



Economic voting in multi-tiered polities

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ABSTRACT

This paper assesses whether economic voting plays any role in a parliamentary, decentralized polity. Decentralization is argued to blur lines of responsibility and confuse voters about whom to blame for poor economic performance at the national and regional levels. National and Regional Economic Voting (NEV and REV, respectively) are tested in Catalonia (Spain). The initial empirical test suggests that only NEV takes place in this region. Four hypotheses are considered to explain REV's absence: blame-shifting, blinding nationalism, coalition government, and misinformation regarding Policy Responsibility Distribution across tiers of government. Using reasonable counterfactuals and Bayesian techniques, the first three hypotheses are dismissed, whereas the last is confirmed. The results emphasize the informational requirements behind the economic voting theory.

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1. Introduction

According to the *Economic Voting Hypothesis*, when voters are satisfied with the economy, they re-elect the incumbent, but when they are dissatisfied, they withdraw support (Fraile and Lewis-Beck, 2010). This hypothesis, initially tested in the national American elections, received widespread empirical support (Kramer, 1971; Tufte, 1975). One decade later Lewis-Beck (1988) tested the economic voting theory in European parliamentary systems. The different *magnitude* of economic voting across institutional settings found by this author led Powell and Whitten (1993) to raise the *clarity of responsibility hypothesis*, by which “the greater the perceived unified control of policy-making by the incumbent government, the more likely is the citizen to assign responsibility for economic and political outcomes to the incumbents” (p.398). Powell and Whitten (1993) identified five institutional factors mediating the effect of the economy on voting for the incumbent: internal party cohesion, committee allocation system, upper chambers, minority governments and coalition governments. Over the years, Powell and Whitten's

context-based economic voting approach has accumulated strong confirmatory evidence (Anderson, 2000; van der Brug et al., 2007; Duch and Stevenson, 2008; Nadeau et al., 2002).

Comparatively speaking, the effect of political and fiscal decentralization on the clarity of responsibility has received little attention. However, when political and fiscal responsibilities are intertwined across tiers of government, it might be far from obvious whom to blame for poor economic performance at the national and regional levels. To address this point, this paper seeks to assess the occurrence of *National* and *Regional* Economic Voting (NEV and REV, respectively) in decentralized polities. Specifically, REV is said to take place if the *regional* incumbent's electoral prospects depend on the *region*'s economic performance. Likewise, NEV is said to occur if the *national* incumbent's electoral support depends on the *nation*'s economic performance. Given the marked increase in political and fiscal decentralization across consolidated and new democracies over the last 50 years (Hooghe et al., 2010), it seems appropriate to assess whether the newly empowered regional governments are being held accountable for the performance of regional economies.

NEV in decentralized polities has already been analyzed cross-nationally. As predicted, political and fiscal decentralization seems to attenuate NEV's magnitude (Anderson,

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2006). Yet, a lower incidence does not necessarily imply that economic voting is not operative under decentralized polities. Several case-studies suggest the opposite: Fraile (2005) and Fraile and Lewis-Beck (2010) for Spain, Anderson (2008) for Canada, and Feld and Kirchgässner (2000) and Lewis-Beck (1988) for Germany have found confirmatory evidence for NEV in decentralized polities.

Evidence for REV is more controversial. The existence of REV hinges, first and foremost, on the ability of regional governments to affect the regional economies. This capacity will be a function of the degree of fiscal and expenditure decentralization present in the political system. In highly-decentralized systems, regional governments will not only be endowed with more resources and policy tools to influence the regional economy, but voters also will face fewer difficulties in determining whom to reward (punish) for good (poor) regional economic performance (León, 2006). This will not necessarily be the case for intermediate levels of decentralization. Positive evidence of REV has been found so far in Canada (Anderson, 2008), in the US (Atkeson and Partin, 1995; Niemi et al., 1995), and in Spain (Riba and Diaz, 2002). Building on these studies, this paper seeks to assess the relative occurrence of REV vs. NEV while adding substantive and methodological insights to the existing work.

In order to test for REV and NEV, we will focus on Spain, a moderately fiscally-decentralized polity (Hooghe et al., 2010). More concretely, we will focus on one of its 17 regions or *Autonomous Communities*, Catalonia.¹ Catalonia satisfies the *minimum* requirement for REV to be operative: that is, it is endowed with sufficient powers to influence (even if marginally) the economy. In particular, this region possesses moderate levels of fiscal powers and high levels of autonomy with regard to expenditures (León, 2006). The Catalan government is responsible for active labor market policies, university and innovation policies. It provides unemployment benefits in addition to those provided by the central government, and has almost full autonomy in expenditure for such crucial public services as education, public health and security. In addition, 33% of the income tax and 35% of the value added tax raised in Catalonia stays in the region. Catalonia also holds legislative power over 33% of income tax, and can even issue its own sovereign debt.² Altogether, this quantity of policy levers appears sufficient to affect, even if only at the margins, the performance of the regional economy.

REV and NEV will be tested in Catalonia using a survey conducted by the *Institut de Ciències Polítiques i Socials* (ICPS) in late November 2009 over a representative sample of the Catalan population.³ The initial results will suggest that NEV is pervasive in Catalonia, whereas REV is not. Four hypotheses for such an absence are assessed: blame-shifting, blinding

nationalism, coalition governments, and misinformation over Policy Responsibility Distribution (PRD) across tiers of government. The analysis suggests that REV's absence is grounded in the fourth hypothesis: misinformation regarding PRD. In particular, economic voting at regional level seems to operate only among individuals with a clear picture of policy distribution across government tiers. But these individuals are a minority among the population. For this very reason, when we pool all individuals in a single regression we find no evidence for REV. The results have broad implications for the study of economic voting: first, it emphasizes the informational requirements for economic voting to take place, especially when institutional context blurs lines of responsibility. Second, it questions the adequacy of treating the electorate as an homogeneous group made up of individuals endowed with similar levels of (mis)information.

The rest of the paper is organized as follows: Section 2 reviews the existing literature on REV and introduces the case study, Catalonia. Particular emphasis will be put on the reasons why we can extrapolate our conclusions to other decentralized polities. Section 3 discusses the methodological challenges in the analysis of party choice in multiparty systems. Section 4 presents the results on REV and NEV generally. Section 5 explores four hypotheses for the apparent lack of REV in Catalonia. Section 6 concludes.

2. Assessing REV

REV in multiparty, parliamentary systems has been studied by Anderson (2008) and Riba and Diaz (2002). These scholars follow the research design of the canonical works on economic voting, which were designed for the bipartisan American elections. That is, they estimate the marginal effect of economic performance on incumbent support. This approach seems problematic in a multiparty system, where several parties might coexist within government and opposition. By collapsing all parties into either of these categories, Anderson (2008) and Riba and Diaz (2002) implicitly assume that all parties within government (opposition) are equally exposed to economic voting. We claim that this cannot be assumed. Instead, it is an empirical question. For this reason, we estimate the effect of economic performance separately for all parties within government and opposition. Specifically, we can expect incumbent parties holding more administrative responsibilities to be more exposed to economic voting (Duch and Stevenson, 2008; van der Brug et al., 2007). Likewise, we will assess whether incumbent parties can avoid economic voting by prioritizing identitarian over economic achievements.

Departing from Atkeson and Partin (1995), Niemi et al. (1995) and Riba and Diaz (2002), regional and national economic voting will be *simultaneously* tested. This approach allows us to yield an estimate of the *relative* magnitude of REV vs. NEV for the same pool of individuals.

