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# TV demand for the Italian Serie A: star power or competitive intensity?

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## Abstract

This article investigates the determinants of television audience for Italian Serie A football matches between 2012/13 - 2014/15 seasons (n=1079) using the AUDIBALL dataset. Specifically, we investigate the role of competitive intensity (CI) on TV demand by adapting a measure to incorporate both home and away teams competing for different prizes. Although we find significant positive impacts for all our CI indicators, our conclusion differs from previous work as the coefficients are small. Additionally, our results indicate a significant negative impact of uncertainty-of-outcome, supporting the "David vs Goliath" effect. Finally, our results show a significant positive impact from star quality suggesting Serie A should focus on star quality rather than competitive intensity.

**TV demand for the Italian Serie A: star power or competitive intensity?**

## 1. Introduction

The determinants of stadium attendance for professional team sports have dominated sport economic literature for decades, especially within association football (herein football, Allan 2004; Bird 1982; Falter & Perignon 2000; García & Rodríguez, 2002; Pawlowski & Anders 2012; Pawlowski & Nalbantis 2015; Simmons 1996). Generally, the determinants of TV audience have been seldom researched in comparison to live (or gate) demand, yet there is a growing interest (Alavy, Gaskell, Leach & Szymanski, 2010; Caruso, Addesa and Di Domizio 2019; Forrest, Simmons & Buraimo, 2005; Humphreys & Pérez, 2019; Wang, Goossens, & Vandebroek 2016). The current literature investigating factors impacting on TV demand has produced often-conflicting results. For example, Cox (2015) identified that for the English Premier League (EPL) uncertainty of outcome (UOH) influenced TV demand, but not live demand, whereas Buraimo and Simmons (2015) found that star quality was a very significant determinant, and UOH only affected EPL TV demand for the first two seasons of analysis. Moreover, Schreyer, Schmidt, and Torgler (2016) found differences between competitions showing that UOH influenced TV demand for the Bundesliga but not for the German Cup fixtures.

Adapting Buraimo and Simmons' (2015) model, Scelles (2017) investigated how competitive intensity (CI) impacted TV audience demand for the EPL. CI is a concept developed by Kringstad and Gerrard (2005) to take into account the multi-prize structure of sports leagues. Furthermore, it posits that a higher number of teams in contention for a prize corresponds to a more interesting competition, potentially attracting higher demand. For example, within European football, there are four prizes available; the championship (title); Champions League qualification; Europa League qualification; and the relegation battle. While Scelles (2017) found a significant positive impact for championship intensity and Champions League intensity, they concluded star quality was the most influential factor to TV demand for the EPL. Similarly, Caruso, Addesa, and Di Domizio (2017) found star quality to be an integral influencer to Serie A TV Demand, which is often the case with the demand for sport (Buraimo 2008; Hausman & Leonard 1997; Hunt, Bristol, & Bashaw 1999; Kuypers 1996; Tainsky 2010).

In this paper, inspired by the work of Scelles (2017) and Scelles et al. (2013a, 2013b, 2016), we further investigate the role of CI and aim to verify whether Caruso, Addesa, and Di Domizio (2017) findings in relation to the impact of star quality on TV demand for Italian Serie A still hold when accounting for CI. However, Scelles (2017) indicators of CI only account for teams fighting for the same prize and do not allow home and away teams to have alternative prizes, such as a home team competing for Champions League qualification and an away team fighting relegation. Arguably, the CI for such fixtures may be as high, if not higher, than two teams fighting for the same prize. Accordingly, we adapt Scelles' (2017) CI indicators to take into account that a game may involve two teams competing for different prizes.

## *2.* **Model**

Using the dataset AUDIBALL developed by Caruso and Di Domizio (2015), 1079 Serie A games across three seasons, from 2012/13 to 2014/15, were analysed, and the log TV audience (*audience*), measured by the total number of people watching a match on Sky channels, was used as the dependent variable in the following demand model inspired by Buraimo and Simmons (2015) and Scelles (2017):

$$\ln(audience) = \beta_0 + \beta_1 wages + \beta_2 points + \beta_3 substitutes + \beta_4 fans + \beta_5 fixture + \beta_6 fixture^2 + \beta_7 derby + \beta_8 workingday + \beta_9 outcomeuncertainty + \beta_{10} skyplus + \beta_{11} scudetto + \beta_{12} champions + \beta_{13} champions_{playoff} + \beta_{14} europa + \beta_{15} europa_{playoff} + \beta_{16} topbottom + \beta_{17} relegation + \beta_{18} nofight + \beta_{19} 2012 + \beta_{20} 2013 + \beta_{21} 2014 \qquad (1)$$

