Types of economic voting in regional elections: the 2012 Catalan election

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Abstract

The standard assumption that economic voting (EV) is 'jurisdiction-specific' inevitably leads to a breakdown between 'national EV' and 'regional EV'. This paper challenges this overly simplistic distinction by proposing a more complex typology, whereby national and regional incumbents may be assessed in both national and regional elections, according to either national or regional economic conditions. Accordingly, new and more sophisticated types of economic voting emerge, such as 'second-order EV' or 'coattail EV'.

In this paper, some of these new types of EV are verified with a suitable case study. The 2012 Catalan election was carried out in the context of severe recession, but also under the impression – among many Catalans – that the economic policies of the Spanish government were harshly punishing Catalan economic interests. Binomial logistic regression models confirm that, under political circumstances such as these, voters may use regional elections to assess the national incumbents' economic performance, whereas regional incumbents may end up exonerated from poor economic performance. This case study may be illustrative for other regional elections around the world.

Keywords

It should come as no surprise that an incumbent party suffers heavy electoral losses in the midst of a major recession. Hence, when CiU – the ruling coalition party in Catalonia – lost 8% of its votes in the 2012 election to the Catalan parliament, many observers soon turned to the pocketbook account. But survey data shows no relationship whatsoever between the perception of the Catalan economy and the vote given to the Catalan incumbent. So, was there no role for the economy in this regional election? And more generally, can any regional incumbent end up being unaffected by economic crises? This paper tries to shed light on this puzzling absence of a relationship by providing new evidence and, in particular, by providing some refinement to the overly rigid definition of regional economic voting. Our purpose is not to explain the Catalan incumbent's 8% drop in votes, but rather to clarify the role played by the economy in the whole election. We anticipate that our case study shall provide new insights into regional economic voting so that conclusions may be applied to other regional elections. We also believe our typologies and theoretical constructs will be of interest for experts on economic voting.

1. Theoretical background and typologies

Economic voting (EV) is a term used to express the relationship between citizens' perceptions of the economy and their vote: those who like the economic conditions tend to vote for the incumbent while those who dislike them tend not to (Lewis-Beck, 1988: 34). EV was first verified during the 1970s in the US and in the UK, and later in most OECD countries (see a review in Lewis-Beck & Stegmaier, 2007). One common feature of all those early studies is they often established a relationship between a) the vote for the *national* incumbents and b) the condition of the *national* economy. Accordingly, this type of EV is often labelled '*national* economic voting' or simply NEV (Queralt, 2012: 10 and Anderson, 2008: 333).

Since Powell and Whitten (1993) – and more recently, Duch and Stevenson (2008) – EV in different institutional arrangements has been widely discussed. Among other developments, a number of scholars have focussed on local, supranational and – more interestingly for this article – regional institutions (Anderson, 2006; Gelineau and Belanger, 2005; and Jérôme and Jérôme-Speziari, 2005). They have hypothesised a relationship between a) the vote for the *regional* incumbents and b) the condition of the *regional* economy. Correspondingly, this relationship has been called '*regional* economic voting' or simply REV (Queralt, 2012: 10; Rodden & Wibbels, 2010: 640; and Anderson, 2008: 333). Notice that it is implicit in all these definitions that REV occurs in regional elections and NEV occurs in national elections. This will prove to be a restrictive assumption, as we shall discuss below. Figure 1 illustrates the orthodox distinction between NEV and REV.

<Figure-1>

Whereas the occurrence of NEV is generally accepted and well documented, many scholars question the existence of REV. The basis for this scepticism is the 'clarity of responsibility' argument. In certain types of institutional arrangement it is easier to identify the competent agent for each political decision; therefore it is easier to attribute credit or blame in, for example, centralized institutions than it is in overlapping institutions where responsibilities are more blurred (Anderson, 2008: 329-330). It is more difficult for voters to attribute responsibility within regional institutions for three reasons: (i) regional governments promote a 'vertical diffusion of responsibility' (i.e., they blame other tiers of government for the bad results of their own policies, and claim responsibility for good results of alien policies); (ii) regional governments hold fewer powers and are – objectively – less responsible for economic conditions; and (iii) regional economic voters would require more information on 'who runs what' but media coverage of such elections is relatively reduced (Anderson, 2006 & 2008; and Cutler, 2004). All this would justify why few episodes of EV

have been verified in regional elections. We have some evidence of REV for Canada and the US, but not much more (Anderson, 2008; Boehmke et al., 2010).

Figure 1 postulates two other types of EV distinct from NEV or REV, which we shall refer to as *c-type EV* and *d-type EV*.[1] The existence of these two types of EV has received little attention but, for example, when Anderson (2008: 331) asks whether provincial incumbents are evaluated on the basis of provincial economic conditions alone or whether national conditions also have an effect, we could say that he is asking whether REV exists alone, or whether a *c-type EV* also exists. Despite suggesting this possibility, he then goes on to preclude it: '…it is anticipated that perceptions of national economic conditions will not influence vote choice at the provincial level' (2008: 333). The same author makes a further original suggestion: 'Is federal incumbent support influenced by evaluations of national and provincial economic conditions or just national economic conditions?' (2008: 331). Again, we could use the terms in Figure 1 to ask the same question: is it NEV plus *d-type EV*, or is it just NEV by itself? The author is positively disposed towards the *d-type EV* and he includes it in his 'hypothesis 1' (2008: 332). He even mentions a previous study (Orth 2001) in which a *d-type EV* is detected. However, in the end, he finds no such result in his own work (2008: 346). Another study that discusses this *d-type EV* is Pattie and Johnston, 1995.

The four types of EV considered so far are, of course, not mutually exclusive and may manifest themselves at the same time. Notice also that all of them comply with the restrictive assumption we mentioned earlier: regional elections are used to assess regional incumbents and national elections are used to assess national incumbents. This assumption is what Anderson (2008: 346) labelled 'jurisdiction specific' and it is rather similar to what Rodden and Wibbels (2010: 630-2) labelled 'dual accountability'. This overly rigid

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1. The two types are those represented in cells 'c' and 'd' in Figure 1. There are no accepted denominations for those types of EV, hence the names *c-type EV* and *d-type EV*.

assumption may be the cause of the aforementioned difficulty experienced by scholars in verifying episodes of EV in regional elections. As an alternative, in Figure 2, we propose a typology for which there is no jurisdiction-specific assumption (i.e., national incumbents may be assessed in both national and regional elections and the same may apply to regional incumbents). Consequently, four new types of EV appear in Figure 2 (i.e., the four dark cells). We believe this suggests that the orthodox typology depicted in Figure 1 is not exhaustive, and – since this typology has been mainstream in multilevel EV studies – there are other patterns of EV that are being ignored. As a result, some episodes of EV in regional elections may be going unnoticed.

<Figure-2>

We would like to draw attention to the two dark cells in Figure 2 labelled *e* and *f*, in which national incumbents are assessed in regional elections. These cells describe patterns of electoral behaviour where there is a contamination effect of national politics on regional elections.[2] Contamination effects are fairly well studied in general (see e.g., Gschwend 2008) but the ones described here (economic assessment of national incumbents in regional elections) have so far received little attention.

Cell 'e'. Certain voters may use *regional* elections to punish (or reward) the *national* incumbents (or rather, their regional candidates) for the state of the *regional* economy. This is an EV version of the well-known 'coattail effect' which is primarily used to refer to the vote increase enjoyed by fellow-party candidates for Congress on the coattails of a popular national President; but it has been extended to refer to any electoral influence from a

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2. Notice Figure 2 renames REV and NEV to distinguish them from these contaminated types of EV.

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higher level of government onto a lower level candidature. Theories of an economic version of the coattail effect are scarce, with the best known attempt by Norpoth (2001) whose 'president liable hypothesis' is not too dissimilar from our cell 'e' categorisation in Figure 2. This EV version of the coattail effect could be labelled 'coattail EV' and is located – in Figure 2 – just to the right of the *genuine REV*.