2.1. Case-study: Catalonia

Selecting a case-study is a challenging decision when we seek to generate conclusions exportable to other polities (i.e., external validity). This paper claims that Catalonia is a suitable case of study precisely because it incorporates several

¹ Both Spain and Catalonia have parliamentary systems of government. Catalans elect representatives to the Spanish (national) Parliament and the Catalan (regional) Parliament. These assemblies appoint the national and regional executives, respectively.

² A fiscal reform took place in July 2009. The new system significantly increased Catalonia's fiscal autonomy and normative power over fiscal issues.

³ See Appendix for a discussion on the reliability of vote intention, particularly when it is requested months before the actual election day.

elements argued to inhibit economic voting, especially at the regional level. First, Catalonia ranks second to last among the Spanish regions in the *electoral control index* devised by Lago and Lago (2010). This index records, for each region, the share of individuals who voted for the incumbent despite having provided a poor evaluation of the regional economy. Second, León (2006) claims that the relationship between the clarity of responsibilities and decentralization follows a u-shaped form. Citizens are more capable of ascribing responsibilities in contexts where decentralization is either high or low, but not intermediate. Catalonia is classified by León (2006) in the latter category because it possesses a high level of autonomy on expenditures, but a small number of fiscal powers. León's (2006) categorization is supported by Catalonia's rank in the Regional Authority Index (RAI) devised by Hooghe et al. (2010). This index accounts for the authority the regional government exercises over those who live in the region, and the authority the same region (or its representatives) exercise in the country as a whole.⁴ In 2006, Catalonia ranked in the 56th percentile of this index, almost the median position. Thus, according to the u-shaped hypothesis, clarity of responsibility should be particularly low in a region like Catalonia. Third, Catalonia has developed a strong regional identity over centuries - sometimes in opposition to the Spanish nationhood. Aguilar and Sánchez-Cuenca (2007) suggest that retrospective evaluations might weigh less on party choice among *Catalanist* voters because these individuals give priority to identitarian issues. Since Catalanists are a majority in the Catalan electorate, we should expect little if any incidence of economic voting in the region. Lastly, in 2009 there was a coalition government in Catalonia. The presence of coalition governments tends to blur lines of responsibility and weaken the incidence of economic voting (Powell and Whitten (1993).

All things considered, REV should hardly occur in a region like Catalonia. By focusing on such an unfavorable scenario, we are deliberately setting up a difficult test for REV. If we can draw supportive evidence for REV under these conditions, we can be more confident in predicting that REV will occur in other polities with moderate or high levels of decentralization (with or without regional nationalism). The next section evaluates the merits of the ICPS dataset with regard to the task of running a simultaneous analysis for NEV and REV.

3. The empirical model of party choice

3.1. Specification

REV and NEC are tested analyzing the marginal effects of national and regional economic performance perception on vote intentions for the national and regional elections, respectively. The same pool of parties ran in both elections.⁵

The five parties compete along two dimensions: the distributive, left-right spectrum and the identitarian, Catalonia-vs. -Spain dimension, the latter dimension being particularly strong in this region. Parties position themselves in both of these dimensions, as reported in Table 1.

In the 2006–10 period, the regional executive was formed by a coalition of three leftist parties, the PSC, ERC and ICV, differing mostly on their identitarian stands. The main party in opposition at the regional level was the CIU, a conservative, regionalist party. The national government was formed by a single party in the 2008–2011 administration. The party controlling the national government, the PSOE, is a center-left political party. The main opposition party in Spain is the PP. However, this party has historically performed poorly in Catalonia. When Catalans vote for the national parliament, the PSC and CIU still gather most of the electorate's support. The first of these two parties, the PSC, is the regional branch of the PSOE. Technically, PSC and PSOE are two independent parties. Yet, in the national parliament they form the same parliamentary group, and party cohesion is strongly enforced. Likewise, PP has a regional branch: the Catalan PP, or PPC. In this case, PPC is clearly subordinated to PP.

The main explicative variables in the analysis are the subjective perceptions of economic performance at the regional and national levels. Given the harsh economic crisis at the time of the survey, these perceptions were overwhelmingly negative. For this reason, the two 5-category items in the original dataset were recoded into a dummy variable. Accordingly, 71% of respondents considered that the Catalan economy was in bad or very bad shape (vs. 29% who considered it was very good, good or normal). And 75% believed that Spanish economic performance was bad or very bad (vs. 25% who believed the opposite).⁶

The analysis will estimate the effect of negative economic evaluations on party support independently for each political party. We will place particular attention on the effects of poor economic perception on the parties in government at the regional and national level: the PSC, ERC, ICV, and PSOE, respectively. Party-specific economic voting estimates will prove appropriate to test the Duch and Stevenson (2008) hypothesis regarding economic voting in the context of coalition government. According to these scholars, economic voting on coalition governments is increasing in the party of the chief executive, the party that holds the larger number of cabinet portfolios, and the party that holds the executive responsibility for economic management (i.e., the party that holds the Treasury portfolio). The PSC held the chief executive position in the regional government, occupied the larger number of cabinet portfolios and also controlled the Treasury Department. Thus, if REV is fully operative, we should expect this party's electoral fate to be linked clearly with regional economic performance evaluations.

⁴ These scholars evaluate 90 regions in 42 countries. The index ranges from 1 to 22, and Catalonia scores 14.5 points.

⁵ In 2006, a new party, *Ciutadans*, did achieve parliamentary representation in the Catalan Parliament (winning 2% of the seats), but not in the Spanish parliament. This party is not considered in this analysis given that few respondents declared their intention to vote for it.

⁶ The strong co-variation of subjective perceptions of the economy at the two levels of government is an advantage. It allows us to identify the incidence of regional economic voting. Had the regional economy performed poorly, we would have not been able to disentangle whether the lack of regional voting was due to the relative better position of the regional economy, or to the lack of economic voting at regional level.

Table 1
The Catalan party system.

	Distributive score	Identitarian score	Vote share 2006 elections	Local franchise	In regional government	In national government
PPC	5.97	1.67	10.7	yes (PP)	no	no
CIU	4.59	4.14	31.5	no	no	no
ERC	2.52	4.61	14.0	no	yes	no
PSC	3.16	2.78	26.8	yes (PSOE)	yes	yes
ICV	2.39	3.81	9.5	no	yes	no

PPC: Popular Party of Catalonia; CIU: Convergence and Union; ERC: Republican Left of Catalonia; PSC: Socialist Party of Catalonia; ICV: Initiative of Catalonia-Greens; PSOE: Socialist Party of Spain; PP: Popular Party of Spain. If Local Franchise is 'yes', national party in parenthesis. Distributive dimension: 1 (left)- 10 (right). Identitarian dimension: 1 (identifying only with Spain) - 5 (identifying only with Catalonia). Vote share for 2006 corresponds to regional elections.

The effect of economic evaluations over vote intention is controlled by four prospective elements. Previous theoretical and empirical work has suggested that economic voting does not override selection effects (Duch and Stevenson, 2008; Lewis-Beck, 1988). That is, voters weigh economic performance against prospective elements. The literature on voting behavior in Catalonia has shown that left-right and identitarian dimensions do matter in explaining party choice in this region (Aguilar and Sánchez-Cuenca, 2007; Fernandez-Vázquez, 2009; Padró-Solanet and Colomer, 1992). Accordingly, quadratic utility loss components adjust the model for individual-party ideological wedges in both dimensions.

Candidate evaluations have also been suggested as relevant predictors of party choice in Catalonia (Fernandez-Vázquez, 2009; Riba and Diaz, 2002; Riera, 2009). Thus, they are also considered here. Candidate approval is measured on a 1–10 scale. Because different pools of candidates run for office at each tier of government, the pool of candidate approval for each party differs by election level.

