DECISION TAKING WITH EXTERNAL PRESSURE: EVIDENCE ON FOOTBALL MANAGER DISMISSALS IN ARGENTINA AND THEIR CONSEQUENCES

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DECISION TAKING WITH EXTERNAL PRESSURE: EVIDENCE ON FOOTBALL MANAGER DISMISSALS IN ARGENTINA AND THEIR CONSEQUENCES

by

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Abstract

The paper focuses on the scapegoat hypothesis in the context of the dismissal of managers of football clubs. It captures the role of external pressure from stakeholders, such as fans of the team, in a principal-agent model which shows the potential for decisions to be irrational in the sense that dismissals may actually worsen team performance. It tests for such negative effects by studying twenty years of match results in Argentina, where differences from Europe in the design of the league competition are associated with much higher frequency of dismissal of managers. It detects a tendency for a change of manager to be followed by deterioration in team performance, with adverse effects concentrated in results of matches played away.

**key words:** football; managerial change; scapegoat hypothesis; ordered probit; home advantage
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1. Introduction
In the last decade, a strand of literature has emerged to test whether dismissals of football managers (described as head coaches in some countries) tend to be successful in terms of their leading to improvements in team performance. This literature is of obvious relevance to the football industry and of obvious interest to its fans. But it also provides insight into the more general question of whether changing leadership in a failing enterprise is typically a timely response to poor performance indicators or, alternatively, evidence of panic where stakeholders must be appeased by providing them with a ‘scapegoat’ even though the departure of the current leadership may actually worsen, rather than improve, prospects of a recovery. The ‘scapegoat hypothesis’ proposes that the latter scenario is a common one and predicts that dismissals of chief executive officers will frequently be irrational and will therefore fail to achieve the supposed objectives, or even have perverse consequences for the enterprise.

Football offers a cleaner environment than conventional businesses in which to test the scapegoat hypothesis. In contrast to dismissals of chief executive officers in ordinary firms, there is usually little ambiguity over what constitutes success (league points) and little doubt concerning the time frame over which it is to be defined (the end of the season, when rankings determine issues such as relegation and qualification for international competition). Thus, firms typically only offer measures of performance on yearly basis. Moreover, it is not clear whether measures of performance presented in the annual account are the relevant ones. For example, profit could be easily altered by arbitrary decisions on how to assign the depreciation of investment each year. Financial measures such as the value of the firm in the stock marked could be affected by bubbles instead of fundamental variables. In this context, football constitutes a fruitful ground for this type of analysis as the objective function of the teams is clearly defined (winning matches) and we can observe results for each match before and after any managerial change.

Accordingly, Dobson and Goddard (2001, chapter 6.8), Koning (2003) and Tena and Forrest (2007), for England, The Netherlands and Spain respectively, modelled match results, including as explanatory variables information on whether there had been recent managerial change at either of the clubs in a fixture. Koning found a positive effect from changing the coach in only one of the five seasons he studied. Dobson and Goddard reported a weak negative impact. Evidence in each case, was broadly consistent with the scapegoat hypothesis. Koning concluded that “firing a coach occurs too often. Since it is not clear that the results on the field improve after a change of coach, it is likely that the board of a team intervenes for other reasons. It is likely that fan and media pressure are also strong determinants”. Similarly, Dobson and Goddard associated scapegoating with the need to placate “disgruntled fans”.

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1 We thank an anonymous referee for helpful comments. We also acknowledge research assistance from Francisco Martinez and Carlos Díez. For help with information on dismissals of coaches in Argentina, we are indebted to Juan Manuel Trenado from the Argentine newspaper La Nación and Sergio Dario Domínguez from Circulo de Periodistas Deportivos de Buenos Aires.
For Spain, Tena and Forrest followed closely the methodology applied to England by Dobson and Goddard. However, they introduced the innovation of distinguishing between impacts on home and away results. They found no significant effect from changing coach on results in remaining away matches within the season. However, there was a small but statistically robust improvement in results in home fixtures. Their interpretation of these findings provided a twist peculiar to sports to the story behind the scapegoat hypothesis. They contended that the failure of away results to exhibit improvement was consistent with a new manager being unable to effect technical improvements in the team. Therefore, a better home record following a dismissal could plausibly be attributed to fan input: the old manager may have been a scapegoat in the sense that he was not to blame for poor results; but offering fans the scapegoat may have rekindled their enthusiasm. It is a familiar feature in the home advantage literature that enthusiasm of supporters in the stadium helps the home team win.