Cell 'f'. Certain voters may use *regional* elections to punish (or reward) the *national* incumbents (or rather, their regional candidates) for the state of the *national* economy. This is an EV version of the well-known model of 'second-order elections' (Reif & Schmitt, 1980; Schmitt, 2005) which describes how voters rank elections according to their importance: national elections (e.g., presidential or legislative) are first-order, while supranational (e.g., European) or subnational (e.g., local or regional) elections are second-order. In second-order elections, voters transfer the evaluations of their national incumbents to their fellow-party candidatures at other levels. As a result, citizens vote in regional, local or European elections as if they were assessing the national incumbents. The EV version of this 'second-order voting' could be labelled 'second-order EV' and is located – in Figure 2 – just below 'coattail EV'. This phenomenon was also suggested by Rodden and Wibbels (2010: 633) and it is similar to findings by Boehmke at al. (2010: 18). Also, Fauvelle-Aymar and Lewis-Beck (2011) find that, when local and national incumbents are different, voters punish the national incumbents – and not the local incumbents – for bad economic conditions.[3] This finding raises an essential point in our analysis of regional elections. In such elections, voters will only face the dilemma of punishing the regional incumbents *or* punishing the national ones, *if these are different*. Conversely, if both incumbents belong to the same party, the regional incumbents are also the regional candidates of the national incumbents, so the two logics end up generating the same behaviour and reinforce each other. In this regard, León and Orriols (2013) show that only regional incumbents 'affiliated' to the central government

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3. Notice their concept of second-order EV is somewhat different from ours because their characterisation is based on voter's assessment of *local* economic conditions, whereas ours is based on *national* ones. In fact, their second-order EV is more similar to our 'coattail EV'.

are punished for economic conditions. Likewise, Rodden and Wibbels (2010) convincingly show that, in a scenario they call co-partisanship, fellow-party candidates of federal incumbents are punished in provincial midterm elections. In this sense, co-partisanship is therefore an essential issue in regional EV and it follows that our typology will probably be affected by it. If the regional incumbent is also the regional candidate of the national incumbent, the two left-hand columns of Figure 2 overlap: the only difference between genuine REV and second-order EV would be whether voters are influenced by assessments of the regional economy or the national one. Given that the two assessments of the economy are probably correlated, co-partisanship will increase the likelihood that second-order EV and genuine REV eventually happen simultaneously.

Furthermore, the feasibility that the national incumbents are somehow assessed in regional elections depends on them playing some leading role in the region: if the party of the national incumbents does not stand in the regional elections or else play a purely marginal role, those elections would not be used for assessing the national incumbents. Thus, second-order EV and coattail EV would obviously be unattainable. This suggests that the existence of contaminated types of EV depends on the *nationalisation of the party system*. Holding everything else constant, high degrees of nationalisation will stimulate contaminated types of EV (cf. Rodden & Wibbels, 2010: 634) and low degrees of nationalisation will encourage genuine REV.

It follows then that, if our suspicion is right that the cause of the difficulty in verifying REV is its 'jurisdiction-specific' assumption, then these two new types of EV should be perceptible in certain regional elections where genuine REV was not observed. Thus, our hypothesis for the rest of the article is as follows:

H$_1$: Some variety of EV will exist in regional elections too. Even if genuine REV does not emerge, either second-order EV or coattail EV will become visible.

2. The Catalan case study

Catalonia provides a highly suitable case study for two reasons: first, it is located in an intermediately nationalised party system (Jurado, 2014: 293); and second, it is a relatively large and well-developed community, with a strong national identity and solid institutions of self-government. Many of the conclusions drawn here may be of interest with regard to several other European regions which are also strong in identity and institutions. Examples would include Scotland, Wales, Northern Ireland, Flanders, Wallonia, Bavaria, the Basque Country, Galicia, the Aosta Valley and South Tirol. And of course, a number of non-European regions such as Quebec.

Readers not familiar with Catalan politics may find a case contextualisation in Pérez-Nievas and Fraile (2000). For the purpose of this article, it will be enough to identify the Catalan incumbent at each of the successive elections and to briefly describe their relationship with the Spanish incumbent. From 1980 until the 2003 election, the president of the Catalan government was the nationalist Jordi Pujol (CiU), defender of a qualified collaboration with the successive central governments, and particularly with the conservative Spanish incumbent in power in 2003. At the time of the 2006 and 2010 elections, a new left-wing coalition was ruling the Catalan government in partial co-partisanship with the socialist Spanish incumbent. They reformed the law regulating Catalan-Spanish relations – a process that radicalised most political actors and intensified mutual mistrust between Catalonia and Spain. The 2010 election changed the ruling majority but not the scenario of hostility. On the contrary, this mistrust and the intensification of the Great Recession boosted independentism. As a result, the 2012 election was seen by many as a confrontation between Spain and Catalonia and the election campaigns of the Catalan nationalist parties were very much based on blaming the Spanish government for Catalan economic hardship.

By that time, the Catalan incumbent was once again the nationalist CiU and its relationship with the conservative Spanish incumbent was one of clear confrontation.

Catalonia has not been alien to the debate on EV. Three previous texts dealt with EV in Catalan elections. The conclusions, however, are mixed: Riba and Diaz (2002) provide positive evidence for the existence of EV in Catalonia, whereas León (2012) reaches a negative conclusion. In contrast, Queralt (2012) suggests a more complex situation: positive in principle, but negative after quite demanding controls are included, and positive again among the better informed voters.

3. Data and Methods

In accordance with the terms used in Section 1, this paper tests the occurrence of *genuine REV* in the regional elections in Catalonia in 2012 (plus, for purposes of contrast, three other previous elections). At the same time, it also tests whether one of the new types of EV we have proposed – second-order EV – occurred. In order to do so, we develop several binomial logistic regression models in which the dependent variable is 'voting for the incumbent' and the main independent variable is 'perception of the economy' (see below for details on the variables). As may be deduced from Figure 2, when testing the occurrence of genuine REV, the incumbent refers to the regional one, and the perception of the economy refers to the regional economy. Conversely, when testing second-order EV, the incumbent refers to the national one, and the perception of the economy refers to the national economy (despite the election itself being regional). Binomial logistic regression suits the structure of the data, since the several dependent variables are dichotomous, and the independent and control variables are either numerical, ordinal or dummies (see below). The regression results are

displayed following conventional practice and, where informative, simulation graphs for the logistic results have been provided in the annex.

The **dependent variable** is a dichotomous variable indicating whether the respondent voted or not for the Catalan incumbent in the Catalan election of 2012 (see coding and wording in the annex). Some subsequent models display a different dependent variable for the same 2012 election: a dichotomous variable indicating whether the respondent voted or not for the regional candidacies of the Spanish incumbents.

The main **independent variable** in each of the successive models is a 5-point ordinal scale reflecting the respondent's perception of the economy. Two such survey questions were posed throughout: one asking about the perception of the Spanish economy, and one asking about the perception of the Catalan economy. Following conventional practice (e.g., see Fraile and Lewis-Beck, 2014: 165), these scales on the perception of the economy have been recoded using a range from 0 (very bad) to 1 (very good). This simplifies the comparison between the results of the successive models.

Several **control variables** are added to the models in order to avoid model misspecification. Studies by Evans and Andersen (2001, 2006) have shown that controls must be included in EV models with the purpose of removing the 'partisan bias' that economic perceptions tend to bring with them. Accordingly, we decided to include those controls that are conventionally assumed to be relevant in Catalan electoral behaviour. The two most influential control variables are the respondent's ideology and the respondent's national identity (see e.g., Pérez-Nievas & Fraile, 2000; Aguilar & Sánchez-Cuenca, 2008). Many other relevant controls were included. For details of these variables and the wording of all questions, see the annex.

<Table-1>

Table 1 displays the univariate descriptives for some of the aforementioned variables – those that are crucial for our analysis. It contains some data worth mentioning. The mean value for the 'vote for Catalan incumbent' (0.19) appears to be rather low: since the dummy value 1 stands for having voted for the incumbent, this would seem to indicate a rather ruinous electoral result. However, it should be kept in mind that (a) non-voters are included, (b) Catalonia has a rather fragmented party system, and (c) the Catalan incumbents did lose some support in 2012. In fact, this 0.19 value is not too far from the 20.6% of the population entitled to vote that the incumbents actually received. The mean value for the 'vote for Spanish incumbent' (0.04) appears to be even more strikingly small. It is true that the PP, who held power nationally, did not obtain a large share of the vote in Catalan elections – with 8.7%, they achieved only fourth place overall – but this still leaves an underrepresentation that points to the well-known phenomenon that PP supporters in Catalonia do not disclose their vote in Catalan surveys (Orriols, 2014).

However, the most relevant univariate descriptives are those dealing with perceptions of the economy. In a context of a severe economic crisis, it is no surprise to find a highly skewed distribution of the perceptions of the economy: 85% of the respondents said the Catalan economic situation was either bad or very bad in 2012, and 90% said the same in reference to the Spanish economy. It is well documented that a highly skewed distribution such as this may entail a methodological problem: the low variance precludes these variables from displaying their – otherwise usual – relationship with the dependent variable. Fraile and Lewis-Beck (2014) termed this 'the restricted variance problem'. However, the skewness of the economic perceptions was already fully perceptible in the 2010 survey, when negative perceptions concerning the Catalan economy jumped from 25% to 70%. The

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skewness of the economic perceptions and its persistence during the 2010-12 period is something we will keep in mind when analysing our results in Section 4. As expected, the two perceptions of each economy are correlated (r=0.767***) but there is still a considerable 16% of the sample who are more negative about the Spanish economy than about the Catalan economy, while 3% feel it is the other way around. Thus, there is still room for a distinct analysis of the two perceptions. The two main control variables (left-right self-placement and national identity) show the typical distribution of the Catalan electorate, with few remarkable features. The only problem is the usual high level of citizens who are non-located ideologically. As we mentioned earlier, we dichotomised this variable in order to avoid these respondents becoming missing values. We did the same with national identity and some of the other control variables.

