, individual success is only important to the extent it generates team success. Therefore, IPS was measured by the total number of points the player's team received from the IFFHS divided by the number of games the team played during the season. In order to individualize the measure, this ratio was then multiplied by the number of games played by the individual. In equation form:

$$IPS = \frac{IFFHS\ Points}{\#\ of\ Games\ Played\ by\ Team\ in\ a\ Season} \times \#\ of\ Games\ Played\ by\ Individual.$$

Team points were collected from the IFFHS website, which posts monthly rankings of the best soccer clubs in the world (Futebol, 2009; Futebol, 2010; Futebol, 2011). This ranking is based on the club's results from the previous 12 months. For the measure of IPS, this study used the points given by the IFFHA during the 2009 to 2011 seasons.

3.3. Independent Variables

Experience was measured as the number of years the individual has played professional soccer. This data was collected by the Brazilian Soccer League and was posted on the clubs' official websites.

Marins and Paoli (2010) assigned an infrastructure rating to the 20 division one Brazilian soccer clubs. This rating was based on the four factors previously discussed and distributed as follows: facilities (50%), material resources (20%), human resources (20%), and logistics (10%). Although this ranking was developed based on 2010 data, it should be a fairly stable measure of infrastructure. Less than 20 percent of the ranking is based on human resources, which are subject to short-run change.

4. Results

4.1. Descriptive Statistics

The mean age of the sample was 26.71 years with a standard deviation of 4.47 and a range of 17-39. Players in the study had an average of 7.79 years of professional experience and played over 60% of the games. The five clubs analyzed in the study scored an average of 166.8 IFFHS points in the 2009-2011 seasons, resulting in an average IPS of 101.54 points per player. The Marins and Paoli (2010) infrastructure ratings for the clubs used in the study averaged 3210 points. Table 1 shows the means, standard deviations, and correlations for the study variables.

Table 1. Descriptive Statistics and Correlations (N=225)					
Variable	Mean	Std. Dev.	IPS	Experience	Infrastructure
IPS	101.54	40.81	1		
Experience	7.79	4.46	.037	1	
Infrastructure	3210	209.28	.220*	.061	1

Note: *$p <$ .01

The correlation coefficient for IPS and Infrastructure is 0.22, which is only moderately strong. However, it is positive and statistically significant, which supports the notion that better infrastructure leads to more successful players.

4.2. Regression Analysis

Ordinary least squares regression was used to further assess the influence of player experience and club infrastructure on IPS. These results are presented in Table 2. The independent variables predicted 4% of the variance in IPS [$F(2, 222) = 5.687$, $p <$ .01)]. Although player experience is positively associated with success, it is not statistically significant. However, the regression analysis indicates that club infrastructure is a significant predictor of player success. Better infrastructure is positively associated with improved player performance.

Table 2. Results of Multiple Regression Analysis with Experience and Infrastructure Predicting Player Success	
Independent Variables	Standardized Regression Coefficient
Experience	.023
Infrastructure	.218*
Adjusted R^2 = .040	

Note: *p< .01

5. Discussion

This study indicates that better soccer club infrastructure has a positive impact on the individual player's professional success. Even though the regression model only explains 4% of the variation in player success, these results are meaningful given the highly complex nature of athletic performance. These findings suggest that soccer player performance can be enhanced by investing in modern training facilities, conditioning and clinical structures, and coaching/training staff. Coaches, club managers, and club administrators can justify requests for additions and improvements in club infrastructure.

Surprisingly, player experience was not found to be a significant predictor of player success. This could be due to the fact that the study focused only on the elite Brazilian soccer players. It is possible that talent compensates for a lack of experience. Alternatively, more experienced athletes may have more injuries, thus negating the effect of experience on success.

Obviously, there are many factors that influence the success or failure of professional soccer players, such as physiology, injuries and level of compensation. Future research might extend the current work by analyzing these and other factors that impact player success.

Due to data constraints, the current study focused on the infrastructure available during an adult player's professional career. As more data becomes available, researchers should examine the effect of youth league infrastructure on professional success. Also, a larger sample size that includes players who compete in the lower divisions may be beneficial. But these are tasks for the future.

References

Corrêa, D., Alchieri, J., Duarte, L., &Strey, M. (2002).Excelência na Produtividade: A Performance dos Jogadores de Futebol Profissional. Psicologia: Reflexao e Critica, 15(2), 447-460.

Filgueira, F.M. & Greco, P.J. (2008). Soccer: a study on the development of tactic capacity in the process of teaching-learning-training. Revista Brasileira de Futebol. 01(2), 53-65.

Futebol 365: IFFHS Brazilian Club Ranking – December 2009. Retrieved December 11, 2013, fromhttp://www.futebol365.pt/rankings/iffhs/default.asp?pais=Brasil&mes=12&ano=2009.

Futebol 365: IFFHS Brazilian Club Ranking – December 2010.Retrieved December 11, 2013 from http://www.futebol365.pt/rankings/iffhs/default.asp?pais=Brasil&mes=12&ano=2010.

Futebol 365: IFFHS Brazilian Club Ranking – December 2011. Retrieved December 11, 2013 from http://www.futebol365.pt/rankings/iffhs/default.asp?pais=Brasil&mes=12&ano=2011.

Lázaro, J.P.O., Casimiro, E.S.O., & Fernandes, H.M.G. (2005). Determinação do perfil psicológico de prestação do jogador de andebol português: Diferenças entre a liga e a elite, as várias posições de campo, a idade e anos de experiência. Psicologia.pt. Retrieved from http://www.psicologia.pt/artigos/textos/A0269.pdf.

Letawsky, N.R., Schneider, R.G., Pedersen, P.M., &Palmer, C.J. (2003).Factors influencing the college selection process of student-athletes: are their factors similar to non-athletes. College Student Journal.37(4), 604-610.

Marins, J.C.B. & Paoli, P.B. (2010).Avaliação dos CTs das Equipes de Futebol de 1º Divisão do Brasil – Elaboração do Instrumento de Pesquisa. Viçosa: Universidade Federal de Viçosa.

Mohr, M., Krustrup, P. and Bangsbo, J.(2005).Fatigue in soccer: A brief review.Journal of Sports Sciences, 23, 593-599.

Pujals, C. & Vieira, L.F. (2002).Analysis of psychological factors which interfere in soccer athletes.Revista da Educação Física. 13(1), 89-97.

Reilly, T., Bangsdo, J., and Franks, A. (2000).Anthropometric and physiological predispositions for elite soccer.Journal of Sports Sciences, 18, 669-683.

Vanderford, M. L., Meyers, M. C., Skelly, W. A., Sterwart, C. C. and Hamilton, K. L. (2004). Physiological and sport-specific skill response of Olympic youth soccer athletes. Journal of Strength and Conditioning Research, 18, 334-342.