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Xavier Cuadras-Morató and Toni Rodon
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The dog that didn't bark: on the effect of the Great Recession on the surge of secessionism

Xavier Cuadras-Morató[a1] and Toni Rodon[b]

[a] Department of Economics and Business, Universitat Pompeu Fabra, Barcelona, Spain

[b] Department of Government, London School of Economics and Political Science, London, UK

ABSTRACT

This paper explores the relationship between the economic turmoil generated by the Great Recession and the increase of secessionism. Some authors have stressed that the Great Recession triggered profound changes in territorial preferences and, in the context of a conflict between the centre and the periphery, fuelled secessionism as a radical shift of the institutional setup. Nevertheless, other researchers have remarked that a deep recession may enhance the status quo bias and decrease the likelihood of radical changes. Our paper aims at contributing to this debate by analysing the case of Catalonia. We use an aggregate and an individual-level empirical design to explore the relationship between the deterioration of the economic situation and the increase of preferences for secession among the Catalan population. The findings from the analysis of our empirical models do not support the hypothesis that the effects of the Great Recession had any significant impact on political preferences in Catalonia.

1. Introduction

A common view among commentators and electoral pundits is that economic crises are strong determinants of decentralization demands or support for secession.

[1] Xavier Cuadras-Morató: xavier.cuadras@upf.edu

Economic downturns—the argument goes—bring about popular discontent, polarize political positions and trigger centrifugal forces that fan the desire for autonomy or outright independence. Many examples of this can be found in the press, especially referred to the effects of the Great Recession in a number of European regions. One can come across sentences like "To many observers, the disintegration forces that characterize Catalonia, Scotland and Flanders are just the by-products of Europe's economic despair" (*World Economic Forum*, August 2014).[1]

Despite its ubiquity, this line of reasoning has gathered little attention in academic forums. Some authors have hinted that economic reasons could be important determinants for the growth of secessionism (see Rico and Liñeira, 2014, Boylan, 2015, Muñoz and Tormos, 2015 and Hopkin 2016), but there is not any research providing solid empirical evidence to evaluate the hypothesis. While the grievances exacerbated by economic recessions might indeed boost secessionist support, a theoretical argument can also be made in the other way round, namely, that economic crises lead citizens to accept the status quo, as individuals deem secession as too risky when economic times turn turbulent.

We aim at contributing to this debate by analysing the relationship between the effects of the Great Recession and the increase in the support to secessionist demands in Catalonia. At least since 2010 there has been a remarkable upsurge in the support to the creation of a new Catalan independent state among the population of Catalonia. This increase, however, varies substantially across the Catalan geography. Moreover, the Great Recession had a heterogeneous impact across the Catalan territory, affecting some places more than others. We exploit this variability to examine the effect of the economic crisis on the increase (or decrease) in support for independence. To capture the intensity of the recession and analyse it at both the

aggregate and individual levels we use several economic indicators. Our article, therefore, contributes to existing research by going beyond the political factors traditionally emphasized in the literature (recent contributions are Barrio and Rodríguez-Teruel, 2017 and Liñeira and Medina, 2017).

Figure 1 shows the evolution of unemployment and support for independence in Catalonia. Just "eyeballing" the graph, one might be tempted to conclude that the first factor caused the second. The main objective of our research is to scrutinize this thesis with the data at hand. Thus, we take advantage of the variation of economic variables and data from surveys and electoral outcomes in order to explore whether there is any relationship between the surge of secessionism and the main economic effects of the Great Recession. Our empirical models capture the impact of the economic consequences of the Great Recession on the growth of support for independence in the political preferences of the Catalan citizenry.
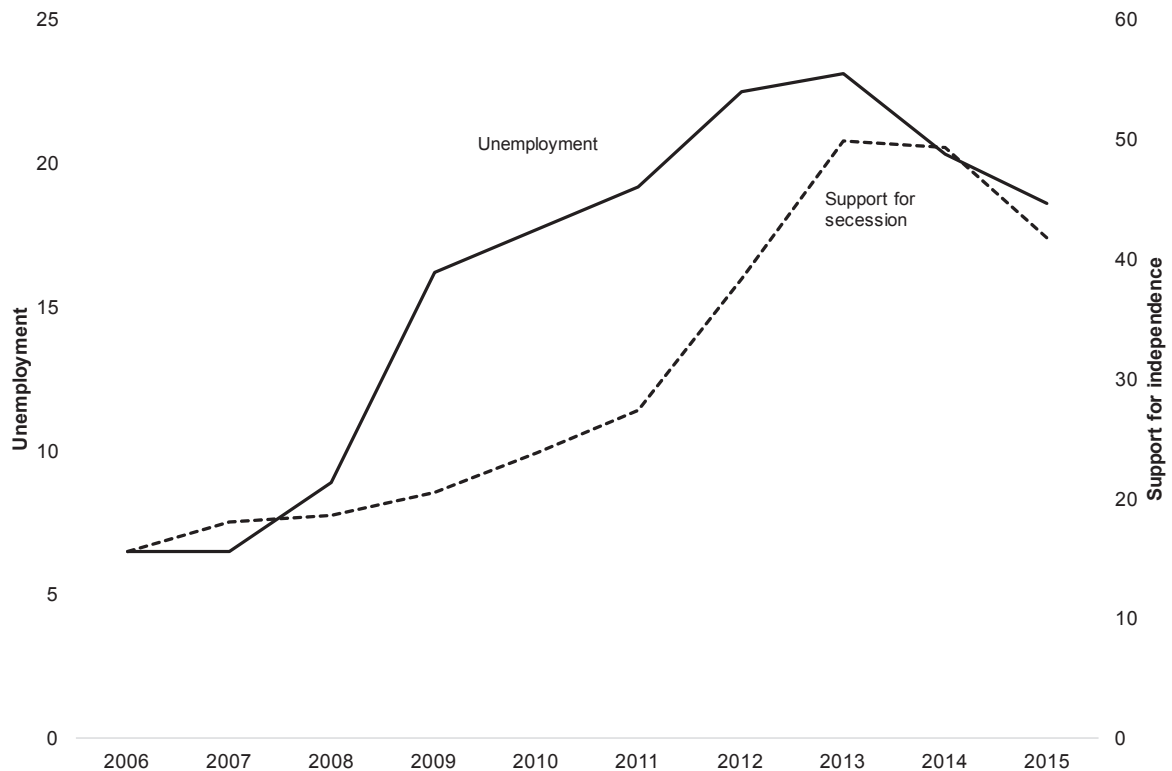
Figure 1: Evolution of unemployment in Catalonia and support for independence (2006-2015)

Note: Unemployment data comes from Eurostat. Data for support for secession comes from the CEO surveys.

Our findings do not support the hypothesis that there is a relationship between the negative economic consequences of the Great Recession and the increase in support for independence among the citizens of Catalonia. At the aggregate level, we show that higher levels of destruction of jobs, disappearance of firms, or income loss in different municipalities do not appear to lead to higher increases in secessionist support. At the individual level, our findings reveal that individuals with low income, who are unemployed, belong to the middle class, or assess negatively their personal economic situation are not more likely to support independence. All in all, our research casts a shadow over the widespread opinion suggesting that, as the economy gets better, the pro-secession tide in Catalonia will recede.

2. Theory

The literature offers three main explanations to understand why some individuals support the creation of a new state, while others are opposed to it. A first strand of research has analysed the relationship between support for secession and attitudes or partisan preferences. This includes the study of the connection between backing for independence and attitudes towards the European Union (Dardanelli, 2005) or how support for secession varies when individuals consider different alternative institutional arrangements (Serrano, 2013). As for parties, previous works have mainly analysed how party strategies shape citizens' preferences for secession (Richez and Bodet, 2012).

A second group of scholars have looked at the role of regional identity/ies and its relationship with pro-secessionist predisposition (Serrano, 2013). The point of departure is that the regional versus "statist" dimension is the main factor driving an individual's support for secession (Hooghe and Marks, 2004, Guinjoan and Rodon, 2016a).

Finally, and most importantly for this article, secession has also been associated with the economic dimension. The link between support for independence and economic factors has been traditionally conceptualized in three interrelated ways. Firstly, high levels of support for independence have been linked to economic deprivation. For instance, Rico and Liñeira argue that "the rise of Catalan secessionism may thus be a particularised manifestation of the growing political dissatisfaction that was ultimately produced by the economic crisis […] the pro-independence tide will therefore probably recede as the economy recovers" (2014: 273). In Scotland, previous research (McKendrick et al, 2014) has shown that the increase in secessionist secondment is partly due to the harsh austerity measures

implemented in the region during the eighties. According to this reasoning, people suffering the effects of the economic crisis cease to trust the central institutions and start considering breaking up the status quo and embrace the necessity to create a new state. On a related note, increasing secessionism has also been linked to the relative impoverishment of the middle classes caused by economic recessions (Dowling, 2018; and on the general relationship between class and support for independence, see McCrone and Paterson, 2002 and Serrano, 2013).

Secondly, increasing support for independence has been shown to be linked to positive expectations about the future of the region's economy. The basic tenet of this line of reasoning is that pro-secessionist individuals tend to think that the economy (and, as a result, their economic status) would be better-off if the region was able to create its own state (Blais and Nadeau, 1992, Clarke et al, 2004, Howe, 1998, Boylan, 2015). In other words, people will opt for an independent state if they perceive it can serve to achieve their economic goals.