These European studies all tend to support the notion that scapegoating plays some role in accounting for high levels of termination of managerial appointments in football. The present paper seeks to take the literature forward in two main respects. First, it offers a theoretical framework, in the form of a principal-agent model, to help understand why a decision taker in a club might make a seemingly irrational decision to dismiss a manager and through what mechanism this might actually induce deterioration in team performance. Second, it extends the availability of relevant evidence outside Europe for the first time, employing a very large data set from one of the world’s soccer super powers, Argentina. The setting is particularly interesting because of a very high rate of attrition for managers compared with Europe.

In the studies cited for England, The Netherlands and Spain, the number of within season terminations in the top division averaged between 5.6 and 6.7 per season. Our empirical analysis for the similarly sized Argentine top division is based on 489 within-season separations over twenty years, an average of 24.4 per season. The extraordinary degree of turnover relative to Europe is certainly suggestive that there may have been an ‘excessive’ propensity to dismiss managers and that the scapegoat hypothesis might find empirical support from appropriate data analysis.

The greater incidence of managerial change may plausibly be related to the distinct way in which Argentina organises its competition. The season follows a pattern familiar in Europe, opening in August and running, with a January break, until June. But, unlike Europe, there are two league championships within this period: the “Apertura” (opening) tournament takes place between August and December, while the “Clasura” (closing) tournament occupies the second half of the season. Thus there are two sets of final league standings each year and two champions (sometimes the same club, of course).

Relegation is also differently arranged than in Europe. The bottom two clubs in June are demoted automatically to Liga Nacional B, to be replaced by the top two from that division (the 17th and 18th placed clubs in A take part in play-offs with the 3rd and 4th

2 Within each competition, each club plays each other club once.
placed teams from B to determine the last place in the top league). But, since 1983, this relegation has been determined not by rank according to current season points but rather by points per game measured over a period of three seasons. Presumably this is a device intended to be protective of major clubs whose resources would make it unlikely that they would be ranked near the bottom over a period as long as three years.

The presence of two competitions in the season provides extra opportunities for clubs to finish in a disappointing position in the standings. Moreover, noise in results will play a larger role in a short competition, and this will produce more frequent incidence of teams finishing lower ranked than the money spent on players would indicate they should. Combined, these factors appear likely to create more occasions when fans and the media express disillusion with the way in which a club is managed. And overlaid on this is that there will be some additional clubs whose current performance is reasonable but whose fans still have cause for concern because results in earlier seasons had been inadequate to prevent their now being near the relegation zone. The whole structure of competition appears unusually conducive to managers being at risk of pressure against them from discontented ‘supporters’.

In Section 2, we present a principal-agent model that follows through potential consequences of fan pressure. Section 3 describes data employed in our empirical work and draws inferences from them regarding typical circumstances in which dismissals occur in Argentina. In Section 4, we show how we derived an index to capture the drawing power of a club. This index is an input into our model to represent the generation of match results and the influence of managerial turnover. Estimates, based on 7,000 observations, are presented in Section 5. Conclusions appear in Section 6.

2. A simple principal agent model

We develop here a simple principal agent model in order to analyse the main issues concerning the decision, possibly taken in the presence of external pressure, whether or not to dismiss the manager and how this decision impacts on the performance of the football team. The main purpose is to understand circumstances where a manager might be dismissed even where the decision taker does not expect his replacement to deliver improved team performance. Team performance is defined by its level of achievement relative to what would be expected given the club’s resources.

There are two players in the game. The chairman, who is the principal, hires and fires the manager (who is the agent). As is typical in this sort of model, the effort of the coach cannot be observed; but it is possible to observe the performance of the team and the experience of the coach. We denote these two features by \( y \) and \( z \) respectively.

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3 Only points earned in the current division count. Thus, for a newly promoted club, which had spent at least two seasons in Liga B, only current season performance would contribute to the points per game calculation. For other clubs, either two or three years’ data would contribute, depending on whether it had been present in Liga A throughout.
The utility of the principal depends on the performance of the team (as defined above), which is influenced by the manager, but also on pressure, denoted by $\theta$, that here does not depend on manager activity. For example, $\theta$, given institutional arrangements in Argentina, might reflect a threat of relegation attributable to the failings of a previous manager or team performance in previous years or a combination of both.

We also assume that there is a financial cost, $C$, associated with firing a manager before the completion of his contract.

The utility function of the principal is given by

$$U^p = u(y, \theta) - C. \quad (1)$$

It is assumed that the utility function of the chairman depends positively on $y$ and negatively on $\theta$ ($\partial U^p / \partial y > 0$, $\partial U^p / \partial \theta < 0$).

The principal can affect his own level of utility only through a decision on whether or not to fire the coach. This is realistic as other decisions, such as changing the players in the squad or other features of the team, are rarely options during the season and so changing the manager is the only instrument available to the principal in the short run.