Most of the **data** used in this paper comes from the 2012 ICPS annual survey. ICPS is a university research institute funded by the provincial government of Barcelona. The survey is available online at: www.icps.cat/research/sondeigs-i-dades/sondeigs/opinion-polls-catalonia. Fieldwork dates, sampling details and question wordings are provided in the annex. We also make occasional use of two panel surveys covering this election: one from the 'Making Electoral Democracy Work' (MEDW) research project, and another from the Spanish agency for sociological research (CIS). Despite the obvious interest of the panel design, these two surveys displayed several limitations which compelled us to use them only for verifying some of the ICPS results. See the annex for these limitations and other details referring to the data.

4. Results

As stated in Section 2, evidence of the relationship between the perceptions of the Catalan economy and the vote are controversial. Table 2 is not aimed at fuelling the controversy, but shows some very simple models that may well suggest the enduring existence of genuine REV for the 2003, 2006 and 2010 elections.

<Table-2>

Indeed, the table appears to show a persistent pattern over time: incumbent parties had a significantly higher percentage of the vote among those who perceived a better economic situation. This pattern is in line with the basic principle of genuine REV (see Section 1) and it looks highly reliable, since it covers periods with different incumbent parties and with different economic circumstances. Admittedly, this pattern of results could be subject to many criticisms: the fit statistics are not satisfactory, the direction of causality could be reversed; the pattern needs to be further controlled by more causes of the vote; we should also analyse the vote for opposition parties and a disaggregation of the parties in each category would be needed, etc. However, none of these criticisms are of great importance in this case, because the real puzzle is the discrepancy with panel 3.1 in Table 3, which shows that genuine REV disappeared completely in the 2012 election.

<Table-3>

The model in panel 3.1 shows a complete blurring of the previous patterns. The incumbent party did not have a higher percentage of the vote among those who perceived a better economic situation. This result was intensively double-checked in order to confirm its reliability. We explored many subsamples, such as those who attribute responsibility to a

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particular layer of government, those who only vote for Catalan nationalist parties, etc. We also explored the bivariate relationship (simply to exclude a problem of over-control) and alternative model designs, such as models including both economic perceptions together. The alternative model results are displayed in panel 3.2 of Table 3: the regression coefficient for the Catalan economic situation stays clearly non-significant and it even changes its sign (which reinforces the idea that the coefficient reveals no pattern).[4] We even replicated the model with two other available surveys (MEDW and CIS). None of the above examinations generated different results. We also had to exclude a purely methodological source for this non-result; the 'restricted variance problem' referred to in Section 3 (Fraile & Lewis-Beck, 2014) cannot be the cause of it for two reasons: (a) the perceptions in the 2010 survey were also highly skewed and, nonetheless (see Table 2), the relationship was found to persist; and (b) it is clearly not a problem of the independent variable because –as we will see in the following pages– this same variable is able to hold a very solid relationship with the vote for the Spanish incumbents. Having taken everything into account, we finally had to conclude that –by the time of the 2012 Catalan election– no relationship existed between the perception of the Catalan economy and the vote to the Catalan incumbent.

Perhaps we should stress that what was absent, was a relationship of a 'genuine' kind because, as we discussed in Section 1, 'genuine REV' is not the only kind of EV to be found in a regional election. There may be evidence of 'second-order EV', 'coattail EV' or 'c-type EV'. Due to limitations of space, we will focus on testing the second-order EV (other statistical models are available from the author).

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4. Curiously, the regression coefficient for the newly introduced Spanish economic situation attains some statistical significance but the sign of the coefficient is in the opposite direction than expected, i.e., those who evaluate the Spanish economic situation as more positive, have a lower tendency to vote for the Catalan incumbents. This is simply because they have a higher tendency to vote for the Spanish incumbents, as panels 3.3 and 3.4 will confirm. Thus, the results for the genuine REV model remain negative.

As stated in Section 1, second-order EV occurs if there is a relationship between the perception of the national economy and the vote for the national incumbents – even in the context of a regional election, rather than a national election. The results for the 2012 Catalan election, displayed in panel 3.3 of Table 3, are sound and rather interesting. They show there is a solid contribution of the perception of the Spanish economy to the vote for the regional candidacies of the Spanish incumbents. The logistic coefficients confirm that – for the 2012 Catalan elections– the better the perception of the Spanish economy, the higher the probability of voting for the regional candidacies of the Spanish incumbents. Or rather, given the widespread negative view of the Spanish economy, we should perhaps say that the worse the perception of the Spanish economy, the lower the probability of voting for the Spanish incumbents. An alternative model design, including both evaluations of the economic situation, is displayed in panel 3.4 of the same table. The results confirm the original second-order EV model was correct: the regression coefficient for the Catalan economic situation does not attain any significance; the significant variable for predicting the vote for the Spanish incumbents remains the Spanish economic situation[5]; and the coefficients for other control variables remain unchanged – an indication of robustness.

Thus far, we can reasonably say that – even if in previous Catalan elections, voters rewarded and punished the Catalan incumbents for the state of the Catalan economy – this did not happen in the 2012 Catalan election. Instead, it seems clear that Catalan voters used the 2012 Catalan election to punish the Spanish incumbents for the state of the Spanish economy. If this is so, this election is a clear example of second-order EV, and thus, the results verify the hypothesis we proposed at the end of Section 1: second-order EV – but not genuine REV – was a factor in the recent 2012 Catalan election. And this happened even if

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5. Admittedly, the coefficient for this variable fluctuates and it even loses some significance due to the high correlation among the two perceptions (r=0.77). However, its significance level is still impressive (p=0,013). Taking into account this was a very demanding test (because we know that collinearity frequently weakens the significance levels), the results indicate a reasonably robust performance of this coefficient.

previous elections had conceivably shown the existence of genuine REV.[6] Although unravelling the cause of such a shift is not the purpose of this article, the next section suggests three possible explanations why second-order EV could persist while – at the same time – genuine REV disappeared.

5. Discussion and further research

We think future research could shed light on three possible causes of the shift revealed in this article. First, the shift could be the result of a process that might properly be called an 'agenda setting' experience (McCombs & Shaw, 1972). The canvassing for independence between the two elections (2010-2012) was so compelling that it managed to alter the issue priorities of a vast majority of Catalans. The CIS data shows that in the 2010 election only 2.6% of voters perceived independence as the most important issue in the campaign, whereas this percentage rocketed to a 42.9% high in the 2012 campaign. Conversely, the perceived importance of economic issues plunged from 44.3% to a mere 17.3%, in spite of the massive economic crisis. Thus, it may be claimed that economic issues were overtaken by independence issues, which weakened the role of the economy in the election and which, in turn, caused EV to erode. This argument is admittedly a potentially productive line of enquiry, but there are also some flaws: the results in Section 4 did not reveal a complete erosion of EV, but rather, an erosion of genuine REV. In contrast, second-order EV remained strong. Therefore, it seems that there might be something more behind the shift in the EV patterns revealed in this article.

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6. Notice that the argument is not that second-order EV is a novel behaviour in Catalan elections: as Table A9 (in the annex) shows, such a model always worked in past elections. Instead, the novelty is that *only* this model continued to work while genuine REV ceased.

A second explanation would be a generalised change in the attribution of responsibilities. The context of the election, which we briefly discussed in Section 2, suggests that responsibility for the economic crisis may have been overwhelmingly attributed to Spanish rather than Catalan institutions. Fortunately, our survey included a question on attribution of responsibility for the economic crisis, and the responses obtained support this idea: of those sampled, 49.1% saw the Spanish government as being more responsible than the Catalan government for the economic crisis, whereas only 5% blamed the Catalan government more than the Spanish government (41.4% attributed responsibility equally to both). If the attribution of responsibility to the Spanish government was the basis of the shift in EV, the second-order EV model should hold especially for the 49.1% who put the blame on the Spanish government. Therefore, we replicated the second-order EV model from panel 3.3, but added an interaction between the attribution of responsibility and the Spanish economic situation. The results of this very provisional exploration (see Table A12) are promising but still weak. On the one hand, the signs of the coefficients and the graph for the marginal effects seem to show that the Spanish economy has more impact on the vote for Spanish incumbents if the voter attributes economic responsibility to the Spanish government. But on the other hand, the lower number of cases slightly worsens the significance of the coefficient referring to the economic situation (p=0.052); the coefficients for the attribution of responsibility and for the interaction do not attain any real significance; and the confidence intervals of the graph for the marginal effects are still too wide. Further research could, however, improve this interactive model and uncover the links between the widespread attribution of responsibility to the Spanish government and the new patterns of EV in Catalonia.

