Forecasting Spanish Elections

Pedro C. Magalhães
Institute of Social Sciences of the University of Lisbon
Av. Prof. Aníbal de Bettencourt, 9
1600-189 Lisbon, Portugal
pedro.magalhaes@ics.ul.pt

Luís Aguiar-Conraria
Economics Department, NIPE and University of Minho
Campus de Gualtar
4710-057 Braga, Portugal
lfaguiar@eeg.uminho.pt

Michael S. Lewis-Beck
Department of Political Science, University of Iowa
341 Schaeffer Hall
Iowa City, Iowa 52242-1409, United States of America
michael-lewis-beck@uiowa.edu

Abstract

The behavior of the individual Spanish voter has come to be rather well-understood, thanks to a growing research literature. However, no models have appeared to explain, or to forecast, national election outcomes. The presence of this research gap contrasts sharply with the extensive election forecasting work done on other leading Western democracies. Here, we fill this gap. The model, developed from core political economy theory, is parsimonious but statistically robust. Further, it promises considerable prediction accuracy of legislative and European election outcomes, six months before the contest actually occurs. After presenting the model, and carrying out extensive regression diagnostics, we offer an ex ante forecast of the November 2011 legislative election, and then discuss the model and the forecast in light of what turned out to be the actual election result.

Keywords: election forecasting; Spain; elections; economic voting; government popularity.

1. Introduction

Over the last twenty years, statistical models to forecast election results have received considerable attention from political scientists [for recent reviews, see Lewis-Beck (2005) and Lewis-Beck and Tien (2011)]. Most published work has focused on the United States, although more is coming out on the leading Western European democracies, such as France, Germany, Italy and the United Kingdom [see the contemporary collection of papers on European election forecasting, Jérôme and Lewis-Beck (2010)]. Serious forecasting models are also appearing for the newer European democracies, such as Portugal (Magalhães and Aguiar-Conraria, 2009) and Hungary (Lewis-Beck and Stegmaier, 2009). It is high time Spain joins this dynamic literature.

That no election forecasting model has been proposed for Spain may seem odd. After all, voting behavior research in Spain has burgeoned, including the part that treats a central aspect of most election forecasting models: the role of the economy. Studies estimating functions for aggregate incumbent vote shares have shown them to be negatively affected by trends in unemployment and inflation (Bosch and Riba 2005). Similarly, in studies using individual-level data, Spain emerges as a case where individual voting decisions for or against the incumbent seem to be influenced by the perceived state of the economy (Lancaster and Lewis-Beck 1986; Fraile and Lewis-Beck 2010), and by objective economic indicators (Fraile and Lewis-Beck 2011). Furthermore, this relationship seems to be particularly strong when looked at in comparative terms (Lewis-Beck 1988; van der Brug, Van der Eijk, and Franklin 2007; Duch and Stevenson 2008).

And yet, a deeper look into the Spanish voting behavior literature reveals a resilient uneasiness with the classic reward-punishment view (Key, 1966; Fiorina, 1981) about the role of the economy in elections. As early as 1986, McDonough, Barnes and López Pina (1986, 446-447) puzzled over the "widespread popularity" of the Socialist (PSOE) government in spite of the highest levels of unemployment in Western Europe. Hamann (2000, 1043) was similarly struck by PSOE's victories in 1986, 1989, and 1993, ultimately suggesting that "no clear pattern exists between vote choice for the governing Socialist party and macroeconomic conditions." With time, several striking findings have fed this perspective. Some have found *positive* (rather than negative) effects of unemployment rates on aggregate levels of government popularity (Amor Bravo 1987; Mancha Navarro 1993). Also, there is the suggestion that the role of unemployment

and inflation in shaping incumbent support in Spain has shifted through time, with inflation becoming more important since the 1990s (Bosch and Riba 2005). Still others have focused on the role of ideology and other enduring political predispositions in voting decisions, seeing them as trumping the effects of economic perceptions (Sáez Lozano and Jaime Castillo 2001), or even as mediating or shaping those very perceptions (Maravall and Przeworski 1999; Lago-Peñas and Lago-Peñas 2005; Sáez Lozano, Jaime Castillo and Danalache 2006). Yet others have found that the negative effect of unemployment on the PSOE electoral vote was neutralized, even reversed, both by the welfare policies of PSOE, and by voters' mistrust of the opposition's (the *Partido Popular*) stance on social policy (Maravall and Fraile 2001; Fraile 2005).