The manager, on the other hand, can positively affect the performance of the team with his effort and skill, denoted by $s$ and $e$ respectively. However, team performance is also influenced by a stochastic term, $\alpha$, which is not under his control. Thus, we can represent the performance of the team by:

$$y = f(s, e, \alpha). \quad (2)$$

We also suppose that effort $e$ produces disutility for the coach, given by the function $d(e)$. In addition, the threat of being sacked generates disutility for the coach who can, however, affect the probability of this occurring by modifying his level of effort.

Here, we take into account all these factors by expressing the manager’s utility function as:

$$U^m = f(s, e, \alpha) - d(e) - \varphi, \quad (3)$$

where $\varphi$ is the probability of being fired by the chairman.

We assume that principal and agent play a game in two stages. In the first stage the manager sets his level of effort and produces a level of performance, $y$. Then, in the

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4 In our model, the principal is the chairman and the manager the agent. This will be shown to yield inefficiency in decisions; but there may be a second layer of principal-agent issues if the chairman himself is regarded as an agent of an abstraction known as the club. The chairman would then be represented as taking decisions which satisfy his own interests, where he feels external pressure, whereas his principal’s interests would be served by his being swayed only by team performance.
second stage, the principal observes the performance and decides whether or not to fire the manager.

This game can be solved by backward induction. We first analyse the decision of the principal. He has to decide whether to continue with the same manager or to sack him. The utility of not changing manager is $u(y, 0)$ whereas if he changes manager, he appeases supporters and so eliminates the external pressure; but he incurs a financial cost, $C$. Thus, the utility of changing manager is:

$$u(y, 0) - C \quad (4)$$

Thus, the manager will continue if the following condition is fulfilled:

$$u(y, 0) \geq u(y, 0) - C \quad (5)$$

In order to derive the solution of (5) we consider two cases. The first case is when the utility function is additive and separable such that it can be expressed as $u(y, \theta) = u_2(y) - u_2(\theta)$. In this case, expression (5) can be written as:

$$u_2(0) - u_2(0) \geq C \quad (6)$$

Expression (6) simply says that the chairman will decide to dismiss his manager when the value he gives to the elimination of external pressure is greater than the financial cost of dismissal. Two points should be noted from this expression. First, manager’s effort does not influence the probability of being sacked as this is entirely determined by the external pressure exerted on the chairman. Second, in a case where the external pressure is very small, or even non-existent, the chairman of the club will always decide to keep the manager.

A more interesting case arises if we consider a more general utility function. Given that, the influence of the stochastic component, $\alpha$, in the left and right hand side of (5) could be different, it should be possible to solve inequality (5) for $\alpha$ as

$$\alpha \geq g(s, s, \alpha, \theta, C) \quad (7)$$

Therefore, the probability that the manager will be fired is now:

$$p = 1 - \Phi\left(g(s, s, \alpha, \theta, C)\right) \quad (8)$$

Note that a sufficient condition to show that the level of effort has a negative effect on the probability of dismissal is that $\frac{\partial p(s^*, \alpha)}{\partial s} > 0$.

Now we turn to the manager problem, he decides his level of effort by maximising expression (3). The first order condition is given by:

$$\frac{\partial f(s^*, s, \alpha)}{\partial s} - \frac{\partial d(s^*)}{\partial s} - \frac{\partial p(s^*)}{\partial s} = 0 \quad (9)$$

where $s^*$ is the level of effort in equilibrium.
In order to ensure that $e^*$ is a maximum, a sufficient condition is that $f(e)$ is concave and $d(e)$ and $p(e)$ are convex functions.

Expression (9) indicates that the level of effort in equilibrium should equalise the payoff from this effort, in terms of the performance of the team and the reduction of the probability of being sacked, and the disutility of effort. It is interesting to compare equation (9) with a similar equation in which the probability of being sacked does not depend on manager effort:

$$\frac{\partial f(e^*, z, a)}{\partial e} - \frac{\partial d(e^*)}{\partial e} = 0, \quad (10)$$

Note that the equilibrium level of effort in (9) is higher than in (10) because the probability of being fired decreases with $e$. The intuition for this result is that, for an additional unit of effort, the manager receives a double pay-off, in terms of team performance and in terms of decreasing the probability of being fired. Therefore, the manager will have a greater incentive to work hard when he can decrease the probability of being fired through his effort. The probability of being fired only increases manager effort if the manager can influence this probability.

*An extension for supergames models*

Now we easily extend this game to a case where the principal and the agent can play for an infinite number of periods. For simplicity, we make the following two assumptions:

A1. We suppose that the principal can eliminate external pressure by changing the manager; but the effect lasts for only $T$ periods. Also, the chairman eliminates external pressure only the first time he changes the manager. A second change in manager would not achieve the elimination of pressure because, when a team does not do well after changing coach, the media and supporters will blame other elements in the organisation.