Thirdly, politicians might strategically use economic recessions for their political advantage. The economic crisis might provide regionalist parties with a strong argument to blame the central government for bad economic outcomes, raising demands for fiscal and political autonomy to mobilise their voters and send a message that territorial accommodation is no longer possible (Bosco and Verney, 2012, Rico, 2012 and Barrio and Rodríguez-Teruel, 2017). The interaction between the economic shock and the political dynamics associated to it can exacerbate latent secessionist demands. If this is the case, the effect of the economic crisis on secessionist demands would be indirect and positive and should be higher in places where the economic shock has been more severe and where political dynamics are more prevalent. Empirically, this means that the effects of the economic situation

should be larger in places where political entrepreneurs consider they have better opportunities to make advances in their political objectives.

Despite the popularity of these arguments, the empirical evidence is mixed. For instance, at the aggregate level, Sorens (2005) finds that the economic opportunities brought about by globalization are positively related to secessionist vote growth. Serrano (2013) shows that those wanting a high degree of fiscal autonomy for the Catalan region are significantly more likely to support independence. Muñoz and Tormos (2015) portrays a different picture. Using a survey experiment, they show that economic considerations play an independent role on support for secession, but only for citizens with ambivalent identity positions. Similarly, and using data for Catalonia, Guinjoan and Rodon (2016b) shows that, although support for independence grew for all socio-economic groups during the period 2008-2014, this growth was larger (smaller) for employed (unemployed) individuals and middle and high (low) income groups. Furthermore, the empirical evidence provided by Boylan (2015) suggests that the increase of independence aspirations "do not seem to materialise from poor outlooks on the region's economic performance or employment status", which goes against the idea that the Great Recession and higher unemployment rates are the main culprits of the surge of secessionism in Catalonia.

Summing up, the empirical evidence on the relationship between the effect of economic crisis and secessionist demands is far from being compelling. On top of this, one could argue that the theoretical case for it is not conclusive either. Thus, while most previous works emphasize the existence of a positive relationship between economic crisis and secessionist demands, they do not contemplate that a theoretical connection can also be made between economic crises and the acceptance of the status quo. A rich tradition of psychological research, going back

to Fromm ([1941] 2001), argues that insecurity and uncertainty, as plausible by-products of job or income losses, are associated with adopting conservative stances and acceptance of the status quo. In other words, economic instability makes people more willing to accept the current state of events. This might be the case if the economic disruption brought about by the crisis increased the levels of uncertainty faced by voters and made them more reluctant to take risks or concentrate on the potential losses due to political changes. Thus, according to Fernandez and Rodrik (1991) more uncertainty about the outcome of a big change in policy results into a larger status quo bias that makes political change less likely. Also, a more conservative attitude towards risk might increase the salience of the worst-case scenario in the decision-making process, blocking political reforms (Nadeau et al, 1999). Finally, Alesina and Passarelli (2015) argues that more loss averse voters are more likely to favour the maintenance of the status quo.

3. Catalonia 2006-2015: a changing landscape

3.1. Political landscape

At the end of the XIXth century a national and cultural renaissance movement was born in Catalonia, also prompting demands for political devolution and greater autonomy. This crystallized in two early experiments of Catalan self-government during the periods 1914-23 and 1932-1939. Both were abruptly interrupted after two military coups d'état in 1923 and 1936. The latter marked the beginning of the Spanish Civil War (1936-39) and the Francoist military dictatorship (1939-1975).

After democracy was re-established in Spain in 1978, Catalonia recovered its self-government institutions in 1979. This was the start of a period during which the successive Catalan governments fought to gradually increase the number and scope

of powers under its control. During the process the Catalan institutions frequently encountered the resistance of the Spanish government and political parties, leading to a situation in which institutional conflicts were continuous and, often, settled by the judgements of the Spanish Constitutional Court (see Guibernau, 2014, and Cuadras-Morató, 2016).

Until 2010, the proportion of Catalan citizens who manifested a preference for independence in opinion polls was never higher than 20 per cent. Since 2010, though, this figure augmented dramatically and surveys taken around 2015 suggest that the support for independence was rarely below 45 per cent. On a similar note, the number of MPs in the Catalan Parliament elected under an openly secessionist platform went from 14 in 2010 to an absolute majority of 72 after the election of 2015.

Many authors have mentioned the long and convoluted process of elaboration, negotiation and approval of the Reform of the Statute of Autonomy of Catalonia (2004-2010) as a turning point in the recent history of the political relationship between Catalonia and Spain (see Rico and Liñeira, 2014 and Muñoz and Tormos, 2015). The whole process ended in June 2010 with a judgement of the Spanish Constitutional Court which declared unconstitutional important parts of the Statute. This ruling is regarded by many as a key moment in the emergence of secessionism in contemporary Catalan politics. Later attempts of the Catalan government to negotiate with the Spanish authorities a new tax-sharing deal which resembled the clearly advantageous agreement of the Basque Country and Navarre (two regions in Spain that enjoy greater financial autonomy) were unsuccessful. This added to the frustration of the ruling of the Statute and might also explain the increase of secessionism.

From this point on, the intent of holding a self-determination referendum became the new bone of contention between the Catalan and Spanish governments. The Catalan government and Parliament did not reach a political agreement with their Spanish counterparts to allow for the holding of a non-binding referendum. In the end, the Catalan executive decided, in November 2014, to organize an unofficial referendum (2.3 million people voted on the independence of Catalonia). Later, the Catalan government decided to call an early election on September 2015 and frame it as a de facto vote on Catalan independence. Voting for the two lists that explicitly had independence in their electoral manifestos would be the equivalent to a 'Yes' in a self-determination referendum.

3.2. Economic landscape

The years before the Great Recession were characterized as a period of remarkable prosperity in both Catalonia and Spain. The rate of economic growth in Catalonia reached an annual average of 3.7 per cent during the period 2002-2007 (3.5 per cent in Spain). Also, average yearly employment growth for the same period reached 4 per cent (4.1 in Spain), which allowed the unemployment rate to reach unprecedented low values.

Suddenly things turned sour and the economic international climate became extremely unfavourable. This, together with some huge built-in imbalances of the Catalan and Spanish economies (especially a huge speculative real state bubble that crashed catastrophically) foreboded a very traumatic economic adjustment. Indeed, the economic shock of the Great Recession and its aftermath had similar dramatic effects in both Catalonia and Spain. For a start, after average negative

growth of 1.5 per cent (1.4 in Spain) during the period 2008-2013, in 2015 levels of real GDP were still below the 2007 values (Figure 2a). The labour market in the two economies experienced a severe process of employment destruction during which almost 17 per cent of jobs existing in 2008 had been wiped out in 2013 (Figure 2b). That year, the unemployment rate reached a yearly maximum of 23.1 per cent (26.1 in Spain). Additionally, the low levels of economic activity during the period caused the reduction of the number of firms operating in Catalonia (Figure 2c). Things started going back to normality and economic growth resumed in 2014.
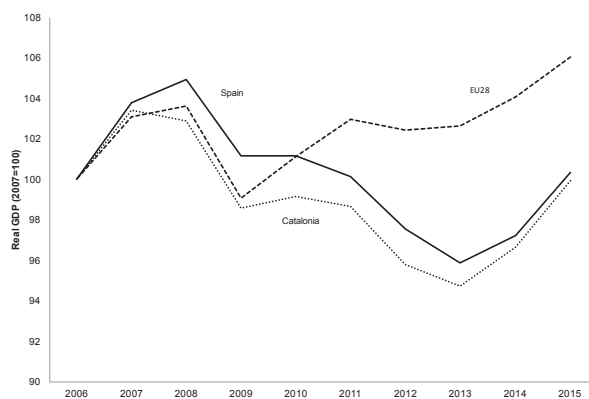
a) Evolution of real GDP in Catalonia, Spain and the EU (2006=100)
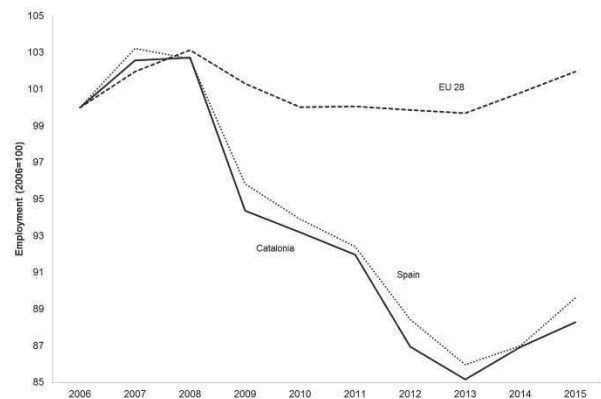
b) Evolution of employment in Catalonia, Spain and the EU (2006=100)
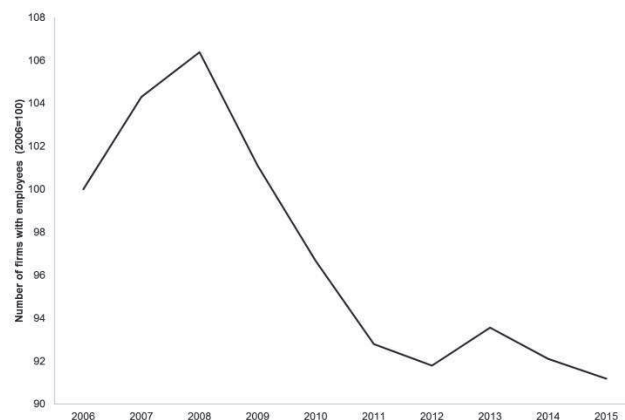
c) Number of firms with employees in Catalonia (2006=100)

Figure 2: Evolution of economic indicators in Catalonia, Spain and the EU (2006-

2015)

Note: Sources for Panels a and c (Idescat), Panel b (Eurostat).