As previously argued, Catalonia is a region with a marked identitarian profile. In the regional parliament, secessionist parties (ERC) and sovereignist parties (CIU) are represented. Indeed, the ERC was a member of the party in regional government in 2009, the year of analysis. Adjusting for voter-party distance in the identitarian dimension might not be sufficient to account for party preferences. It has been argued that parties possess reputations regarding their ability to look after Catalonia's interests, especially when they run for national elections (Riba, 2000). To capture this kind of party-reputation, the analysis includes an additional (prospective) control: a variable which indicates which party the respondent believes best upholds Catalonia's interest.⁷ This variable consists of a vector of 0s and a 1, indicating the party that the respondent considers best look after Catalonia's interest.

The four prospective variables listed above fulfill a second role. They are intended to minimize the risk of endogeneity. Subjective economic perceptions and vote intention could be both driven by an underlying preference for a political party. The consideration of the four controls deliberately seeks to model such underlying affinity. In

other words, with their inclusion we are trying to minimize an omitted variable bias.⁸

3.2. Implementation

We seek to estimate the effect of economic performance on party choice once we adjust for relevant controls. This choice-problem is best formalized by the indirect utility model

$$U_{i,j} = X_{i,j}^T \beta + \varepsilon_{i,j} \quad (1)$$

where $U_{i,j}$ denotes the utility of individual i of voting for party $j \in J$, given a vector of covariates X (either unit- or choice-specific) of size T , and stochastic error $\varepsilon_{i,j}$. The probability of choosing alternative j over any other $-j \in J$ can be defined as

$$P_i(j) = P(U_{i,j} > U_{i,-j}) = P(\varepsilon_{i,-j} - \varepsilon_{i,j} < X_{i,j}^T \beta - X_{i,-j}^T \beta) \quad (2)$$

In order to solve expression (2) we need to assume a particular probability density function on $\varepsilon_{i,j}$. Given $J > 2$, we can choose either a *type I extreme value* distribution - and run a conditional multinomial logit (CML); or a *multivariate normal* distribution - and perform a multinomial probit (MNP).⁹ Both density distributions share the convenient property of reporting values within the range of interest $p_{ij} \in (0, 1)$ s.t. $\sum p_{ij} = 1$. Yet, only the CML model assumes the Independence of Irrelevant Alternatives (IIA). Under this assumption, the relative probability of choosing one party list over the other is independent of any third alternative. If the IIA fails to be met, the $\hat{\beta}$ estimates in (2) will be inconsistent. In order to determine whether IIA is

⁸ Besides these variables, the models have also been controlled by partisan affinity, which is expected to influence both economic evaluations and party choice (Marsh and Tilley, 2009). Given the marked identitarian debate in Catalonia, partisan affinity is proved to capture similar information than the variable *Look after for Catalonia*: that is, an underlying preference for a party list. These two variables correlate at .53 for the whole ICPS sample and at .71 when we restrict the sample to individuals with no ties in their top party affinities. For this same reason, none of the conclusions of the paper vary when we replace *look after for Catalonia* for partisan affinity. The choice of the former over the latter seeks to homogenize the model specification across surveys. The analysis below eventually resorts to different surveys to build counterfactuals. These other surveys do not include an item of partisan affinity, but they include an item for *Look after for Catalonia's* interests.

⁹ See Ref. Dow and Endersby (2004) for a comprehensive comparison of these models.

⁷ Johns et al. (2009) have used a similar approach in the analysis of Scottish elections in which regional and state-wide parties ran.

Table 2

Vote intention for **Catalan Parliament**. $N = 495$. Model parameters and choice-covariances reported. Posterior means and 95% HDP intervals in brackets. Party-intercepts omitted. CIU is the base line. The last three lines report the estimated probability of *poor regional economic performance's* coefficient as being smaller than 0 for the three parties in regional government.

	Benchmark (1)	+ Cand. Appr. (2)	+ Cat Interest (3)
PPC × Poor Economy	-.12	-.16	-.05
Catalonia	[-.92,.85]	[-.98,.70]	[-.86,.83]
ERC × Poor Economy	-.08	-.02	.01
Catalonia	[-.34,.16]	[-.36,.31]	[-.39,.43]
PSC × Poor Economy	-.30	-.14	-.10
Catalonia	[-.57,-.05]	[-.43,.12]	[-.43,.20]
ICV × Poor Economy	-.16	-.26	-.16
Catalonia	[-.33,.09]	[.61,.07]	[-.53,.20]
Left-Right Distance	-.19	-.16	-.15
	[-.27,-.12]	[-.22,-.11]	[-.21,-.10]
Nationalism Distance		-.17	-.16
		[-.23,-.12]	[-.22,-.10]
Catalonia's Candidate Approval		.31	.25
Look After Catalonia		[.24,.38]	[.19,.32]
			.74
			[.54,.93]
$\sigma_{ppc,psc}$	.64	.65	.67
	[-.39,1.12]	[-.38,1.22]	[.54,.93]
$\sigma_{ppc,erc}$	.90	.78	.68
	[.23,1.27]	[.29,1.14]	[.15,1.28]
$\sigma_{ppc,icv}$	.58	.22	.44
	[-.81,1.18]	[-.74,.96]	[-.32,.93]
$\sigma_{erc,psc}$	.28	.26	.27
	[.04,.51]	[-.01,.53]	[-.04,.55]
$\sigma_{erc,icv}$	.41	.21	.46
	[.10,.74]	[-.20,.61]	[.14,.79]
$\sigma_{psc,icv}$	-.14	.06	.21
	[-.14,.48]	[-.29,.36]	[-.02,.44]
IIA	not met	not met	not met
Correctly Classified	64%	73%	78%
$\hat{Pr}(\beta_{econ,erc} < 0)$	.74	.56	.46
$\hat{Pr}(\beta_{econ,psc} < 0)$	.99	.85	.73
$\hat{Pr}(\beta_{econ,icv} < 0)$	.89	.93	.81

violated, we could run one of the canned, highly contested IIA tests and proceed accordingly. Alternatively, we can run an MNP model, and estimate covariances across alternatives. This is indeed the path taken in this paper.¹⁰

Under an MNP model, the probability of choosing an option j is

$$P_i(j) = P(\varepsilon_{i,-j} - \varepsilon_{ij} < X_{ij}^T \beta - X_{i,-j}^T \beta) = \int_{-\infty}^{X_{ij}^T \beta - X_{i,-j}^T \beta} N(0, \Sigma) \quad (3)$$

where $N(0, \sigma)$ is the probability density function of the multivariate normal distribution with mean 0 and covariance matrix

$$\Sigma = \begin{bmatrix} \sigma_{11}^2 & \sigma_{12} & \cdot & \sigma_{1j} \\ \sigma_{21} & \sigma_{22}^2 & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ \sigma_{j1}^2 & \cdot & \cdot & \sigma_{jj}^2 \end{bmatrix} \quad (4)$$

¹⁰ For the interested reader, Stata's IIA LR-test suggests that the IIA assumption does not hold for most of the model specifications in this paper.

Notice that if the IIA assumption is met, all off-diagonal elements are 0. In that case, we would yield the same estimates $\hat{\beta}$ regardless of the error distribution we had assumed.

The estimation of expression (3) is computationally demanding. Maximum-Likelihood (ML) optimization often fails to converge at a global maximum and might yield inefficient point estimates. Alternatively, we can use Bayesian estimation and fit the model via Markov Chain Monte Carlo (MCMC) simulations.