A2. We also assume that the new and the old managers are identical. Each has the same utility function and they have similar skills. We make this assumption because we seek to draw out what might account for a managerial dismissal when the new manager who is available might, objectively, have nothing more to offer than the old.

Assumption A1 refers to the fact that external pressure is eliminated in the first few matches after the new manager arrives. This is a reasonable assumption as usually supporters are excited with the expected performance of the new manager. If assumption A1 does not fulfil there is no reason for the chairman to change the manager given assumption A2.

Assumption A2 is a relevant assumption to explain managerial change under the scape goat hypothesis. If managers are different, then managerial change can be motivated by very simple arguments; a bad manager should be replaced by a good one. In our model, we show that managerial change makes sense even when all the managers are similar.
At each period $t$, the manager chooses his effort, $e_t$, to maximise his utility
\[ U_t^{m} = f(e_t, a_t) - d(e_t) - p(e_t), \]  
where $a_t$ is now a first difference Brownian motion.

Given that the manager’s decisions at a given period affect only that period, the level of effort in equilibrium is constant and solves equation (9).

Now, the principal has to decide, in a given period period $t$, whether or not to change the manager of the team. If the manager is not changed, the chairman’s utility will be given by:
\[ \sum_{s=0}^{\infty} \beta^s E_0(\varphi_s(y_0^o, 0)) - C - \sum_{s=t}^{\infty} \beta^s E_0(\varphi_s(y_0^o, 0)) \]  
where $y_0^o$ is the expected performance obtained by the old manager.

Although the old and new managers are identical, their levels of performance need not necessarily be identical. This is because the probability of being fired could be a function of his effort in the case of the old manager whereas a new manager knows his position is safe.

If the chairman changes the coach, he obtains the following utility:
\[ (1 + \beta + \cdots + \beta^T) E_0(\varphi_T(y_T^p, 0)) + \sum_{s=0}^{\infty} \beta^s E_0(\varphi_s(y_T^p, 0)) \]  

Expression (13) indicates that, when the chairman decides to change the manager, he incurs the financial cost $C$; he enjoys $T$ periods without any external pressure; but this pressure returns after some time.

The condition for keeping the present manager is:
\[ \sum_{s=0}^{\infty} \beta^s E_0(\varphi_s(y_T^p, 0)) \geq (1 + \beta + \cdots + \beta^T) E_0(\varphi_T(y_T^p, 0)) + \sum_{s=0}^{\infty} \beta^s E_0(\varphi_s(y_T^p, 0)) - C, \]  
which can be written as:
\[ E_0(\varphi_T(y_T^p, 0)) \geq (1 - \beta^{T+1}) E_0(\varphi_T(y_T^p, 0)) + \beta^{T+1} E_0(\varphi_T(y_T^p, 0)) - (1 - \beta) C \]
Expression (15) indicates that a chairman will not fire the manager when the expected utility he obtains with him in place exceeds a weighted average of the utility obtained with the new coach, with and without external pressure, minus the intertemporal value of the financial cost of sacking the manager. Note that because the old manager will have more incentive for effort in order to reduce the probability of being sacked. Only when this probability is independent of managerial effort is the utility obtained with the new and old managers the same at the same level of external pressure. Also, because the chairman always prefers not to have any external pressure. Thus, a manager will never be fired if that is when the performance of the old manager is sufficiently high to compensate for the effect of external pressure. But this is not the case when the performance levels of the old and new manager are similar.

It is interesting to analyse the effect of $T$ in the decision. When $T$ increases, the principal will give more weight to his utility without external pressure, which makes managerial dismissal a more appealing choice. In other words, chairmen will have more incentive to change manager if this decision can appease angry supporters for a long period of time. Also, the influence of the financial cost of firing the manager increases with the value that the chairman gives to the future.

A particular interesting case is when the utility function of the principal is additive and separable. In this case, equation (15) can be written as:

$$E_0(u_2(y_2^n, 0)) - E_0(u_2(y_2^n, \Theta_2)) \leq \frac{(1 - \vartheta)}{(1 - \vartheta + r)} C. \ (16)$$

Equation (16) indicates that the chairman will choose not to change his manager when the relief obtained from doing so is small relative to the financial cost.

The model describes a situation consistent with the scapegoat hypothesis. In this case, the manager may be replaced by a new manager who is not expected to improve the performance of the team. Moreover, the performance of the team can deteriorate under the new manager as he is not as concerned about the probability of being sacked.

