Assessment of Political Situation over the Business Cycle in Spain: A Time Series Analysis*

MARCOS ÁLVAREZ-DÍAZ
GONZALO CABALLERO
BALTASAR MANZANO
JOSÉ M. MARTÍN-MORENO
Universidade de Vigo

Abstract

The Great Recession has implied a strong increase of the unemployment rate in Spain that surpassed 25% in 2012, the highest rate in western economies in that year. At the same time, the assessment of political situation has greatly deteriorated. The goal of this paper is to study how the assessment of political situation has moved along the business cycle in Spain over the last twenty years by using a battery of statistical methods. Moreover, this study also investigates the existence of a long-run relationship applying the autoregressive distributed lag (ARDL) bounds testing approach to cointegration. Once the existence of a long-run relationship is evidenced, we construct a model that allows us to quantitatively evaluate the impact of the business cycle on the Spanish political situation. The empirical findings reveal that the unemployment rate has had a significant lagged impact on the assessment of political situation.

Keywords: Economic crisis, political situation, Spain, cross-correlation, Granger causality, the ARDL bounds testing approach.

JEL Classification: E32, C22, P48.

1. Introduction

The world economic crisis that started in 2008 has been affecting Spain notably. After almost a decade of vigorous growth, since the end of 2008 the Spanish economy has fallen into a deep crisis, with only a slight and temporary recovery (in 2010-2011) previous to 2013.

As figure 1 shows, the macroeconomic landscape has largely deteriorated. The data shows that the growth rate of the Spanish Gross Domestic Product (GDP) was negative in 2009, 2010, 2012 and 2013, and the recovery is expected to be slow. This state of affairs depicted a situation of huge economic crisis and extended to the whole Spanish economy, including the banking, industry and service sectors.

During the previous growth period, political credit cycles had allowed large inflows of capital and the abandonment of economic reforms in Spain and, according to this argument, Fernández-Villaverde *et al.* (2013) explain that the reform reversal and institutional deterioration suffered by the Spanish economy made worse the negative consequences for growth with the Great Recession. Therefore, Spain has been suffering the effects of two painful economic recessions, and the domestic imbalances of the Spanish economy have implied an unemployment rate that has grown beyond 25% in 2012. This was the highest level of unemployment in all of the advanced economies around the world in that year.
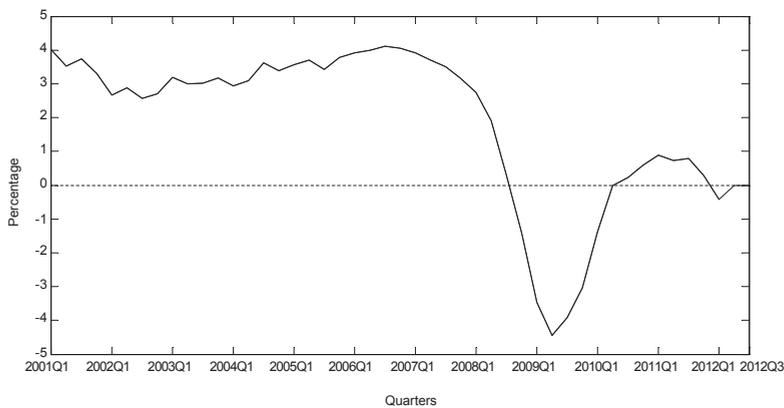

Figure 1.   Interannual growth rate of the Spanish GDP: from the rise to the crisis

The increase in public spending caused by automatic stabilizers along with the decrease in tax revenues and the bailout of the Spanish economy have been putting public finances at stake. Whilst the risk premium for the Spanish sovereign debt was high after the onset of the crisis, the government turned to cuts in public spending, focusing on the public service, health and education programs, and unemployment benefits, among others. All these restrictive political measures, along with the economic crisis, have notably affected the welfare perceptions and political attitudes of the Spanish society. Moreover, the European Union and the European Central Bank have required Spain to undertake severe structural reforms in the labor market, the financial sector and the pension system to receive their financial support.

This bleak picture is a constant threat to social cohesion and undermines the institutional basis of the Spanish economy profoundly. By way of this, the assessment of political situation has sharply fallen in Spain and several social movements and general strikes show

how political institutions have greatly dissatisfied society. As an example of this, there have been a large number of peaceful social protests organized by civilian platforms such as "Movimiento 15-M" or "Indignados", and later by platforms related to the problems of eviction and preferential shares (Likki, 2012; Calvo *et al.* 2012).