Bayesian estimation requires a different conceptualization of parameters: these are no more unknown fixed values (as in the ML/frequentist approach), but a random quantity. This means parameters under the Bayesian approach have their own probability distribution. The interpretation of frequentist and Bayesian parameters also differ: Under the ML approach, the uncertainty around a point estimate (i.e. the confidence interval) tells us the probability under which we would get the same value over repeated sampling. The Bayesian approach is far more intuitive: we directly estimate the (posterior) distribution for the parameter of interest. Then we can use integral calculus or simulation techniques to compute all statistics of interests. For instance, the probability of a target parameter being different to 0.¹¹

As previously argued, the estimated (i.e. posterior) parameter distribution in this analysis is a multivariate normal. It is assumed to be proportional to the prior distribution times the likelihood. From here, we follow Imai and van Dyk (2005a, b) approach and their estimation algorithm to draw the posterior distributions of parameters $\hat{\beta}$ and $\hat{\varepsilon}$ in (2).¹²

Given the priors and the likelihood, we fit the model using MCMC simulation.¹³ The posterior distributions of the model parameters for the regional and national elections are summarized in Tables 2 and 3.

4. Analysis

4.1. Regional economic voting

Table 2 reports the Bayesian estimates of three different models testing REV. The dependent variable is vote intention for the regional (i.e., Catalan) parliament. For each coefficient, the mean of the posterior distribution is reported. The mean is followed (in brackets) by the values corresponding to the Highest Probability Density (HPD) of 95% content (i.e., the interval around the mean capturing 95% of the coefficient's density). At the bottom of Table 2, error's covariances $\hat{\sigma}_{j,-j}$ are reported. The CIU

¹¹ See Ref. Lynch (2007) for a review of Bayesian fundamentals.

¹² Accordingly, the MNP package in R has been used to fit the model.

¹³ To guarantee that the posterior distribution does not hinge on the selected prior, we will evaluate mixing and convergence upon three different prior combinations; the first uses uninformative priors. The second and third combinations consider conjugate priors with opposite coefficients' means and standard deviations. Moreover, these two priors diverge along the initial covariance levels. (Non-)convergence and mixing are assessed with trace plots, the Gelman-Rubin statistic, the Geweke test of non-stationarity, and the Raftery-Lewis extreme quantile test.

Table 3

Vote intention for **Spanish Parliament**. $N = 464$. Model parameters and choice-covariances reported. Posterior means and 95% HDP intervals in brackets. Party-Intercepts omitted. CIU is the base line. The last line reports estimated probability of *poor national economic performance's* coefficient as being smaller than 0 for the party in national government.

	Benchmark (4)	+ Cand. Appr. (5)	+ Cat Interest (6)
PP × Poor Economy Spain	.39 [−.23,1.12]	.12 [−.45,.73]	.25 [−.30,.83]
ERC × Poor Economy Spain	−.28 [−.66,.07]	−.39 [−.86,.06]	−.33 [−.88,.21]
PSOE × Poor Economy Spain	−.58 [−.98,−.22]	−.44 [−.88,−.03]	−.34 [−.81,.08]
ICV × Poor Economy Spain	−.17 [−.65,.33]	−.25 [−.83,.25]	−.29 [−.83,.25]
Left-Right Distance	−.21 [−.27,−.14]	−.16 [−.20,−.10]	−.14 [−.19,−.09]
Nationalism Distance	−.20 [−.27,−.14]	−.15 [−.20,−.10]	−.12 [−.17,−.07]
Spain's Candidate Approval		.32 [.26,.38]	.27 [.21,.33]
Look After Catalonia			.72 [.52,.92]
$\sigma_{pp,psoe}$	−.00 [−.72,.61]	.49 [.02,.85]	.46 [.01,.81]
$\sigma_{pp,erc}$	.74 [−.16,1.35]	.70 [.33,1.05]	.64 [.32,.98]
$\sigma_{pp,icv}$	−.46 [−1.15,.44]	−.08 [−.64,.44]	.12 [−.32,.52]
$\sigma_{erc,psoe}$	.29 [−.12,.69]	.74 [.37,1.09]	.75 [.36,1.09]
$\sigma_{erc,icv}$	.36 [−.36,.88]	.09 [−.44,.55]	.41 [−.17,.86]
$\sigma_{psoe,icv}$	−.17 [−.88,.42]	−.15 [−.74,.37]	.21 [−.28,.63]
IIA	met	not met	not met
Correctly Classified	62%	69%	75%
$\hat{Pr}(\beta_{econ,psoe}) < 0$	.99	.98	.93

(the main opposition party) is the category of reference. The sign of the coefficients must be interpreted in relation to this party.

Model 1 reports the effect of poor economic performance in Catalonia on party choice, adjusted by the disutility of ideological distance in the distributive and identitarian spectra. The (posterior) distribution of the coefficient for a *poor* evaluation of the regional economy for the three parties in regional government falls mainly to the left of the 0-line. This is most evident for the PSC and ICV, for which 99% and 89% of these parameters' masses fall over the negative reals. However, the strong effect of economic evaluation on vote intention recedes as soon as we adjust the models for additional controls.

Models 2 and 3 control step-wise for the effect of *candidate approval* and *party's ability to uphold Catalonia's interest*. Fig. 1 plots the posterior distribution for the coefficients of economic evaluation before and after we control for these two variables. This figure illustrates the advantages of the Bayesian approach. We no longer yield a point estimate, but the whole distribution of the target parameters. The interpretation of these densities is straightforward because we can observe whether the coefficients fall

mainly in the negative (or positive) reals, where the modes lie, and how efficient the estimates are. In particular, Fig. 1 shows that the inclusion of additional prospective considerations pushes the distribution of the target coefficient toward 0 for all parties in the regional government.¹⁴ In other words, when we consider all prospective elements simultaneously, REV fades out in Catalonia. This is particularly true for the PSC, the central party in the regional government, which, according to the context-based hypothesis, should be the party most sensitive to poor regional economic performance (Duch and Stevenson, 2008). Yet, only 73% of the target distribution for this party falls to the left of the 0-line.

This initial analysis suggests that party choice in Catalonia is not driven by how well or badly the economy is performing regionally. On the contrary, prospective elements seem to play a major role in party choice. The coefficients of these variables are always different from zero. On the other hand, the estimates of the error variance-covariance matrix suggest that the IIA assumption did not hold in any of the three models considered. Interestingly, the ERC does not only influence the vote choice for a leftist party (the covariances $\sigma_{erc,psc}$ and $\sigma_{erc,icv}$ are significant), but seems to affect the decision to vote for the most rightist and centralist party in Catalonia, the PPC. These results suggest that alternatives do matter. That is, individual behavior is conditioned by the *complete* pool of parties running in a given election. For this same reason, CML would yield inconsistent estimates and generate incorrect vote predictions.

4.2. National economic voting

REV has received no empirical support in the previous analysis. Next, we explore whether economic voting in Catalonia is still operative when voters in this region elect the *national* parliament. That is, do Catalans ever base party choice on economic performance? Models in 4–6 reported in Table 3 assess this possibility.

Even though the PSC formally runs as an independent party in national elections, in this section it is considered the local branch of the PSOE, the national party in government.¹⁵ Hence, it is assumed that at national elections voters choose among the PSOE, PP, ICV, ERC and CIU.

If NEV is operative in Catalonia we should observe vote intention for PSOE to decline following poor economy evaluations of the *national* economy. And this is precisely what we see in Models 4 to 6. Fig. 2 reports the posterior distributions of the parameter of *poor national economy* over the probability of voting for PSOE. These distributions correspond to Models 4 to 6 reported in Table 3.

The initial distribution (Model 4) falls over negative values. Unlike what we observed for the regional elections, this distribution does not center on 0 when we adjust the model for additional prospective controls

¹⁴ This translation can be observed numerically in Table 2.

¹⁵ We do the same with PPC when they run in national elections. For these elections, it is considered a regional branch of the national party (PP).