A general conclusion is that, when the decision to change a manager depends more on external factors than on manager effort, this has a negative influence on effort and, in turn, on team performance. External pressure appears particularly likely to be significant in Argentina as relegation threats may be generated by the past performance of a team and be close to independent of current manager effort. This could account for the high rate of dismissal compared with other countries.\(^5\) The

\(^5\) We focus on the relegation threat. However, supporters may also become discontented if it becomes apparent that a club will finish the current league competition with a low ranking. In Argentina, competitions are played with half as many fixtures as similarly sized European leagues. Stochastic influences on performance, as observed mid way through a competition, will therefore tend to be greater. This has similar effects in terms of making observed performance less dependent on manager
model, however, is likely to capture issues also relevant to other sports leagues. In many situations, resources may constrain a club’s potential performance range to a level below that which supporters can accept and discontent and pressure for change can then arise independent of whether the team performance is at the high or low end of what is feasible.

3. Data on managerial change
We assembled a list of 489 within season managerial terminations in the top division of Argentine football during seasons 1986/7 to 2005/6. There was no strong pattern on whether they tended to take place during the opening or closing competitions or in the break between them: 44% occurred during the first tournament, 8% after the first tournament, and 36% during the second tournament.

It is of course difficult to be sure whether individual cases were dismissals or voluntary departures. Sometimes, a firing is euphemistically described as separation “by mutual consent”. However, we calculated team performance measures at the time of termination, in the form of points per game achieved in the preceding four matches and points per game achieved in the season to date (or under the current manager if appointed since the start of the season). The distribution of each statistic (Figures 1 and 2) proved very strongly skewed towards low levels of performance. This is consistent with experience in Europe (Tena and Forrest, 2007) and suggestive that terminations tended indeed to be dismissals, rather than, for example, quits to allow a move to another club. We therefore felt confident in a decision to treat all terminations as involuntary, with a few exceptions.

Exceptions were identified by further inquiry, employing newspaper archives, into those few cases where a manager left despite both performance indicators, as depicted in Figures 1 and 2, being favourable. There were nine such cases. Of these, the departure of Américo Gallego from River Plate in 2001 was confirmed as a sacking, prompted by his team’s defeat in an international competition. But two others left clubs that were doing well to take up other managerial positions immediately. And the remainder were acting coaches, usually former players, who had been granted only caretaker status pending the club finding a new manager. Consequently, our estimation below is based on all terminations except these eight that were at well performing clubs and which proved not to have been sackings.

4. Measuring the power of clubs in Argentina

Our estimation method for accounting for the pattern of match results and whether managerial change tended to disrupt this pattern includes, as an input into the model, a variable intended to capture the drawing power of a club and therefore the resources it has available for hiring player talent. Of course, club budget could serve to model endowment of resources directly; but it would have two significant problems. First, it

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is unreliable for Argentina because teams and players may hide information, for example, to avoid taxation or simply because the incentive system to players is very complex. Second, budget could underestimate the gap between big and small teams if talented players prefer to play for a glamorous club at a given wage (other clubs would then have to pay higher wages to attract them).

We therefore considered alternative variables that would influence a club’s drawing power, taking into account the considerable roles of both geography and history in determining club status in football (Buraimo et al., 2007):

1) A weighted measure of how successful each team has been in each of the two domestic first division competitions in the preceding five and ten years (denoted by $ci5$ and $ci10$), with success measured by rank. The weights were $\left(1/t^2\right)$ where $t$ is 1 for the previous season, 2 for the season before and so on and rank was 20 to the team in first position, 19 for the team in second position, and so on. Then, for each team, $5ci$ and $10ci$ were defined as the weighted sum of these rankings. This is similar to the variable termed ‘reputation’ by Czarnitzki and Stadtmann (2002) in their study of attendances in German football.

2) A weighted sums of team rankings according to goals scored in the previous five and ten years (denoted by $g5$ and $g10$). This variable is defined similarly to the previous one. For example, for each year we define a variable that gives the value 20 to the team which scored most goals, 19 to the second team and so on.

3) A weighted sum of the number of times a club had participated in international competitions in the preceding five years (denoted by $psa$). For the calculation, we employed a dummy variable for each year that takes the value one if the team was involved in an international competition and zero otherwise. Then, we found the weighted sum of these dummy variables across the five years, with weights as before.7

4) A weighted sum of the number of national trophies, in the Aperture or Clausura tournaments, won by the club in the preceding five years (denoted by $tn$).8

5) A weighted sum of the number of international trophies won by the club in the preceding five years (denoted by $tsa$)

6) The capacity of the club’s stadium ($CAP$).