4. Data

Our empirical analysis has two parts.[2] In the first part, we examine the effect of the economic crisis on secessionist preferences at the aggregate level (municipality). In particular, we exploit the heterogeneous impact of the Great Recession on different municipalities and analyse whether this economic shock is related with variations in support for secession. In the second part, we turn to individual level data and analyse whether and how different negative economic circumstances are related to pro-secessionist support.

4.1. Aggregate-level analysis

In the first part of the empirical analysis, our outcome of interest is the difference in the support for independence between 2006 and 2015 at the municipality level. The reason we take these years is that they are the regional election years immediately before and after the economic crisis period. Since support for secession at the municipality level is not directly measured, we estimate it based on a combination of election results and survey responses. The logic is as follows. On a first step, we take data on the secessionist support among voters of the different political parties in 2006 and in 2015 in each of the four Catalan provinces. This is done using all surveys published by the CEO in the years 2006 and 2015. We consider independence supporters those who answered "An Independent state" to the question "What do you think that the relationship between Catalonia and Spain

should be?". On a second step, we gather electoral results at the municipality level for the 2006 and 2015 Catalan regional elections. Finally, on a third step we combine the information from surveys and election results and calculate the percentage of pro-independence supporters for each party and add all of them to have the aggregate number for each municipality. We construct two different municipality-level indicators: the first indicator estimates the percentage of secessionist supporters among voters while the second takes into account the whole electoral census. Section B in the online Appendix provides further details of the estimation procedure.

After estimating the percentage of people in favour of independence at the municipality level in 2006 and 2015, we calculate the growth rate, our outcome of interest. Figure 3 displays the distribution of the dependent variable. It shows that the value of the mode of the distribution is around 255 per cent (when we only consider voters) or 180 per cent (when we also consider abstainers).[3] While the increase in secessionist support is remarkable, there is also substantial variation across municipalities.
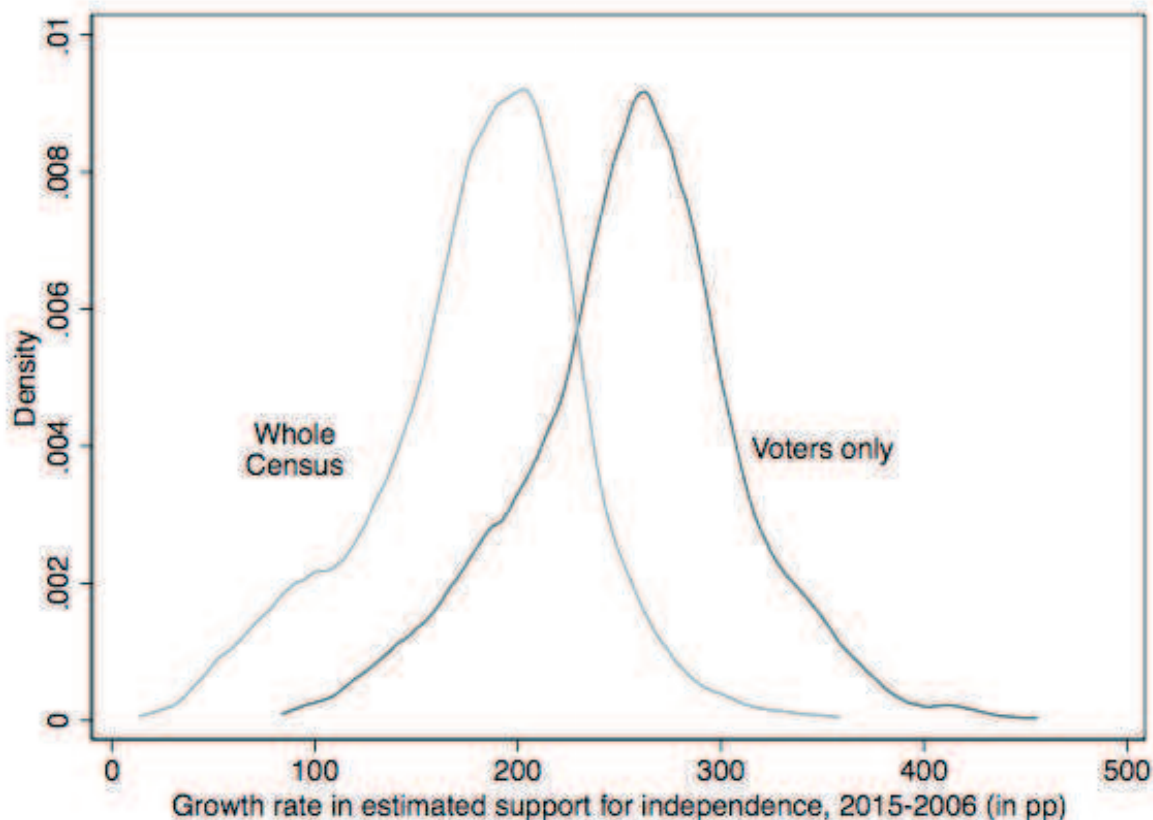
Figure 3: Distribution of the growth rate of estimated support for independence between 2006 and 2015 across municipalities

Note: Estimated support for secession: Centre for Opinion Studies. 2006: Opinion Barometer 363. 2015: Opinion Barometer 804. Electoral data is retrieved from the Catalan Ministry of Governance and Public Administration.

We complement the aggregate-level analysis by using an additional dependent variable. This indicator captures support for secession at the municipality level as expressed directly in surveys. CEO surveys published in 2006 and 2015 contained information about the residence of respondents.[4] We calculate the percentage of respondents that want "An Independent state" on the territorial preference question in each of the municipalities appearing in the surveys. Unfortunately, not all Catalan municipalities were (randomly) included in them and, for some cases, the number of respondents was very low. While the first concern

should be alleviated by the design of the survey (CEO performs stratified random samples with territorial quotas), the second may bias our results by including municipalities in which the variation is not correctly estimated. In order to deal with this problem, we select only municipalities in which the number of interviewed individuals was higher than 15 (n=228).[5]

Measuring the intensity of the economic crisis

<u>Unemployment</u>

The data on unemployment available at municipality level is "registered unemployment", that is, the number of workers who are registered as unemployed in the public job service offices. This data is accessible for the whole period 2006-2015, during which the number of registered unemployed workers more than doubled and rose above half million in 2015.

<u>Employment</u>

The number of affiliated workers to the Social Security residing in the municipality is taken as the measure to approximate employment (this is available only since 2008). Additionally, we calculate the number of affiliated workers to the Social Security based on the location of the corresponding contribution account (which normally matches the establishment where the worker is employed). The obvious disadvantage of this measure is that many employees counted in one location might not reside (and, hence, vote) in the same place. The main advantages are that the data is available for the whole period 2006-2015 and can be disaggregated by economic sectors (e.g. construction).

<u>Number of firms</u>

The number of firms in each municipality is approximated by the number of contribution accounts to the Social Security. The figure is only an approximation of the number of firms in each municipality because some firms might have an establishment in one location and no contribution account there if its workers are associated with a contribution account of the same firm in a different location. This data is accessible for the whole period 2006-2015, during which the total number of firms decreased by more than 12 per cent.

The data on employed and unemployed workers and quotation centres is available quarterly. In order to compute the difference between 2006 (or 2008) and 2015, we choose the value corresponding to the third quarter (September) because the regional elections took place in this month and also to avoid seasonality problems.

Gross Disposable Household Income

The Statistical Office in Catalonia (Idescat) publishes an estimation of the Gross Disposable Household Income for all municipalities larger than 5,000 inhabitants plus all the county ("comarca") capitals. This data is only available for the period 2008-2013, during which per capita income decreased by 4.3 per cent in Catalonia.

Control variables

Finally, our empirical models also control for some important factors at the municipality level that can affect the relationship between economic indicators and support for secession. The first key control is the percentage of Catalan citizens born in other Spanish regions. As previous literature has consistently shown (Serrano,

2013 and Rodon, 2015), in places where this percentage is higher, support for independence is lower. The second control is the percentage of population who are 65 years and older, as support for secession is negatively related to age (Muñoz and Tormos, 2014). The third control, population density, aims at tackling the urban-rural divide (Rodon, 2015). The fourth indicator controls for whether the mayor after the 2011 local election belonged to a pro-sovereign party (CiU, ERC or CUP) or otherwise.[6] This indicator aims at controlling for a (supposedly) higher increase in secessionist support in places where pro-sovereign parties govern and a lower increase in places where they do not. Finally, an important control is the vote share obtained by CiU and ERC in 2006.[7] As explained before, our outcome of interest is the growth rate in the estimated support for independence between 2006 and 2015,. Controlling for the vote share of these parties in 2006 is important in order to avoid automatic effects and to consider the baseline level of support for secession. Some changes in the way we measure support for secession between 2006 and 2015 are simply caused by the "automatism" of the changes in the percentage of voters for each party who, as surveys indicate, support independence (even if, for example, there was not any change in electoral behaviour, i.e., the percentage of votes to each party did not change at all). This means that the variation in support for independence could depend strongly on the baseline level, that is, on the initial vote share for each political party in 2006. In some municipalities secessionist support was already high in 2006, a 'ceiling effect' that limits the secessionist growth rate.

