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

RAMÓN FLORES
DAVID FORREST
JUAN DE DIOS TENA

FUNDACIÓN DE LAS CAJAS DE AHORROS
DOCUMENTO DE TRABAJO
Nº 411/2008

De conformidad con la base quinta de la convocatoria del Programa de Estímulo a la Investigación, este trabajo ha sido sometido a evaluación externa anónima de especialistas cualificados a fin de contrastar su nivel técnico.

ISSN: 1988-8767

La serie **DOCUMENTOS DE TRABAJO** incluye avances y resultados de investigaciones dentro de los programas de la Fundación de las Cajas de Ahorros.
Las opiniones son responsabilidad de los autores.

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

by

Ramón Flores[a]
David Forrest[b]
Juan de Dios Tena[c]

July, 2008

[a] Universidad Carlos III, Universidad Carlos III, Departamento de Estadística, C/Madrid 126, 28903, Getafe. Madrid. E-mail: rflores@est-econ.uc3m.es.
[b] Centre for the Study of Gambling, University of Salford, Salford M5 4WT, UK, e-mail: d.k.forrest@salford.ac.uk.
[c] Corresponding author. Universidad Carlos III, Departamento de Estadística, C/Madrid 126, 28903, Getafe. Madrid. E-mail:jtena@est-econ.uc3m.es. Universita degli Studi di Sassari and CRENoS, Dipartimento di Economia,Impresa e Regolamentazione, Via Torre Tonda 34-07100 Sassari. E-mail: juande@uniss.it. Phone (+34) 916241259

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

DECISION TAKING WITH EXTERNAL PRESSURE: EVIDENCE ON FOOTBALL MANAGER DISMISSALS IN ARGENTINA AND THEIR CONSEQUENCES[1]

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 bubles instead of fundamental variables. In this context, football constitues 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".

[1] We thank an anonimous 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 Dominguez 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 "Clausura" (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).[2]

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.[3] 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 s respectively.

[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 θ, that here does *not* depend on manager activity. For example, θ, 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 θ ($\partial U^p / \partial y > 0$, $\partial U^p / \partial \theta < 0$).[4]

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 e and s respectively. However, team performance is also influenced by a stochastic term, a, which is not under his control. Thus, we can represent the performance of the team by:

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

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:

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

where p 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

[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 observe 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 $u(y,\theta)$ 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:

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

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 $u(y,\theta)=u_1(y)-u_2(\theta)$. In this case, expression (5) can be written as:

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

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 , a, in the left and right hand side of (5) could be different, it should be possible to solve inequality (5) for a as

$$a \geq g(e,s,a,\theta,C). \quad (7)$$

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

$$p=1-\Phi\big(g(e,s,a,\theta,C)\big) \quad (8)$$

Note that a sufficient condition to show that the level of effort has a negative effect on the probability of dismissal is that $\frac{\partial^2 u(y,\theta)}{\partial y \theta}>0$.

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

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

where e^* is the level of effort in equilibrium.

In order to ensure that e^* is a maximum, a sufficient condition is that $f(\bullet)$ is concave and $d(\bullet)$ and $p(\bullet)$ 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:

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

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

$$U_t^m = f(e_t, s_t, a_t) - d(e_t) - p(e_t), \quad (11)$$

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:

$$\sum_{t=0}^{\infty} \delta^t E_0(u_t(y_t^o, \theta_t)). \quad (12)$$

where y_t^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:

$$(1 + \delta + \cdots + \delta^T)E_0(u_t(y_t^n, 0)) + \sum_{t=T}^{\infty} \delta^t E_0(u_t(y_t^n, \theta_t)) - C \quad (13)$$

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:

$$\sum_{t=0}^{\infty} \delta^t E_0(u_t(y_t^o, \theta_t)) \geq (1 + \delta + \cdots + \delta^T)E_0(u_t(y_t^n, 0)) + \sum_{t=T}^{\infty} \delta^t E_0(u_t(y_t^n, \theta_t)) - C, \quad (14)$$

which can be written as:

$$E_0(u_t(y_t^o, \theta_t)) \geq (1 - \delta^{T+1})E_0(u_t(y_t^n, 0)) + \delta^{T+1}E_0(u_t(y_t^n, \theta_t) - (1 - \delta)C \quad (15)$$

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 $E_0(u_t(y_t^o, \theta_t)) \geq E_0(u_t(y_t^n, \theta_t)$ 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, $E_0(u_t(y_t^n, 0)) > E_0(u_t(y_t^n, \theta_t)$ because the chairman always prefers not to have any external pressure. Thus, a manager will never be fired if $E_0(u_t(y_t^o, \theta_t)) > E_0(u_t(y_t^n, 0)) > E_0(u_t(y_t^n, \theta_t)$, 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:

$$E_0(u_{2t}(0) - E_0(u_{2t}(\theta_t) \leq \frac{(1-\delta)}{(1-\delta^{T+1})} C. \quad (16)$$

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.[6] 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

---

effort and of creating a potential for external pressure even if there were high managerial effort. The effect of Argentine institutional arrangements will then again be to increase the number of firings.

[6] Humberto Taborda (Córdaba, 1986/7), Jorge Castelli (San Lorenzo Talleres, 1992/3), Miguel Russo (Lanus, 1993/4), Carlos Bianchi (Velez Sarsfield, 1995/6), Osvaldo Crosta (Huracan, 1997/8), Raúl Grimoldi (Platense, 1998/9), Américo Gallego (1994/5 and 2000/01, River Plate), Manuel Pellegrini (Sudamericana, 2003/4).

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 $(1/t^2)$ 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, $ci5$ and $ci10$ 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

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

$$y(k) = \sum_{j=1}^{9} w_{jk}(j)x(j),\ k = 1,\dots,9 \qquad (17);$$

and

$y(k)$ is orthogonal to $y(m)$, for $m \neq k$ (18).

The weights $w_{jk}(j)$ are the eigenvectors of the correlation matrix of the variables $x(j)$, $j = 1,\dots,9$, 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 te) 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

[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:

$$y_i^* = \alpha_1 hh_i + \alpha_2 ha_i + \alpha_3 ah_i + \alpha_4 aa_i + \pi_1 ph + \pi_2 pa + \sum_{s=1}^{8} \gamma_i nch_s + \sum_{s=1}^{8} \beta_i nca_s + e_i, \quad (18)$$

(19)

where e_i is a normal error term for the *ith* match and the dependent variable y_{it}^* is defined such that

$$y_i = 0 \quad if \quad y_i^* \leq \delta_1 \quad (20)$$
$$y_i = 1 \quad if \quad \delta_1 < y_i^* \leq \delta_2 \quad (21)$$
$$y_i = 3 \quad if \quad y_i^* > \delta_3 \quad (22)$$

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

The variables hh_i, ha_i, ah_i, and aa_i refer to results immediately preceding the *i*th match. Specifically, hh_i is the result obtained by the home team in its previous home match and ha_i is the result obtained by the home team in its last away match, before match *i*. ah_i and aa_i are defined similarly for the away team. Results are denoted as 2 for a win, 1 for a draw and 0 for a defeat. ph and pa 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_s) are the focus variables. They take the value 1 if the match is the *s*th 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

[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]

[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

Anderson, T.W. (1984) *An Introduction to Multivariate Analysis*, 2nd. ed., New York: Wiley.

Buraimo, B., Forrest, D. and Simmons, R. 'Freedom of entry, market size and competitive outcome: evidence from English League soccer', *Southern Economic Journal*, 73:204-213.