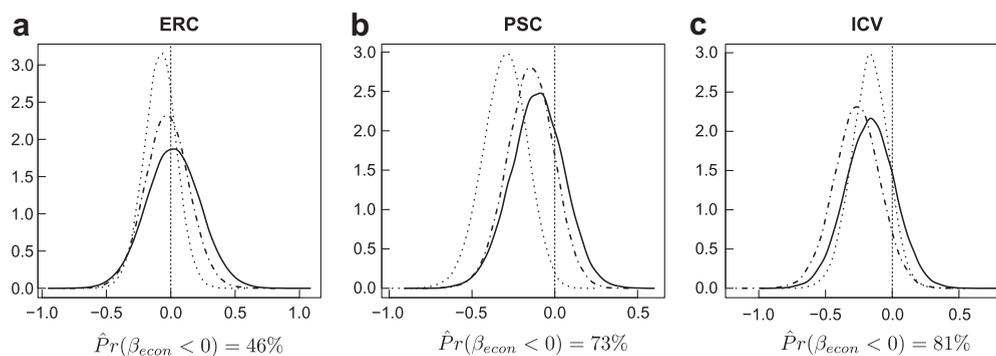


Fig. 1. Marginal effect of poor regional economy on vote intention at regional elections for the three parties in regional government. Posterior distributions drawn from Model 1 (dotted), Model 2 (semi-dotted), and Model 3 (solid) in Table 1. Predicted Probability for $\beta_{econ,j} < 0$ yielded from Model 3.

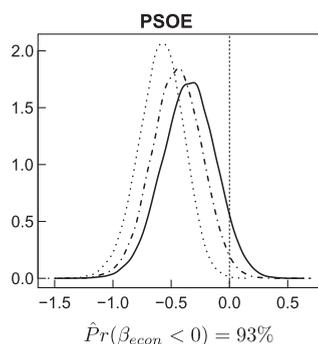


Fig. 2. Marginal effect of poor national economy on vote intention at national elections for the only party in national government. Posterior distributions drawn from Model 4 (dotted), Model 5 (semi-dotted), and Model 6 (solid) in Table 2. Predicted probability for $\beta_{econ,psoe} < 0$ yielded from Model 6.

(candidates, and parties looking after Catalonia's best interest). In the fully specified model, 93% of the parameter distribution for *poor national economic performance* still falls over the negative reals. Moreover, the magnitude of the coefficient for the PSOE at this election level is more than three times larger than the one for the PSC at regional elections. Altogether, NEV seems to be strongly operative in national elections in Catalonia. IIA, on the other hand, is not met for these elections either. In deciding whom to vote for in the national contest, voters also take into account *all* alternatives in the party set.

All things considered, NEV seems to be fully operative in Catalonia. This finding is consistent with previous studies on national economic voting in Spain (Fraile, 2005; Fraile and Lewis-Beck, 2010). Nevertheless, this result stands in stark opposition to what we observed for regional elections, where we found no evidence of REV. The next section seeks to find an explanation for this asymmetry. Specifically, four hypothesis that are intended to account for REV's absence in Catalonia are explored: blinding nationalism, blame-shifting, coalition governments, and misinformation (or lack thereof).

5. Accounting for REV's absence

5.1. Blinding nationalism

Aguilar and Sánchez-Cuenca (2007) and Lago and Lago (2010) claim that the more *Catalanist* voters are, the less they vote in retrospective terms.¹⁶ They argues that these voters ground their vote basically in identitarian (i.e. prospective) terms. To test this hypothesis, Model 3 in Table 2 is rerun for Catalanist respondents only.¹⁷ According to this hypothesis, we should expect the new distribution to be even more centered around 0 than the one for the whole population. The results for this test are plotted in Fig. 3.

The dotted curve in Fig. 3 reproduces the economic evaluation's coefficient distribution of Model 3 (reported in Table 2). The solid curve describes the coefficient distribution for Catalanist respondents only. The results are virtually identical for both groups: the curves for the population as a whole and the one for Catalanists-only almost overlap. If anything, Catalanist voters may be slightly more likely to exonerate the PSC for poor economic performance in Catalonia. However, such a marginal change does not seem to be driving the lack of REV in this region.

5.2. Blame shifting

Anderson (2008) suggests that a decentralized polity is an effective shield against accountability for all tiers of government. Concretely, regional governments will blame the national administration for poor regional economic performance, and take credit for positive regional economic outcomes. This responsibility shift would shield the regional government from being evaluated on economic grounds in bad economic times and would, potentially, explain the absence of REV in 2009. But if the

¹⁶ Regional nationalists in Catalonia are said to be Catalanists.

¹⁷ This group includes those who self-identify equally with Catalonia and Spain, more with Catalonia, and only with Catalonia. This method of identifying Catalanist voters follows Aguilar and Sánchez-Cuenca (2007). This makes results directly comparable. However, results are robust to an alternative specification: considering Catalanists to be those individuals for whom the nationalist/territorial debate is important or very important.

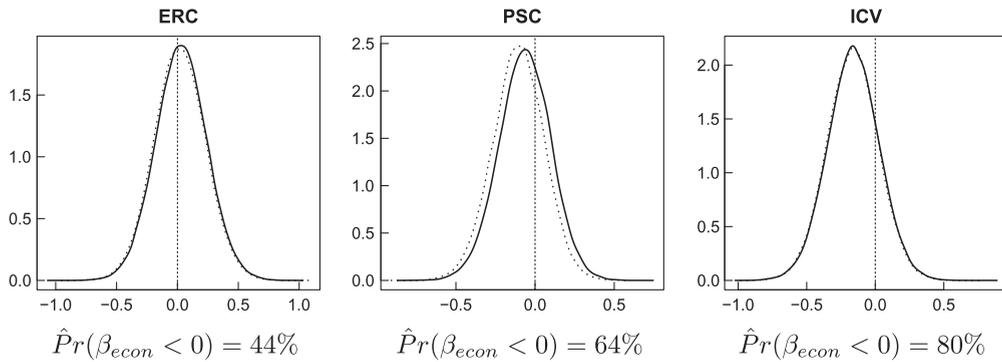


Fig. 3. Blinding nationalism: Marginal effect of poor regional economy on vote intention at regional elections in 2009 for the whole sample (dotted) vs. Catalanist-only (solid). $\hat{Pr}(\beta_{econ} < 0)$ yielded from Catalanist sub-sample.

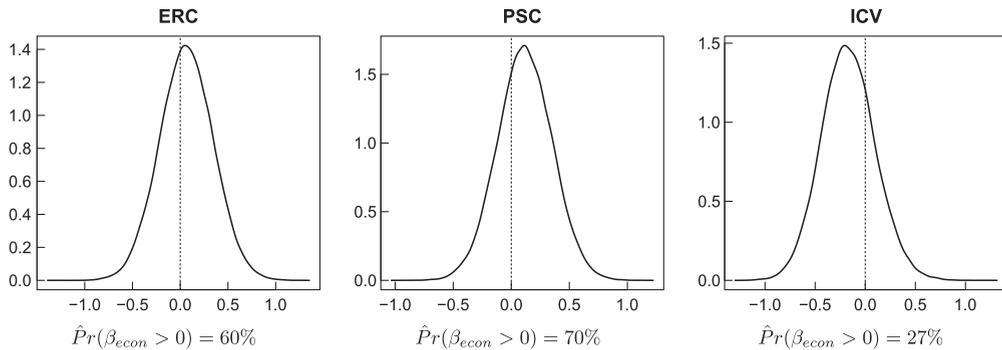


Fig. 4. Blame shifting hypothesis: Marginal effect of good regional economy on vote intention at regional elections for the three parties in regional government in 2006.

blame-shifting hypothesis is correct, we should also observe a credit-taking strategy following good economic performance (ibid.). To check for this counterfactual, a scenario with the same parties in government but opposite (i.e., good) economic conditions is required. The 2004–2006 window reasonably fulfills these conditions. By 2006, Catalonia and Spain had been growing for twelve years in a row. In that year unemployment reached a historic low. Catalonia was ruled by the same leftist coalition as in 2009.¹⁸ Not only were the same parties in government; they also held a quite similar distribution of portfolios. Likewise, national government was in the hands of the PSOE since 2004. Altogether, the window of 2004–2006 window offers a political context very close to that of 2009, with the exception of economic health, which was still buoyant at both levels of government.

