

# The Demand for Greek Professional Football

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## Abstract

### Research Question / Aim of Paper

Football remains the most popular spectator sport in Greece. Nevertheless capacity usage in season 2005/06 was only 32.3%, leaving 3 million Super League tickets unsold. At the core of the theory of demand is a rational, utility maximizing, income constrained consumer. While this individual doesn't actually exist, sport supporters periodically adjust the portion of disposable income and leisure time they spend on a sport because of various reasons, seeking to maximize their utility. Due to lack of existing research, the aim of this paper is to investigate the demand for professional football in Greece based on data of 26 teams of Division A'and B', from season 1991/92 to 2006/07. Both economic and sporting determinants of attendance are examined, as well as the impact of the EURO 2004 Championship victory and the effect of the new stadia constructed or renovated for the 2004 Olympics, subsequently used by football clubs.

### Theoretical Background

Studies on professional team sports demand are numerous and date back to 1974. Cairns [5], Downward & Dawson [7] and Borland & Macdonald [4] provide extended surveys as a means of understanding the determinants of demand. These are summarized in table 1.

Sporting determinants	Economic determinants	Other determinants	
Uncertainty of outcome	<u>Income</u>	Weather	Distance between
Quality of team	Price	Culture/Tradition	teams
<u>Success</u>	Unemployment	<u>Loyalty</u>	Day of fixture
<u>Entertainment</u>	Market size	Distance	<u>League size</u>
<u>Promotion/Relegation</u>	Transport costs	Weather	<u>Mega events</u>
		Live TV broadcast	Substitutes

Table 1. Determinants of Sports Demand

As intuitively expected, market size, quality of team, success (measured by league position), promotion, culture and tradition all positively affect attendance. Price and income are identified as weak influences on demand, unless longer time horizons are adopted [6] [10]. Matches with championship significance attract significantly higher attendances, though not the traditional notion of match-level uncertainty of outcome [7]. Live transmissions have a negative effect on demand, but the payment of TV rights compensates for the loss of ticket revenue [2]. Recent studies suggest that winning is necessary if a team wishes to attract fans, implying a shift from loyalty to satisfaction of winning and verify the positive effect of overwhelming joy following a victory in an important sporting event [8] [9].

#### Methodology / Research Design / Data Analysis

In order to acquire an idea of attendances, figure 1 presents attendance per game for Division A during the period 1959/60-2006/07.