Although we can only speculate, it seems possible that the controversy generated by these findings, together with the massive 1982 electoral earthquake (the near eradication of the UCD, the incumbent), may have deterred election scholars from designing a forecasting model. However, we have decided to take up that task, approaching the problem in a straightforward way. On the one hand, we examine the "core political economy" model of forecasting, making electoral support of the incumbent party a function of political and economic performance [About this conceptual framework, see especially Lewis-Beck, Nadeau, and Bélanger (2004).]. On the other hand, we take stock of theoretical findings on both Spanish elections in particular and European elections generally, in an attempt to develop the model.

To be sure, election forecasting is never tantamount to theory-testing. Its aggregate level focus on prediction, coupled with the inevitably small number of observations (actual electoral outcomes) and the implied necessary parsimony of explanation, prevent forecasting models from being unambiguous validations of electoral behavior hypotheses. Still, to be of greater value than a mere parlor-game, forecasting models need to be theory-driven, so setting them apart from other forecasting approaches, such as opinion polls or political markets. As Lewis-Beck and Tien (2000, 98) observed: "Forecasting requires more than curve fitting. It wants good theory." With theory as a guide, we hope to construct a useful empirical forecasting model of Spanish elections. Below, we estimate and evaluate a limited set of models, interacting with theory and regression diagnostics, to arrive at a preferred specification. As a final exercise, we apply this model to forecasting the November 2011 Spanish election.

2. An initial model

The core political economy equation behind most election forecasting models is the following (see Lewis-Beck and Tien, 2011):

$$Incumbent\ Vote = f(Government\ Popularity, Economic\ Performance).$$

The incumbent's vote share is held to be a function of general government performance, indicated by a popularity measure, and general economic performance, indicated by a measure of the macro-economy. Further, these variables are measured at the national level, typically in short time series across the post-World War II period [For a founding, global treatment of these issues, see Lewis-Beck and Rice (1992)]. Applying these constraints to the Spanish case, we first find that government popularity, measured in a consistent fashion, is not available until the 1990s. The *Centro de Investigaciones Sociológicas* (CIS), the leading source of national survey data in Spain, only began collecting government approval data in October 1993, and then not on a monthly basis. Therefore, between October 1993 and July 2009, just 65 observations are available. If this popularity measure were used, no more than four general elections could be covered, an obviously insufficient number.

Fortunately, there is a popularity proxy variable available from the CIS surveys since June 1979: a general evaluation of the "political situation". On an almost monthly basis, the CIS "barometer" has posed the following question to respondents:

> "And talking about the general political situation in Spain, how would you describe it? Very good, good, so-so, bad, or very bad?"

The question is not deliberately aimed at government performance. However, it is to be expected that government performance would greatly influence the "general political situation," and so may serve as a useful proxy. In fact, the aggregate level correlation between this general political situation variable (percentage who answered "very good" or "good") and the government approval variable (also a percentage) is quite strong, at r = .81 (based on the 65 observations from 1993 to 2009). Hence, we employ this general political situation variable as a workable proxy for government popularity.[1]

[1] We are extremely grateful to Belén Barreiro for making these data available to us.

What is the preferred macroeconomic indicator? There is no consensus on one "best" macroeconomic variable (see the discussion in Lewis-Beck, 2005). Nannestad and Paldam (1994) have pointed to the "big two" of unemployment and inflation, although others point to the wide-spread use of growth and income (Lewis-Beck and Rice, 1992). In a study of the other Iberian case - Portugal - the economic growth rate was used, given the lack of reliable data on unemployment for part of the relevant period (Magalhães and Aguiar-Conraria 2009). However, in the case of Spain, such data are available throughout the entire series and can be used. Our expectation is that unemployment, as well as inflation, should be negatively related with incumbent vote share. Using the available data on the political situation, unemployment and inflation to devise a forecast model of the incumbent give us eight observations: on all legislative elections, 1982 - 2008.