To test for the blame-shifting/credit-taking hypothesis, a similar test to that of Model 3 in Table 2 is fitted to a survey conducted in 2006. Concretely, the 2656 survey conducted by the Spanish Center of Sociological Research (CIS) in October 2006 is used ($N = 828$).¹⁹ Because we are interested in whether the parties in government capitalize on good economic outcomes, poor economic evaluations in

the empirical model is replaced for good economic evaluations. Particularly, the specified model for vote intention for the Catalan Parliament in 2006 is:

$$\begin{aligned}
 P_i(\text{vote intention}_{2006} = j) = & \alpha_j \\
 & + \beta_{1j} \cdot \text{party}_j \times \text{GoodCatalan economy}_i \\
 & + \beta_2 \cdot \text{Left Right distance}_{ij} \\
 & + \beta_3 \cdot \text{Nationalism distance}_{ij} \\
 & + \beta_4 \cdot \text{Candidate approval}_{ij} \\
 & + \beta_5 \cdot \text{Look After Catalonia}_{ij} \\
 & + e_{ij}
 \end{aligned}
 \tag{5}$$

The parameter distribution for $\hat{\beta}_{1j}$ for the three parties in government in Catalonia is plotted in Fig. 4.

The results reported in Fig. 4 are revealing: the regional incumbent parties in the period of 2004–2006 were not able to capitalize on the economic gains during their administration. The effect is particularly surprising for the ICV, for which the good-economic-perception coefficient is far from being distributed over the positive reals. The PSC, in contrast, seems slightly better at capitalizing on good economic results. The difference might lie in the Duch and Stevenson (2008) hypothesis: the PSC held the most seats in Parliament, the most cabinet portfolios, and the Treasury as well. However, the PSC's ability to capitalize on good economic times seems, at most, moderate. Only 70% of this coefficient's distribution falls to the right of the 0-line. Altogether, these results suggest that the blame-shifting/

¹⁸ The PSC, ERC and ICV assumed office in 2003, and were re-elected in November 2006.

¹⁹ For the representativeness of this sample, refer to Appendix.

credit-taking logic suggested by Anderson (2008) falls short in Catalonia. At the least, it does not seem to be driving the lack of REV in the region.

5.3. Coalition governments

Powell and Whitten (1993), Anderson (2000), and Duch and Stevenson (2008) claim that coalition governments are more difficult to hold to account. When political responsibilities are intertwined among different parties in government, voters are expected to have a harder time determining who is ultimately responsible for poor economic performance. If coalition government explains the absence of REV in Catalonia, we should be able to observe REV when the regional government is formed by a single party. This was the case in Catalonia from 1980 to 2003.

The 2007–2010 period was exceptional due to the severe economic crisis. There is only one comparably bad experience in recent years: the 1993–1995 Spanish (and Catalan) economic crisis. At that time, the economy came to a halt. GDP growth went negative in 1993. More than a million jobs were lost. And unemployment reached its historical high, 24%, which was six points above 2009's rate.²⁰

Before and after this crisis, the CIU held office in Catalonia. This was a single-party government. If the absence of REV in 2009 can be attributed to the presence of a coalition government, then we should detect some electoral punishment to the only party in regional office during the 1993–1995 crisis. To test this hypothesis, a survey ran in February of 1995 by the CIS is used.²¹ The 2137 CIS survey of February 1995 ($N = 679$) includes no information regarding which party best looks after Catalonia's interest. Instead, a dummy variable indicating whether the respondent believes the CIU (the party in government in Catalonia) properly upheld Catalonia's interest is used. In particular, the specified model for vote intention for the Catalan Parliament in 1995 is:

$$\begin{aligned}
 P_i(\text{vote intention}_{1995} = j) = \alpha_j & \\
 + \beta_{1j} \cdot \text{party}_i \times \text{Poor Catalan economy}_i & \\
 + \beta_{2j} \cdot \text{Left Right distance}_{ij} & \\
 + \beta_{3j} \cdot \text{Nationalism distance}_{ij} & \\
 + \beta_{4j} \cdot \text{Candidate approval}_{ij} & \\
 + \beta_{5j} \cdot \text{CIU look after Catalonia}_i & \\
 + e_{ij} &
 \end{aligned}
 \quad (6)$$

In this model, the reference category is the PSC (then the main opposition party in Catalonia). Hence, the sign expresses the increase/decrease in the probability of voting for party j relative to PSC. The distribution of parameter of interest $\beta_{1,CIU}$ is plotted in Fig. 5.

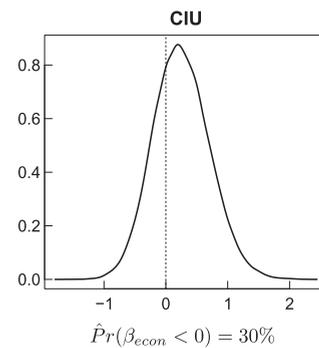


Fig. 5. Coalition-Government hypothesis: Marginal effect of poor regional economy on vote intention at regional elections for the only party in regional government in 1995.

The posterior distribution of the parameter falls almost over 0. That is, the single-party government in Catalonia during the 1993–1995 economic crisis seems to have suffered no electoral damage for the poor economic performance at the regional level. Indeed, this party was re-elected a month after this survey was conducted. All in all, the analysis provides no support for the coalition-government hypothesis as an explanation for the lack of REV. The reason must lie somewhere else.

5.4. Misinformation

It has been argued that causal responsibility attribution for economic performance requires some sophistication from voters. They must *know* which are the incumbent and opposition parties, how the economy has performed over the cycle, and what are the international constraints of domestic policy (Duch and Stevenson, 2008; Fraile, 2007; Gomez and Wilson, 2006). Indeed, Fraile (2007) provides evidence in favor of the sophistication hypothesis in the Spanish *national* elections: the more knowledgeable the Spanish voter, the higher her ability to attribute causal responsibility for economic performance. Here we claim that political decentralization adds a fourth requirement to the previous list: knowing what level of administration is responsible for what. Hence, if political knowledge is a necessary precondition for economic voting *in general*, it should be present in political and fiscal decentralization as well.

If the misinformation hypothesis is correct, the reason why we do not observe REV lies in the presence of uninformed voters in the electorate.²² In order to check whether a lack of proper information among the electorate drives the absence of REV, we should analyze the incidence of economic voting by levels of awareness on Policy Responsibility Distribution (PRD) across tiers of government. Unfortunately, the ICPS dataset has no direct item involving individual PRD knowledge. Absent PRD indicators, Anderson (2008) suggests approximating PDR with educational attainment.

²⁰ Source for 1993 GDP growth: World Bank Indicators. Source for 1994 unemployment: World Bank Indicators. Source for 2009 unemployment: Spanish National Institute of Statistics. Data retrieved on October 22, 2010.

²¹ For the representativeness of this sample, refer to Appendix.

²² How do these voters vote then? Fraile (2007) claims that uninformed voters tend to vote prospectively.