Our empirical strategy is based on conventional OLS regressions. In addition, models include region fixed-effects, which effectively mean that we are comparing the intensity of the economic crisis in municipalities within a specific region.[8]

4.2 Individual-level analysis

In this second part of our empirical analysis, we look at the effect of an individual's economic circumstances on the likelihood of supporting secession. We use all surveys published by the CEO between 2006 and 2015. In this part, the dependent variable is a dichotomous indicator that identifies whether an individual supports secession (1) or not (0). In line with the theory developed above, we use five explanatory variables aiming at capturing individual's negative economic circumstances from five different angles: a) the respondent is unemployed; b) he/she earns less than 1,000€ a month; c) he/she thinks that his/her personal economic situation is worse than in the previous year; d) he/she thinks that unemployment is the most important problem facing Catalonia; and e) he/she considers himself/herself as middle class. In this empirical part, we run logistic regressions, which also include standard control variables.

The online Appendix provides further details of the operationalization, sources and summary statistics of the variables employed in both the aggregate- and individual-level analyses.

5. Results

This section contains the main empirical findings. We proceed by showing first the aggregate-level results and, on a second step, the individual-level findings.

5.1. Aggregate-level analysis

Models M1 to M5 in Table 1 run different specifications with the independent variables tackling different dimensions of the impact of the Great Recession. M1

includes the growth rate of unemployed workers between 2006 and 2015, M2 the growth rate of workers registered to the Social Security between 2008 and 2015 (our proxy for employment), and M3 the growth rate of registered workers in the construction industry (a sector severely affected by the economic crisis) between 2006 and 2015. As the estimated coefficients illustrate, none of the indicators is statistically significant. M4 includes the growth rate of per capita gross disposable household income between 2008 and 2013. The coefficient reveals that the growth rate in household income over this period is negatively related to the growth in support for secession. In other words, in municipalities where the household income increased at high rates (or decreased at slower rates), support for secession increased at relatively moderate rates (as shown in Figure 3 support for secession increased in every municipality). However, this model is based on a smaller number of municipalities (n=211), the time period for which data is available is different and the relationship is only significant at the 90 per cent level. Finally, M5 includes the growth rate of quotation centres between 2006 and 2015. The coefficient is again not statistically significant.

All in all, our empirical models do not show a systematic statistically significant relationship between the (heterogeneous) impact of the economic crisis and variation in secessionist support.

As for the control variables, they behave in the expected direction. The percentage of the Catalan citizens born in other Spanish regions is negatively related to the growth in secessionist support. The percentage of population aged 65 or more indicates that support for secession grew relatively faster in places with a higher percentage of this demographic group. Population density has a negative coefficient, showing that secessionism grew less in densely populated areas. As for

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municipalities governed by a pro-sovereignty mayor, secessionist support increased more, although the relationship is only significant at the 90 per cent level. Finally, the variable vote share obtained by pro-sovereign parties in 2006 behaves inconsistently, although it is generally positive.[9]

	M1	M2	M3	M4	M5
Δ Unemployed 2006-2015	0.003				
	(0.01)				
Δ Registered to the Social Security 2008-2015		-0.05			
		(0.093)			
Δ Registered to the Social Security 2006-2015 (Construction sector)			-0.016		
			(0.015)		
Δ Gross disposable household income 2008-2013				-0.287+	
				(0.153)	
Δ Quotation centres 2006-2015					0.035
					(0.025)
% Catalan population born in other Spanish regions	-5.810***	-5.899***	-5.611***	-5.759***	-5.631***
	(0.287)	(0.285)	(0.289)	(0.583)	(0.287)
% population 65 or more	1.629***	1.528***	1.435***	3.391***	1.361***
	(0.203)	(0.228)	(0.203)	(0.57)	(0.200)
Population density	-0.002**	-0.002**	-0.002**	0.000	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Pro-sovereignty mayor	6.268*	6.337*	5.500*	4.561	6.668**
	(2.503)	(2.473)	(2.518)	(2.986)	(2.531)
Vote share obtained by pro-sovereign parties in 2006	-0.034	-0.028	0.111	0.995**	0.067
	(0.143)	(0.141)	(0.142)	(0.299)	(0.141)
Region Fixed-Effects	✓	✓	✓	✓	✓
Constant	216.27	218.68	206.06	120.64	211.52
	(12.27)	(12.21)	(12.17)	(23.84)	(11.93)
Observations	926	922	927	211	944
R-squared	0.66	0.668	0.65	0.857	0.647

Standard errors in parentheses
+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 1: The effect of the economic crisis on the growth rate of preferences for secession – municipality-level analysis

Note: The dependent variable is the growth rate of estimated support for independence at the municipality level between 2006 and 2015.

As explained in section 4, to complement our aggregate-level analysis we employ an alternative version of the variable that directly measures secessionist support at the municipality level. Using georeferenced surveys, we were able to calculate the percentage of people supporting "An Independent state" both in 2006 and 2015 in each Catalan municipality. Although we lose a fair amount of observations, this measure can be interpreted as a more direct indicator of support for secession. In addition, the 228 municipalities for which we have information in the surveys represent most of the Catalan territory and population (observations are fairly balanced across space).

When we employ this alternative measurement, results are consistent with what we found in Table 1. As displayed in Table 2, none of the economic indicators is significant.

In addition, we further explore the interactive effects between the state of the economy and the political dynamics. As explained in section 2, negative economic shocks might have been used by political entrepreneurs in the pro-independence camp to increase the support for the secessionist project. This interactive effect can take place in two scenarios. First, in places where support for secession before the crisis was low. The economic crisis could have opened a window of opportunity for political entrepreneurs in the pro-independence camp to target those places. Second, in places governed by pro-secessionist parties. If an economic crisis occurs, pro-secession mayors can use the office to disseminate their political project. If both interactive effects are true, we should expect the effect of the crisis to be greater in places where support for secession was low before the economic crisis or in places governed by pro-secession parties. Yet again, the interactions are not statistically significant.[10] In other words, places negatively hit by the economic crisis and

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governed by pro-secession mayors, or where support for secession was low before the crisis, did not experience a higher increase in secessionist support. Therefore, results show that the interaction between political dynamics and the economy did not change the (null) effect of the state of the economy on the increase of secessionist preferences.

	M6	M7	M8	M9	M10
Δ Unemployed 2006-2015	0.06				
	(0.393)				
Δ Registered to the Social Security 2008-2015		2.26			
		(1.924)			
Δ Registered to the Social Security 2006-2015 (Construction sector)			-0.212		
			(0.606)		
Δ Gross disposable household income 2008-2013				-0.527	
				(2.356)	
Δ Quotation centres 2006-2015					-0.281
					(1.139)
% Catalan population born in other Spanish regions	4.735	5.373	4.313	-3.479	4.298
	(5.336)	(5.277)	(5.311)	(8.82)	(5.385)
% population 65 or more	-9.007*	-6.183	-8.973*	3.043	-9.071*
	(3.72)	(4.426)	(3.721)	(8.865)	(3.724)
Population density	0.01	0.011	0.01	0.005	0.01
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Pro-sovereignty mayor	50.553	49.915	50.645	83.957+	50.723
	(35.44)	(35.313)	(35.422)	(45.916)	(35.446)
Vote share obtained by pro-sovereign parties in 2006	1.292	0.779	1.252	-2.402	1.269
	(2.726)	(2.737)	(2.714)	(4.246)	(2.715)
Constant	92.772	85.345	90.431	175.753	97.233
	(231.962)	(227.532)	(229.289)	(329.986)	(228.075)
Region Fixed-Effects	✓	✓	✓	✓	✓
Observations	228	228	228	127	228
R-squared	0.09	0.09	0.09	0.13	0.09

Standard errors in parentheses
+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 2: The effect of the economic crisis on preferences for secession (surveys) – municipality-level analysis

Note: The dependent variable is the growth rate of support for independence at the municipality level. Support for secession is extracted from different surveys carried out by the CEO institute.

5.2. Individual-level analysis

A final concern about the previous analyses has to do with the aggregate nature of the data. Changes in secessionist support over time might be going towards different directions, which might cancel out the effect at the aggregate level. In addition, aggregate changes may mask different individual changes. To strengthen our findings, in the final part of the analysis we turn to individual-level data. Using the CEO surveys for each year between 2006 and 2015, we analyse whether support for secession is significantly larger among individuals who 1) are unemployed; 2) earn less than 1,000€ a month; 3) assess their personal economic situation during the previous year as negative; 4) think that unemployment is the most important problem facing Catalonia; 5) and consider themselves as part of the middle class. Most importantly, if there is an effect, we should observe it when the economic crisis started (i.e. from 2009 onwards).