We can further increase our sample size by including the other "national" election that takes place in Spain and is contested on a partisan basis: the elections to the European Parliament in 1987, 1989, 1994, 1999, 2004 and 2009. The parties that compete in these elections are roughly the same that compete in legislative elections, and the "incumbent party" and its vote share remain clearly identifiable concepts. This "pooling" strategy, combining legislative and European elections, has been successfully pursed in the examination of election outcomes in other European counties (e.g., see the French example in Lewis-Beck and Nadeau, 2000). The validity of such a pool rests on the notion that the forces acting on European Parliament voters are essentially the same ones operating on legislative election voters (see Franklin and van der Eijk, 1996).

It would be wrong, though, to assume that such European elections work in the exact same way as legislative elections. European elections have been famously described as "second-order" elections, characterized, first, by lower levels of turnout. Also, they are characterized by systematic losses for the governing parties, given voters' higher incentives to vote sincerely and to punish governments without actually changing the governments (Reif and Schmitt 1980).[2] Thus, although the incumbent vote share can be predicted both for the legislative and European elections, our expectation is that the latter are marked by a dependable loss for the incumbent. In other words, we expect a negative sign on the coefficient associated with a "European election"

[2] The exception to this pattern is provided by European elections that take place very early in the legislative election cycle, where "honeymoon effects" tend to prevail.

dummy, comparable to that obtained in a relevant forecast model of the Italian elections (Bellucci 2010).

The vote function to be estimated reads as follows:

$$VOTE = B_0 + B_1 European + B_2 Inflation + B_3 Unemployment + B_4 PolSit + u \quad (1),$$

where VOTE is the proportion of the valid vote obtained by the incumbent party at each election, *European* is a dummy variable with value 1 in the case of European Parliament elections and 0 otherwise, *Inflation* is the percentage rate of inflation, *Unemployment* is the percentage rate of unemployment and *PolSit* is the percentage of individuals in the CIS surveys that rated the political situation as "good" or "very good". *Inflation*, *Unemployment* and *PolSit* are measured with a 6-month lag in relation to the month of the election.[3]

Table 1: Core Political Economy Election Forecast Model for Spain.

European election	-.047
	(.044)
Inflation (t-6 months)	-.018**
	(.006)
Unemployment (t-6 months)	.011
	(.007)
PolSit (t-6 months)	.005*
	(.003)
Constant	.222
	(.131)
R2	.68
Adjusted R2	.52
SEE	.068
N	13

Significance: *** .01, ** .05 and * .10; one-tailed test

[3] Because of this lag structure, we excluded from the analysis the European election of 2004, which took place only three months after the 2004 legislative election that led to a change in the incumbent party, from the PP to PSOE.

The lag structure merits special attention. A six-month lag permits a true forecast, well in advance of the election itself. Further, there is evidence that a six-month lag optimizes prediction accuracy. Lewis-Beck and Rice (1992, 123), in their experiments on the United States and France, found that the six-month lag offered more precision than alternatives. They concluded this was due, in part, to the fact that the forecasts were made "before the battle heats up." (Lewis-Beck and Rice, 1992, 123). More recently, Whiteley and colleagues (2010), commenting on their current election forecasting model for the United Kingdom, also found that the six-month lag was optimal. In our case, the fit of the model was also maximized with this lag structure. These data, along with measures on the other variables, are presented in the Appendix.

The equation, as estimated with ordinary least squares (OLS), is presented in Table 1. These estimates do support this expression of the core political economy model, at least to some extent. Of the four independent variables, three have the expected signs: the model predicts an incumbent party will experience losses in European elections, have lower electoral support under higher levels of inflation, and greater electoral support when the political situation is more positive. Two of those three coefficients have p-values smaller than 0.10, and one smaller than 0.05. However, the coefficient for unemployment has the opposite sign to initial expectations (positive rather than negative) and lacks statistical significance at conventional levels. Further, the overall fit of the model is not particularly good, with R-squared = 0.68. Additionally, the standard error of the estimate (SEE =0.07), suggests that, for a typical future election, a forecast made from this model will be off by seven percentage points, not a particularly high level of precision. All things considered, it is worth examining how the model might be revised.