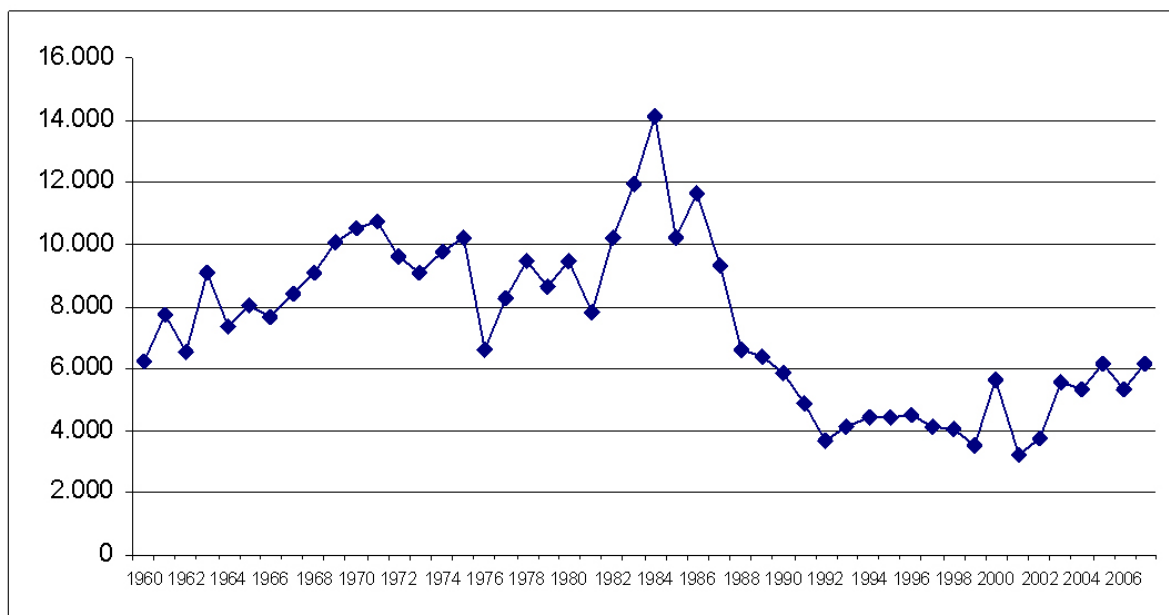


Figure 1

To model attendance we apply a linear dynamic panel-data model [3] [11] that includes one lag of the dependent variable (attendance) as a covariate and contains unobserved fixed panel-level effects. By construction, the unobserved panel-level effects are correlated with the lagged dependent variables, making standard estimators inconsistent. For this reason, we use the Arellano and Bond [1] approach that derives a consistent generalized method-of-moments (GMM) estimator for the parameters of this model.

The full specification of the applied model is demonstrated below:

#### The adopted model

$$y_{i,t} = u_i + 0.1927^a y_{i,t-1} - 0.0646^a l_{i,t} + 0.0000102 l_{i,t-1} - 0.1827557 v_{i,t} - 0.3960^a p_{i,t} \\ + 0.1905^c g_{i,t} + 0.2876^c gdp_t + 0.1637^b e_{i,t} + 0.6826^a ol_{i,t} + 0.1941^b pr_{i,t-1} \\ - 0.4075^a r_{i,t-1} - 0.2877^a leag_{i,t} + \varepsilon_{i,t}$$

$$obs = 302 \quad R^2 \approx 0.73$$

Notes: <sup>a</sup> = significantly different from zero, two tail, 1% level, <sup>b</sup> = 5%, <sup>c</sup> = 10%.

where, the subscripts  $i$  and  $t$  denote club and time respectively,  $y_{i,t}$  is the natural logarithm of the average attendance,  $u_i$  is the fixed effect for each team,  $l_{i,t}$  is the team  $i$ 's finishing position,  $v_{i,t}$  is victories per games,  $p_{i,t}$  is the natural logarithm of team  $i$ 's average admission price (deflated by CPI) in season  $t$ ,  $g_{i,t}$  is team  $i$ 's average goals per game,  $gdp_t$  is the natural logarithm of the GDP per capita (in current prices) at year  $t$ ,  $e_{i,t}$  is a dummy variable for EURO 2004 (1 for 2004/05 and 2005/06, 0 otherwise),  $ol_{i,t}$  is a dummy variable (1 for teams that played in an Olympic venue, 0 otherwise),  $pr_{i,t-1}$  is promotion,  $r_{i,t-1}$  is relegation,  $leag_{i,t}$  is league size,  $\varepsilon_{i,t}$  is the error term. As far as the overall fit of the model is concerned, the Wald  $X^2$  test indicates that the explanatory variables are significant, and the overall  $R^2$ , [11] which corresponds to the usual  $R^2$  of OLS regression, is 0.73. Based on these results, the above model seems to be a good description of our data.

#### Results / Discussion / Implications

Results indicate a low price elasticity, which is consistent with previous studies of professional sports, and a positive income elasticity, suggesting that Greek football is a normal good. Loyalty and success are the strongest determinants of demand, in contrast to winning and entertainment. The EURO 2004 Championship victory significantly affected attendance as did playing in a new or renovated stadium. Relegation and a smaller league cause reductions in attendance. Future research must include more observations, and as season data cannot be found before 1991/92, we will investigate recent match attendances.

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