Figure 4 shows the marginal effect for each indicator on support for secession[11]. Results are generally consistent with the aggregate analyses. Individuals that experienced negative economic circumstances, either before or during the economic crisis, are not more likely to support secession. Thus, being unemployed, earning less than 1,000€ a month, assessing the personal economic situation as negative or self-identifying as middle class do not generally have a statistically significant impact on secessionist support. The only minor exception is when we employ the indicator "unemployment is the most important problem facing Catalonia". The coefficient is significant in 2009, 2010 and 2011. Yet, it goes in the opposite direction: those who consider that unemployment is the most important problem are less likely to be in favour of independence. Overall, Figure 4 confirms

that there is not a significant systematic effect of negative economic circumstances on the likelihood of supporting independence.
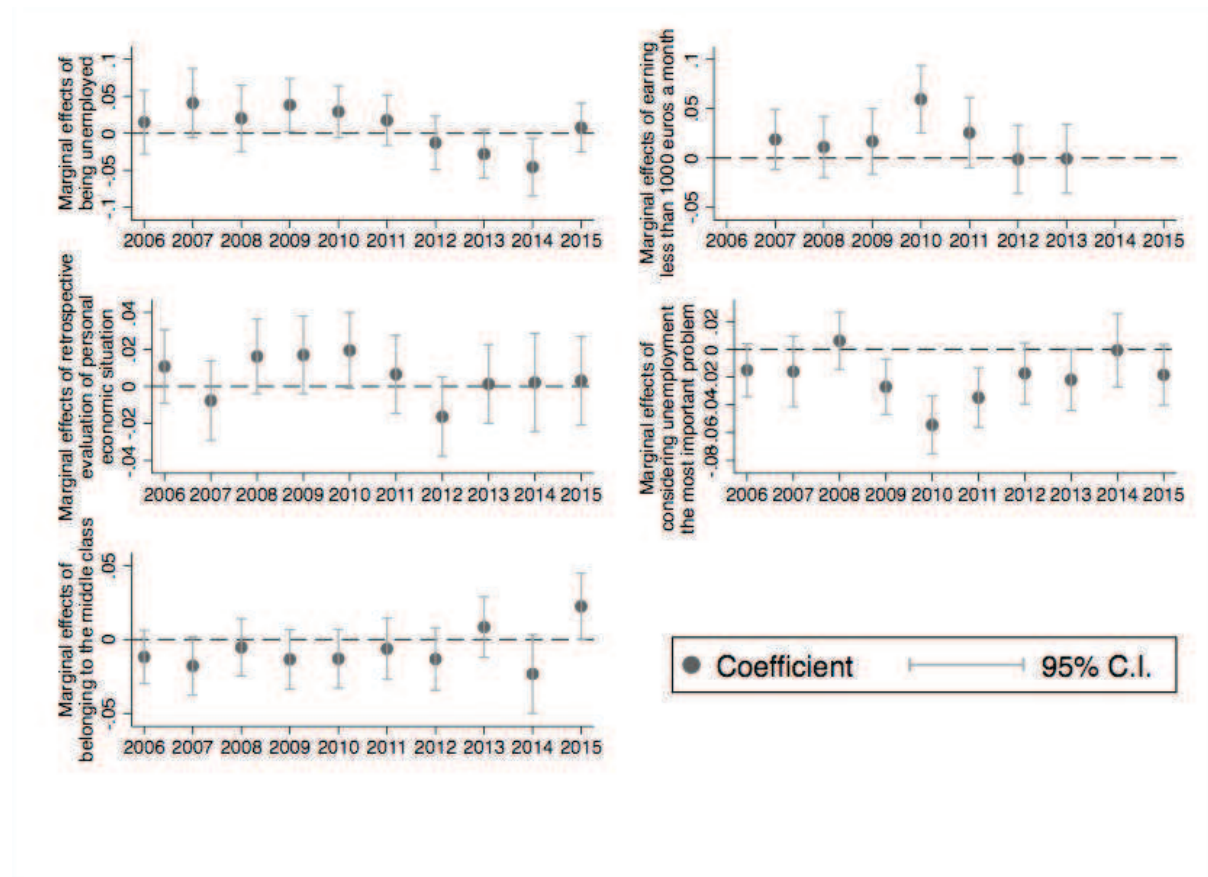
Figure 4: The effect of negative economic circumstances on support for secession (marginal effects)

Note: Coefficients represent the marginal effect of being unemployed (top-left), earning less than 1,000€ a month (top-right), assessing negatively the personal economic situation (centre-left), considering unemployment as the most important problem facing the country (centre-right), and self-identifying as middle class (bottom-left) on individual's support for secession. Marginal effects are extracted from a logistic regression in which the dependent variable is whether the respondent's main territorial preference is secession (1) versus the rest (0). All explanatory variables are dummies. All models control for respondent's national identity, left-right self-placement, gender, age, and household income.

All in all, we could not find any relationship between the effects of the economic crisis and secessionist support. This is true when we look at different

dimensions of the Great Recession and different ways to measure support for secession and when we use different levels of analysis.

5.3. Robustness checks

We have run several additional robustness checks in order to control for plausible confounders. First, at the aggregate-level analysis, we divided the municipalities into different quartiles, according to population. Most Catalan localities are very small and secessionist support may follow different dynamics in small towns as compared to urban areas. This approach, however, leads to the same results: the effect of the economic variables remains statistically not significant, irrespective of the municipality size.

Second, also using aggregate-level data, we employed additional economic indicators that, while being less accurate, reflect relevant dimensions of the Great Recession. In particular, since the construction industry was severely affected by the economic consequences of the crisis, it seems appropriate to look at the growth rate of buildings initiated and finished and the growth rate of the number of firms in the construction industry. In both cases the results are exactly the same. In addition, when we include other controls in the models, such as the percentage of citizens who speak Catalan, the percentage of non-Spanish nationals in the municipality or party polarization at the local level, results also remain unaffected.

Finally, both at the aggregate and at the individual-level, we ran different model specifications, such as a censored regression model or a geographically weighted regression, to check the robustness of our findings. Results are also consistent.

6. Conclusions

The existence of a relationship between the economic turmoil generated by the Great Recession and the increase of secessionism is not completely obvious from a theoretical point of view. On the one hand, many authors have stressed that the Great Recession triggered profound changes in political attitudes and preferences fueling voters' discontent with the political system and, in the context of a conflict between the centre and the periphery, favoured secessionism as a radical shift of the institutional setup. On the other hand, a deep economic recession may make voters more accommodating with the status quo and more reluctant to take radical stances which might be regarded as too risky in a context of economic insecurity. Our paper intends to evaluate empirically this hypothesis and complements existing research about the increase in secessionist preferences, which has been focused on the most part on evaluating the impact of political factors. This article contributes to filling this gap in the literature by analysing the Catalan case, one of the most pressing modern examples in the world of a strong secessionist movement in a liberal democracy.

Our empirical design is developed in two parts (aggregate and individual-level) and leverages the variation of economic variables and data from surveys and electoral outcomes at the level of municipalities in Catalonia to explore whether there is any relationship between the surge of secessionism and the main economic effects of the Great Recession.

Our findings are conclusive and robust across models: there is not any relationship between economic variables and the increase in support for secession, both at the aggregate and at the individual-level. Neither of the different dimensions of the economic crisis that we operationalize (e.g. unemployment, firms' closures,

income loss, or low salaries) has a statistically significant effect on the variation of secessionist support.

Finally, our research sheds some light on the current debate between those who think that the pro-secession tide in Catalonia is a by-product of the Great Recession and might recede as the economy gets better and those who argue that it is a symptom of a deeper political conflict and, as such, will probably stay the same unless there are big political changes in Spain.

7. Endnotes

[1] Campanella, Edoardo "Why secessionism is on the rise in Europe", 14 August 2014. https://www.weforum.org/agenda/2014/08/secession-scotland-catalonia-referendum-europe/. See also Hallindan, Conn "How Ethnic Tensions and Economic Crisis Have Strengthened Europe's Secession Movements", 9 April 2014. https://www.thenation.com/article/how-ethnic-tensions-and-economic-crisis-have-strengthened-europes-secession-movements/ and, for a different view, Dardanelli, Paolo "Recession is only one explanation for the drive for secession", 24 November 2012. https://www.theguardian.com/commentisfree/2012/nov/24/recession-only-one-explanation-secession.

[2] Datasets and replication materials are available at [[LINK]].

[3] Since both estimations provide similar results, from this point onwards we will focus on the latter.

[4] We use four surveys published in 2006 (8,400 cases) and five in 2015 (10,000 cases).

[5] If we move up or down the 15 cases threshold results are still robust.

[6] Table C in the Appendix provides details of all political parties and their stance on the independence debate.

[7] These two parties competed separately in the 2006 election and formed the bulk of JxS, the main pro-secession coalition in the 2015 election.

[8] Regions correspond to *vegueries*, administrative territorial jurisdictions that represent symbolic areas of reference. There are 7 *vegueries*. If we employ other geographical areas (such as provinces) results are robust.

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[9] One reason for this inconsistency is that the vote share received by pro-sovereign parties in 2006 is positively correlated with pro-sovereign mayors. When we remove the second variable, the coefficient of the vote share received by pro-sovereign parties is always positive and significant. All the other results are robust.

[10] Results can be seen in the Appendix (Table G). For the sake of simplicity, we have only included the interactions with the main economic indicators in our principal empirical specification (the remaining interactions show the same pattern).

[11] Logit models include several control variables. Operationalization and full estimates are included in the Appendix (Tables H-L).

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Appendix

A. Data description

The following tables provide basic descriptive information of the data employed both

in the aggregate and the individual-level analyses.