Czarnitzki, D. and Stadtmann, G. (2002) 'Uncertainty of outcome versus reputation: empirical evidence for the first German football division', *Empirical Economics*, 27:101-112.

Dobson, S. and Goddard, J. (2001), *The Economics of Football*, Cambridge: Cambridge University Press

Garicano, L., Palacios-Huerta, I. and Prendergast, C. (2005), Favoritism under social pressure, *Review of Economics and Statistics*, 87:208-216.

Koning, R. (2003), 'An econometric evaluation of the effect of firing a coach on team performance', *Applied Economics*, 35:555-564.

Muirhead, R.J. (1982), *Aspects of Multivariate Statistical Theory*, New York: Wiley.

Tena, J.D. and Forrest, D. (2007), 'Within-season dismissal of football coaches: causes and consequences', *European Journal of Operational Research*, 181:362-373.

Table 1. Weights from Principal Components Analysis

*ci*10	*ci*5	*CAP*	*g*10	*g*5	*psa*	*POP*	*tsa*	*tn*
0.42	0.41	0.32	0.42	0.42	0.31	0.20	-0.01	0.26

Table 2. Ordered probit result on match outcome

	coefficient	standard error	*t*-statistic (absolute value)	*p*-value
Result of home team's last home match	0.082	0.017	4.77	0.000
Result of home team's last away match	0.053	0.017	3.13	0.002
Result of away team's last home match	-0.088	0.017	5.18	0.000
Result of away team's last away match	-0.085	0.017	4.93	0.000
Home power	1.953	0.581	3.36	0.001
Away powerl	-3.949	0.579	6.82	0.000
HOMENEWONE	-0.066	0.062	1.06	0.291
HOMENEWTWO	-0.066	0.064	1.03	0.305
HOMENEWTHREE	-0.080	0.067	1.19	0.235
HOMENEWFOUR	-0.035	0.071	0.49	0.621
HOMENEWFIVE	0.003	0.076	0.03	0.972
HOMENEWSIX	-0.050	0.083	0.60	0.549
HOMENEWSEVEN	-0.110	0.085	1.29	0.198
HOMENEWEIGHT	-0.153	0.092	1.66	0.096
AWAYNEWONE	0.141	0.062	2.25	0.134
AWAYNEWTWO	0.162	0.065	2.50	0.013
AWAYNEWTHREE	0.088	0.068	1.30	0.195
AWAYNEWFOUR	0.036	0.071	0.50	0.615
AWAYNEWFIVE	-0.010	0.076	0.13	0.898
AWAYNEWSIX	0.164	0.082	2.00	0.046
AWAYNEWSEVEN	0.178	0.089	1.99	0.046
AWAYNEWEIGHT	0.079	0.094	0.84	0.399

Number of observations: 7000
Pseudo-R^2: 0.0131

Table 3. Cumulative impact of a new manager (away win=0, draw=1, home win=2)

	Coefficient	*p*-value
HOMENEWONE	-0.066	0.2911
HOMENEWTWO	-0.132	0.1554
HOMENEWTHREE	-0.212	0.0761
HOMENEWFOUR	-0.247	0.0882
HOMENEWFIVE	-0.244	0.1505
HOMENEWSIX	-0.294	0.1336
HOMENEWSEVEN	-0.404	0.0681
HOMENEWEIGHT	-0.557	0.0245
AWAYNEWONE	0.141	0.0242
AWAYNEWTWO	0.303	0.0012
AWAYNEWTHREE	0.391	0.0012
AWAYNEWFOUR	0.427	0.0034
AWAYNEWFIVE	0.417	0.0146
AWAYNEWSIX	0.581	0.0031
AWAYNEWSEVEN	0.759	0.0007
AWAYNEWEIGHT	0.838	0.0008

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

	coefficient	standard error	*t*-statistic (absolute value)	*p*-value
Result of home team's last home match	0.082	0.017	4.80	0.00
Result of home team's last away match	0.054	0.017	3.18	0.001
Result of away team's last home match	-0.090	0.017	5.27	0.000
Result of away team's last away match	-0.086	0.017	5.05	0.000
Home potential	1.969	0.582	3.38	0.001
Away potential	-3.958	0.579	6.84	0.000
HOMENEWONE	-0.041	0.064	0.63	0.527
HOMENEWTWO	-0.061	0.065	0.93	0.352
HOMENEWTHREE	-0.079	0.067	1.18	0.238
HOMENEWFOUR	-0.033	0.071	0.46	0.645
HOMENEWFIVE	0.007	0.076	0.09	0.928
HOMENEWSIX	-0.047	0.083	0.57	0.569
HOMENEWSEVEN	-0.106	0.085	1.25	0.212
HOMENEWEIGHT	-0.149	0.092	1.62	0.105
AWAYNEWONE	0.100	0.065	1.53	0.125
AWAYNEWTWO	0.147	0.066	2.24	0.025
AWAYNEWTHREE	0.079	0.068	1.16	0.248
AWAYNEWFOUR	0.031	0.071	0.44	0.661
AWAYNEWFIVE	-0.014	0.076	0.19	0.853
AWAYNEWSIX	0.160	0.082	1.95	0.051
AWAYNEWSEVEN	0.173	0.089	1.95	0.052
AWAYNEWEIGHT	0.075	0.094	0.80	0.424

Number of observations: 7000
Pseudo-R^2: 0.0128

Table 5. Cumulative impact of a new manager (away win=0, draw=1, home win=2) (temporary managers excluded)

	Coefficient	*p*-value
HOMENEWONE	-0.041	0.5268
HOMENEWTWO	-0.102	0.2835
HOMENEWTHREE	-0.181	0.1343
HOMENEWFOUR	-0.214	0.1433
HOMENEWFIVE	-0.207	0.2259
HOMENEWSIX	-0.254	0.1963
HOMENEWSEVEN	-0.360	0.1040
HOMENEWEIGHT	-0.509	0.0399
AWAYNEWONE	0.100	0.1252
AWAYNEWTWO	0.247	0.0098
AWAYNEWTHREE	0.326	0.0076
AWAYNEWFOUR	0.357	0.0152
AWAYNEWFIVE	0.343	0.0464
AWAYNEWSIX	0.503	0.0109
AWAYNEWSEVEN	0.676	0.0025
AWAYNEWEIGHT	0.751	0.0027

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

	on home win			on draw		
	dy/dx	se	|*t*|	dy/dx	Se	*t*
Result of home team's last home match	0.031	0.007	4.77	-0.005	0.001	4.25
Result of home team's last away match	0.021	0.007	3.13	-0.003	0.001	2.92
Result of away team's last home match	-0.034	0.007	5.18	0.005	0.001	4.60
Result of away team's last away match	-0.033	0.007	4.93	0.005	0.001	4.41
Home power	0.754	0.222	3.40	-0.114	0.028	4.14
Away power	-1.523	0.224	6.81	0.230	0.042	5.54
HOMENEWONE	-0.025	0.024	1.04	0.003	0.003	1.28
HOMENEWTWO	-0.019	0.024	0.81	0.003	0.003	1.25
HOMENEWTHREE	-0.030	0.025	1.20	0.004	0.002	1.53
HOMENEWFOUR	-0.013	0.027	0.50	0.002	0.003	0.54
HOMENEWFIVE	0.001	0.029	0.03	-0.0002	0.004	0.03
HOMENEWSIX	-0.019	0.031	0.60	0.003	0.004	0.70
HOMENEWSEVEN	-0.042	0.032	1.31	0.005	0.002	2.01
HOMENEWEIGHT	-0.058	0.032	1.31	0.005	0.001	3.71