3. Revised models

What to make of these first results in terms of possible refinements? A first approach would be to assume that something like Hibbs's (1977) *partisan theory* of macroeconomic policy, at least in what concerns the electoral effects of unemployment. Hibbs's argument is that parties are evaluated on the basis of economic objectives that have high priority for them, and seen as such by voters. Supposing left-wing parties are interested in reducing unemployment, changes in unemployment should affect their electoral performance and not the electoral performance of a right-wing incumbent. In other words, the reason we are not seeing an effect on unemployment here with model 1 is because such an effect – a negative one – might only exist for the case of PSOE as an incumbent.

A second approach would be to assume that *policy-oriented voting* (rather than incumbency-oriented voting) takes place in Spain. According to Kiewiet (1983), a heightened concern with unemployment will lead voters to support those parties that place such concern above others. In other words, increasing unemployment is not likely to hurt left-wing incumbents. Instead, given the parties' different reputations, it is likely to benefit left-wing parties and hurt right-wing parties, regardless of which party might be the incumbent. In a model capturing such a phenomenon, therefore, high unemployment should increase the vote for the incumbent when that incumbent is PSOE and decrease the vote for the incumbent when it is a party other than PSOE (such as UCD in 1982 and PP in the 1999 European elections and the 2000 and 2004 legislative elections).

A final possible approach takes into account what several scholars studying economic voting in Spain have already detected. Although voters may be retrospective and incumbency-oriented, unemployment effects on incumbency support could have been neutralized by PSOE's positive stance on welfare policies, along with its ability to maintain protected incomes for the unemployed (Maravall and Fraile 2001; Fraile 2005). From this point of view, while we are likely to see higher levels of unemployment electorally punished when PSOE is not the incumbent, such punishment would be absent when the Socialists are in power. We call this third approach the partisan *neutralizing* of potential negative outcomes.

Taking these approaches into account, in Table 2 we present estimates from two revised models. Model 2 reads as follows:

$$VOTE = \mathrm{B}_0 + \mathrm{B}_1 European + \mathrm{B}_2 Inflation + \mathrm{B}_3 Unemployment \times PSOE\ incumbent$$
$$+ \mathrm{B}_4 Unemployment \times UCP/PP\ incumbent + \mathrm{B}_5 PolSit + u, \qquad (2)$$

Model 2 is different from Model 1 by containing two interaction terms, between the level of unemployment and two dummy variables capturing the partisan identity of the incumbent: PSOE (left) incumbent and UCD or PP (right) incumbent. On the one hand, if the partisan model holds for the case of unemployment, we should expect the former interaction to be negative and significant, signaling that the punishment for the incumbent as unemployment increases only occurs when PSOE has been in government. [4] (And, we should expect the latter interaction to be close to zero, and not significant, since only PSOE is the electoral target). On the other hand, if the Spanish voter is policy-oriented, we should expect PSOE incumbents to be benefited and UCD or PP incumbents to be hurt in their electoral performance by higher levels of unemployment. In other words, the former interaction would be positive and significant, and the latter interaction would be negative and significant.

Model 2's results are clearly interesting. In comparison with Model 1, European elections maintain their negative sign and size but the precision with which the coefficient is estimated clearly increases, with its p-value dropping below 0.05. The relationship between vote share for the incumbent and evaluations of the political situation also becomes stronger and is more precisely estimated, attaining significance at the 0.01 level. Importantly, the adjusted R-squared increases greatly (from 0.52 to 0.93), and the SEE diminishes considerably (from 0.07 to 0.025).

If the partisan model was supported, we should find the interaction between PSOE as incumbent and unemployment to be negative. However, this is clearly not the case: the coefficient is *positive* rather than negative. This calls attention to the policy-oriented model. In fact, in Model 2, the signs of the coefficients are as expected for the policy-oriented model (positive for PSOE Incumbent*Unemployment interaction and negative for the UCD or PP Incumbent*Unemployment interaction). However, each of these interaction coefficients falls short of statistical significance, because of a collinearity problem. Nevertheless, they are jointly

[4] We acknowledge that the partisan model also applies to inflation. However, note that inflation is already statistically significant at 5% when no distinction is made between the incumbent parties. Therefore, given limited data available here, particularly in number of observations, we find no obvious advantage in disaggregating it in the same fashion.

highly significant (otherwise it would be impossible to observe such a huge increase in the R-squared and in the adjusted R-squared).