Table A: Variables employed in the aggregate-level analyses

Variable	Source
Election results 2006 and 2015	Department of Government. Generalitat de Catalunya http://governacio.gencat.cat/ca/pgov_ambits_d_actuacio/pgov_eleccions/pgov_dades_electorals/
CEO surveys	Centre d'Estudis d'Opinio. http://ceo.gencat.cat/ceop/AppJava/pages/index.html Surveys employed: 2006: BOP 346, 358, 363, 367. 2015: BOP 774, 795, 804.
Unemployed	Generalitat de Catalunya http://observatoritreball.gencat.cat/ca
Registered to the Social Security	Generalitat de Catalunya http://observatoritreball.gencat.cat/ca
Gross disposable household income	Idescat, http://idescat.cat/
Quotation centres	Generalitat de Catalunya http://observatoritreball.gencat.cat/ca
% population born in other Spanish regions	Idescat, http://idescat.cat/
% population 65 or more	Idescat, http://idescat.cat/
Population density	Idescat, http://idescat.cat/
Pro-sovereignty mayor	Department of Government. Generalitat de Catalunya

Table B. Variables employed in the individual-level analyses

Variable	Categories
Support for secession	1: Supports secession, 0: he/she does not support secession
Unemployed	1: Unemployed seeking for a job, 0: Other employment status categories
Earn less than 1,000€ a month	1: Respondent earns less than 1,000€ a month, 0: the rest.
Retrospective personal economic situation	1: Respondent thinks his/her personal economic situation is worse than last year, 0: Respondent thinks his/her personal economic situation is better or the same than last year
Unemployment as the most important problem	1: Respondent thinks the most important problem facing Catalonia nowadays is unemployment, 0: the rest.
Social class	1: Respondent considers he/she belongs to the middle class, 0: the rest.
Subjective National Identification	1 ("I feel only Spanish") to 5 ("I feel only Catalan")
Ideology	1 ("Extreme left") to 10 ("Extreme right")
Gender	1 Men, 0 Women
Monthly household income (after taxes)	1 ("Less than 1000 euros") to 6 ("More than 5000 euros")
Vote for CiU, ERC, SI or CUP	1 Respondent voted for CiU, ERC, SI or CUP in the closest regional elections; 0 otherwise
Age	(continuous variable)
Vegueria (Region)	7 different regions

In the individual-level analysis we have employed several surveys from the *Centre d'Estudis d'Opinió* (http://ceo.gencat.cat/ceop/AppJava/pages/index.html). These are the following:

2006: BOP 346, 358, 363, 367.
2007: BOP 375, 391, 400, 404.
2008: BOP 412, 419, 447, 466.
2009: BOP 485, 499, 518, 544.
2010: BOP 555, 581, 600, 612.
2011: BOP 631, 652, 661.
2012: BOP 677, 694, 705.
2013: BOP 712, 723, 733.
2014: BOP 758, 746.
2015: BOP 774, 795, 804.

All these surveys are freely available at the Institute's website.

Table C. Catalan Political parties

Party	Description
CiU – Convergència i Unió (2006)	Coalition of two centre right regionalist parties (CDC and UDC). It ruled the regional government during the periods 1980-2003 and 2010-2015. Since 2010, in favour of holding a referendum of independence. Since 2012, CDC was favourable to independence, but UDC was not. The coalition came apart in 2015.
ERC – Esquerra Republicana de Catalunya (2006)	Pro-independence left. Favourable to independence since the 1980s.
JxS – Junts pel Si (2015)	Electoral coalition between CDC, ERC and other small parties. Created before the 2015 Catalan election. Favourable to independence.
PSC (2006 and 2015) – Partit dels Socialistes de Catalunya	Social democrat. Catalan branch of the Spanish socialist party. Against independence.
ICV-EUiA (2006) / CSQP (2015) – Iniciativa per Catalunya Verds-Esquerra Unida i Alternativa / Catalunya Si Que es Pot	Left and green coalition. Ambiguous position towards independence (it has no official position). According to its manifesto, the party is in favour of holding a referendum on independence, but only if it is agreed between the regional and the central governments.
PP – Partido Popular (2006 and 2015)	Right-wing party. Against independence.
C's – Ciudadanos (2006 and 2015)	Liberal centrist. Against independence.
CUP – Candidatura d'Unitat Popular (2015)	Anti-capitalist left. Favourable to independence.

Table D. Catalan election results in 2006 and in 2015

Party	2006		2015	
	% votes	Seats	% votes	Seats
CiU	31,52	48		
ERC	14.03	21		
PSC	26.82	37	12.72	16
JxS			39.59	62
PP	10.65	14	8.49	11
ICV-EUiA	9.52	12		
CSQP			8.94	11
C's	3.03	3	17.9	25
CUP			8.21	10
Turnout	56.04		74.95	

Table E: Summary of the variables employed in the aggregate-level analyses

	Mean	Sd	Min	Max	N
Growth rate in estimated support for independence, 2006-2015	180.41	51.42	13.56	358.06	946
Growth rate of unemployed, 2006-2015	63.11	98.11	-100	1400	926
Growth rate registered to the Social Security 2008-2015	-5.22	12.71	-45.25	57.61	922
Growth rate registered to the Social Security 2006-2015 (construction sector)	-39.66	68.00	-100	1500	927
Growth rate in per capita gross disposable household income 2008-2013	-10.05	13.42	-39.87	20.93	211
Growth rate in quotation centres 2006-2015	1.67	42.51	-75	400	944
Percentage of people born in other Spanish regions (2015)	10.39	6.02	0.76	37.62	946
Percentage of citizens 65 or more (2015)	21.32	6.36	7.54	50.98	946
Population density 2015	398.66	1456.65	0.57	20336.37	946
% pro-sovereign vote 2006	62.15	12.44	19.28	92.19	946
Mayor's sovereignty opinion on independence	73% of mayors belong to a pro-sovereignty party				946

Notes: (1) Sources in the Appendix. (2) We dropped two municipalities that were created between 2006 and 2015.

B. Support for independence at the municipality level – estimation procedure

As we mention in the manuscript, we use two main outcomes at the aggregate-level analysis: the percentage of secessionist supporters among voters and the percentage of secessionist supporters in the whole electoral census. These two indicators have been estimated using a combination of official election results and survey data.

We have relied on an estimation procedure due to the lack of data directly capturing support for secession before and after the economic crisis. This is due to two main reasons. First, as compared to Scotland or Quebec, where secessionist preferences were directly revealed after an official referendum took place, Catalans had not yet voted in an official consultation and, therefore, data on the support for secession mainly comes from surveys, measuring citizens' attitudes rather than actual behaviour. Second, support for secession is traditionally measured at the regional level and data at lower levels of geographical aggregation (such as municipalities) is scarce or does not exist.

To circumvent this problem, as we mention before, we measure our variable of interest by combining electoral results and information extracted from surveys. The logic is as follows. On a first step, we take data on the secessionist support among voters of the different political parties in 2006 and in 2015 in each of the four Catalan provinces. This is done using all surveys published by the CEO in the years 2006 and 2015.[1] We consider independence supporters those who answered "An Independent state" to the question "What do you think that the relationship between

Catalonia and Spain should be?".[2] On a second step, we gather electoral results at the municipality level for the 2006 and 2015 Catalan regional elections. Finally, on a third step we combine the information from surveys and election results and calculate the percentage of pro-independence supporters for each party and add all of them to have the aggregate number for each municipality. For instance, let's consider that in a given municipality party A has received 100 votes and party B 200 votes. We know from surveys that, in the specific province where this municipality is located, 30 per cent of party A and 51 per cent of party B supporters are in favour of independence. Therefore, support for secession would equal to 132 votes (43 per cent).[3]

Table F shows the outcome of the first step of this estimation process, that is, support for independence across parties in 2006 and 2015 for the whole of Catalonia. As it can be seen, in 2006 only 14 per cent of respondents were in favour of independence, although this percentage varied across parties. Conversely, in 2015 support for independence had increased substantially and it hit 41.1 per cent on aggregate.

Table F: Support for independence by party choice

	2006	2015
CiU	15.4	n.a.
ERC	41.1	n.a.
JxS	n.a.	83.4
PSC	6.8	1.4
ICV-EUiA / CSQP	5.4	10.7
PP	1.4	2.0
C's	1.0	1.2
CUP	n.a.	76.6
Other	0.7	16.1
Blank/Null	0.7	7.9
Abstention	15.4	17.1
Total	14.0	41.1

Source: Centre for Opinion Studies. 2006: Opinion Barometer 363. 2015: Opinion Barometer 804. http://ceo.gencat.cat/
Not applicable (n.a.) if the party did not run.

C. Empirical models

Next, we report the exact estimates of different models explained in the article. Table G shows the aggregate-level interaction models between the state of the economy and the political dynamics (see section 5.1 in the manuscript). Table H-L display the exact estimates employed to create in Figure 4 in the manuscript (individual-level analysis; section 5.2). Table H shows the effect of being unemployed on support for secession; Table I shows the effect of earning less than 1000 euros on support for secession; Table J shows the effect of retrospective evaluation of personal economic situation on support for secession; Table K shows the effect of considering unemployment the most important problem on support for secession; and Table L shows the effect of belonging to the middle class on support for secession.

Table G. The interaction between the state of the economy and the political dynamics – aggregate-level models

	M11	M12	M13	M14
Δ Unemployed 2006-2015	0.017	0.001	-0.067	
	(0.022)	(0.163)	(0.051)	
Δ Registered to the Social Security 2008-2015				-0.897*
				(0.452)
Pro-sovereignty mayor	7.509*	6.023*		
	(3.072)	(2.614)		
Vote share obtained by pro-sovereign parties in 2006			-0.126	0.065
			(0.157)	(0.149)
Δ Unemployed 2006-2015*Pro-sovereignty mayor	-0.017			
	(0.025)			
Δ Registered to the Social Security 2008-2015* Pro-sovereignty mayor		-0.067		
		(0.179)		
Δ Unemployed 2006-2015* Vote share obtained by pro-sovereign parties in 2006			0.001	
			(0.001)	
Δ Registered to the Social Security 2008-2015* Vote share obtained by pro-sovereign parties in 2006				0.013[+]
				(0.007)
Controls	✓	✓	✓	✓
Region Fixed-Effects	✓	✓	✓	✓
Constant	215.72	218.75	222.31	213.02
	(12.30)	(12.22)	(12.99)	(12.55)
Observations	926	922	926	922
R-squared	0.660	0.668	0.661	0.669

Standard errors in parentheses
+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Note: The dependent variable is the growth rate of support for independence at the municipality level. Support for secession is extracted from different surveys carried out by the CEO institute. All models include the following controls: % population born outside Catalonia, % population 65 or more, and Population density.