7) The size of the city where the club plays ($POP$). For Argentina, this is a complicated measure because there are many teams on the outskirts of Buenos Aires. So, given that this city is very much bigger than the others, and that a team

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7 In calculating this measure, we did not distinguish between different international competitions because the number and names of international competitions have changed in South America across our sample period (1986/7 to 2005/6). Those considered here were the Copa Libertadores (equivalent to the European Champions League), the Copa Mercosur, the Copa Conmebol, the Copa Sudamericana and the Supercopa.

8 There is no elimination Cup competition in Argentina.
in a satellite community is unlikely to attract support from across the metropolitan area, we used the concept of an ‘influence area’: we measured only the neighbourhood population for teams that play in Buenos Aires but outside the city.\(^9\) For teams which play in the city itself, such as Boca Juniors and River Plate, we took the population of the whole of Buenos Aires as the size of catchment area.

All these variables were defined for each year from 1986/7 to 2005/6.

A problem is that all are likely to be correlated with market size but they are also correlated with each other, making selection of variables for inclusion in estimation problematic. We therefore applied principal components analysis in order to reduce the dimension of the problem. The fundamental insight of the principal components approach is that it is possible to reduce the dimension of the problem by generating a small number of common factors that can explain a sufficiently high percentage of the variability of the information. Detailed explanation of the method is provided in Anderson (1984) and Muirhead (1982).

Denote by \(x(f)\) each of the nine variables that potentially measure power across clubs, \(f = 1, \ldots, 9\). The aim of the analysis is to find new variables, denoted by \(y(k)\), that are linear combinations of the original variables \(x(f)\) such that the following two conditions are fulfilled:

\[
y(k) = \sum_{f=1}^{9} w_{fk}(f)x(f), \quad k = 1, \ldots, 9
\]  

(17)

and

\[y(k)\) is orthogonal to \(y(m)\), for \(m \neq k\)

(18).

The weights \(w_{fk}(f)\) are the eigenvectors of the correlation matrix of the variables \(x(f), f = 1, \ldots, 9\), and they can be sorted from the highest to the lowest variability depending of the magnitude of the corresponding eigenvalue.

When this analysis was applied to our data, we found that the first principal component explained 55% of the variability of the variables. Moreover, all the weights given to the different variables were positive (with the sole exception of \(S2\)) and this allows us to interpret this combination as a weighted average of the different variables that potentially capture the power of a club. Therefore, as a measure of power, we use a combination of the variables defined above with weights as shown in Table 1.

This index of power, which, for any club, is constant within a season but is permitted to vary across seasons, ranges in value between 0.001 and 0.06 in our data set. The lowest values relate to clubs that were new to the top division in the particular season

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\(^9\) For example, Olimpo is a club based in Bahia Blanca. For Olimpo the population was taken as 369,000 which is the figure for the local zone termed \(partido\) in Census data. All our population data were extracted from the 2001 Census.
while the highest value in any given season always accrues to either River Plate or Boca Juniors, the most famous and historically most successful clubs in Argentina.

5. Match results model

We turn now to empirical assessment of the consequences of managerial turnover in the Argentine first division. In order to carry this out, we estimate a model to account for the determination of match results, employing data from games played between season 1986/7 and season 2005/6. The first four rounds of matches each season were excluded from the sample because results on teams’ previous matches at home and away were used as regressors. 7,000 observations remained to be included in the analysis. This is a considerably larger data set than that employed by, for example, Koning (2003) and Tena and Forrest (2007) in their studies of effects of managerial turnover in a European context. Koning considered only five years of Dutch experience while Forrest and Tena presented evidence relating to only three seasons of play in the Spanish top division. Given that Koning’s results varied considerably from season to season, it is potentially a significant advantage that we are able to analyse as many as twenty years of the history of managerial dismissals in Argentina.

Following previous authors, we estimate an ordered probit model, with the following specification:

\[ y_i^* = \alpha_{1}h_i + \alpha_{2}h_{-1} + \alpha_{3}a_{-1} + \alpha_{4}a_{-2} + \pi_{1}p_{h} + \pi_{2}p_{a} + \sum_{s=1}^{3} r_{s}nch_{s} + \sum_{t=1}^{3} \beta_{t}nca_{t} + \epsilon_{i}, \]  

(19)

where \( \epsilon_{i} \) is a normal error term for the \( i \)th match and the dependent variable \( y_{it} \) is defined such that

\[
\begin{align*}
    y_{it} &= 0 \quad \text{if} \quad y_{it}^* \leq \beta_1 \\
    y_{it} &= 1 \quad \text{if} \quad \beta_1 < y_{it}^* \leq \beta_2 \\
    y_{it} &= 2 \quad \text{if} \quad y_{it}^* > \beta_3
\end{align*}
\]

(20) \hspace{1cm} (21) \hspace{1cm} (22)

The values 0, 1 and 2 indicate whether the home team lost, drew or won the \( i \)th match.