Table 2: Election Forecast Model of Incumbent Support in Spain.

	Model 2	Model 3
European election	-.048**	-.039*
	(.017)	(.016)
Inflation (t-6 months)	-.014***	-.013***
	(.002)	(.002)
Unemployment×PSOE (t-6 months)	.004	-
	(.003)	-
Unemployment×UCD/PP (t-6 months)	-.007	-.011***
	(.004)	(.001)
PolSit (t-6 months)	.008***	.008***
	(.001)	(.001)
Constant	.307***	.368***
	(.050)	(.027)***
R2	.96	.95
Adjusted R2	.93	.93
SEE	.025	.027
N	13	13

Significance: *** .01, ** .05 and * .10; one-tailed test

The third approach, that of the partisan neutralizing of negative outcomes, can be tested via a simplification of Model 2. Instead of assuming that both incumbents are affected by unemployment, we merely test the hypothesis that PSOE has remained invulnerable to such effects. Model 3 thus drops the PSOE Incumbent*Unemployment interaction from Model 2, as follows:

$$VOTE = \mathrm{B}_0 + \mathrm{B}_1 European + \mathrm{B}_2 Inflation + \mathrm{B}_3 Unemployment \times UCP/PP\ incumbent + \mathrm{B}_4 PolSit + u, \quad (3)$$

The estimates for Model 3 are extremely encouraging. The adjusted R-squared and SEE values remain virtually the same as in Model 2, despite dropping a variable. Further, the coefficients of all the variables have the expected signs, and all with p-values below 0.05; indeed, all but one is below 0.01. The results are clearly supportive of the partisan *neutralizing* model. In sum, while collinearity renders support for the policy-oriented model ambiguous, the neutralization model is both endorsed by previous Spanish research, and is explicitly supported by our statistical analysis. Model 3 is, thus, our preferred forecast model.

4. A preferred model: diagnostics

In what concerns Model 3, in-sample diagnostic tests show no evidence of heteroscedasticity (White test, p-values > 0.77) or non-normality (Kiefer and Salmon/Jarque-Bera tests, p-value = 0.64). With respect to outliers, they can be diagnosed through examination of studentized residuals (Beckman and Trussel 1974). One observes that only one is statistically significant (for the 1996 legislative elections; value = 2.15, significant at 0.05). The finding of this single significant residual is not troubling: with N = 13 the probability of having one false positive out of 13 is almost 50%.

The issue of the small sample size deserves further attention. Two main consequences of a small N are worth full discussion. The first consequence is larger standard errors, leading to lower t-statistics and a failure to reject the null hypothesis when false. This problem does not appear in Model 3, since all the independent variable coefficients are statistically significant. The second consequence concerns the high sensibility of the estimates to small changes in the sample composition. First, we examine the condition index test (Belsley, 1991). The condition index bases itself on a simple idea. If the sample size is too small, then $X'X$ will be a near singular matrix. In that case, at least one of the eigenvalues of the matrix $X'X$ will be close to zero. Therefore, close to zero eigenvalues suggest that the small sample size may be a problem. The test involves the following steps: (1) standardization of the explanatory variables to mean zero and unit variance;[5] (2) computation of the eigenvalues of the standardized $X'X$; (3) calculation of the condition index number given by $\sqrt{\lambda_{max}/\lambda_{min}}$, where $\lambda_{max}/\lambda_{min}$ is the highest/lowest eigenvalue. Based on Monte Carlo simulations, Belsley (1991) finds evidence of severe linear dependence between the variables when the index exceeds 30. If the index is between 10 and 30, there is evidence of a moderate to severe sample problem. The condition index of Model 3 is 1.99, a value well below the suggested bounds.