Table 7. Marginal effects. Away team has low power.

	on away win			on draw		
	dy/dx	se	|*t*|	dy/dx	Se	|*t*|
Result of home team's last home match	-0.024	0.007	4.77	-0.008	0.002	4.58
Result of home team's last away match	-0.016	0.007	3.13	-0.005	0.002	3.07
Result of away team's last home match	0.026	0.007	5.18	0.009	0.002	4.99
Result of away team's last away match	0.025	0.007	4.93	0.008	0.002	4.80
Home power	-0.584	0.230	3.36	-0.189	0.057	3.30
Away power	1.180	0.232	6.75	0.383	0.073	5.28
AWAYNEWONE	-0.040	0.025	2.25	-0.016	0.008	1.97
AWAYNEWTWO	-0.045	0.026	2.49	-0.019	0.009	2.15
AWAYNEWTHREE	-0.026	0.027	1.29	-0.009	0.008	1.18
AWAYNEWFOUR	-0.010	0.028	0.50	-0.004	0.008	0.48
AWAYNEWFIVE	0.003	0.030	0.13	0.0009	0.007	0.13
AWAYNEWSIX	-0.046	0.033	2.00	-0.019	0.011	1.72
AWAYNEWSEVEN	-0.049	0.036	1.99	-0.021	0.012	1.70
AWAYNEWEIGHT	-0.023	0.037	0.84	-0.008	0.011	0.77

Figure 1

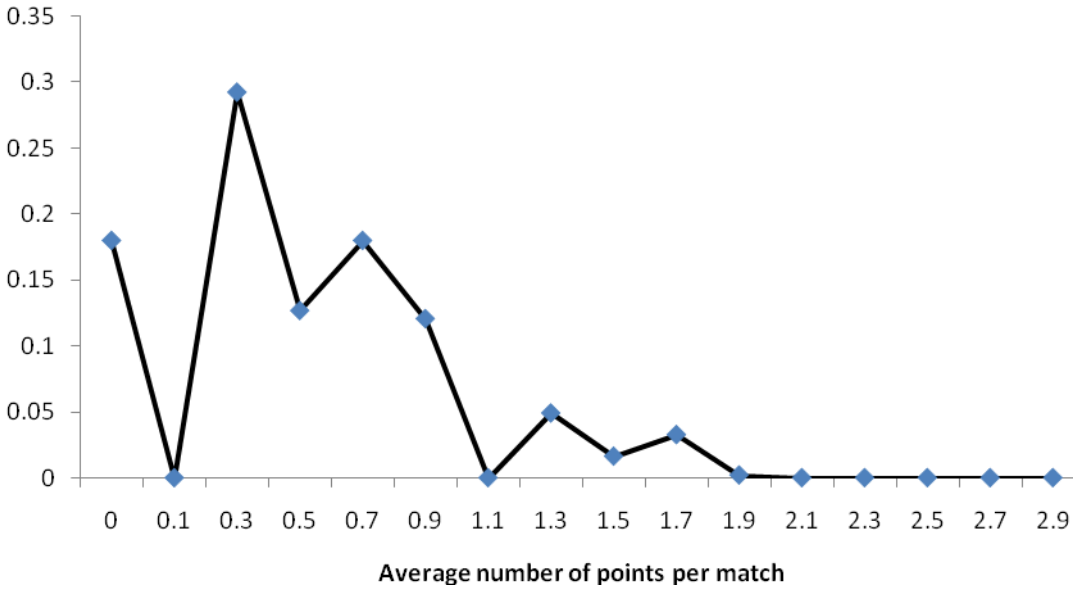
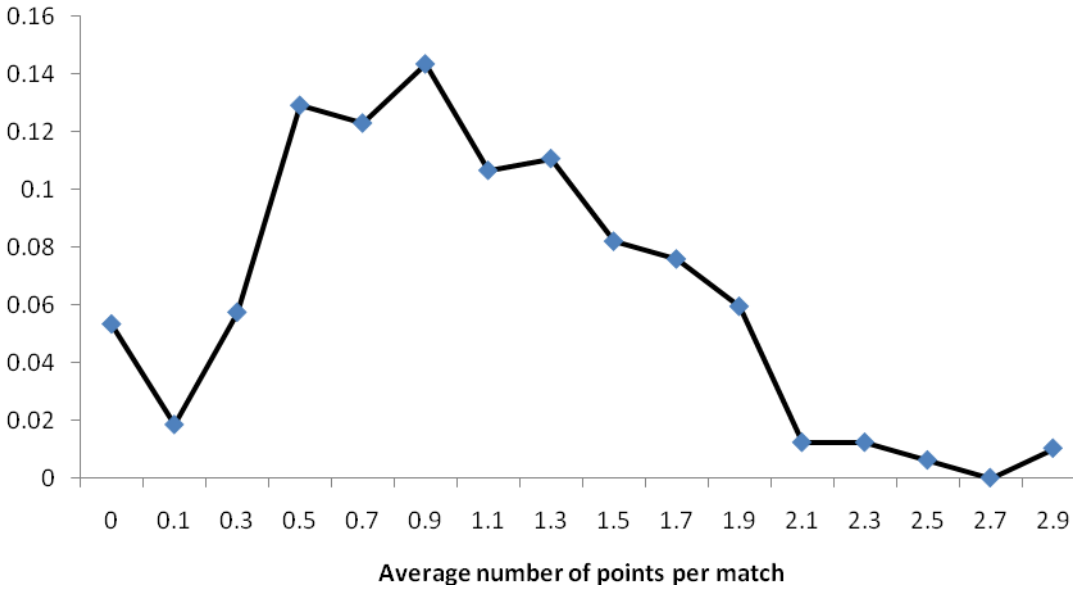


Figure 2



FUNDACIÓN DE LAS CAJAS DE AHORROS

DOCUMENTOS DE TRABAJO

Últimos números publicados

159/2000 Participación privada en la construcción y explotación de carreteras de peaje
Ginés de Rus, Manuel Romero y Lourdes Trujillo

160/2000 Errores y posibles soluciones en la aplicación del *Value at Risk*
Mariano González Sánchez

161/2000 Tax neutrality on saving assets. The spahish case before and after the tax reform
Cristina Ruza y de Paz-Curbera

162/2000 Private rates of return to human capital in Spain: new evidence
F. Barceinas, J. Oliver-Alonso, J.L. Raymond y J.L. Roig-Sabaté

163/2000 El control interno del riesgo. Una propuesta de sistema de límites
riesgo neutral
Mariano González Sánchez

164/2001 La evolución de las políticas de gasto de las Administraciones Públicas en los años 90
Alfonso Utrilla de la Hoz y Carmen Pérez Esparrells

165/2001 Bank cost efficiency and output specification
Emili Tortosa-Ausina

166/2001 Recent trends in Spanish income distribution: A robust picture of falling income inequality
Josep Oliver-Alonso, Xavier Ramos y José Luis Raymond-Bara

167/2001 Efectos redistributivos y sobre el bienestar social del tratamiento de las cargas familiares en el nuevo IRPF
Nuria Badenes Plá, Julio López Laborda, Jorge Onrubia Fernández

168/2001 The Effects of Bank Debt on Financial Structure of Small and Medium Firms in some European Countries
Mónica Melle-Hernández