The variables \( h_i, h_{-1}, a_{-1}, a_{-2} \) and \( nch_s, nca_t \) refer to results immediately preceding the \( i \)th match. Specifically, \( h_i \) is the result obtained by the home team in its previous home match and \( h_{-1} \) is the result obtained by the home team in its last away match, before match \( i \). \( ah_i \) and \( a_{-1} \) are defined similarly for the away team. Results are denoted as 2 for a win, 1 for a draw and 0 for a defeat. \( p_{h} \) and \( p_{a} \) are our power index variables (for the home and away teams), derived from principal components analysis, as described in Section 4 above. \( nch_s \) (\( nca_t \)) are the focus variables. They take the value 1 if the match is the \( st \) match at home (away) of a new coach (who has been appointed during the current season) and zero otherwise. We restrict investigation to sixteen rounds of matches (eight home, eight away) after a new manager has taken over because the number of dismissals that occurred with more than seventeen matches remaining in the season was relatively small and, consequently, conclusions concerning \( s = 9 \) or above would have to be based on small numbers of observations.
Our focus, then, is on the influence of recent managerial change on match results. We follow the approach in Tena and Forrest (2007) by distinguishing between the impact on home and away performance: they demonstrated, for Spain, that these impacts were different, interpreting the more favourable outcome for home results as evidence that a change in manager could renew crowd enthusiasm, with beneficial effects on the pitch. Controls included in our specification account for momentum in results and reversion to mean effects.

The estimated model is displayed as Table 2. Previous results of the home and away team prove significant with expected signs, confirming momentum in sporting outcomes. Further, our power indices, designed to capture differences in resources between ‘big’ and ‘small’ clubs, also have strong predictive power in accounting for the pattern of results.

Coefficients on our focus variables, $s$, indicate that the presence of a new manager tended to have an adverse influence on both home and away outcomes. Indeed, fourteen of the sixteen coefficients are signed consistent with the notion that managerial change has negative consequences. However, only a small number of the estimates are statistically significantly different from zero. This is not surprising given the amount of ‘noise’ in football results. A more interesting exercise, therefore, is, as first proposed by Dobson and Goddard (2001), to test whether the arrival of a new manager has an impact on results from a group of games. We tested whether there was any cumulative effect on performance in groups of games, at home and away, following managerial change. For given groups of games, a Wald test was employed to evaluate whether the sum of the individual coefficients was significantly different from zero. For example, we tested whether there was a new manager effect in the first four home games after change by testing whether the sum of the coefficients on $nch_1$, $nch_2$, $nch_3$ and $nch_4$ was different from zero.

Results for these cumulative effects are in Table 3. For home matches, effects of manager change are adverse; but they become statistically significant only when a run of as many as eight matches is considered. However, for away performance, adverse effects are statistically significant from the first game and remain so whatever number of matches between one and eight is evaluated. These findings point to a disruptive effect from a change in manager. They are different from those for Spain in Tena and Forrest (2007) who reported beneficial effects in home games and no significant effect in away games.

Tena and Forrest interpreted their results as evidence that, typically, a dismissal in Spain had some positive effect and that the number of dismissals was therefore not likely to be ‘excessive’ in terms of efficiency of decision taking. The implication of our findings for Argentina is the opposite. This is perhaps consistent with expectations, given that the propensity for dismissals to occur is four times higher in Argentina than in Spain.

What our results share with those of Tena and Forrest is evidence that there is a difference in impact from manager change according to whether home or away results are examined. In the Argentine case, the typically negative effects of change are easier to detect for away games. This suggests that dismissals tend to have a net
disruptive effect on the team but that the effect is perhaps moderated in its own stadium, where fans have been placated by a change of leadership.

In reaching these conclusions, we made no distinction in the empirical analysis between effects from appointments of new managers that were permanent and those that were temporary (caretakers put in charge pending a search for a longer run replacement). In practice, it might be anticipated that the effects would be different since placing the team under the direction of a caretaker would extend the period of uncertainty, which would possibly be unsettling in itself. Further, players have less incentive to raise effort to impress a caretaker since he may not be the manager who decides whether to retain their services at the end of the season. It would therefore be desirable to carry out additional tests to assess effects from the arrival of new permanent managers.

Unfortunately, it is often difficult to establish, even with close scrutiny of newspaper accounts whether new appointments were intended to be permanent or not. We therefore adopted the strategy of repeating our empirical analysis but this time applying new manager variables only where a new manager remained in charge for four or more matches. The new tests will, if anything, bias results against finding adverse effects from change since a proportion of managers now treated as permanent will in fact have been made so only when, and because, they enjoyed early success in terms of match results.