Despite these encouraging results, it remains the case that inference from such a small sample is difficult to rely on. One can still argue that the lack of degrees of freedom may cause one observation to have a huge impact on the final results. Therefore, in order to increase the reliability of our results, we perform a more demanding analysis, by examining "out-of-sample" forecasts. We exclude each election, one at a time, and re-estimate the model with the remaining

[5] This normalization is essential because the test is scale dependent.

observations. Then, we check how the model forecasts the omitted observation. In this experiment, the largest out-of-sample error is for the 1982 election, with the incumbent vote being overpredicted by 15 percentage points. But this election was highly peculiar, representing a major electoral realignment in the Spanish party system. The incumbent UCD, plagued by internal divisions, was deserted by its local notables and lost the leadership of both its founder (Adolfo Suárez) and its incumbent Prime Minister (Calvo Sotelo). It was nearly wiped out as a party, garnering less than 7 percent of the vote. If we restrict our analysis to the other 12 elections, the model out-of-sample forecasts perform quite well, with a mean absolute out-of-sample error = 2.8 percentage points.[6]

Table 3. OLS and Jackknife estimates.

	OLS estimates	Jackknife estimates (mean)	95% confidence interval
European election	-.039	-.037	[-.063,-.013]
Inflation (t-6 months)	-.013	-.012	[-.016,-.004]
Unemployment (t-6months) * PP or UCD incumbent	-.011	-.011	[-.013,-.005]
PolSit (t-6 months)	.008	.008	[.005,.010]
Constant	.368	.364	[.302,.403]

As a further out-of-sample test, we re-estimated the standard errors of the estimated slope coefficients, by means of jackknife (delete-3) procedures.[7] Jackknife samples are "pseudo-samples" computed by leaving out three different observations at a time, eventually producing 286 samples. Then, for each sample Model 3 is re-estimated. From this procedure, an empirical distribution for the estimated coefficients is derived. The estimated coefficients prove to be very stable, as seen in Table 3. The first column shows the OLS estimates of Model 3 (from Table 2). The second column shows the average of the Jackknife estimates. We observe that the respective coefficient estimates are almost exactly equal. The third column presents the empirical 95%

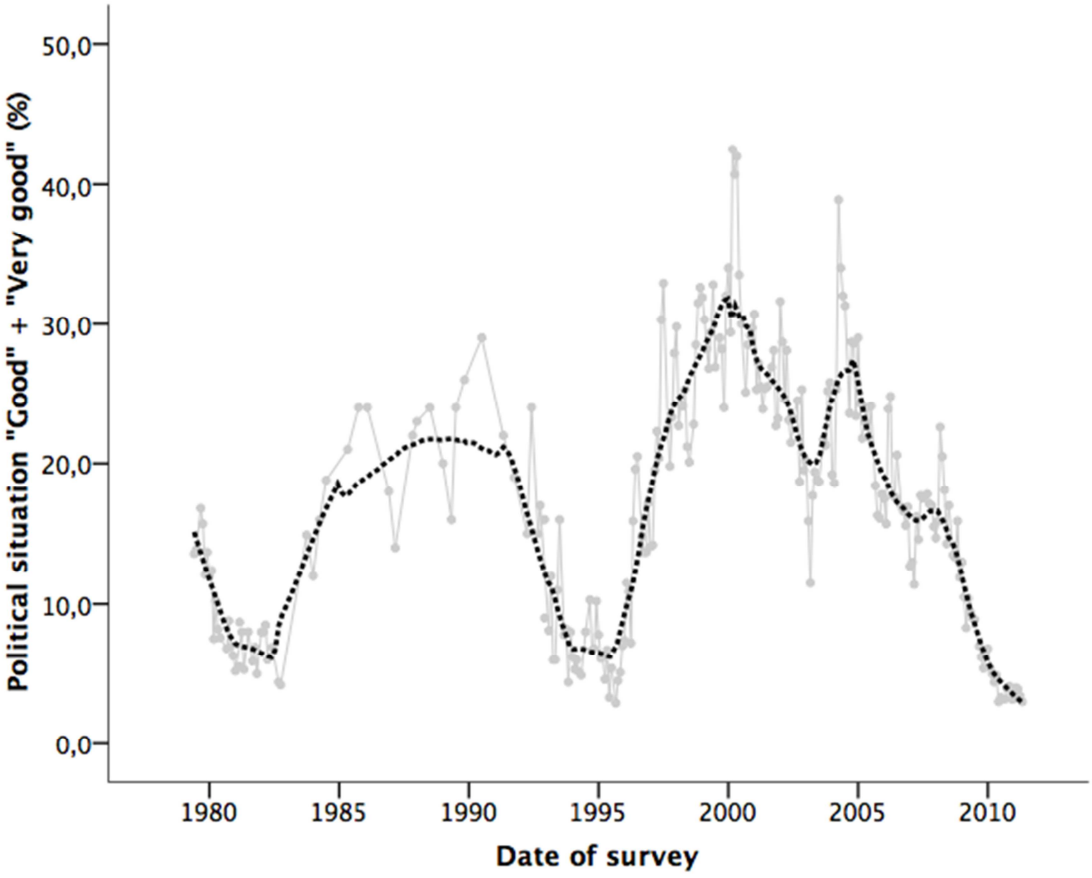
[6] This is slightly better than the result of Magalhães and Aguiar-Conraria (2009), who also dealt with a comparably small sample in the case of Portugal.
[7] Delete-2 yields similar results. However, the number of samples is rather small, due to the small original sample size.