where *wages* is the product of the two teams' relative wages as a proxy for star quality. While using aggregate wages as a measure of star quality has limitations, namely accurate measure of superstar players, it is well established in the literature as an effective proxy (Bond & Addesa, 2019; Buraimo & Simmons, 2015; Caruso, Addesa & Di Domizio; 2019; Falter & Pérignon, 2000; Forrest, Simmons & Buraimo, 2005; García & Rodríguez, 2002), as Hall, Szymanski and Zimbalist (2002) demonstrated a strong correlation between performance and wage bill. *points* is the weighted sum of the two teams' average seasonal points up to the match under investigation and of the two teams' average seasonal points in the previous season (Dang, Booth, Brooks, & Schnytzer, 2015). *substitutes* the number of matches played at the same time as the match under investigation, *fans* the sum of the two teams' overall fans across the whole Italian territory estimated by www.tifosobilanciato.it as a proxy for potential audience, *fixture* the progressive number of matches in each season, included also in quadratic form (Pawlowski & Anders 2012) to verify whether there is a nonlinear relationship with the audience, *derby* a dummy equal to 1 if the match involved two local rivals and 0 otherwise, *workingday* a dummy equal to 1 if a match is played on a weekday and 0 otherwise, *outcomeuncertainty* the absolute difference between the home and the away team's win probabilities derived from *BET365* odds, *skyplus* a dummy equal to 1 if a match is broadcast both by SkyCalcio and by SkySport and 0 otherwise[1], *2012*, *2013* and *2014* dummies introduced to isolate potential seasonal fixed effects[2], and the eight variables related to CI are ordinal variables inspired by Scelles et al. (2016)[3] aiming to take into account that the two teams can fight for different prizes. Therefore, for example, the variable *scudetto* takes the following values:

- 0 if home team does not fight for the title
- 1 if home team fights for the title and away team is not in contention for any prize

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[1] In the period under investigation Sky differentiated its proposal into two packages; the first, and more expensive, SkyCalcio, gave subscribers the opportunity to watch live all the matches played in Serie A; the second, SkySport, only broadcast matches played in advance/postponed, and two or three self-selected matches played on the traditional Sunday evening date. Consequently, games also broadcast by SkySport potentially reached a larger number of fans.

[2] Omitted for simplicity from Table 1.

[3] All the prizes are mutually exclusive as suggested again by Scelles et al. (2016) findings.

- 2 if home team fights for the title and away team fights to avoid relegation (18th, 19th and 20th place)
- 3 if home team fights for the title and away team fights for sporting prizes both at the top and the bottom of the standing
- 4 if home team fights for the title and away team fights for Europa League playoffs (6th place)
- 5 if home team fights for the title and away team fights for Europa League (4th and 5th place)
- 6 if home team fights for the title and away team fights for Champions League playoffs (3rd place)
- 7 if home team fights for the title and away team fights for Champions League playoffs (2nd place)
- 8 if both teams are fighting for the title.

The same method was also applied to the other variables. In order to account for matches where the home team is not in contention for any prize, the variable *nofight* was created, but in this case the order is the opposite (i.e. 1 if the away team fights for the title, 8 if also the away team is not in contention for any prize) and, consequently, a negative sign is expected.

**Table i. OLS model of ln (TV audience) in the Italian Serie A**

|  | (1) | (2) | (3) |
|---|---|---|---|
| wages | 0.171$^{***}$ | 0.153$^{***}$ | 0.158$^{***}$ |
|  | (0.039) | (0.040) | (0.040) |
| points | 0.114 | 0.069 | 0.051 |
|  | (0.139) | (0.142) | (0.148) |
| substitutes | -0.550$^{***}$ | -0.553$^{***}$ | -0.547$^{***}$ |
|  | (0.028) | (0.028) | (0.028) |
| fans | 0.579$^{***}$ | 0.586$^{***}$ | 0.580$^{***}$ |
|  | (0.032) | (0.033) | (0.032) |
| fixture | 0.033$^{***}$ | 0.022$^{***}$ | 0.016$^{*}$ |
|  | (0.009) | (0.008) | (0.009) |
| fixture$^2$ | -0.001$^{***}$ | -0.001$^{***}$ | -0.000$^{**}$ |
|  | (0.000) | (0.000) | (0.000) |
| derby | 0.226$^{***}$ | 0.216$^{***}$ | 0.220$^{***}$ |
|  | (0.076) | (0.077) | (0.078) |
| workingday | 0.083$^{*}$ | 0.081$^{*}$ | 0.079$^{*}$ |
|  | (0.045) | (0.045) | (0.046) |
| outcomeuncertainty | 0.204$^{*}$ | 0.246$^{**}$ | 0.264$^{**}$ |
|  | (0.120) | (0.121) | (0.122) |
| skyplus | 0.747$^{***}$ | 0.743$^{***}$ | 0.742$^{***}$ |