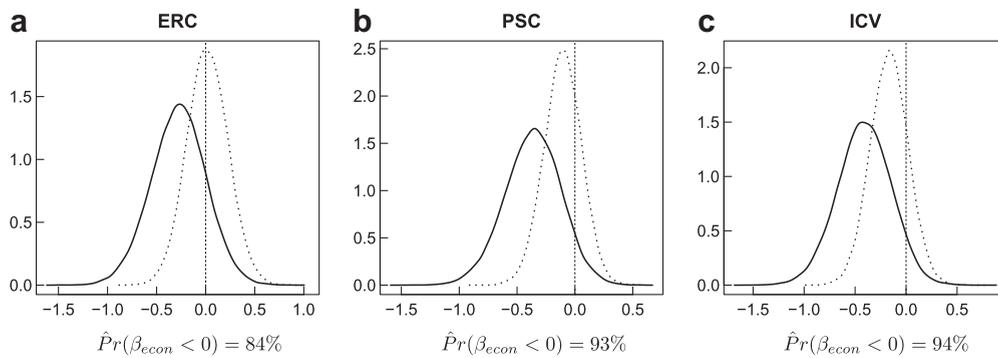


Fig. 6. Information hypothesis: Marginal effect of poor regional economy on vote intention at regional elections in 2009 for the whole sample (dotted) vs. highly educated respondents (solid). $\hat{Pr}(\beta_{econ} < 0)$ yielded from highly-educated sub-sample.

Accordingly, Model 3 in Table 2 is run for the individuals with higher educational attainment only. If the Duch and Stevenson (2008) intuition is correct, we should not expect any electoral punishment for poor economic performance. If instead, sophisticated voters do render the regional government responsible for the regional economic conditions, this group should vote, on average, more economically than the sample as a whole. Fig. 6 shows the posterior distribution of the marginal effect of economic perception for highly educated individuals (solid curve).

For an easier comparison, Fig. 6 again plots the distribution of the economic perception for the whole sample (dotted curve) corresponding to Model 3 in Table 2. The difference is obvious. The distribution for highly educated individuals for the three parties in government moves leftwards. The translation is particularly obvious for the PSC and ICV, for which the economic performance coefficient falls almost exclusively over negative values. Altogether, these results suggest that REV is only operative among individuals aware of the responsibilities that regional government holds. This finding emphasizes the crucial role informational requirements play for the theory of economic voting.

5.4.1. Robustness test

As a robustness check, the misinformation hypothesis is tested using a different sample: the 2829 CIS Survey of February 2010 ($N = 371$). This survey, conducted two months after the ICPS survey, includes specific items on PRD knowledge. Individuals are requested to identify the government tier holding responsibility for a list of policies: education, health services, immigration, elderly benefits, and security. PRD scores are computed by adding correct answers to this list. This index ranges from 0 to 5, with a mean of 2.7 and a standard deviation of 1.3.²³

The 2829 CIS survey has two disadvantages: First, a direct item for vote intention is absent. Instead, this

variable is retrieved from a vector of vote probabilities for each party. Ties have been called according to vote recall.²⁴ Second, the 2010 survey has no information on candidate approval nor on the respondent's opinion about which party upholds Catalonia's interests. This second variable cannot be matched by any item in the questionnaire. However, we can partially account for candidate approval by including presidential approval in the empirical model.²⁵ Altogether, the model specification is

$$\begin{aligned}
 P_i(\text{vote intention}_{2010} = j) = & \alpha_j \\
 & + \beta_{1j} \cdot \text{party}_j \times \text{Poor Catalan economy}_i \\
 & + \beta_{2j} \cdot \text{Left Right distance}_{ij} \\
 & + \beta_{3j} \cdot \text{Nationalism distance}_{ij} \\
 & + \beta_{5j} \cdot \text{Presidential approval}_i \\
 & + e_{ij}
 \end{aligned} \tag{7}$$

This model is run for two samples: one including individuals with above-the-average PRD scores, the other with individuals with below-the-average PRD scores. If the theory is correct, we should expect economic voting to take place mainly among the first group. The distribution of the β_{1j} coefficients for the three parties in government are reported in Fig. 7.

The results of this analysis are even more telling than those in Fig. 6. When we proxied PRD expertise by education, we found that the three parties in government were subject to economic voting. That result was inconsistent with Duch and Stevenson (2008) expectations, by which economic voting should operate mainly for the PSC. Recall, this party held the largest share of parliamentary seats, cabinet portfolios and the Treasury portfolio. Now, when PRD is directly tackled this expectation seems to be fulfilled. The dotted curves in Fig. 7 describe the β_{1j} coefficient for economic evaluation among low-PRD-score individuals. The behavior of these individuals is hard to explain; they do

²³ Needless is to say, Anderson (2008) suggestion to proxy PRD knowledge with education receives empirical support in this survey. Educational attainment powerfully predicts individual PRD scores.

²⁴ Results do not change if we drop individuals who are indifferent between two or three top alternatives. However, by using vote recall, we gain computational power.

²⁵ Presidential approval refers to the regional President (i.e., the Catalan Primer Minister). Results do not change if we drop this control.

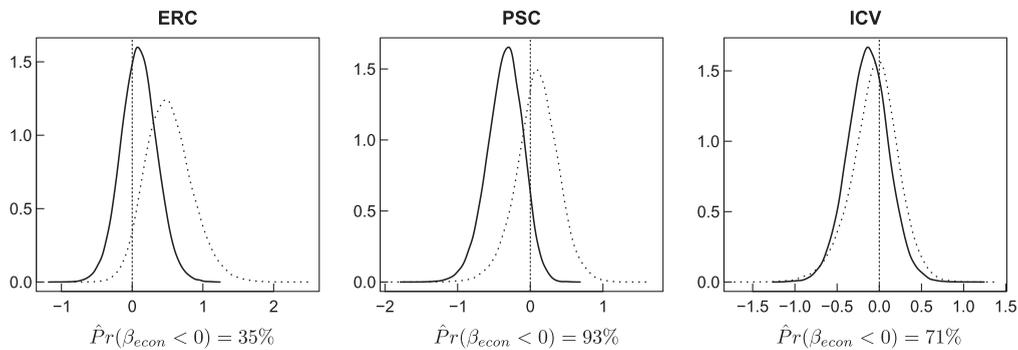


Fig. 7. Heterogenous economic voting. Marginal effect of poor regional economy on vote intention at regional elections for the three parties in regional government by political sophistication: individuals with high PRD scores (solid) vs. individuals with low PRD scores (dotted). $\hat{Pr}(\beta_{econ} < 0)$ yielded from high-PRD sub-sample.

not punish the PSC for poor economic performance (the coefficient is distributed around 0). They seem to punish the ICV (although it is the party with the fewest parliamentary and cabinet seats). And they even seem to reward the ERC for poor economic performance. The results change radically for high-PRD-score individuals: the behavior of the coefficient is plotted in Fig. 7 with a solid line. These voters do not punish the ERC or ICV for poor economic performance. The mode of these coefficients falls almost on top of 0. But these voters do seem to punish the PSC. The coefficient for this group falls almost entirely over the negative reals, suggesting that individuals with a clearer picture of the PRD not only vote economically, but also assign responsibility within the coalition government. Moreover, the mean of this coefficient, $-.3492$ (with std. dev. of $.25$), is virtually identical to the mean for the NEV coefficient for Model 6 of Table 3, $-.3498$ (with std. dev. of $.23$). This implies that the incidence of economic voting at the regional and national elections is virtually identical for individuals with a clear picture of PRD distribution across tiers of government. Finally, it is worth mentioning the ability of the ERC to avoid economic voting despite being the second largest party in office. Given its marked identitarian character, the ERC might have been able to divert causal responsibility for poor economic performance by prioritizing identitarian over economic achievements. This result suggests, on the one hand, that voters might apply different reelection rules to different parties; and on the other, it illustrates the convenience of avoiding pooling all incumbent parties into the same category when analyzing economic voting in parliamentary systems.