169/2001 La política de cohesión de la UE ampliada: la perspectiva de España
Ismael Sanz Labrador

170/2002 Riesgo de liquidez de Mercado
Mariano González Sánchez

171/2002 Los costes de administración para el afiliado en los sistemas de pensiones basados en cuentas de capitalización individual: medida y comparación internacional.
José Enrique Devesa Carpio, Rosa Rodríguez Barrera, Carlos Vidal Meliá

172/2002 La encuesta continua de presupuestos familiares (1985-1996): descripción, representatividad y propuestas de metodología para la explotación de la información de los ingresos y el gasto.
Llorenc Pou, Joaquín Alegre

173/2002 Modelos paramétricos y no paramétricos en problemas de concesión de tarjetas de credito.
Rosa Puertas, María Bonilla, Ignacio Olmeda

174/2002 Mercado único, comercio intra-industrial y costes de ajuste en las manufacturas españolas.
José Vicente Blanes Cristóbal

175/2003 La Administración tributaria en España. Un análisis de la gestión a través de los ingresos y de los gastos.
Juan de Dios Jiménez Aguilera, Pedro Enrique Barrilao González

176/2003 The Falling Share of Cash Payments in Spain.
Santiago Carbó Valverde, Rafael López del Paso, David B. Humphrey
Publicado en "Moneda y Crédito" nº 217, pags. 167-189.

177/2003 Effects of ATMs and Electronic Payments on Banking Costs: The Spanish Case.
Santiago Carbó Valverde, Rafael López del Paso, David B. Humphrey

178/2003 Factors explaining the interest margin in the banking sectors of the European Union.
Joaquín Maudos y Juan Fernández Guevara

179/2003 Los planes de stock options para directivos y consejeros y su valoración por el mercado de valores en España.
Mónica Melle Hernández

180/2003 Ownership and Performance in Europe and US Banking – A comparison of Commercial, Co-operative & Savings Banks.
Yener Altunbas, Santiago Carbó y Phil Molyneux

181/2003 The Euro effect on the integration of the European stock markets.
Mónica Melle Hernández

182/2004 In search of complementarity in the innovation strategy: international R&D and external knowledge acquisition.
Bruno Cassiman, Reinhilde Veugelers

183/2004 Fijación de precios en el sector público: una aplicación para el servicio municipal de suministro de agua.
Mª Ángeles García Valiñas

184/2004 Estimación de la economía sumergida es España: un modelo estructural de variables latentes.
Ángel Alañón Pardo, Miguel Gómez de Antonio

185/2004 Causas políticas y consecuencias sociales de la corrupción.
Joan Oriol Prats Cabrera

186/2004 Loan bankers' decisions and sensitivity to the audit report using the belief revision model.
Andrés Guiral Contreras and José A. Gonzalo Angulo

187/2004 El modelo de Black, Derman y Toy en la práctica. Aplicación al mercado español.
Marta Tolentino García-Abadillo y Antonio Díaz Pérez

188/2004 Does market competition make banks perform well?.
Mónica Melle

189/2004 Efficiency differences among banks: external, technical, internal, and managerial
Santiago Carbó Valverde, David B. Humphrey y Rafael López del Paso

190/2004 Una aproximación al análisis de los costes de la esquizofrenia en españa: los modelos jerárquicos bayesianos
F. J. Vázquez-Polo, M. A. Negrín, J. M. Cavasés, E. Sánchez y grupo RIRAG

191/2004 Environmental proactivity and business performance: an empirical analysis
Javier González-Benito y Óscar González-Benito

192/2004 Economic risk to beneficiaries in notional defined contribution accounts (NDCs)
Carlos Vidal-Meliá, Inmaculada Domínguez-Fabian y José Enrique Devesa-Carpio

193/2004 Sources of efficiency gains in port reform: non parametric malmquist decomposition tfp index for Mexico
Antonio Estache, Beatriz Tovar de la Fé y Lourdes Trujillo

194/2004 Persistencia de resultados en los fondos de inversión españoles
Alfredo Ciriaco Fernández y Rafael Santamaría Aquilué

195/2005 El modelo de revisión de creencias como aproximación psicológica a la formación del juicio del auditor sobre la gestión continuada
Andrés Guiral Contreras y Francisco Esteso Sánchez

196/2005 La nueva financiación sanitaria en España: descentralización y prospectiva
David Cantarero Prieto

197/2005 A cointegration analysis of the Long-Run supply response of Spanish agriculture to the common agricultural policy
José A. Mendez, Ricardo Mora y Carlos San Juan

198/2005 ¿Refleja la estructura temporal de los tipos de interés del mercado español preferencia por la liquidez?
Magdalena Massot Perelló y Juan M. Nave

199/2005 Análisis de impacto de los Fondos Estructurales Europeos recibidos por una economía regional: Un enfoque a través de Matrices de Contabilidad Social
M. Carmen Lima y M. Alejandro Cardenete

200/2005 Does the development of non-cash payments affect monetary policy transmission?
Santiago Carbó Valverde y Rafael López del Paso

201/2005 Firm and time varying technical and allocative efficiency: an application for port cargo handling firms
Ana Rodríguez-Álvarez, Beatriz Tovar de la Fe y Lourdes Trujillo

202/2005 Contractual complexity in strategic alliances
Jeffrey J. Reuer y Africa Ariño

203/2005 Factores determinantes de la evolución del empleo en las empresas adquiridas por opa
Nuria Alcalde Fradejas y Inés Pérez-Soba Aguilar

204/2005 Nonlinear Forecasting in Economics: a comparison between Comprehension Approach versus Learning Approach. An Application to Spanish Time Series
Elena Olmedo, Juan M. Valderas, Ricardo Gimeno and Lorenzo Escot

205/2005 Precio de la tierra con presión urbana: un modelo para España
Esther Decimavilla, Carlos San Juan y Stefan Sperlich

206/2005 Interregional migration in Spain: a semiparametric analysis
Adolfo Maza y José Villaverde

207/2005 Productivity growth in European banking
Carmen Murillo-Melchor, José Manuel Pastor y Emili Tortosa-Ausina

208/2005 Explaining Bank Cost Efficiency in Europe: Environmental and Productivity Influences.
Santiago Carbó Valverde, David B. Humphrey y Rafael López del Paso

209/2005 La elasticidad de sustitución intertemporal con preferencias no separables intratemporalmente: los casos de Alemania, España y Francia.
Elena Márquez de la Cruz, Ana R. Martínez Cañete y Inés Pérez-Soba Aguilar

210/2005 Contribución de los efectos tamaño, book-to-market y momentum a la valoración de activos: el caso español.
Begoña Font-Belaire y Alfredo Juan Grau-Grau

211/2005 Permanent income, convergence and inequality among countries
José M. Pastor and Lorenzo Serrano

212/2005 The Latin Model of Welfare: Do 'Insertion Contracts' Reduce Long-Term Dependence?
Luis Ayala and Magdalena Rodríguez

213/2005 The effect of geographic expansion on the productivity of Spanish savings banks
Manuel Illueca, José M. Pastor and Emili Tortosa-Ausina

214/2005 Dynamic network interconnection under consumer switching costs
Ángel Luis López Rodríguez

215/2005 La influencia del entorno socioeconómico en la realización de estudios universitarios: una aproximación al caso español en la década de los noventa
Marta Rahona López

216/2005 The valuation of spanish ipos: efficiency analysis
Susana Álvarez Otero

217/2005 On the generation of a regular multi-input multi-output technology using parametric output distance functions
Sergio Perelman and Daniel Santin