Table H. The effect of being unemployed on support for secession (logit models) – individual-level models

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Unemployed	0.128	0.31*	0.16	0.28**	0.21*	0.12	-0.08	-0.22	-0.39**	0.07
	(0.18)	(0.17)	(0.18)	(0.13)	(0.13)	(0.12)	(0.12)	(0.14)	(0.17)	(0.15)
Age	-0.23***	-0.20***	-0.12***	-0.15***	-0.20***	-0.29***	-0.16***	-0.13***	-0.11**	-0.11***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)	(0.04)	(0.05)	(0.04)
National Subjective Identification	1.44***	1.51***	1.61***	1.63***	1.61***	1.67***	1.85***	2.27***	2.38***	2.27***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.09)	(0.07)
Ideology	-0.08***	-0.09***	-0.08***	-0.15***	-0.17***	-0.09***	-0.12***	-0.08**	-0.05*	-0.13***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
Gender	-0.07	-0.10	0.05	0.07	0.04	-0.01	-0.07	0.01	0.45***	0.15
	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)	(0.09)	(0.12)	(0.09)
Household income	-0.16***	-0.11***	-0.11***	-0.10***	-0.11***	-0.17***	-0.05*	-0.08**	-0.03	0.02
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)
Vote for CiU, ERC, SI or CUP	0.38***	0.65***	0.64***	0.59***	0.64***	0.67***	0.61***	1.44***	1.28***	1.09***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.12)	(0.10)
Constant	-5.84***	-6.16***	-6.75***	-6.64***	-6.10***	-5.92***	-6.63***	-7.80***	-8.28***	-8.19***
	(0.27)	(0.28)	(0.29)	(0.28)	(0.26)	(0.25)	(0.25)	(0.30)	(0.44)	(0.36)
N	6,219	5,434	5,328	5,249	5,333	5,240	5,290	4.338	2,598	3,798
Pseudo R2	0.2191	0.2304	0.2515	0.2610	0.2704	0.2834	0.3159	0.4292	0.4683	0.4667

Source: BOP surveys as specified in Table A. Standard errors in parentheses + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Note: All models are logistic regressions with support for secession (1 favourable; 0 against) as the outcome. The main explanatory variable is "unemployed", a dummy that distinguishes whether the respondent was unemployed (1) or not (0). The other control variables are operationalized as follows: age (continuous variable), national subjective identification (from 1 "I feel only Spanish" to 5 "I feel only Catalan"), Ideology (1 "Extreme left" to 10 "Extreme right"), Gender (1 "Men", 0 "Women"), Income (1 "monthly household income equals less than 1000 euros" to 6 "monthly household income is higher than 6500 euros") and Vote for CiU, ERC, SI or CUP (0 otherwise). These models have been employed to calculate the marginal effects illustrated in Figure 4 in the manuscript.

Table I. The effect of earning less than 1000 euros on support for secession (logit models) – individual-level models

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Earning less than 1,000 euros	N.A.	0.14 (0.12)	0.11 (0.13)	0.13 (0.13)	0.45*** (0.13)	0.17 (0.12)	-0.01 (0.12)	0.04 (0.15)	N.A.	N.A.
Age	N.A.	-0.20*** (0.04)	-0.13** (0.04)	-0.15*** (0.04)	-0.20*** (0.04)	-0.29*** (0.04)	-0.16*** (0.04)	-0.20*** (0.05)	N.A.	N.A.
National Subjective Identification	N.A.	1.51*** (0.05)	1.49*** (0.06)	1.62*** (0.05)	1.73*** (0.05)	1.67*** (0.05)	1.85*** (0.05)	2.00*** (0.07)	N.A.	N.A.
Ideology	N.A.	-0.09*** (0.02)	-0.12*** (0.03)	-0.15*** (0.03)	-0.07* (0.03)	-0.09** (0.03)	-0.12*** (0.03)	-0.20*** (0.04)	N.A.	N.A.
Gender	N.A.	-0.09 (0.08)	0.04 (0.08)	0.07 (0.08)	0.08 (0.08)	0.01 (0.07)	-0.07 (0.07)	0.02 (0.09)	N.A.	N.A.
Household income	N.A.	-0.11*** (0.03)	-0.13*** (0.04)	-0.11*** (0.03)	-0.14*** (0.03)	-0.18*** (0.03)	-0.05 (0.03)	-0.10* (0.04)	N.A.	N.A.
Vote for CiU, ERC, SI or CUP	N.A.	0.64*** (0.08)	0.63*** (0.08)	0.61*** (0.08)	0.65*** (0.08)	0.67*** (0.26)	0.61*** (0.07)	1.44*** (0.10)	N.A.	N.A.
Constant	N.A.	-5.77*** (0.29)	-6.39*** (0.30)	-6.15*** (0.28)	-6.87*** (0.27)	-5.51*** (0.26)	-6.27*** (0.26)	-6.93*** (0.31)	N.A.	N.A.
N	N.A.	5,434	5,328	5,249	5,333	5,240	5,290	4,338	N.A.	N.A.
Pseudo R2	N.A.	0.2416	0.2621	0.2699	0.2820	0.2943	0.3246	0.4678	N.A.	N.A.

Source: BOP surveys as specified in Table A. Standard errors in parentheses + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Note: All models are logistic regressions with support for secession (1 favourable; 0 against) as the outcome. The main explanatory variable is "earning less than 1,000 euros", a dummy that distinguishes whether the respondent earns less than 1,000 a month (1) or not (0). This question was not asked in 2006, 2014 and 2015. The other control variables are operationalized as follows: age (continuous variable), national subjective identification (from 1 "I feel only Spanish" to 5 "I feel only Catalan"), Ideology (1 "Extreme left" to 10 "Extreme right"), Gender (1 "Men", 0 "Women"), Income (1 "monthly household income equals less than 1000 euros" to 6 "monthly household income is higher than 6500 euros") and Vote for CiU, ERC, SI or CUP (0 otherwise). These models have been employed to calculate the marginal effects illustrated in Figure 4 in the manuscript.

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Table J. The effect of retrospective evaluation of personal economic situation on support for secession (logit models) – individual-level models

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Retrospective evaluation of the economy	0.09	-0.07	0.11	0.12	0.15+	0.05	-0.10	0.05	0.01	0.03
	(0.09)	(0.09)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.09)	(0.13)	(0.11)
Age	-0.24***	-0.21***	-0.13***	-0.18***	-0.23***	-0.30***	-0.16***	-0.20***	-0.16**	-0.14**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.05)	(0.04)
National Subjective Identification	1.44***	1.39***	1.49***	1.51***	1.49***	1.67***	1.85***	2.00***	2.06**	2.11***
	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.07)	(0.09)	(0.07)
Ideology	-0.08***	-0.11***	-0.12***	-0.20***	-0.22***	-0.09***	-0.12***	-0.20***	-0.06*	-0.11***
	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
Gender	-0.07	-0.15*	0.03	0.04	0.05	-0.00	-0.07	0.02	-0.03	0.13
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.09)	(0.12)	(0.10)
Household income	-0.155***	-0.15***	-0.13***	-0.13***	-0.13***	-0.18***	-0.06+	-0.10*	-0.04+	0.01
	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)
Vote for CiU, ERC, SI or CUP	0.37***	0.64***	0.63***	0.60***	0.65***	0.67***	0.61***	1.44***	1.27***	1.09***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.10)	(0.13)	(0.10)
Constant	-5.69	-5.68***	-6.40***	-6.17***	-5.65***	-5.47***	-6.21***	-6.95***	-7.32***	-7.84***
	(0.27)	(0.29)	(0.30)	(0.29)	(0.26)	(0.25)	(0.26)	(0.31)	(0.44)	(0.36)
N	6,219	5,434	5,328	5,249	5,333	5,240	5,290	4,338	2,598	3,789
Pseudo R2	0.2231	0.2413	0.2623	0.2699	0.2820	0.2941	0.3249	0.4678	0.4921	0.4880

Source: BOP surveys as specified in Table A. Standard errors in parentheses + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Note: All models are logistic regressions with support for secession (1 favourable; 0 against) as the outcome. The main explanatory variable is "Retrospective evaluation of the economy", a dummy that distinguishes whether the respondent thought the economy was performing worse than last year (1) or not (0). The other control variables are operationalized as follows: age (continuous variable), national subjective identification (from 1 "I feel only Spanish" to 5 "I feel only Catalan"), Ideology (1 "Extreme left" to 10 "Extreme right"), Gender (1 "Men", 0 "Women"), Income (1 "monthly household income equals less than 1000 euros" to 6 "monthly

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household income is higher than 6500 euros") and Vote for CiU, ERC, SI or CUP (0 otherwise). These models have been employed to calculate the marginal effects illustrated in Figure 4 in the manuscript.