Together, Figs. 6 and 7 are revealing with regard to the preconditions under which we should expect economic voting to occur at the regional level: voters must be aware of PRD across tiers of government. Because the median citizen is below the average level of PRD awareness, we should expect to find no regional economic voting in decentralized polities when we run an aggregate analysis. That result would confound economic voting behavior of individuals with high PRD knowledge with the unstructured behavior of individuals with low PRD awareness. To avoid this result, economic voting analysis should account in some way for individual heterogeneity in individual

sophistication. This methodological requirement seems most convenient when the institutional context blurs the lines of responsibility, and informational requirements become particularly binding.

6. Conclusion

This paper analyzes regional economic voting. Economic voting takes place if regional economic performance affects the regional incumbent's re-election chances. To study this possibility, a convenient case-study has been thoroughly analyzed: Catalonia. *A priori*, a polity like Catalonia possesses many factors inhibiting economic voting from taking place: decentralization is intermediate, which blurs lines of responsibility. Regional nationalism is strong, which is said to exonerate poor economic performance at the regional level or to induce blame-shifting across government tiers. Lastly, the regional government is coalitional, which contributes to blurring the assignment of responsibility among parties in government. The choice of this unfavorable scenario for REV was deliberate. If we were able to observe REV within this polity, we should be confident that REV would be pervasive among other intermediate to highly-decentralized polities (with or without regional nationalism). However, the initial result was negative. No evidence of REV was found at all. In order to check whether this was an intrinsic feature of Catalonia, NEV was also tested. In this case, the findings were strongly supportive. Nevertheless, the analysis could not stop there; an answer for why NEV was operative while REV was not was still missing. Four hypotheses were considered: blame-shifting, blinding nationalism, coalition governments and PRD misinformation (or lack thereof). To test for these, reasonable counterfactuals were built. None of the tests yielded supportive results for the first three hypotheses. Contrarily, voter information on policy responsibility distribution across tiers of government seemed to explain the initial negative result for REV. In particular, opposite types of responsibility attribution among low- and high-PRD-awareness individuals was found. The former did not seem to follow any structured decision rule for blame attribution. The second group, who were able to identify which tier of government was responsible for what, not

only conformed to the REV hypothesis, but seemed to be able to discriminate among parties in government in their electoral punishment. Moreover, the incidence of economic voting for this group proved to be virtually identical across levels of government.

Altogether, these results not only speak to the regional economic voting literature, but also to the wider *contextual* economic voting approach. The findings in the last section suggest that voters require certain levels of information prior to behaving economically in terms of voting. Yet, the availability of information does not seem to be only institutionally driven, but individually grounded as well. In effect, we found a strong individual heterogeneity in PRD awareness within the same institutional setting. This result suggests that economic voting can hardly be analyzed in aggregates, as such a design would confound too much individual heterogeneity. This result also poses an immediate question: What explains individual PRD knowledge heterogeneity within a given institutional setting? This question seems particularly compelling when it comes to assuring political responsibility in a global context of increasing decentralization. Electoral accountability requires voters to know whom to blame. Thus, proper information dissemination of political and fiscal responsibilities following decentralization seems particularly compelling if political responsibility is to be strengthened in a new global context of regional politics.

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Appendix

Party locations.

1. The ideological scores of the political parties on the left-right dimensions correspond to the sample mean of the ICPS survey. However, the ICPS does not include an item requesting respondents to place parties in the identitarian spectrum. These values have been imputed using the results of a different survey conducted in the same month, which had the same wording and response categories. This survey was conducted in the Third Quarter of 2009 by the Catalan Center of Opinion Research (CEO). The same methodological decision applies to the 2006 sample. In this case, party placements in the distributive and identitarian dimensions have been extracted from the Third Quarter CEO barometer of 2006.
2. Given the lack of alternative surveys for 1995, party locations in the two ideological dimensions are proxied by the average position of their former voters in the 1995 counterfactual analysis.

Survey Timing. Three out of the four surveys used in this analysis were conducted several months before the election (see Table 4 for exact dates). For the effect of the economy on vote intention at the time of the survey to be a good proxy of its effect on election day two conditions have to be met: neither the state of the economy nor the weight of the economy on party choice should change over the period.

- i. *Does the shape of the economy remain constant?* If the economic conditions change between the survey date and the regional election day, any extrapolation out of the vote intention would be unreliable (Erikson and Wlezien, 2008). This is not the case here however. All four surveys are conducted in periods of economic stability, either *good* or *bad* stability. Prior to the 1995 regional elections, the economy had been in a recession since 1993. And growth would come only in 1996. In 2006, the economy had been growing since 1996, and it would follow the same trend until the first quarter of 2008. In the Fall of 2009, the economy had been in recession for a year and a half, and would stay in bad shape for the next two years. Altogether,

Table 4

Unemployment being the major problem in Spain for the three cycles considered. Entries denotes % of monthly barometer respondents.

2009 Cycle		1995 Cycle		2006 Cycle		
Jul 2009	76.4	Dec 1994	84.9	Sep 2006	46.3	
Sep 2009	73.0	Jan 1995	78.6	Oct 2006	43.2	CIS 2656 Survey
Oct 2009	78.4	Feb 1995	79.9	Nov 2006	40.1	Regional Election
Nov 2009	79.0	Apr 1995	76.3	Dec 2006	42.1	
Dec 2009	82.7	Sep 1995	77.6			
Jan 2010	81.8	Nov 1995	86.0			
Feb 2010	82.9	Feb 1996	78.7			
Mar 2010	79.7					
Apr 2010	79.9					
May 2010	75.9					
Jun 2010	78.0					
Jul 2010	78.4					
Sep 2010	81.1					
Oct 2010	79.5					
Nov 2010	78.6					
Dec 2010	82.4					

Source: "Indicadores CIS" from monthly CIS barometers.

the economic trend remain unchanged between all survey–election pairs considered.

- ii. *Does the perception of the economy remain constant?* Gelman and King, 1993 claim that the weight of the different components of the voting decision might change over the campaign. If that was the case, extrapolations from vote intention requested months before the election would not be meaningful. However, this does not seem to be the case in the campaigns considered in the analysis. The economy was *the issue* in the 1995 and 2010 elections, and it dominated public debate months (even years) before the elections.²⁶ Table 4 shows how salient economic performance was in Spain in the months leading to the 1995 and 2010 regional elections. Particularly, these numbers represent the percentage of respondents who considered unemployment to be the most stringent problem in Spain.

The data speaks for itself. In 1995 and 1999, unemployment was the main concern for most of the electorate. In both periods, the saliency of unemployment remained virtually constant from the day the survey was conducted to the election day. The stability of these trends suggests that the weight of the economy in party choice most probably remained constant throughout the two campaigns.

Survey Representativeness. Neither of the two surveys used in the 1995 and 2006 counterfactual analyses are representative of the Catalan population. Regional weights should be fitted to achieve representativeness. Catalonia is divided into four provinces, and the province of Barcelona was undersampled in both surveys. The MNP R package used to fit the Bayesian estimates does not allow for weights. How problematic is this? Barcelona has traditionally been the province in Catalonia with highest popular support for the PSC. Accordingly, we could suspect that the lack of economic voting in 1995 and 2006 is due to the undersampling of this province. To check if this is the case, we have rerun the 1995 and 2006 counterfactual models for the province of Barcelona only. Having done so, the conclusions remain unchanged. Not even in Barcelona, where leftist parties traditionally perform better, was the 1995 conservative regional government punished for poor economic performance, nor was the 2006 leftist government rewarded for good economic performance.

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²⁶ This was not the case for 2006. However, vote intention for this election dates from only one month prior to the regional election.