218/2005 La gobernanza de los procesos parlamentarios: la organización industrial del congreso de los diputados en España
Gonzalo Caballero Miguez

219/2005 Determinants of bank market structure: Efficiency and political economy variables
Francisco González

220/2005 Agresividad de las órdenes introducidas en el mercado español: estrategias, determinantes y medidas de performance
David Abad Díaz

221/2005 Tendencia post-anuncio de resultados contables: evidencia para el mercado español
Carlos Forner Rodríguez, Joaquín Marhuenda Fructuoso y Sonia Sanabria García

222/2005 Human capital accumulation and geography: empirical evidence in the European Union
Jesús López-Rodríguez, J. Andrés Faíña y Jose Lopez Rodríguez

223/2005 Auditors' Forecasting in Going Concern Decisions: Framing, Confidence and Information Processing
Waymond Rodgers and Andrés Guiral

224/2005 The effect of Structural Fund spending on the Galician region: an assessment of the 1994-1999 and 2000-2006 Galician CSFs
José Ramón Cancelo de la Torre, J. Andrés Faíña and Jesús López-Rodríguez

225/2005 The effects of ownership structure and board composition on the audit committee activity: Spanish evidence
Carlos Fernández Méndez and Rubén Arrondo García

226/2005 Cross-country determinants of bank income smoothing by managing loan loss provisions
Ana Rosa Fonseca and Francisco González

227/2005 Incumplimiento fiscal en el irpf (1993-2000): un análisis de sus factores determinantes
Alejandro Estellér Moré

228/2005 Region versus Industry effects: volatility transmission
Pilar Soriano Felipe and Francisco J. Climent Diranzo

229/2005 Concurrent Engineering: The Moderating Effect Of Uncertainty On New Product Development Success
Daniel Vázquez-Bustelo and Sandra Valle

230/2005 On zero lower bound traps: a framework for the analysis of monetary policy in the 'age' of central banks
Alfonso Palacio-Vera

231/2005 Reconciling Sustainability and Discounting in Cost Benefit Analysis: a methodological proposal
M. Carmen Almansa Sáez and Javier Calatrava Requena

232/2005 Can The Excess Of Liquidity Affect The Effectiveness Of The European Monetary Policy?
Santiago Carbó Valverde and Rafael López del Paso

233/2005 Inheritance Taxes In The Eu Fiscal Systems: The Present Situation And Future Perspectives.
Miguel Angel Barberán Lahuerta

234/2006 Bank Ownership And Informativeness Of Earnings.
Víctor M. González

235/2006 Developing A Predictive Method: A Comparative Study Of The Partial Least Squares Vs Maximum Likelihood Techniques.
Waymond Rodgers, Paul Pavlou and Andres Guiral.

236/2006 Using Compromise Programming for Macroeconomic Policy Making in a General Equilibrium Framework: Theory and Application to the Spanish Economy.
Francisco J. André, M. Alejandro Cardenete y Carlos Romero.

237/2006 Bank Market Power And Sme Financing Constraints.
Santiago Carbó-Valverde, Francisco Rodríguez-Fernández y Gregory F. Udell.

238/2006 Trade Effects Of Monetary Agreements: Evidence For Oecd Countries.
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano.

239/2006 The Quality Of Institutions: A Genetic Programming Approach.
Marcos Álvarez-Díaz y Gonzalo Caballero Miguez.

240/2006 La interacción entre el éxito competitivo y las condiciones del mercado doméstico como determinantes de la decisión de exportación en las Pymes.
Francisco García Pérez.

241/2006 Una estimación de la depreciación del capital humano por sectores, por ocupación y en el tiempo.
Inés P. Murillo.

242/2006 Consumption And Leisure Externalities, Economic Growth And Equilibrium Efficiency.
Manuel A. Gómez.

243/2006 Measuring efficiency in education: an analysis of different approaches for incorporating non-discretionary inputs.
Jose Manuel Cordero-Ferrera, Francisco Pedraja-Chaparro y Javier Salinas-Jiménez

244/2006 Did The European Exchange-Rate Mechanism Contribute To The Integration Of Peripheral Countries?.
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano

245/2006 Intergenerational Health Mobility: An Empirical Approach Based On The Echp.
Marta Pascual and David Cantarero

246/2006 Measurement and analysis of the Spanish Stock Exchange using the Lyapunov exponent with digital technology.
Salvador Rojí Ferrari and Ana Gonzalez Marcos

247/2006 Testing For Structural Breaks In Variance Withadditive Outliers And Measurement Errors.
Paulo M.M. Rodrigues and Antonio Rubia

248/2006 The Cost Of Market Power In Banking: Social Welfare Loss Vs. Cost Inefficiency.
Joaquín Maudos and Juan Fernández de Guevara

249/2006 Elasticidades de largo plazo de la demanda de vivienda: evidencia para España (1885-2000).
Desiderio Romero Jordán, José Félix Sanz Sanz y César Pérez López

250/2006 Regional Income Disparities in Europe: What role for location?.
Jesús López-Rodríguez and J. Andrés Faíña

251/2006 Funciones abreviadas de bienestar social: Una forma sencilla de simultanear la medición de la eficiencia y la equidad de las políticas de gasto público.
Nuria Badenes Plá y Daniel Santín González

252/2006 "The momentum effect in the Spanish stock market: Omitted risk factors or investor behaviour?".
Luis Muga and Rafael Santamaría

253/2006 Dinámica de precios en el mercado español de gasolina: un equilibrio de colusión tácita.
Jordi Perdiguero García

254/2006 Desigualdad regional en España: renta permanente versus renta corriente.
José M.Pastor, Empar Pons y Lorenzo Serrano

255/2006 Environmental implications of organic food preferences: an application of the impure public goods model.
Ana Maria Aldanondo-Ochoa y Carmen Almansa-Sáez

256/2006 Family tax credits versus family allowances when labour supply matters: Evidence for Spain.
José Felix Sanz-Sanz, Desiderio Romero-Jordán y Santiago Álvarez-García

257/2006 La internacionalización de la empresa manufacturera española: efectos del capital humano genérico y específico.
José López Rodríguez

258/2006 Evaluación de las migraciones interregionales en España, 1996-2004.
María Martínez Torres

259/2006 Efficiency and market power in Spanish banking.
Rolf Färe, Shawna Grosskopf y Emili Tortosa-Ausina.

260/2006 Asimetrías en volatilidad, beta y contagios entre las empresas grandes y pequeñas cotizadas en la bolsa española.
Helena Chuliá y Hipòlit Torró.

261/2006 Birth Replacement Ratios: New Measures of Period Population Replacement.
José Antonio Ortega.

262/2006 Accidentes de tráfico, víctimas mortales y consumo de alcohol.
José Mª Arranz y Ana I. Gil.

263/2006 Análisis de la Presencia de la Mujer en los Consejos de Administración de las Mil Mayores Empresas Españolas.
Ruth Mateos de Cabo, Lorenzo Escot Mangas y Ricardo Gimeno Nogués.

264/2006 Crisis y Reforma del Pacto de Estabilidad y Crecimiento. Las Limitaciones de la Política Económica en Europa.
Ignacio Álvarez Peralta.

265/2006 Have Child Tax Allowances Affected Family Size? A Microdata Study For Spain (1996-2000).
Jaime Vallés-Giménez y Anabel Zárate-Marco.

266/2006 Health Human Capital And The Shift From Foraging To Farming.
Paolo Rungo.