Table K. The effect of considering unemployment the most important problem on support for secession (logit models) – individual-level models

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Unemployment as the most important problem	-0.13 (0.09)	-0.12 (0.11)	0.04 (0.09)	-0.19* (0.08)	-0.42*** (0.08)	-0.26*** (0.08)	-0.12 (0.08)	-0.18+ (0.09)	0.01 (0.12)	-0.17 (0.10)
Age	-0.25*** (0.04)	-0.22*** (0.04)	-0.13*** (0.04)	-0.12*** (0.03)	-0.14*** (0.03)	-0.13*** (0.04)	-0.14*** (0.04)	-0.19*** (0.04)	-0.16** (0.05)	-0.13** (0.04)
National Subjective Identification	1.38*** (0.05)	1.39*** (0.05)	1.49*** (0.06)	1.49*** (0.06)	1.50*** (0.07)	1.37*** (0.05)	1.42*** (0.05)	2.00*** (0.07)	2.06*** (0.09)	2.11*** (0.07)
Ideology	-0.09*** (0.02)	-0.11*** (0.03)	-0.12*** (0.03)	-0.21*** (0.04)	-0.17*** (0.04)	-0.17*** (0.03)	-0.18*** (0.03)	-0.20*** (0.04)	-0.06* (0.03)	-0.12*** (0.03)
Gender	-0.09 (0.07)	-0.15* (0.08)	0.03 (0.08)	0.04 (0.08)	0.05 (0.08)	-0.02 (0.08)	-0.06 (0.07)	0.01 (0.09)	-0.03 (0.12)	0.13 (0.10)
Household income	-0.18*** (0.03)	-0.02 (0.03)	-0.14*** (0.04)	-0.13*** (0.03)	-0.12*** (0.03)	-0.20*** (0.03)	-0.18*** (0.02)	-0.10* (0.04)	-0.04+ (0.02)	0.01 (0.02)
Vote for CiU, ERC, SI or CUP	0.38*** (0.08)	0.06*** (0.08)	0.63*** (0.08)	0.60*** (0.08)	0.69*** (0.08)	0.67*** (0.08)	0.69*** (0.08)	1.44*** (0.10)	1.27*** (0.13)	1.10*** (0.10)
Constant	-5.61*** (0.27)	-5.67*** (0.29)	-6.36*** (0.30)	-6.08*** (0.28)	-0.85* (0.39)	-1.27*** (0.34)	-1.49** (0.47)	-6.80*** (0.31)	-7.31*** (0.45)	-7.68*** (0.36)
N	6,219	5,434	5,328	5,249	5,333	5,240	5,290	4,338	2,598	3,789
Pseudo R2	0.2233	0.2414	0.2620	0.2699	0.2820	0.2941	0.3249	0.4648	0.4921	0.4885

Source: BOP surveys as specified in Table A. Standard errors in parentheses + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Note: All models are logistic regressions with support for secession (1 favourable; 0 against) as the outcome. The main explanatory variable is "Unemployment as the most important problem", a dummy that distinguishes whether the respondent considers unemployment as the most important problem that faces Catalonia nowadays (1) or not (0). The other control variables are operationalized as follows: age (continuous variable), national subjective identification (from 1 "I feel only Spanish" to 5 "I feel only Catalan"), Ideology (1 "Extreme left" to 10 "Extreme right"), Gender (1 "Men", 0 "Women"), Income (1 "monthly household income

equals less than 1000 euros" to 6 "monthly household income is higher than 6500 euros") and Vote for CiU, ERC, SI or CUP (0 otherwise). These models have been employed to calculate the marginal effects illustrated in Figure 4 in the manuscript.

Table L. The effect of belonging to the middle class on support for secession (logit models) – individual-level models

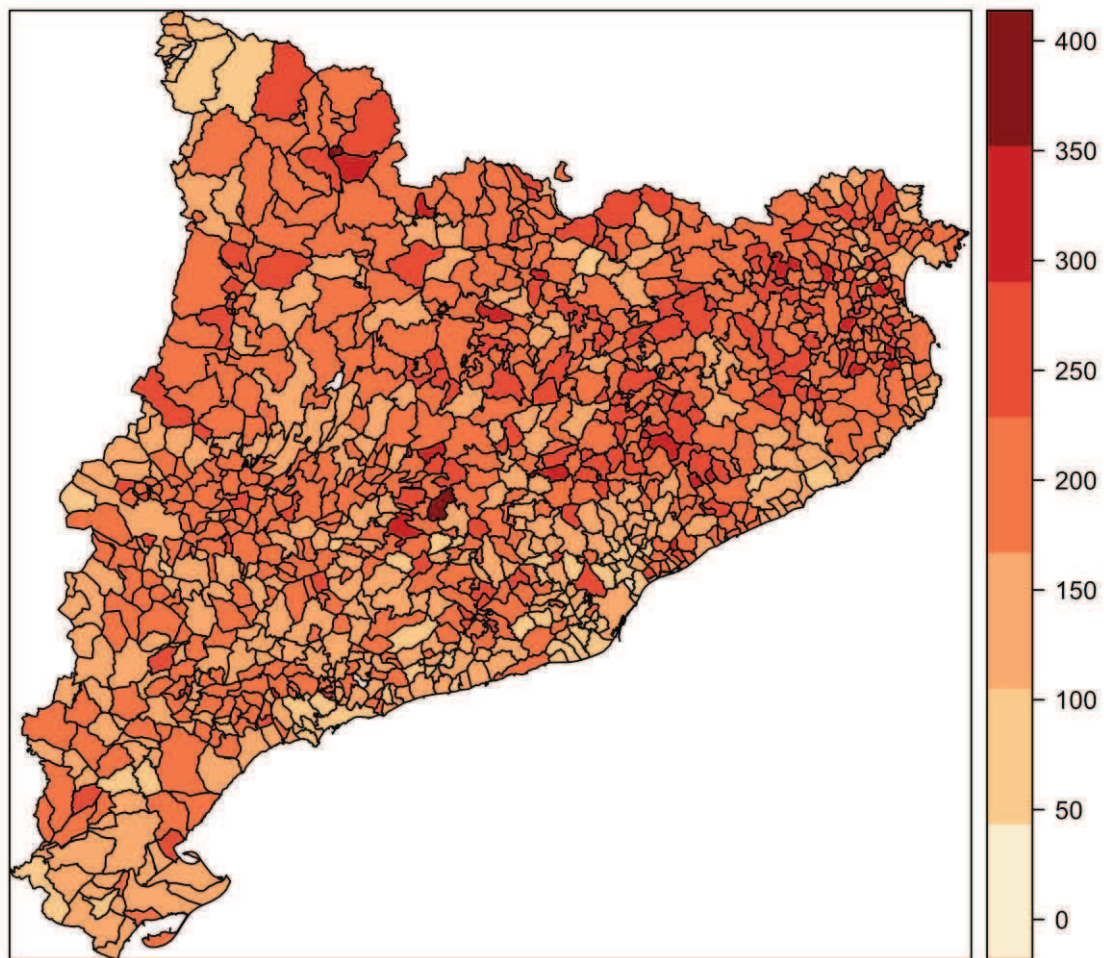|	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Middle class	-0.10	-0.14+	-0.04	-0.09	-0.11	-0.04	-0.08	0.07	-0.21+	0.20**
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.09)	(0.12)	(0.10)
Age	-0.25***	-0.22***	-0.14***	-0.19***	-0.23***	-0.32***	-0.19***	-0.20***	-0.16***	-0.14***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.05)	(0.04)
National Subjective Identification	1.38***	1.40***	1.48***	1.51***	1.49***	1.56***	1.74***	1.99***	2.07***	2.11***
	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.07)	(0.09)	(0.07)
Ideology	-0.08***	-0.11***	-0.12***	-0.19***	-0.22***	-0.17***	-0.18***	-0.19***	-0.06**	-0.12***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
Gender	-0.09	-0.17**	0.03	0.05	0.03	-0.02	-0.08	0.01	-0.03	0.13
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.09)	(0.12)	(0.10)
Household income	-0.18***	-0.14***	-0.13***	-0.13***	-0.13***	-0.18***	-0.06+	-0.10**	-0.03	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)
Vote for CiU, ERC, SI or CUP	0.38***	0.64***	0.63***	0.60***	0.65***	0.67***	0.61***	1.44***	1.27***	1.08***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.12)	(0.10)
Constant	-5.61***	-5.66	-6.29***	-6.04***	-5.52***	-5.43***	-6.51***	-6.93***	-7.33***	-7.77***
	(0.27)	(0.29)	(0.29)	(0.28)	(0.26)	(0.25)	(0.26)	(0.31)	(0.44)	(0.35)
N	6,188	5,388	5,293	5,213	5,297	5,215	5,255	4,313	2,590	3,759
Pseudo R2	0.2237	0.2411	0.2613	0.2696	0.2803	0.2949	0.3330	0.4679	0.4919	0.4869

Source: BOP surveys as specified in Table A. Standard errors in parentheses + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Note: All models are logistic regressions with support for secession (1 favourable; 0 against) as the outcome. The main explanatory variable is "self-identified as middle class", a dummy that distinguishes whether the respondent considers himself/herself to be part of the middle class (1) or not (0). The other control variables are operationalized as follows: age (continuous variable), national subjective identification (from 1 "I feel only Spanish" to 5 "I feel only Catalan"), Ideology (1 "Extreme left" to 10 "Extreme right"), Gender (1 "Men", 0 "Women"), household income (1 "monthly household income equals less than 1000 euros" to 6 "monthly household income is higher than 6500 euros") and Vote for CiU, ERC, SI or CUP (0 otherwise). These models have been employed to calculate the marginal effects illustrated in Figure 4.

D. Additional figures

Figure A: Spatial distribution of growth rate of estimated support for independence between 2005 and 2016

Growth rate estimated support for independence, 2006-2015

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small number of interviews. Additionally, we also changed the year cut-off to 2007 and 2014. In all cases, results remained robust.

[2] The other options are: "A Region of Spain", "An Autonomous Community", and "A federal state within Spain". Although this question underestimates secessionist support by not directly asking about individual's intended behaviour in a referendum of independence, it has been consistently asked since 2004. In 2012, the CEO institute started asking about the intended vote in a referendum of independence. If we use this other question, our results do not change.

[3] One caveat of this approach is that, in each of the provinces, survey respondents from urban areas may be overrepresented and, therefore, estimated support for secession mainly reflects preferences from cities. Although this does not seem to be the case in the CEO surveys, as a robustness check we also weighted support for secession in non-urban areas to better reflect the urban-rural divide. Results are virtually the same.