As far as this second explanation is concerned, one key question is how novel is this attribution of responsibilities to the Spanish government. There are no appropriate data series to properly assess this, because the survey question regarding responsibility – which includes the Catalan government as one of the response options – had not been asked in the previous elections. However, there is some evidence from other sources. For instance,

CIS Study Number 2286 (fielded in May 1998) suggests that the Catalan electorate used to attribute responsibility for economic policies very differently in the past. When asked about unemployment policies in 1998, the response was fairly even: 41.5% of Catalan respondents attributed responsibility to the Spanish government and 40.7% to the Catalan government. When asked about policies on industry and commerce, only 22% attributed them to the Spanish government while 57.9% attributed them to the Catalan government. Obviously, those survey questions are not directly comparable to our 2012 data. But they clearly suggest that, at some point during this period, there was a profound change in the attribution of economic responsibilities. We do not know when this great change took place, but we do know that the shift from genuine REV to second-order EV took place during the 2012 Catalan incumbent's campaign which blamed the Spanish government for Catalan economic hardship. Thus, one plausible account for what happened would be that this campaign to blame the Spanish government engendered a distinctive 'framing' (see Entman, 1993; and Norris, 1995) of the economic crisis. In other words, the crisis was the fault of the Spanish government and, therefore, independence would eventually defeat the crisis. Note that, in this interpretation, the point is not that economic issues were overtaken in importance by independence issues, as we argued in our first explanation. Instead, economic issues were framed as an independence issue. As a consequence, some voters would feel it was reasonable to punish the Spanish government for the economic crisis even though the election was a regional one, and many would find it reasonable to exonerate (see Stokes, 1996) the Catalan government. The shift in the type of EV (from genuine REV to second-order EV) would therefore be the consequence of this new framing.

Finally, a third explanation points to the shifting relationship between the Catalan and the Spanish executives. As referred to in Section 2, qualified collaboration with the successive Spanish governments had been the standard practice of the Catalan governments for two decades. From the late 1980s onwards, nationalist Catalan governments were in solid partnerships with both socialist and conservative Spanish governments which, for most of the period, needed the support of the Catalan nationalists to stay in power. Even when the

Catalan nationalists lost power and a left-wing coalition took over the Catalan government, it coincided with a Spanish government ruled by the Spanish Socialist party and so the partnership remained firm. Thus for more than two decades, regional elections always involved Catalan incumbents who, at the same time, had a certain complicity with the Spanish government. Thus, it was reasonable that – in regional elections – economic perceptions influenced both Catalan and Spanish incumbents in much the same way. And this means that genuine REV (influence on Catalan incumbents) and second-order EV (influence on Spanish incumbents) would appear at the same time. After all, the economic policies were more or less a joint venture: the policies of the Spanish government had the parliamentary support of the Catalan nationalists (and therefore of the Catalan government) and the policies of the Catalan government were often agreed to by the Spanish government. But at the end of this period, in 2012, something very new was occurring. It was the first regional election in Catalonia for two decades in which there was a clear confrontation between Catalan and Spanish incumbents. This is relevant because such confrontation may have led to divergent evaluations of the two incumbents. If until then, EV had only affected Catalan nationalists due to their association with Spanish incumbents, the new context of confrontation could uncouple the two effects leaving only one of them to exert an influence. The results in Section 4 show that the type of EV that remains robust, second-order EV, is the one that affects Spanish incumbents. And this might suggest that the patterns of genuine REV displayed until then had been only a contamination effect: the Catalan incumbents had been influenced by economic perceptions only due to their association with Spanish incumbents. The blurring of this pattern (the blend of second-order EV and genuine REV) would thus be a question of time, lasting only until the arrival of an election in which the incumbents were clearly in opposition to one another. Notice this takes us back to the matter of co-partisanhip, alluded to in the theoretical background. There, we showed that co-partisanship increased the likelihood of second-order EV and genuine REV happening simultaneously. This third interpretation highlights that whereas the 'solid partnership' between the incumbents used to generate the simultaneous outcome expected for co-partisans, its replacement by the confrontation between incumbents coincided with the end of this simultaneity. Further research could verify if partnerships

between incumbents really generate the same EV outcomes as those produced by co-partisanships.

All three explanations suggest the likelihood that certain political conditions may be the cause of the shift from genuine REV to second-order EV, but more case studies are needed to provide a better explanation for these sorts of shifts. In particular, efforts should be devoted to detecting more cases of second-order EV and, subsequently, to identifying the political conditions that encourage this phenomenon. It would also be interesting to verify whether certain types of electors tend to engage in such behaviour more than others. In particular, it is possible that less sophisticated voters are more prone to engage in this contaminated behaviour (second-order EV), whereas more sophisticated voters tend to follow a genuine REV pattern. Also, consumers of certain media could be more prone to second-order EV. In fact, if the first of the three arguments is correct, data on media consumption could detect groups of voters who are swayed from genuine REV by particularly insistent media coverage.

Of course, some may take a purist stance with regard to REV and argue that the evidence for different types of EV, such as second-order EV, coattail REV and others is unconvincing. It can certainly be argued that only genuine REV and genuine NEV deserve the denomination of EV and the rest are mere examples of contamination effects. In this case, the conclusion drawn would be much simpler: there may be evidence of genuine REV in previous elections, but such evidence ceased in the 2012 election; the campaign of vertical diffusion of responsibility initiated by the Catalan incumbents would have caused a blurring of responsibility and this would have led to this interruption in Catalan EV. This, of course, would be the end of the problem because there would be no puzzle. We would simply be dealing with a typical campaign of vertical diffusion of responsibility that has confounded EV.

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Figure 1 – The orthodox typology of multilevel economic voting

Incumbent to be assessed:

Economy to be assessed:		Regional	National
	Regional	REV	(d)
	National	(c)	NEV

Source: Prepared by the author, based on the definitions of Queralt (2012: 107) and Anderson (2008: 333).

Figure 2 – A tentative typology of multilevel economic voting

		Regional elections		National elections	
		Incumbent to be assessed:		Incumbent to be assessed:	
Economy to be assessed:		Regional	National	Regional	National
	Regional	Genuine REV	(e)		(d)
	National	(c)	(f)		Genuine NEV

Source: Prepared by the author.

Table 1 – Univariate descriptives of some key variables

	Mean	Standard deviation	Missing values	
Vote for 2012 Catalan incumbent	0.19	0.39	-	
Vote for 2012 Spanish incumbent	0.04	0.19	-	
Left-right self-placement	0.36	0.21	234 (20%)	
National identity	0.63	0.28	78 (7%)	
Perceptions of the economy:				
	2003	2006	2010	2012
Catalan economy:				
Very good	3.8%	1.3%	0.6%	0.0%
Good	38.8%	20.6%	2.9%	2.0%
Even	40.1%	51.7%	25.6%	13.1%
Bad	13.0%	19.0%	43.2%	40.0%
Very bad	2.7%	5.9%	26.6%	44.7%
Missing values	1.7%	0.9%	1.0%	0.3%
Spanish economy:				
Very good	1.2%	0.6%	0.0%	0.1%
Good	29.8%	15.9%	1.6%	0.7%
Even	41.3%	54.9%	17.2%	8.6%
Bad	19.6%	20.7%	43.2%	36.7%
Very bad	4.6%	6.8%	36.5%	53.1%
Missing values	3.5%	1.1%	1.5%	0.9%

Source: ICPS 2012. For more statistic details, see section 3.

Table 2 – Vote for the incumbents and perception of the economy, 2003, 2006 and 2010

	2003		2006		2010	
Catalan economic situation	1.65 ***	(0.42)	1.53 ***	(0.30)	1.20 ***	(0.30)
Left	-3.03 ***	(0.29)	2.20 ***	(0.16)	2.35 ***	(0.20)
Centre-left	-1.15 ***	(0.22)	1.58 ***	(0.16)	1.95 ***	(0.17)
Centre-right	0.72 **	(0.29)	-0.91 **	(0.34)	-2.81 **	(1.09)
Right	0.09	(0.33)	-1.11	(0.75)	-1.49	(1.03)
DK/DA	-0.66 **	(0.26)	-0.24	(0.33)	-0.54	(0.33)
Only Catalan	0.57 **	(0.25)	-0.64 ***	(0.19)	-1.58 ***	(0.26)
More Catalan	0.67 ***	(0.21)	-0.64 ***	(0.16)	-0.50 ***	(0.16)
More Spanish	0.19	(0.41)	-0.09	(0.21)	-0.29	(0.24)
Only Spanish	-0.06	(0.34)	-0.65 **	(0.28)	-0.02	(0.28)
DK/DA	-1.69 **	(0.81)	-1.67 ***	(0.40)	-1.28 **	(0.52)
Constant	-3.32 ***	(0.66)	-1.72 ***	(0.20)	-2.80 ***	(0.37)
R2 Cox & Snell	0.29		0.22		0.19	
N	1,187		1,487		2,406	

Source: ICPS 2003 annual survey (2003); CIS Study Number 2734/3 (2006); and CIS Study number 2857 (2010).

Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. The table only displays the most relevant controls. The complete models and the probability simulations graphs are provided at the annex. For more statistic details, see section 3.

Table 3 – Vote for the incumbents and perceptions of the economy, 2012

Dependent variable:	Vote to the Catalan incumbent				Vote to the Spanish incumbent			
	3.1. Genuine REV model		3.2. Genuine REV model (control added)		3.3. Second-order EV model		3.4. Second-order EV model (control added)	
Catalan economic situation	-0.16	(0.52)	1.11	(0.72)			-2.50	(1.85)
Spanish economic situation			-2.22 **	(0.89)	2.58 ***	(0.96)	4.55 **	(1.79)
Left	-2.08 ***	(0.27)	-2.10 ***	(0.27)	-2.28 ***	(0.78)	-2.27 ***	(0.78)
Centre-left	-0.99 ***	(0.27)	-1.00 ***	(0.27)				
Centre-right	0.15	(0.38)	0.24	(0.38)	1.05 *	(0.55)	0.98 *	(0.56)
Right	-0.73	(0.51)	-0.72	(0.52)	1.98 ***	(0.50)	2.02 ***	(0.51)
DK/DA	-0.92 ***	(0.33)	-0.93 ***	(0.33)	-0.47	(0.56)	-0.41	(0.56)
Only Catalan	1.51 ***	(0.28)	1.38 ***	(0.29)	-2.53 **	(1.11)	-2.27 **	(1.11)
More Catalan	1.66 ***	(0.26)	1.59 ***	(0.26)	-2.21 ***	(0.78)	-2.11 ***	(0.78)
More Spanish					-1.57 *	(0.84)	-1.61 *	(0.84)
Only Spanish	-1.06 *	(0.63)	-1.01	(0.63)	0.12	(0.57)	-0.02	(0.58)
DK/DA					-1.16	(1.11)	-1.12	(1.11)
Constant	-4.32 ***	(0.81)	-4.13 ***	(0.82)	-5.23 ***	(1.41)	-4.96 ***	(1.43)
R2 Cox & Snell	0.26		0.26		0.12		0.13	
N	1,116		1,110		1,110		1,110	

Source: ICPS 2012. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10.
Collinearity diagnostics for panels 3.2 & 3.4. VIF for Catalan economic situation: 2.47. VIF for Spanish economic situation: 2.61. Pearson's correlation between them: 0.77. The table only displays the most relevant controls. The complete models (and the probability simulations graphs for the genuine REV model) are provided at the annex. For more statistic details, see section 3.

Annex 1. Question wordings and codings

The variable 'vote for the incumbent' (dependent variable) is a dichotomous variable indicating whether the respondent voted or not for the Catalan incumbent in the Catalan election of 2012. In previous elections (included for purposes of contrast) the successive dependent variables are also dichotomous variables indicating whether the respondent voted or not for the successive Catalan or Spanish incumbents. The coding is as follows. Vote for 2003 Catalan incumbent: CiU. Vote for 2006 Catalan incumbent: PSC or ERC or ICV-EUiA. Vote for 2010 Catalan incumbent: PSC or ICV-EUiA (notice that ERC had abandoned the coalition well before the election and promised not to reinstate it). Vote for 2012 Catalan incumbent: CiU. Vote for 2012 Spanish incumbents: PP. All these 'vote for the incumbent' variables are computed with the survey questions on 'vote recall'. In ICPS surveys, the wording of the question is simply *'Could you tell me which party you voted in the recent autonomous elections of the [25th of November]?'* In CIS surveys, this is a filter question with the following wording: *'There are many people who, for some reason, can't vote or prefer not to do it. In the case of the autonomous elections of the [25th of November], which of the following statements comes closer to your case?: couldn't vote; didn't want to vote; usually does vote but this time didn't want to; usually does vote but this time couldn't vote; did vote'*. Only when the respondent chooses this last option, s/he is asked: *'Could you tell me the name of the party or coalition you voted in the recent autonomous elections of the [25th of November]?'*

The main independent variable is the 'perception of the Catalan economic situation'. However, as the reader has seen, one of the models shifts this to the 'perception of the Spanish economic situation'. In ICPS surveys, both question wordings are: *'And referring to the Spanish economic situation, how would you describe it?: very good; good; regular; bad; very bad'*. And next, they go on asking: *'and the Catalan one?: very good; good; regular; bad; very bad'*. Similarly, CIS surveys ask *'To begin with, how would you describe the current Catalan economic situation?: very good; good; regular; bad; very bad'*. And next, they go on

asking: *'And how would you describe the current Spanish economic situation?: very good; good; regular; bad; very bad'*. As stated on the main text, these scales have been recoded to a range from 0 (very bad) to 1 (very good). This simplifies the comparison between the results of the successive models.

As stated on the main text, the two main control variables are the respondent's ideology and her national identity. ICPS surveys assess the ideology asking the respondent to locate herself on a 7-point scale in which point 1 is labelled *'extreme left'*, point 4 is labelled *'centre'*, and point 7 is labelled *'extreme right'*. CIS surveys proceed similarly with a 10 point scale in which point 1 is labelled *'left'* and point 10 is labelled *'right'*. The respondent's national identity is assessed with a standard question asking whether she feels *'exclusively Spanish'*; *'more Spanish than Catalan'*; *'as Spanish as Catalan'*; *'more Catalan than Spanish'*; or *'exclusively Catalan'*. Given that these scales displayed a nonlinear influence on the dependent variable (vote for the incumbent), they were transformed into a series of five successive dichotomies (or seven, or ten). This recoding also allows us to exploit the missing cases, because there is no need to drop them from the analysis: they can simply be used to constitute a sixth dichotomy (or eighth, or eleventh). The reference categories for these dichotomies were as follows: for ideology, *centre*; and for national identity, *as much Spanish as Catalan*. For some models, some of these dichotomies were merged.

In addition to the respondent's ideology and national identity, other control variables were included in the model. These are the respondents' national origin (as well as that of their parents), their Catalan language skills, level of education, gender, age, residence size and subjective social class. The national origin scale was also dichotomised with the reference category being native with mixed parents.

As stated on the main text, the data were made available by the ICPS, the MEDW project, and the CIS. We are grateful for the generosity of the three institutions for making the data available. We are especially grateful for the willingness of the ICPS research team to include in the questionnaire a question on attribution of responsibility, which was of crucial interest for this study. This is the cause of the intensive use of 2012 ICPS annual survey, whereas we

also make occasional use of two panel surveys covering this election: one from the 'Making Electoral Democracy Work' (MEDW) research project, and another from the Spanish agency for sociological research (CIS). Despite the obvious interest of the panel design, these two surveys displayed several limitations: the MEDW is a self-administered internet survey with a smaller sample, and the CIS survey (Study number 7713) had no questions on attribution of responsibility. These limitations compelled us to use them only for verifying some of the ICPS results.

Data referring to elections prior to 2012 are drawn from several surveys that satisfy the condition of including questions on both vote recall and perception of the Catalan economy: the 2003 ICPS annual survey (2003 election); the CIS Study Number 2734/3 (2006 election); and the CIS Study number 2857 (2010 election). The fact that different sources (ICPS and CIS surveys) were used should not represent a serious problem since the data prior to 2012 do not constitute the core of this paper and are simply used to contrast the 2012 results.

All the models shown in the article refer to incumbents. However, models for opposition parties are available from the author. Models with a disaggregation of the parties (both in government and in the opposition) are also available from the author.

Concept clarification. In the whole text, the term 'national' refers to internationally-recognised nation-States such as Spain and the term 'regional' refers to communities – such as Catalonia – that are not independent nation-States. We know most Catalan natives would conversely use the term 'nation' to refer to Catalonia and the term 'state' to refer to Spain. However, our terminology aims merely at simplifying the reading for an international audience and is in no way meant to deny the status of 'nation' to Catalonia nor is it meant to have any political implication.

Annex 2. Sampling information

Table A1 – Sampling details of the main surveys used in the article

Survey		Fieldwork		Sample
		begins	ends	
ICPS 2012 annual survey		27/XI/2012	20/XII/2012	n=1,200
MEDW internet panel survey	pre-electoral wave	16/X/2012	23/X/2012	n=993
	post-electoral wave	26/XI/2012	9/XII/2012	n=808
CIS panel study #7713	pre-electoral wave	9/X/2012	29/X/2012	n=2,983
	post-electoral wave	30/XI/2012	12/II/2013	n=1,873

Table A2 – Sampling details of the surveys for previous elections

Election year	Survey	Fieldwork		Sample
		begins	ends	
2003	ICPS 2003 annual survey	15/XII/2003	21/XII/2003	n=1,200
2006	CIS Study #2734/3	21/I/2008	6/III/2008	n=1,500
2010	CIS Study #2857	3/XII/2010	31/I/2011	n=2,523

Notes: The fact that different sources (ICPS and CIS surveys) were used should not represent a serious problem since the data prior to 2012 do not constitute the core of the paper and are simply used to contrast the 2012 results.