267/2006 Financiación Autonómica y Política de la Competencia: El Mercado de Gasolina en Canarias.
Juan Luis Jiménez y Jordi Perdiguero.

268/2006 El cumplimiento del Protocolo de Kyoto para los hogares españoles: el papel de la imposición sobre la energía.
Desiderio Romero-Jordán y José Félix Sanz-Sanz.

269/2006 Banking competition, financial dependence and economic growth
Joaquín Maudos y Juan Fernández de Guevara

270/2006 Efficiency, subsidies and environmental adaptation of animal farming under CAP
Werner Kleinhanß, Carmen Murillo, Carlos San Juan y Stefan Sperlich

271/2006 Interest Groups, Incentives to Cooperation and Decision-Making Process in the European Union
A. Garcia-Lorenzo y Jesús López-Rodríguez

272/2006 Riesgo asimétrico y estrategias de momentum en el mercado de valores español
Luis Muga y Rafael Santamaría

273/2006 Valoración de capital-riesgo en proyectos de base tecnológica e innovadora a través de la teoría de opciones reales
Gracia Rubio Martín

274/2006 Capital stock and unemployment: searching for the missing link
Ana Rosa Martínez-Cañete, Elena Márquez de la Cruz, Alfonso Palacio-Vera and Inés Pérez-Soba Aguilar

275/2006 Study of the influence of the voters' political culture on vote decision through the simulation of a political competition problem in Spain
Sagrario Lantarón, Isabel Lillo, Mª Dolores López and Javier Rodrigo

276/2006 Investment and growth in Europe during the Golden Age
Antonio Cubel and Mª Teresa Sanchis

277/2006 Efectos de vincular la pensión pública a la inversión en cantidad y calidad de hijos en un modelo de equilibrio general
Robert Meneu Gaya

278/2006 El consumo y la valoración de activos
Elena Márquez y Belén Nieto

279/2006 Economic growth and currency crisis: A real exchange rate entropic approach
David Matesanz Gómez y Guillermo J. Ortega

280/2006 Three measures of returns to education: An illustration for the case of Spain
María Arrazola y José de Hevia

281/2006 Composition of Firms versus Composition of Jobs
Antoni Cunyat

282/2006 La vocación internacional de un holding tranviario belga: la Compagnie Mutuelle de Tram-ways, 1895-1918
Alberte Martínez López

283/2006 Una visión panorámica de las entidades de crédito en España en la última década.
Constantino García Ramos

284/2006 Foreign Capital and Business Strategies: a comparative analysis of urban transport in Madrid and Barcelona, 1871-1925
Alberte Martínez López

285/2006 Los intereses belgas en la red ferroviaria catalana, 1890-1936
Alberte Martínez López

286/2006 The Governance of Quality: The Case of the Agrifood Brand Names
Marta Fernández Barcala, Manuel González-Díaz y Emmanuel Raynaud

287/2006 Modelling the role of health status in the transition out of malthusian equilibrium
Paolo Rungo, Luis Currais and Berta Rivera

288/2006 Industrial Effects of Climate Change Policies through the EU Emissions Trading Scheme
Xavier Labandeira and Miguel Rodríguez

289/2006 Globalisation and the Composition of Government Spending: An analysis for OECD countries
Norman Gemmell, Richard Kneller and Ismael Sanz

290/2006 La producción de energía eléctrica en España: Análisis económico de la actividad tras la liberalización del Sector Eléctrico
Fernando Hernández Martínez

291/2006 Further considerations on the link between adjustment costs and the productivity of R&D investment: evidence for Spain
Desiderio Romero-Jordán, José Félix Sanz-Sanz and Inmaculada Álvarez-Ayuso

292/2006 Una teoría sobre la contribución de la función de compras al rendimiento empresarial
Javier González Benito

293/2006 Agility drivers, enablers and outcomes: empirical test of an integrated agile manufacturing model
Daniel Vázquez-Bustelo, Lucía Avella and Esteban Fernández

294/2006 Testing the parametric vs the semiparametric generalized mixed effects models
María José Lombardía and Stefan Sperlich

295/2006 Nonlinear dynamics in energy futures
Mariano Matilla-García

296/2006 Estimating Spatial Models By Generalized Maximum Entropy Or How To Get Rid Of W
Esteban Fernández Vázquez, Matías Mayor Fernández and Jorge Rodriguez-Valez

297/2006 Optimización fiscal en las transmisiones lucrativas: análisis metodológico
Félix Domínguez Barrero

298/2006 La situación actual de la banca online en España
Francisco José Climent Diranzo y Alexandre Momparler Pechuán

299/2006 Estrategia competitiva y rendimiento del negocio: el papel mediador de la estrategia y las capacidades productivas
Javier González Benito y Isabel Suárez González

300/2006 A Parametric Model to Estimate Risk in a Fixed Income Portfolio
Pilar Abad and Sonia Benito

301/2007 Análisis Empírico de las Preferencias Sociales Respecto del Gasto en Obra Social de las Cajas de Ahorros
Alejandro Esteller-Moré, Jonathan Jorba Jiménez y Albert Solé-Ollé

302/2007 Assessing the enlargement and deepening of regional trading blocs: The European Union case
Salvador Gil-Pareja, Rafael Llorca-Vivero y José Antonio Martínez-Serrano

303/2007 ¿Es la Franquicia un Medio de Financiación?: Evidencia para el Caso Español
Vanesa Solís Rodríguez y Manuel González Díaz

304/2007 On the Finite-Sample Biases in Nonparametric Testing for Variance Constancy
Paulo M.M. Rodrigues and Antonio Rubia

305/2007 Spain is Different: Relative Wages 1989-98
José Antonio Carrasco Gallego

306/2007 Poverty reduction and SAM multipliers: An evaluation of public policies in a regional framework
Francisco Javier De Miguel-Vélez y Jesús Pérez-Mayo

307/2007 La Eficiencia en la Gestión del Riesgo de Crédito en las Cajas de Ahorro
Marcelino Martínez Cabrera

308/2007 Optimal environmental policy in transport: unintended effects on consumers' generalized price
M. Pilar Socorro and Ofelia Betancor

309/2007 Agricultural Productivity in the European Regions: Trends and Explanatory Factors
Roberto Ezcurra, Belen Iráizoz, Pedro Pascual and Manuel Rapún

310/2007 Long-run Regional Population Divergence and Modern Economic Growth in Europe: a Case Study of Spain
María Isabel Ayuda, Fernando Collantes and Vicente Pinilla

311/2007 Financial Information effects on the measurement of Commercial Banks' Efficiency
Borja Amor, María T. Tascón and José L. Fanjul

312/2007 Neutralidad e incentivos de las inversiones financieras en el nuevo IRPF
Félix Domínguez Barrero

313/2007 The Effects of Corporate Social Responsibility Perceptions on The Valuation of Common Stock
Waymond Rodgers , Helen Choy and Andres Guiral-Contreras

314/2007 Country Creditor Rights, Information Sharing and Commercial Banks' Profitability Persistence across the world
Borja Amor, María T. Tascón and José L. Fanjul

315/2007 ¿Es Relevante el Déficit Corriente en una Unión Monetaria? El Caso Español
Javier Blanco González y Ignacio del Rosal Fernández

316/2007 The Impact of Credit Rating Announcements on Spanish Corporate Fixed Income Performance: Returns, Yields and Liquidity
Pilar Abad, Antonio Díaz and M. Dolores Robles