This paper analyzes the relationship between the assessment of political situation and the business cycle in Spain. Specifically, we first use a cross-correlation analysis to test the existence of co-movements between assessment of political situation and unemployment rate and we obtain a lagged negative cross-correlation. As cross-correlation does not imply causation, further research is needed to better characterize the nature of the relationship between the variables. Thus, we carry out the test proposed by Granger (1969) to check if the variable unemployment has a causal effect on the assessment of political situation. Going a step further, we explore the existence of a long-run relationship by using the Autoregressive Distributed Lag (ARDL) model and the bounds testing approach to cointegration proposed by Pesaran *et al.* (2001). According to this methodology, we can obtain an estimation of how assessment of political situation responds to changes in the unemployment rate. We also construct confidence intervals by using bootstrapping techniques to check the statistical significance of the estimated long-run impact.

The remainder of this paper is structured as follows. Section two presents a research agenda on business cycle and political attitudes. Section three describes the variables used in our study to approximate the business cycle and the assessment of political situation in Spain, presents the data and filters the original variables. Section four contains the empirical findings and presents the main results of the different methods that were applied. Section five concludes.

2. The Spanish case in a research agenda on business cycle and political attitudes

The Great Recession is affecting the levels of economic growth, employment and welfare around the world and, as a consequence of all this, citizens are modifying their assessment, attitudes and trust in political and economic institutions. Economic downturn and political dissatisfaction are the two faces of the worst crisis since the Great Depression of 1930s. Modern political economy has a relevant research agenda on the study of the relationships among institutional, political and economic variables (Schofield and Caballero, 2011; Schofield, Caballero and Kselman, 2013), and this agenda is even more interesting now when the Great Recession has revived the interest in the interaction between State, markets and democracy. Maintaining a good performance of the political, social and economic system requires a certain level of trust, but the world economic crisis is undermining political assessment and trust in national governments and politics. People tend to assess and trust governments that are able to generate economic growth and create jobs (Fiorina, 1978; Mackuen *et al.,* 1992; Roth *et al.,* 2011), so it follows that a high level of unemployment would imply a lower assessment of the political situation and a sharp decline of trust in political institutions.

Nowadays, there is a relevant research agenda on the political, institutional and social effects of the present economic crisis. This agenda includes the evolution of trust, attitudes toward political institutions and political assessments over the business cycle. Specifically, public trust in government and political institutions had been declining across most advanced industrial democracies in recent decades (Dalton, 2005). Van de Walle *et al.* (2008) considered that these falls were simple fluctuations rather than a stable trend, and rejected the hypothesis of a universal decline of trust in public sector. Nevertheless, the current financial and economic crisis is undermining systemic or institutional trust in government (Roth, 2009). In their cross-country analysis, Stevenson and Wolfers (2011) show that trust in national governments declined more dramatically in those countries in which unemployment had risen most sharply during the Great Recession. Roth *et al.* (2011) studied the evolution of European citizens´ confidence levels, concluding that during the crisis, citizens do not worry much about inflation but rather about the effects of a recession on employment. They also find that a large unemployment rate decreases trust in national governments of the EU-15 countries. Other recent research efforts have analyzed the erosion of citizen´s trust in the European Central Bank in crisis times (Roth *et al.* 2014; Ehrman *et al.*, 2013). Moreover, Grosjean *et al.* (2013) have studied how the 2008 economic crisis has re-shaped individual support for democracy and market liberalization in post-transition countries. They thereby showed the sensitivity of political attitudes to the business cycle.

The Great Recession is affecting the entire world economy, but the growth of unemployment has been much more intense in some countries that had a real-estate bubble. This was the case of the US and Spain, among others. The US economy was in recession and the unemployment rate peaked at 10% in October 2009, a very high rate from a historical perspective, and the possibility of an "amerisclerosis" has emerged to explain the rising U.S. unemployment persistence (Coibon *et al.,* 2013). Recent literature has shown how the Great Recession has implied high levels of mistrust in public institutions in the US, particularly in government institutions such as Congress. Stevenson and Wolfers (2011) analyzed the sharp decline in the confidence that American citizens have in the main institutions of the country, and show that much of the decline in trust may be attributed to the economic recession.