The fieldwork for the CIS Study #2734/3 took place quite some time after the election date, but no other survey included questions on perceptions of the Catalan economy and, in any case, its use in the paper is rather marginal.
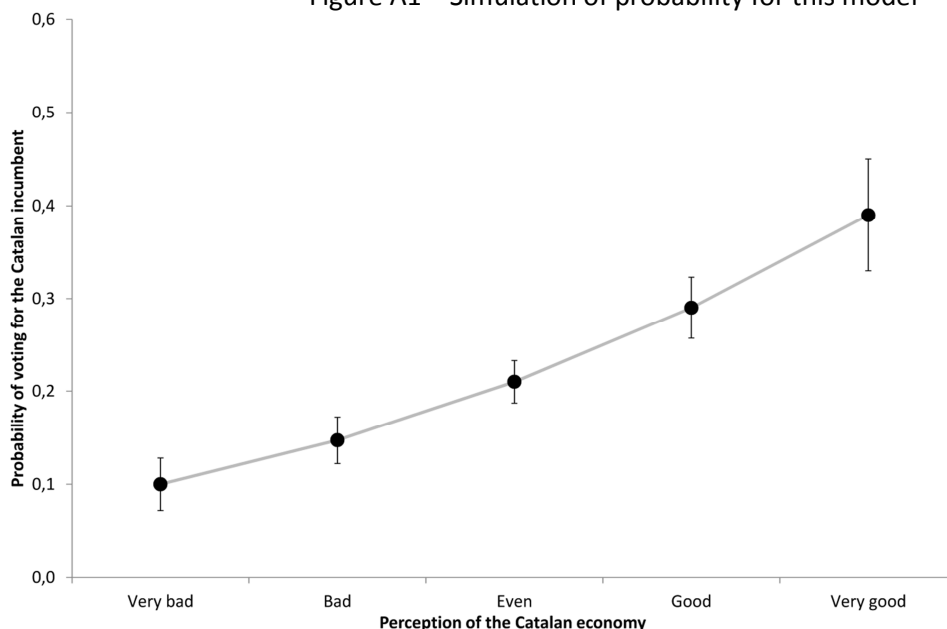
Annex 3. Model details

Table A3 – Vote for the incumbents and perception of the economy, 2003

Catalan economic situation	1.65 ***	(0.42)
Left	-3.03 ***	(0.29)
Centre-left	-1.15 ***	(0.22)
Centre-right	0.72 **	(0.29)
Right	0.09	(0.33)
DK/DA	-0.66 **	(0.26)
Only Catalan	0.57 **	(0.25)
More Catalan	0.67 ***	(0.21)
More Spanish	0.19	(0.41)
Only Spanish	-0.06	(0.34)
DK/DA	-1.69 **	(0.81)
Immigrant	0.70 ***	(0.24)
Catalan skills	2.01 ***	(0.47)
Level of education	-1.54 ***	(0.40)
Male	-0.05	(0.17)
Age	0.02 ***	(0.01)
Habitat	-0.10 **	(0.05)
Constant	-3.32 ***	(0.66)
R2 Cox & Snell	0.29	
N	1,187	

Source: ICPS 2003. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

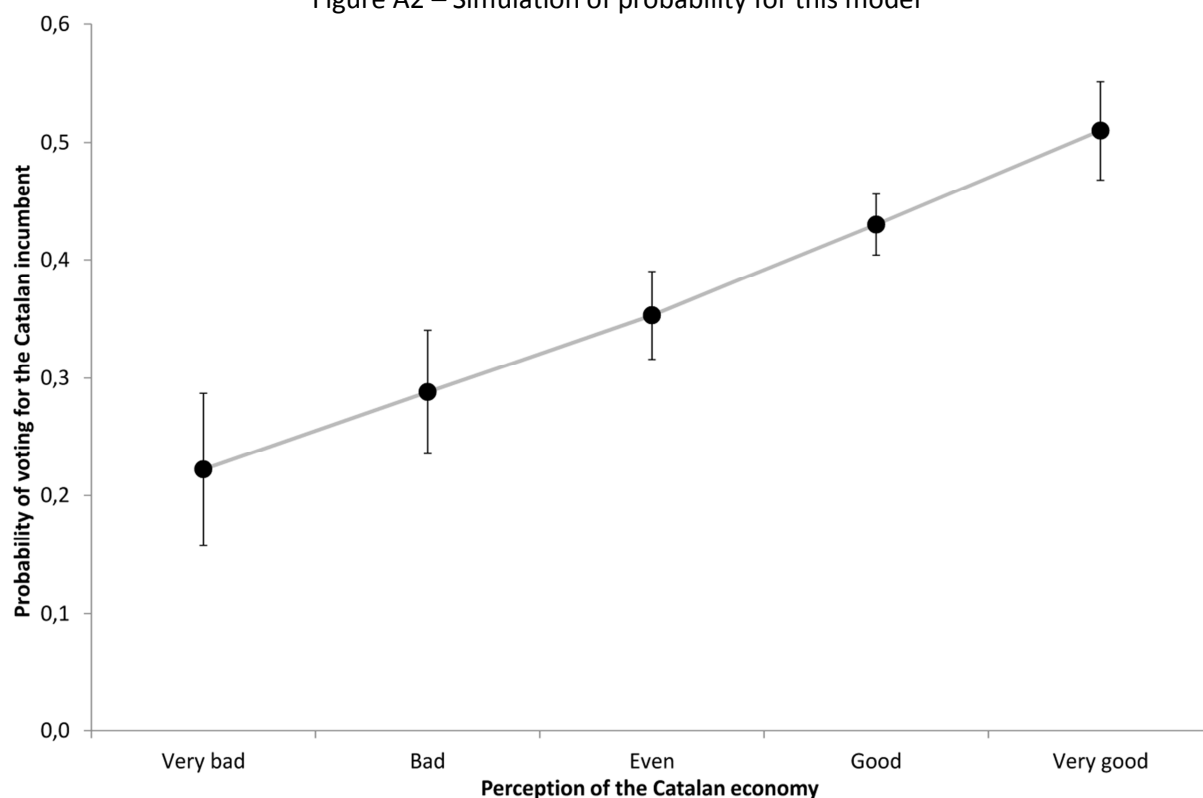Figure A1 – Simulation of probability for this model

Source: ICPS 2003. Values show the expected probability for each category of the independent variable. Control variables are kept at their mean and confidence intervals are kept at 95%. For more statistic details, see section 3.

Table A4 – Vote for the incumbents and perception of the economy, 2006

Catalan economic situation	1.53 ***	(0.30)
Left	2.20 ***	(0.16)
Centre-left	1.58 ***	(0.16)
Centre-right	-0.91 **	(0.34)
Right	-1.11	(0.75)
DK/DA	-0.24	(0.33)
Only Catalan	-0.64 ***	(0.19)
More Catalan	-0.64 ***	(0.16)
More Spanish	-0.09	(0.21)
Only Spanish	-0.65 **	(0.28)
DK/DA	-1.67 ***	(0.40)
Level of education	0.01	(0.03)
Constant	-1.72 ***	(0.20)
R2 Cox & Snell	0.22	
N	1,487	

Source: CIS Study Number 2734/3. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

Figure A2 – Simulation of probability for this model

Source: CIS Study Number 2734/3. Values show the expected probability for each category of the independent variable. Control variables are kept at their mean and confidence intervals are kept at 95%. For more statistic details, see section 3.

Table A5 – Vote for the incumbents and perception of the economy, 2010

Catalan economic situation	1.20 ***	(0.30)
Left	2.35 ***	(0.20)
Centre-left	1.95 ***	(0.17)
Centre-right	-2.81 **	(1.09)
Right	-1.49	(1.03)
DK/DA	-0.54	(0.33)
Only Catalan	-1.58 ***	(0.26)
More Catalan	-0.50 ***	(0.16)
More Spanish	-0.29	(0.24)
Only Spanish	-0.02	(0.28)
DK/DA	-1.28 **	(0.52)
Native & native parents	-0.44 **	(0.20)
Native & immigrant parents	-0.10	(0.20)
Immigrant	0.44 **	(0.22)
Catalan skills	0.18	(0.31)
Level of education	0.06	(0.27)
Class	-0.25	(0.40)
Constant	-2.80 ***	(0.37)
R2 Cox & Snell	0.19	
N	2,406	

Source: CIS Study number 2857. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