317/2007 Indicadores de Lealtad al Establecimiento y Formato Comercial Basados en la Distribución del Presupuesto
Cesar Augusto Bustos Reyes y Óscar González Benito

318/2007 Migrants and Market Potential in Spain over The XXth Century: A Test Of The New Economic Geography
Daniel A. Tirado, Jordi Pons, Elisenda Paluzie and Javier Silvestre

319/2007 El Impacto del Coste de Oportunidad de la Actividad Emprendedora en la Intención de los Ciudadanos Europeos de Crear Empresas
Luis Miguel Zapico Aldeano

320/2007 Los belgas y los ferrocarriles de vía estrecha en España, 1887-1936
Alberte Martínez López

321/2007 Competición política bipartidista. Estudio geométrico del equilibrio en un caso ponderado
Isabel Lillo, Mª Dolores López y Javier Rodrigo

322/2007 Human resource management and environment management systems: an empirical study
Mª Concepción López Fernández, Ana Mª Serrano Bedia and Gema García Piqueres

323/2007 Wood and industrialization. evidence and hypotheses from the case of Spain, 1860-1935.
Iñaki Iriarte-Goñi and María Isabel Ayuda Bosque

324/2007 New evidence on long-run monetary neutrality.
J. Cunado, L.A. Gil-Alana and F. Perez de Gracia

325/2007 Monetary policy and structural changes in the volatility of us interest rates.
Juncal Cuñado, Javier Gomez Biscarri and Fernando Perez de Gracia

326/2007 The productivity effects of intrafirm diffusion.
Lucio Fuentelsaz, Jaime Gómez and Sergio Palomas

327/2007 Unemployment duration, layoffs and competing risks.
J.M. Arranz, C. García-Serrano and L. Toharia

328/2007 El grado de cobertura del gasto público en España respecto a la UE-15
Nuria Rueda, Begoña Barruso, Carmen Calderón y Mª del Mar Herrador

329/2007 The Impact of Direct Subsidies in Spain before and after the CAP'92 Reform
Carmen Murillo, Carlos San Juan and Stefan Sperlich

330/2007 Determinants of post-privatisation performance of Spanish divested firms
Laura Cabeza García and Silvia Gómez Ansón

331/2007 ¿Por qué deciden diversificar las empresas españolas? Razones oportunistas versus razones económicas
Almudena Martínez Campillo

332/2007 Dynamical Hierarchical Tree in Currency Markets
Juan Gabriel Brida, David Matesanz Gómez and Wiston Adrián Risso

333/2007 Los determinantes sociodemográficos del gasto sanitario. Análisis con microdatos individuales
Ana María Angulo, Ramón Barberán, Pilar Egea y Jesús Mur

334/2007 Why do companies go private? The Spanish case
Inés Pérez-Soba Aguilar

335/2007 The use of gis to study transport for disabled people
Verónica Cañal Fernández

336/2007 The long run consequences of M&A: An empirical application
Cristina Bernad, Lucio Fuentelsaz and Jaime Gómez

337/2007 Las clasificaciones de materias en economía: principios para el desarrollo de una nueva clasificación
Valentín Edo Hernández

338/2007 Reforming Taxes and Improving Health: A Revenue-Neutral Tax Reform to Eliminate Medical and Pharmaceutical VAT
Santiago Álvarez-García, Carlos Pestana Barros y Juan Prieto-Rodriguez

339/2007 Impacts of an iron and steel plant on residential property values
Celia Bilbao-Terol

340/2007 Firm size and capital structure: Evidence using dynamic panel data
Víctor M. González and Francisco González

341/2007 ¿Cómo organizar una cadena hotelera? La elección de la forma de gobierno
Marta Fernández Barcala y Manuel González Díaz

342/2007 Análisis de los efectos de la decisión de diversificar: un contraste del marco teórico "Agencia-Stewardship"
Almudena Martínez Campillo y Roberto Fernández Gago

343/2007 Selecting portfolios given multiple eurostoxx-based uncertainty scenarios: a stochastic goal programming approach from fuzzy betas
Enrique Ballestero, Blanca Pérez-Gladish, Mar Arenas-Parra and Amelia Bilbao-Terol

344/2007 "El bienestar de los inmigrantes y los factores implicados en la decisión de emigrar"
Anastasia Hernández Alemán y Carmelo J. León

345/2007 Governance Decisions in the R&D Process: An Integrative Framework Based on TCT and Knowledge View of The Firm.
Andrea Martínez-Noya and Esteban García-Canal

346/2007 Diferencias salariales entre empresas públicas y privadas. El caso español
Begoña Cueto y Nuria Sánchez- Sánchez

347/2007 Effects of Fiscal Treatments of Second Home Ownership on Renting Supply
Celia Bilbao Terol and Juan Prieto Rodríguez

348/2007 Auditors' ethical dilemmas in the going concern evaluation
Andres Guiral, Waymond Rodgers, Emiliano Ruiz and Jose A. Gonzalo

349/2007 Convergencia en capital humano en España. Un análisis regional para el periodo 1970-2004
Susana Morales Sequera y Carmen Pérez Esparrells

350/2007 Socially responsible investment: mutual funds portfolio selection using fuzzy multiobjective programming
Blanca Mª Pérez-Gladish, Mar Arenas-Parra , Amelia Bilbao-Terol and Mª Victoria Rodríguez-Uría

351/2007 Persistencia del resultado contable y sus componentes: implicaciones de la medida de ajustes por devengo
Raúl Iñiguez Sánchez y Francisco Poveda Fuentes

352/2007 Wage Inequality and Globalisation: What can we Learn from the Past? A General Equilibrium Approach
Concha Betrán, Javier Ferri and Maria A. Pons

353/2007 Eficacia de los incentivos fiscales a la inversión en I+D en España en los años noventa
Desiderio Romero Jordán y José Félix Sanz Sanz

354/2007 Convergencia regional en renta y bienestar en España
Robert Meneu Gaya

355/2007 Tributación ambiental: Estado de la Cuestión y Experiencia en España
Ana Carrera Poncela

356/2007 Salient features of dependence in daily us stock market indices
Luis A. Gil-Alana, Juncal Cuñado and Fernando Pérez de Gracia

357/2007 La educación superior: ¿un gasto o una inversión rentable para el sector público?
Inés P. Murillo y Francisco Pedraja

358/2007 Effects of a reduction of working hours on a model with job creation and job destruction
Emilio Domínguez, Miren Ullibarri y Idoya Zabaleta

359/2007 Stock split size, signaling and earnings management: Evidence from the Spanish market
José Yagüe, J. Carlos Gómez-Sala and Francisco Poveda-Fuentes

360/2007 Modelización de las expectativas y estrategias de inversión en mercados de derivados
Begoña Font-Belaire

361/2008 Trade in capital goods during the golden age, 1953-1973
Mª Teresa Sanchis and Antonio Cubel

362/2008 El capital económico por riesgo operacional: una aplicación del modelo de distribución de pérdidas
Enrique José Jiménez Rodríguez y José Manuel Feria Domínguez

363/2008 The drivers of effectiveness in competition policy
Joan-Ramon Borrell and Juan-Luis Jiménez

364/2008 Corporate governance structure and board of directors remuneration policies: evidence from Spain
Carlos Fernández Méndez, Rubén Arrondo García and Enrique Fernández Rodríguez

365/2008 Beyond the disciplinary role of governance: how boards and donors add value to Spanish foundations
Pablo De Andrés Alonso, Valentín Azofra Palenzuela y M. Elena Romero Merino