If the US is a relevant case study, the Spanish economy is also very interesting. The effects of the Spanish crisis on the political attitudes, assessment and trust are sufficiently relevant to be analyzed. In spite of the depth of the economic and social crisis in Spain, there has not been too much empirical research studying the impact of the economic crisis on the attitudes toward political situation and institutions and the decline of political trust in the Spanish society. The major research effort has been focused on the decline of political trust, and two different explanations have coexisted. Some authors consider that the increasing institutional distrust is mainly due to citizens' perceptions that political system is not responsive to their demands[1] (Torcal, 2014), while others contributions argue that the attitudinal trends is the result of the economic crisis (Polavieja, 2013). Torcal (2014) applies panel data to study the relevance of perceived unresponsiveness of national political institutions in the evolution of the Spanish political trust, but his analysis is centered only in the period 2008-

2012. Polavieja (2013) investigates the impact of economic recession on political trust, satisfaction with democracy and attitudes with welfare state redistribution using a pool of the 2004 and 2010 of the European Social Survey datasets. Nevertheless, these contributions are focused in the recent ten years. Esteller-Moré (2013) studied trust in the justice administration over the Spanish business cycle with an unbalanced panel for 1995-2009. In any case, a time series approach has not been applied for the Spanish case in the academic literature. For this reason, it would be convenient to carry out a time series analysis that incorporates a longer period that extends, at least, over the last two main Spanish economic crises. This analysis can provide new empirical findings.

To bridge this gap in research, this study aims to investigate whether there is a relationship between the Spanish political situation and business cycle. The reference study that has motivated this research is the one published by Stevenson and Wolfers (2011). These authors found a negative and statistically significant relationship between trust in public institutions and unemployment for the US economy using a time series approach. However, we consider "assessment of political situation" as our variable of interest since it allows us to work with the longest series of quarterly data that is available for the Spanish case, which is an important requirement to obtain robust results in a time series analysis[2]. Specifically, the data series on the assessment of political situation includes the periods of the two recent crisis of the Spanish economy. The main motivation is to test if the Spanish case shows a negative relationship between assessment of political situation and unemployment. To this end, our paper employs a more complete and robust statistical analysis than Stevenson and Wolfers (2011).

The empirical procedure followed in this study is based on a time series approach. The use of time series to study causal relationships among variables is a well-established, prolific and advanced area of research in many different field such as Political Economy (Freeman, 1983; Freeman e*t al.,* 1989; De Boef and Kellstedt, 2004; Wolak and Palus, 2010).

3. Variables and Data Analysis

3.1. Variables, sample and data

We begin this study by defining the variables that allow us to approximate appropriately the business cycle and the assessment of political situation in Spain. Even though there are many possible economic factors to approximate the effect of the business cycle, the fluctuations of the GDP and the unemployment rate are usually the most common variables because of the easy availability of the data. Both variables are highly and negatively correlated, and provide the same kind of information on the business cycle conditions. Following Stevenson and Wolfers (2011), Roth *et al.* (2011) and Esteller-Moré (2013), we use the unemployment rate since it is the macroeconomic variable that has the largest and more direct impact on

household living standards[3]. The data were obtained from the *Labor Force Survey* (EPA), which is conducted by the Spanish National Statistics Institute (INE).

For the assessment of political situation, we use information contained in the surveys conducted by the Spanish Sociological Research Center (*CIS*), and specifically the information related to the question: *"How do you assess the present political situation in Spain?"*. The CIS-Surveys interview people older than 18 years old in their homes, and they are realized in the first fifteen days of each month. It is a process of multistage sampling, with selection of the primary sampling units (municipalities) and of the secondary units (sections) in a process of proportional random, and the final units (individuals) are selected by random routes and sex and age quotas. The sampling error is +/–1.9%.

The possible answers to the question are: very bad, bad, just fair, good or very good. There are different methods to elaborate an index of political situation by using the information obtained from this question and its answers. Nevertheless, according to the procedure carried out by Stevenson and Wolfers (2011) and Esteller-Moré (2013), we construct a measure that shows the evolution through time of the proportion of the public who answer that they assess the political situation in Spain as "good" or "very good"[4]. The data come from the monthly surveys that interview around 2,500 persons randomly selected. We prepared the quarterly data series calculating the average of the values of the different months in each trimester. There is no survey in the month of August, therefore the quarterly average of the third trimester was estimated with the surveys of July and September.