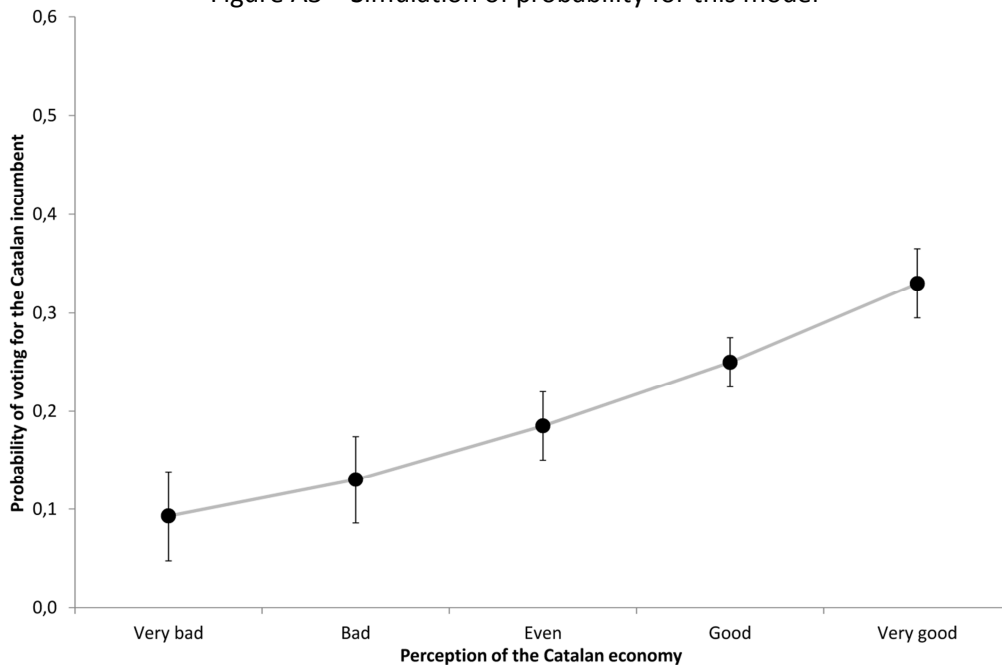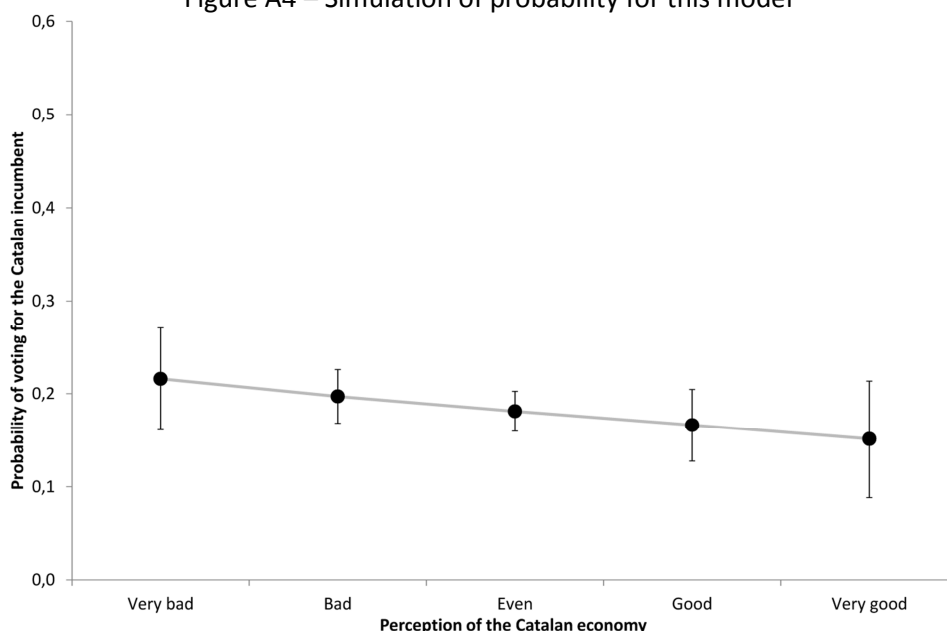Figure A3 – Simulation of probability for this model

Source: CIS Study number 2857. Values show the expected probability for each category of the independent variable. Control variables are kept at their mean and confidence intervals are kept at 95%. For more statistic details, see section 3.

Table A6 – Vote for the incumbents and perception of the Catalan economy, 2012

Catalan economic situation	-0.46	(0.42)	-0.46	(0.47)	-0.16	(0.52)
Left	-1.65 ***	(0.22)	-2.28 ***	(0.25)	-2.08 ***	(0.27)
Centre-left	-0.54 ***	(0.21)	-1.16 ***	(0.25)	-0.99 ***	(0.27)
Centre-right	0.2	(0.29)	0.31	(0.35)	0.15	(0.38)
Right	-1.25 ***	(0.40)	-0.82 *	(0.46)	-0.73	(0.51)
DK/DA	-1.6 ***	(0.26)	-1.33 ***	(0.30)	-0.92 ***	(0.33)
Only Catalan			2.25 ***	(0.24)	1.51 ***	(0.28)
More Catalan			2.04 ***	(0.24)	1.66 ***	(0.26)
More Spanish, Only Spanish & DK/DA			-1.79 ***	(0.61)	-1.06 *	(0.63)
Native & native parents					0.40	(0.28)
Native & immigrant parents					-0.51	(0.36)
Immigrant					-0.07	(0.36)
Catalan skills					2.22 ***	(0.62)
Level of education					0.03	(0.38)
Male					-0.22	(0.19)
Age					0.03 ***	(0.01)
Habitat					-0.12 *	(0.06)
Class					-0.11	(0.58)
Constant	-0.56 ***	(0.16)	-1.5 ***	(0.22)	-4.32 ***	(0.81)
R2 Cox & Snell	0.08		0.22		0.26	
N	1,197		1,197		1,116	

Source: ICPS 2012. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

Figure A4 – Simulation of probability for this model

Source: ICPS 2012. Values show the expected probability for each category of the independent variable. Control variables are kept at their mean and confidence intervals are kept at 95%. For more statistic details, see section 3.

Table A7 – Vote for the Spanish incumbents and perception of the Spanish economy, 2012

Spanish economic situation	2.52 ***	(0.80)	2.45 ***	(0.86)	2.58 ***	(0.96)
Left & Centre-left	-2.63 ***	(0.77)	-2.35 ***	(0.77)	-2.28 ***	(0.78)
Centre-right	0.89 *	(0.49)	1.08 **	(0.51)	1.05 *	(0.55)
Right	2.00 ***	(0.41)	2.09 ***	(0.45)	1.98 ***	(0.50)
DK/DA	-0.81	(0.51)	-0.71	(0.52)	-0.47	(0.56)
Only Catalan			-2.41 **	(1.04)	-2.53 **	(1.11)
More Catalan			-1.84 ***	(0.64)	-2.21 ***	(0.78)
More Spanish			-1.5 *	(0.79)	-1.57 *	(0.84)
Only Spanish			-0.26	(0.47)	0.12	(0.57)
DK/DA			-2.17 **	(1.06)	-1.16	(1.11)
Native & native parents					-0.07	(0.72)
Native & immigrant parents					1.08 *	(0.65)
Immigrant					0.05	(0.68)
Catalan skills					0.40	(0.81)
Level of education					-1.90 **	(0.89)
Male					0.53	(0.37)
Age					0.03 ***	(0.01)
Habitat					-0.01	(0.13)
Class					1.53	(0.98)
Constant	-3.41 ***	(0.35)	-2.82 ***	(0.37)	-5.23 ***	(1.41)
R2 Cox & Snell	0.08		0.10		0.12	
N	1,189		1,189		1,110	

Source: ICPS 2012. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

Table A8 – The evolution of genuine REV, 2003-2012

	2003		2006		2010		2012	
Catalan economic situation	1.65***	(0.42)	1.53***	(0.30)	1.20***	(0.30)	-0.16	(0.52)
Left	-3.03***	(0.29)	2.20***	(0.16)	2.35***	(0.20)	-2.08***	(0.27)
Centre-left	-1.15***	(0.22)	1.58***	(0.16)	1.95***	(0.17)	-0.99***	(0.27)
Centre-right	0.72**	(0.29)	-0.91**	(0.34)	-2.81**	(1.09)	0.15	(0.38)
Right	0.09	(0.33)	-1.11	(0.75)	-1.49	(1.03)	-0.73	(0.51)
DK/DA	-0.66**	(0.26)	-0.24	(0.33)	-0.54	(0.33)	-0.92***	(0.33)
Only Catalan	0.57**	(0.25)	-0.64***	(0.19)	-1.58***	(0.26)	1.51***	(0.28)
More Catalan	0.67***	(0.21)	-0.64***	(0.16)	-0.50***	(0.16)	1.66***	(0.26)
More Spanish	0.19	(0.41)	-0.09	(0.21)	-0.29	(0.24)		
Only Spanish	-0.06	(0.34)	-0.65**	(0.28)	-0.02	(0.28)	-1.06*	(0.63)
DK/DA	-1.69**	(0.81)	-1.67***	(0.40)	-1.28**	(0.52)		
Native & native parents					-0.44**	(0.20)	0.40	(0.28)
Native & immigrant parents					-0.10	(0.20)	-0.51	(0.36)
Immigrant	0.70***	(0.24)			0.44**	(0.22)	-0.07	(0.36)
Catalan skills	2.01***	(0.47)			0.18	(0.31)	2.22***	(0.62)
Level of education	-1.54***	(0.40)	0.01	(0.03)	0.06	(0.27)	0.03	(0.38)
Male	-0.05	(0.17)					-0.22	(0.19)
Age	0.02***	(0.01)					0.03***	(0.01)
Habitat	-0.10**	(0.05)					-0.12*	(0.06)
Class					-0.25	(0.40)	-0.11	(0.58)
Constant	-3.32***	(0.66)	-1.72***	(0.20)	-2.80***	(0.37)	-4.32***	(0.81)
R2 Cox & Snell	0.29		0.22		0.19		0.26	
N	1,187		1,487		2,406		1,116	

Source: ICPS 2003 annual survey (2003); CIS Study Number 2734/3 (2006); and CIS Study number 2857 (2010).

Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

Note: This table does not provide new information. It only puts together the models of tables A3-A6 in order to see the evolution of the whole period.

Table A9 – The evolution of second-order EV, 2003-2012

	2003		2006		2010		2012	
Spanish economic situation	3.25***	(0.92)	1.39***	(0.34)	1.80***	(0.38)	2.58***	(0.96)
Left	-2.50***	(0.78)	1.57***	(0.17)	1.59***	(0.25)	-2.28***	(0.78)
Centre-left	-3.01***	(1.05)	1.46***	(0.18)	1.73***	(0.19)		
Centre-right	0.98**	(0.43)	-0.79**	(0.36)	-2.55**	(1.10)	1.05*	(0.55)
Right	1.43***	(0.44)	-0.82	(0.76)	-1.32	(1.04)	1.98***	(0.50)
DK/DA	-0.45	(0.50)	-0.37	(0.38)	-0.52	(0.37)	-0.47	(0.56)
Only Catalan	-1.15	(0.77)	-2.31***	(0.26)	-1.57***	(0.38)	-2.53**	(1.11)
More Catalan	-1.37**	(0.65)	-1.31***	(0.17)	-0.59***	(0.20)	-2.21***	(0.78)
More Spanish	-0.25	(0.60)	0.05	(0.21)	-0.28	(0.26)	-1.57*	(0.84)
Only Spanish	0.72*	(0.43)	-0.36	(0.27)	0.10	(0.29)	0.12	(0.57)
DK/DA			-1.94***	(0.50)	-1.49*	(0.76)	-1.16	(1.11)
Native & native parents					-0.35	(0.26)	-0.07	(0.72)
Native & immigrant parents					-0.02	(0.26)	1.08*	(0.65)
Immigrant	-0.85**	(0.40)			0.48*	(0.26)	0.05	(0.68)
Catalan skills	-0.91	(0.74)			-0.39	(0.35)	0.40	(0.81)
Level of education	0.75	(0.70)	0.04	(0.03)	-1.08***	(0.34)	-1.90**	(0.89)
Male	0.13	(0.32)					0.53	(0.37)
Age	0.00	(0.01)					0.03***	(0.01)
Habitat	0.14	(0.10)					-0.01	(0.13)
Class					0.40	(0.48)	1.53	(0.98)
Constant	-4.02***	(1.26)	-1.88***	(0.22)	-2.74***	(0.43)	-5.23***	(1.41)
R2 Cox & Snell	0.14		0.17		0.12		0.12	
N	1,163		1,483		2,395		1,110	

Source: ICPS 2003 annual survey (2003); CIS Study Number 2734/3 (2006); and CIS Study number 2857 (2010).

Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

Note: The last column (2012) provides the same information than table A7. The rest of the columns aim to show the evolution of the whole period.

Table A10 – Vote for the incumbents and the two economic perceptions, 2012

Catalan economic situation	1.11	(0.72)
Spanish economic situation	-2.22**	(0.89)
Left	-2.10***	(0.27)
Centre-left	-1.00***	(0.27)
Centre-right	0.24	(0.38)
Right	-0.72	(0.52)
DK/DA	-0.93***	(0.33)
Only Catalan	1.38***	(0.29)
More Catalan	1.59***	(0.26)
More Spanish, Only Spanish & DK/DA	-1.01	(0.63)
Native & native parents	0.39	(0.28)
Native & immigrant parents	-0.55	(0.36)
Immigrant	-0.08	(0.36)
Catalan skills	2.18***	(0.63)
Level of education	-0.02	(0.39)
Male	-0.24	(0.19)
Age	0.03***	(0.01)
Habitat	-0.13**	(0.06)
Class	-0.08	(0.58)
Constant	-4.13***	(0.82)
R2 Cox & Snell	0.26	
N	1,110	

Source: ICPS 2012. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3. Collinearity diagnostics. VIF for Catalan economic situation: 2.47. VIF for Spanish economic situation: 2.61. Pearson's correlation: 0.77.

Table A11 – Vote for the Spanish incumbents and the two economic perceptions, 2012

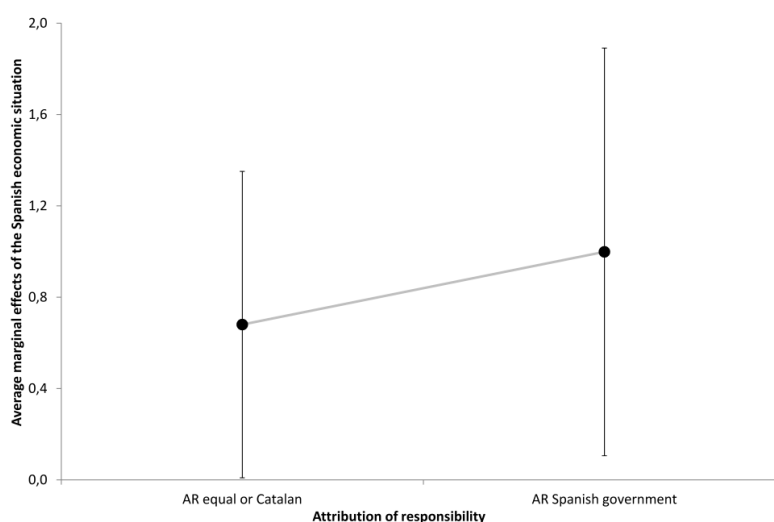|		
Catalan economic situation	-2.50	(1.85)
Spanish economic situation	4.55**	(1.79)
Left & Centre-left	-2.27***	(0.78)
Centre-right	0.98*	(0.56)
Right	2.02***	(0.51)
DK/DA	-0.41	(0.56)
Only Catalan	-2.27**	(1.11)
More Catalan	-2.11***	(0.78)
More Spanish	-1.61*	(0.84)
Only Spanish	-0.02	(0.58)
DK/DA	-1.12	(1.11)
Native & native parents	-0.21	(0.72)
Native & immigrant parents	0.97	(0.65)
Immigrant	0.04	(0.68)
Catalan skills	0.29	(0.82)
Level of education	-1.98**	(0.90)
Male	0.50	(0.37)
Age	0.03***	(0.01)
Habitat	-0.01	(0.13)
Class	1.69*	(0.99)
Constant	-4.96***	(1.43)
R2 Cox & Snell	0.13	
N	1,110	

Source: ICPS 2012. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3. Collinearity diagnostics. VIF for Catalan economic situation: 2.47. VIF for Spanish economic situation: 2.61. Pearson's correlation: 0.77.

Table A12 – Second-order EV model plus interaction with attribution of responsibility, 2012

Spanish economic situation	2.05 *	(1.05)
Attribution of responsibility to Spanish government	-1.06	(0.68)
Interaction	2.31	(2.22)
Left & Centre-left	-2.27 ***	(0.78)
Centre-right	1.03 *	(0.56)
Right	1.99 ***	(0.50)
DK/DA	-0.53	(0.56)
Only Catalan	-2.28 **	(1.11)
More Catalan	-2.06 ***	(0.79)
More Spanish	-1.63 *	(0.85)
Only Spanish	0.04	(0.57)
DK/DA	-1.08	(1.11)
Native & native parents	-0.22	(0.73)
Native & immigrant parents	1.10 *	(0.65)
Immigrant	0.03	(0.68)
Catalan skills	0.40	(0.82)
Level of education	-1.92 **	(0.88)
Male	0.58	(0.38)
Age	0.03 ***	(0.01)
Habitat	-0.01 *	(0.13)
Class	1.68	(0.99)
Constant	-4.96 ***	(1.42)
R2 Cox & Snell	0.13	
N	1,110	

Source: ICPS 2012. Figures are logistic coefficients and standard errors between brackets. The significance levels are: ***0.01; **0.05; and *0.10. For more statistic details, see section 3.

Figure A5 – Graph for the marginal effects

Source: ICPS 2012. Values show the average marginal effects. Confidence intervals are kept at 95%. For more statistic details, see section 3.