366/2008 Complejidad y perfeccionamiento contractual para la contención del oportunismo en los acuerdos de franquicia
Vanesa Solís Rodríguez y Manuel González Díaz

367/2008 Inestabilidad y convergencia entre las regiones europeas
Jesús Mur, Fernando López y Ana Angulo

368/2008 Análisis espacial del cierre de explotaciones agrarias
Ana Aldanondo Ochoa, Carmen Almansa Sáez y Valero Casanovas Oliva

369/2008 Cross-Country Efficiency Comparison between Italian and Spanish Public Universities in the period 2000-2005
Tommaso Agasisti and Carmen Pérez Esparrells

370/2008 El desarrollo de la sociedad de la información en España: un análisis por comunidades autónomas
María Concepción García Jiménez y José Luis Gómez Barroso

371/2008 El medioambiente y los objetivos de fabricación: un análisis de los modelos estratégicos para su consecución
Lucía Avella Camarero, Esteban Fernández Sánchez y Daniel Vázquez-Bustelo

372/2008 Influence of bank concentration and institutions on capital structure: New international evidence
Víctor M. González and Francisco González

373/2008 Generalización del concepto de equilibrio en juegos de competición política
Mª Dolores López González y Javier Rodrigo Hitos

374/2008 Smooth Transition from Fixed Effects to Mixed Effects Models in Multi-level regression Models
María José Lombardía and Stefan Sperlich

375/2008 A Revenue-Neutral Tax Reform to Increase Demand for Public Transport Services
Carlos Pestana Barros and Juan Prieto-Rodriguez

376/2008 Measurement of intra-distribution dynamics: An application of different approaches to the European regions
Adolfo Maza, María Hierro and José Villaverde

377/2008 Migración interna de extranjeros y ¿nueva fase en la convergencia?
María Hierro y Adolfo Maza

378/2008 Efectos de la Reforma del Sector Eléctrico: Modelización Teórica y Experiencia Internacional
Ciro Eduardo Bazán Navarro

379/2008 A Non-Parametric Independence Test Using Permutation Entropy
Mariano Matilla-García and Manuel Ruiz Marín

380/2008 Testing for the General Fractional Unit Root Hypothesis in the Time Domain
Uwe Hassler, Paulo M.M. Rodrigues and Antonio Rubia

381/2008 Multivariate gram-charlier densities
Esther B. Del Brio, Trino-Manuel Ñíguez and Javier Perote

382/2008 Analyzing Semiparametrically the Trends in the Gender Pay Gap - The Example of Spain
Ignacio Moral-Arce, Stefan Sperlich, Ana I. Fernández-Saínz and Maria J. Roca

383/2008 A Cost-Benefit Analysis of a Two-Sided Card Market
Santiago Carbó Valverde, David B. Humphrey, José Manuel Liñares Zegarra and Francisco Rodriguez Fernandez

384/2008 A Fuzzy Bicriteria Approach for Journal Deselection in a Hospital Library
M. L. López-Avello, M. V. Rodríguez-Uría, B. Pérez-Gladish, A. Bilbao-Terol, M. Arenas-Parra

385/2008 Valoración de las grandes corporaciones farmaceúticas, a través del análisis de sus principales intangibles, con el método de opciones reales
Gracia Rubio Martín y Prosper Lamothe Fernández

386/2008 El marketing interno como impulsor de las habilidades comerciales de las pyme españolas: efectos en los resultados empresariales
Mª Leticia Santos Vijande, Mª José Sanzo Pérez, Nuria García Rodríguez y Juan A. Trespalacios Gutiérrez

387/2008 Understanding Warrants Pricing: A case study of the financial market in Spain
David Abad y Belén Nieto

388/2008 Aglomeración espacial, Potencial de Mercado y Geografía Económica: Una revisión de la literatura
Jesús López-Rodríguez y J. Andrés Faíña

389/2008 An empirical assessment of the impact of switching costs and first mover advantages on firm performance
Jaime Gómez, Juan Pablo Maícas

390/2008 Tender offers in Spain: testing the wave
Ana R. Martínez-Cañete y Inés Pérez-Soba Aguilar

391/2008 La integración del mercado español a finales del siglo XIX: los precios del trigo entre 1891 y 1905
Mariano Matilla García, Pedro Pérez Pascual y Basilio Sanz Carnero

392/2008 Cuando el tamaño importa: estudio sobre la influencia de los sujetos políticos en la balanza de bienes y servicios
Alfonso Echazarra de Gregorio

393/2008 Una visión cooperativa de las medidas ante el posible daño ambiental de la desalación
Borja Montaño Sanz

394/2008 Efectos externos del endeudamiento sobre la calificación crediticia de las Comunidades Autónomas
Andrés Leal Marcos y Julio López Laborda

395/2008 Technical efficiency and productivity changes in Spanish airports: A parametric distance functions approach
Beatriz Tovar & Roberto Rendeiro Martín-Cejas

396/2008 Network analysis of exchange data: Interdependence drives crisis contagion
David Matesanz Gómez & Guillermo J. Ortega

397/2008 Explaining the performance of Spanish privatised firms: a panel data approach
Laura Cabeza Garcia and Silvia Gomez Anson

398/2008 Technological capabilities and the decision to outsource R&D services
Andrea Martínez-Noya and Esteban García-Canal

399/2008 Hybrid Risk Adjustment for Pharmaceutical Benefits
Manuel García-Goñi, Pere Ibern & José María Inoriza

400/2008 The Team Consensus–Performance Relationship and the Moderating Role of Team Diversity
José Henrique Dieguez, Javier González-Benito and Jesús Galende

401/2008 The institutional determinants of CO_2 emissions: A computational modelling approach using Artificial Neural Networks and Genetic Programming
Marcos Álvarez-Díaz , Gonzalo Caballero Miguez and Mario Soliño

402/2008 Alternative Approaches to Include Exogenous Variables in DEA Measures: A Comparison Using Monte Carlo
José Manuel Cordero-Ferrera, Francisco Pedraja-Chaparro and Daniel Santín-González

403/2008 Efecto diferencial del capital humano en el crecimiento económico andaluz entre 1985 y 2004: comparación con el resto de España
Mª del Pópulo Pablo-Romero Gil-Delgado y Mª de la Palma Gómez-Calero Valdés

404/2008 Análisis de fusiones, variaciones conjeturales y la falacia del estimador en diferencias
Juan Luis Jiménez y Jordi Perdiguero

405/2008 Política fiscal en la uem: ¿basta con los estabilizadores automáticos?
Jorge Uxó González y Mª Jesús Arroyo Fernández

406/2008 Papel de la orientación emprendedora y la orientación al mercado en el éxito de las empresas
Óscar González-Benito, Javier González-Benito y Pablo A. Muñoz-Gallego

407/2008 La presión fiscal por impuesto sobre sociedades en la unión europea
Elena Fernández Rodríguez, Antonio Martínez Arias y Santiago Álvarez García

408/2008 The environment as a determinant factor of the purchasing and supply strategy: an empirical analysis
Dr. Javier González-Benito y MS Duilio Reis da Rocha

409/2008 Cooperation for innovation: the impact on innovatory effort
Gloria Sánchez González and Liliana Herrera

410/2008 Spanish post-earnings announcement drift and behavioral finance models
Carlos Forner and Sonia Sanabria

411/2008 Decision taking with external pressure: evidence on football manager dismissals in argentina and their consequences
Ramón Flores, David Forrest and Juan de Dios Tena