confidence interval around the Jackknife estimates, confirming the statistical significance of the average Jackknife estimate.

5. The November 2011 Spanish legislative elections: a true out-of-sample forecast

The national election in Spain was initially scheduled for March 2012, but in late July 2011, Prime Minister Zapatero announced that the election was to be advanced to November 2011. Thus, as of May 2011, all the data we needed to produce an unconditional *ex ante* forecast of the incumbent vote share in this election was fixed. The values of two variables were already determined even before: *UCD or PP Incumbent* = 0 (since PSOE is the current incumbent); and *European = 0* (since the November election was legislative). For the other two variables, *Inflation* and *PolSit*, we needed their values for May 2011. In the CIS "Barómetro" (May 2011), the percentage of respondents who declare the current political situation "good" or "very good" was 3%, one of the very lowest scores ever recorded. Figure 1 shows the evolution of this variable since it has been recorded by CIS. In our sample of 13 elections, only the 1996 election has a lower value (2.9%). The inflation rate was 3.5%.

Figure 1: Evaluation of the current political situation in Spain (% "Good" + "Very good")



Note: The dotted line is a 10% bandwidth Kernel smoother

Table 4 shows the predicted incumbent vote share for the November 2011 legislative elections. These forecasts are derived from application of Model 3:

Table 4: Forecast

Inflation	Political Situation	Forecast	For. St. Error
3.5%	3%	0.345 (34.5%)	0.033

How do these results look historically for any incumbent Spanish party in general and for PSOE in particular? Our model spelt doom for the Socialist incumbents. Until the 2012 elections, only once had an incumbent party received a valid vote share below the forecasted 34.5%. (In the distant year of 1977, the UCD gained 34.4%.) Of course, this was before the 1982 electoral realignment, and the consequent lower level of fragmentation for the Spanish party system that followed. Since 1982, the lowest share of the valid votes obtained by a *winning* party was 38.8%, when the PSOE very narrowly defeated the PP in the 1993 legislative election. A Socialist vote share now of just 34.5% would also mean their fourth worst electoral showing ever, only exceeding the 1977, 1979 and 2000 elections.

6. The November 2011 Spanish legislative elections: post mortem analysis

So far, all our results and estimations were produced and, apart from small details, were written before the November 2011 elections. The previous version of the paper was uploaded in our websites in August and the forecast was posted in September at *The Monkey Cage* weblog.[8] At this point, however, we already have the results from that election. The incumbent party, PSOE, received a total share of 28.7% of the votes, its worst result ever in Spanish democracy. In light of this new information, how well did the model stand?

We can answer this question in different ways. Although correctly giving a clear sense of PSOE's debacle, the forecast overestimated the incumbent's vote share clearly by more than what the forecast standard error would suggest. In the absence of other forecasting models, it is difficult to ascertain if other alternative specifications might be preferable. Of course, one can speculate on whether this larger than expected defeat might be related to PSOE's inability, this time, in context of austerity measures, to mitigate the social and political consequences of unemployment. However, the two comparisons that suggest themselves do not give clear answers in that regard. On the one hand, if we compare the forecast with the other models we estimated in the paper, choosing Model 3 (and not any of the other two models) continues to be the appropriate choice, as the forecasting error produced by the other models would be larger. On the other hand, we can compare the forecast with opinion polls. And as it happens, those also overestimated PSOE's vote share, even as they relied on survey data collected very close to the election itself. If we consider the very last polls made public before the election, conducted little more than a week before election day, a Bayesian state-space model to estimate latent support generated a prediction of 31.1% (Fernández-i-Marín 2011), still above the disastrous score the Socialists managed to obtain. This contrasts with the last polls conducted before the previous (2008) election, which had overestimated PSOE's lead, on average, by a mere half of a percentage point.