Political Situation (PS) is a relevant variable to understand a specific pattern of political attitudes and performance in Spain. Moreover, this variable is highly correlated with political trust for the period that goes from 1996 to 2012 in Spain. The estimated Pearson's correlation coefficient between the variables Political Situation and Political Trust shows a value of $\hat{\rho} = 0.91$. The associated bootstrap confidence interval at the 95 percent level of confidence is (0.83, 0.95), which indicates that the estimated correlation coefficient is statistically different from zero[5]. Therefore, this strong positive statistical relationship allows us to consider that the assessment of political situation could be a good proxy of political trust[6]. The reason why we do not use data of political trust is that this statistical series begins in 1996, while the series of Political Situation begins in 1992. The advantage of working with this series is that it is longer and covers the Spanish economic crisis in the 90's.

We have 82 quarterly observations for each variable, covering a period of time from the second quarter of 1992 to the third quarter of 2012. Our sample includes two decades with periods of economic booms and busts. This time length provides a detailed description of the business cycle in Spain. Having a long sample period implies a great advantage since it allows us to include data for the Spanish crisis of the nineties and the Great Recession until 2012 in our analysis.

Figure 2.a represents the evolution of the variables *Assessment of Political Situation (PS)* and *Unemployment Rate (U).* Table 1 summarizes the main descriptive statistic.
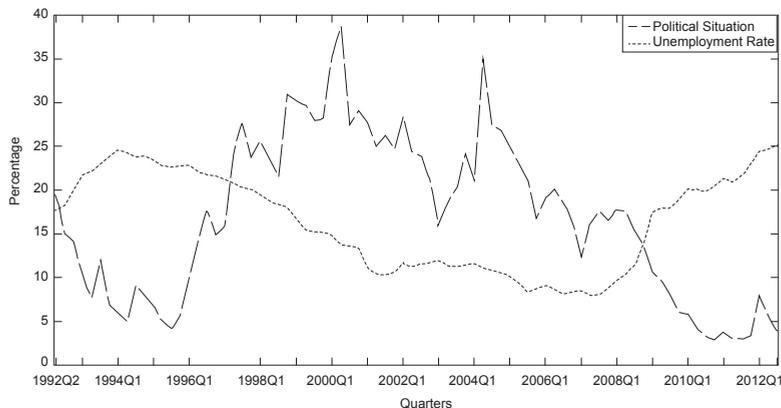

**Figure 2.a. Time evolution of the variables Political Situation
and Unemployment Rate**

Table 1
MAIN DESCRIPTIVE STATISTICS

	Original Data		Filtered Data	
	PS	*U*	ê	ŵ
Mean	16.93	16.31	0.21	0.00
Median	17.18	17.53	–0.69	–0.04
Maximum	38.73	25.02	14.43	1.71
Minimum	2.83	7.95	–10.26	–2.14
Std. Dev.	9.27	5.56	3.62	0.59
Jarque-Bera	3.47	7.78	38.17	22.73
(p-value)	(0.17)	(0.02)	(0.00)	(0.00)

3.2. Unit root analysis and filtering the original variables

Before proceeding with our empirical analysis, it is of paramount importance to check the stationarity of our variables. In the case of non-stationary variables, the standard statistical methods would fail to find and model a true relationship between the variables. That is, a high value of an estimated cross-correlation coefficient would not necessarily imply a true relationship between the variables (Haugh, 1976); or a regression equation with a high degree of fit and statistically significant parameters could only result from a spurious regression (Granger and Newbold, 1974).

MARCOS ÁLVAREZ-DÍAZ, GONZALO CABALLERO,
BALTASAR MANZANO AND JOSÉ M. MARTÍN-MORENO

Table 2
RESULTS OF THE ADF AND P-P UNIT ROOT TEST AND
OF THE HEGY SEASONAL UNIT ROOT TEST

			UNIT ROOT TESTS		
				HEGY TEST	
	ADF TEST H_0: *Unit Root*	**P-P TEST** H_0: *Unit Root*	H_0: *Unit Root* (t1)	H_0: *Seasonal Unit Root*	
				Biannual (t_2)	Annual (F_{23})
PS	–1.51 (0)	–1.51 (0)	–1.08 (2)	–4.01*** (2)	16.93*** (2)
U	–1.95 (4)	–0.69 (5)	–1.58 (2)	–3.40*** (2)	5.77*** (2)
$\hat{\mathbf{e}}$	–10.43*** (1)	–10.56*** (3)	–3.68*** (1)	–4.07*** (1)	15.41*** (1)
$\hat{\mathbf{w}}$	–8.93*** (0)	–8.93*** (1)	–3.65*** (1)	–4.00*** (1)	23.06*** (1)

Note: The symbols *, ** and *** mean rejection of the null hypothesis at the 10, 5 and 1 percent, respectively. For the P-P tests, the number of bandwidth is shown in brackets according to the Newey-West Criterion using Bartlett Kernel. For the ADF test, the number of lags is shown in brackets according to the Schwarz information Criterion. For the HEGY test, the number of lags for the augmented component is shown in brackets.