The new ordered probit results are in Table 4 while Table 5 reports the corresponding cumulative effects. Results are very similar to those above, the one substantive difference being that adverse effects in away games are now detected only from the second match. Our findings therefore appear robust with respect to varying the implicit assumption that all new managers may be treated as equivalent in terms of their tenure arrangements.

Next we examine the quantitative importance of the negative impacts identified in the ordered probit estimates (as reported in Table 2). We choose to calculate marginal effects for a club at the lower quartile of our power index (0.008) because it is weaker clubs that more often dismiss their coach.10 Table 6 shows modest, and in any case mostly insignificant, impacts on match outcome probabilities where it is such a club that is playing at home with a new manager. However, adverse impacts away, evident from Table 7, are quite large in individual games, with the probability of the team achieving an away win tending to be lowered by in excess of four percentage points (from a starting value of 0.22) if it has recently changed manager. On the other hand, this converts to only a slight change in expected league points. Summing the marginal effects allows one to calculate that expected league points are lowered by just 0.99 in the eight away fixtures following change of manager.11 Thus our evidence is that there appears to be scapegoating to the extent that new managers typically deliver outcomes that are actually slightly negative. But, while it may be true that managers are

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10 Other variables are set equal to their means.

11 Three points are awarded for a win and one for a draw. The sum of marginal effects on win probabilities in the eight games is 0.234 and that on draw probabilities is .095.
typically sacked unfairly, consequences are not likely to be large enough to create a vicious circle of downward trend in achievement levels at the club.

6. Conclusions
The role of social pressure in influencing decisions made on behalf of organisations is a topic that has exhibited increasing attention from analysts of sport. For example, referee decisions in football appear to be subject to pressure from the crowd (Garicano et al., 2005). In this paper, our spotlight has been on club chairmen who must decide whether or not to continue with the tenure of the current coach. They too may like to please and might therefore appease critical supporters and media by opting to terminate the contract of a manager even where the financial cost of termination is not justified in terms of its expected impact on performance on the pitch. We have explored this possibility with a principal agent model where the agent is the coach. A risk is that this agent will not in fact maximise effort. The role of social pressure in bringing about this outcome is that if crowd discontent can emerge exogenously, there will be reduced payoff to effort in terms of affecting the probability that he will keep his job.12 Worse, any successor appointed if there is a sacking has even less incentive to maximise effort if he has a period of grace before social pressure builds up again. Thus, club expenditure on buying out a manager’s contract may actually worsen results.

Argentina organises its top tier of football in a way that offers frequent opportunity for social pressure concerning team performance to emerge and provoke scapegoating behaviour by club chairmen. They appear to succumb often to the extent that the number of within season terminations has exceeded one per club per year over twenty years. We investigated whether there was any evidence that dismissing the coach typically paid off in Argentine football. We found no such evidence. Indeed, away performance subsequent to a dismissal was typically below expectations based on club status and recent form. This suggests that the scapegoat hypothesis applies and that the net effect of a change of coach is typically negative. That this adverse effect is much less evident in home results suggests that there may be an offsetting effect from the crowd having been appeased. This is consistent with the notion that a discontented crowd can unsettle players whereas an engaged group of supporters can help bring about success on the pitch.13

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12 In our model, social pressure arises exogenously. It could also be modelled as having an exogenous component and a component that is a function of team performance. This would raise the sensitivity of chairman’s utility to observed team performance and this could also induce inefficient terminations, for example when observed performance has been subject to negative stochastic effects.

13 For a brief review of relevant literature on the influence of the crowd, see Tena and Forrest (2007), pp. 370-371.
References


### Table 1. Weights from Principal Components Analysis

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<tr>
<th></th>
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<th>CAP</th>
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<th>g5</th>
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### Table 2. Ordered probit result on match outcome

<table>
<thead>
<tr>
<th>Result</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-statistic (absolute value)</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Result of home team’s last home match</td>
<td>0.082</td>
<td>0.017</td>
<td>4.77</td>
<td>0.000</td>
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Number of observations: 7000
Pseudo-R²: 0.0131
**Table 3.** Cumulative impact of a new manager (away win=0, draw=1, home win=2)

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**Table 4.** Ordered probit results on match outcome (temporary managers excluded)

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Number of observations: 7000
Pseudo-R²: 0.0128
Table 5. Cumulative impact of a new manager (away win=0, draw=1, home win=2) (temporary managers excluded)

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Table 6. Marginal effects. Home team has low power.

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<th>on draw</th>
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<tr>
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<td>se</td>
<td></td>
<td>t</td>
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<td>dy/dx</td>
</tr>
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Table 7. Marginal effects. Away team has low power.

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