Furthermore, regarding our Model 3, one may ask, given this new data point, how much would the model have to be revised to accommodate this new observation. Table 5 shows these results. One can see that the estimated coefficients remain almost unchanged, very well confined within

[8] See: http://themonkeycage.org/blog/2011/09/21/forecasting-spanish-elections-2011-spanish-pre-election-report/

the confidence bounds displayed in Table 3. Thus, we find no evidence at this point that the model requires revision. In any case, the updated version of the model may, of course, be used to predict the outcome of the legislative elections that will take place no later than in 2015, as well as, of course, that of the 2014 European Parliament elections.

Table 5: Updated Election Forecast Model of Incumbent Support in Spain,

	Model 3
European election	-.033*
	(.017)
Inflation (t-6 months)	-.012***
	(.003)
Unemployment (t-6months) * UCD/PP incumbent	-.012***
	(.002)
PolSit (t-6 months)	.009***
	(.001)
Constant	.342***
	(.025)***
R2	.93
Adjusted R2	.90
SEE	.03
N	14

Significance: *** .01, ** .05 and * .10; one-tailed test

7. Conclusion

The scientific study of Spanish electoral behavior is a vigorous enterprise. Curiously, however, no systematic research has appeared on Spanish election forecasting. Here we fill that gap. To begin, we formulate a classic core political economy model, which has done well for forecasting election outcomes elsewhere. While empirically supported, this initial model does not yield enough accuracy to be of much use as a forecasting tool. In considering revisions, we were guided by competing partisan theories, and peculiar features of the Spanish polity. On the latter, especially important is the partisan neutralization of the adverse electoral effects of unemployment, achieved by the Socialist party.

The preferred model holds incumbent vote share in Spanish national-wide elections to be a function of government popularity, inflation, and unemployment (for the PP only). This model fits the data well and demonstrates considerable robustness, in the face of multiple diagnostics. Of particular interest are the out-of-sample tests, both ex post and ex ante. The ex post tests showed encouraging experimental results with omitted observations and Jackknife samples, especially in terms of model stability. The ex-ante test forecasts the November 2011 election, which had not occurred at the time of writing. However, because the model bases itself on an ample, six-month lag, we were able to issue an unconditional estimate of the PSOE vote share by August, immediately after the early elections were called, which undoubtedly pointed in the direction of a crushing Socialist defeat. Clearly, on the basis of the theory and empirics considered here, the future success of election forecasting in Spain seems a reasonable expectation.

Appendix

Table A1: Election results and variables in the models

	Vote	European	Infl(-6)	Unem(-6)	POLSIT(-6)	Incumbent
1982M10	0.068	0	14.0	12.5	6.0	UCD
1986M06	0.441	0	8.2	17.7	24.0	PSOE
1987M06	0.391	1	8.3	17.3	18.0	PSOE
1989M06	0.422	1	5.8	14.8	20.0	PSOE
1989M10	0.396	0	6.7	14.2	16.0	PSOE
1993M06	0.388	0	5.3	16.4	12.5	PSOE
1994M06	0.308	1	4.9	19.4	8.0	PSOE
1996M03	0.376	0	4.4	18.5	2.9	PSOE
1999M06	0.397	1	1.4	14.0	32.6	PP
2000M03	0.445	0	2.5	12.2	29.0	PP
2004M03	0.377	0	2.9	11.1	21.7	PP
2008M03	0.439	0	2.7	8.4	17.8	PSOE
2009M06	0.388	1	1.4	14.9	11.9	PSOE
2011M11	0.287	0	3.5	20.9	3.0	PSOE

Sources: OECD Main Economic Indicators for economic data and surveys from *Centro de Investigaciones Sociológicas* for political data.

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