|  |  |  |  |
|---|---|---|---|
|  | (0.047) | (0.046) | (0.047) |
| scudetto | 0.016 | 0.029$^{**}$ | 0.038$^{***}$ |
|  | (0.017) | (0.013) | (0.013) |
| champions | 0.019 | 0.033$^{**}$ | 0.038$^{***}$ |
|  | (0.013) | (0.015) | (0.011) |
| champions$_{playoff}$ | 0.024 | 0.033$^{***}$ | 0.034$^{**}$ |
|  | (0.017) | (0.013) | (0.014) |
| europa | 0.022$^{*}$ | 0.028$^{***}$ | 0.021$^{**}$ |
|  | (0.013) | (0.010) | (0.010) |
| europa$_{playoff}$ | 0.003 | -0.008 | 0.009 |
|  | (0.018) | (0.017) | (0.017) |
| topbottom | 0.053$^{***}$ | 0.041$^{***}$ | 0.038$^{***}$ |
|  | (0.017) | (0.014) | (0.014) |
| relegation | 0.018 | 0.026$^{***}$ | 0.036$^{***}$ |
|  | (0.012) | (0.009) | (0.008) |
| nofight | -0.008 | -0.014 | -0.032$^{***}$ |
|  | (0.007) | (0.009) | (0.012) |
| cons | 4.089$^{***}$ | 4.048$^{***}$ | 3.917$^{***}$ |
|  | (0.463) | (0.466) | (0.470) |
| N | 1079 | 1079 | 1049 |
| Adj $R^2$ | 0.863 | 0.864 | 0.867 |
| White test | 0.000 | 0.000 | 0.000 |

Robust standard errors in parentheses
$^{*}$ $p < 0.10$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$

### *3. Results*

Table 1 shows the results of the OLS estimations[4]. The intensity variables have been calculated for three different temporal horizons accounting for possible changes in the standing as a consequence of the next, second or third game[5], and consequently, three different specifications have been estimated (Scelles et al., 2016). The temporal horizons determine the

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[4] Unlike Scelles (2017) and Buraimo and Simmons (2015), the Heckman selection model was not tested on the basis that all Serie A games are broadcast in Italy, removing any broadcaster selection bias.

[5]. We have considered games from the third fixture for the first two temporal horizons, and from the fourth fixture for the third temporal horizon. One game (Cagliari Roma, season 2012-13) was cancelled after Cagliari's president urges supporters to ignore authorities on fan ban, so that the first two specifications contain 1079 observations, the third specification only 1049 observations.
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maximum point difference/number of matches relevant to consider competitive intensity: for example, in the first temporal horizon, a team is considered in contention for a prize if there is a gap of no more of three points. In specification (1) only *topbottom* is significant among the intensity variables, whereas all except for *europa*$_{playoff}$ and *nofight* are significant in specification (2), and also *nofight* in specification (3). Coefficients are positive as expected, which indicates that games, where the away team is battling for a prize at the top of the standing, are on average more viewed.

Moreover, there is not a substantial difference between the coefficients for *scudetto*, *champions* and *champions*$_{playoff}$ and the coefficients for *topbottom* and *relegation*. This demonstrates the number of spectators increases when both teams are in contention as well as when the away team is battling for a prize at the top of the standing – regardless of the prize the home team is competing for. The variable *wages* is significant in all specifications, corroborating Scelles (2017) and Caruso et al. (2017), whereas *outcomeuncertainty* coefficients are positively significant in specifications (2) and (3), demonstrating a negative relationship between OUH and demand, consistent with Caruso, Addesa and Di Domizio (2019).

## *4. Conclusion*

We demonstrate that star quality has a regular positive impact on the TV audience of the Italian Serie A games, supporting Buraimo and Simmons (2015), Caruso et al. (2019) and Scelles (2017) findings. This result is reinforced by the negative relationship between outcome uncertainty and TV spectators, which hints towards the so-called "David vs Goliath" effect (Buraimo and Simmons, 2009) – football fans would rather watch games where big clubs compete against small clubs, supporting the most talented club or hoping for an upset, than games involving two small or medium clubs with similar strength.

Furthermore, the positive coefficients of all the new CI variables demonstrate that the number of Italian spectators increases in games where both teams are in contention and at least one team is battling for a prize at the top of the standing. Our result differs from Scelles (2017), where only the games involving both teams in contention for the title or the Champions league entry turned out to have a significant positive impact on the TV audience – meaning overall competitiveness is key to league success. Contrastingly, this research suggests that the Italian League should not necessarily aim to ensure an overall competitive balance – where most of the clubs are in contention for the Scudetto or the Champions league entry – but a competition where all clubs are in contention for one of the prizes regardless of their importance. For example, it is not necessary to adopt more equal TV revenue sharing – which on the one hand would reduce the financial gap between big and small clubs, but on the other could push opposing big clubs to consider the creation of a European Super League (Scelles, 2017). As long as there is an allocation balance among the clubs with similar revenue generation and similar sporting goals, would ensure that most of the clubs are battling for a prize until the end of the season.

Additionally, the coefficients of the CI variables are small and significantly lower than the star quality coefficients. Therefore, we conclude that the main policy concern of the Italian Serie A should still be to increase the revenue of all the affiliated clubs in order to attract more star players – like the recent move of Cristiano Ronaldo to Juventus – and, ultimately, the success of the league. For example, at the end of the 2016-17 season, the revenue gap between the Italian clubs (2.1 billion euros) and the Premier League clubs (5.3 billion euros) was still very significant in all three different revenue sources (commercial, broadcasting and match-

day; Deloitte, 2018). Therefore, it is essential for the Italian Serie A management to identify effective policies to increase the income generation that can be then reinvested in the purchase of star players, and ultimately ensure the viability and sustainability of the league.

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