Table 2 shows the results of the ADF (Dickey and Fuller, 1981), the P-P (Phillips and Perron, 1988) and the HEGY (Hylleberg *et al.*, 1990) unit root tests. All these tests do not reject the null hypothesis of non-stationary variables at frequency zero (therefore, they have a unit root in levels). Moreover, since our study uses quarterly data, we also examine the presence of unit roots at seasonal frequencies using the HEGY test. This test evidences that there is no seasonal unit root either at frequency biannual (*t2*) or annual (*F23*). Therefore, our variables are non-stationary variables only at frequency zero. According to this, we must transform our original variables to obtain stationary variables.

Following Katz (1988), we transform our original data by assuming that the dynamics of the variables *PS* and *U* can be adequately represented by an autoregressive process with additive Gaussian noise. The procedure implies estimating a general autoregressive model:

$$PS_t = \alpha_0 + \alpha_1 \cdot PS_{t-1} + \text{.......} + \alpha_p \cdot PS_{t-p} + e_t \qquad (1)$$

$$U_t = \mu_0 + \mu_1 \cdot U_{t-1} + \text{.......} + \mu_p \cdot U_{t-q} + w_t \qquad (2)$$

where we select the order *p* and *q* that minimize the Akaike Information Criterion (AIC) (Akaike, 1973). In our case, we obtain *p=1* for *political situation*, and *q=6* for the *unemployment rate*. The two residual series thereby obtained are $\hat{e}_t$ and $\hat{w}_t$. Table 1 also displays the most important statistic descriptive for these variables, and figure 2.b depicts their evolution over the sample period. Moreover, as we can see in table 2, these residuals pass all the stationarity tests, and do not exhibit significant autocorrelation. The autocorrelation analysis was done using the correlogram of the residuals, and the null hypothesis for independently distributed data was not rejected using the Ljung-Box test (Ljung and Box, 1978). Conse-

quently and as indicated by Katz (1988), we can use these variables to investigate the statistical relationship between the original variables: unemployment rate and political situation. It is also very common to use first differences of the original series (ΔPS_t and ΔU_t) to make the data stationary instead of filtering the original data. In our specific empirical study, there were no divergences in our results, and the conclusions were exactly the same[7].
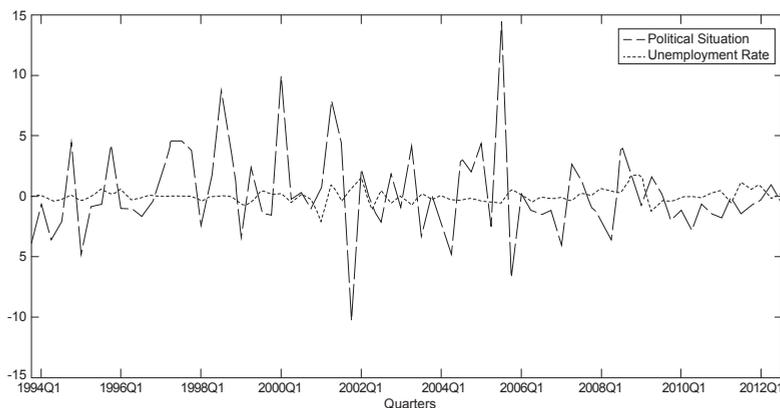

Figure 2.b. Time evolution of the filtered variables of Political Situation and Unemployment Rate

4. Empirical results

4.1. Looking for a statistical and causal relationship

We start our analysis by estimating the sample cross-correlation coefficients between the residual series of unemployment and political situation. The estimation of these coefficients is a simple and common method used in science research to describe the existing interrelationships between two time series. Figure 3 shows the sample cross-correlation estimates and the intervals of confidence empirically constructed by means of a Montecarlo simulation[8]. These intervals are used to determine the statistical significance of the cross-correlation coefficients. As we can observe, the residual series of the *unemployment rate* shows a statistically significant co-movement with the residual series of the *political situation* at lag *l=4*, and no significant cross-correlations are detected to other lags. Therefore, the hypothesis of independence of the variables *unemployment rate* and *political situation* is rejected since there is evidence of a negative and statistical significant relationship between them.
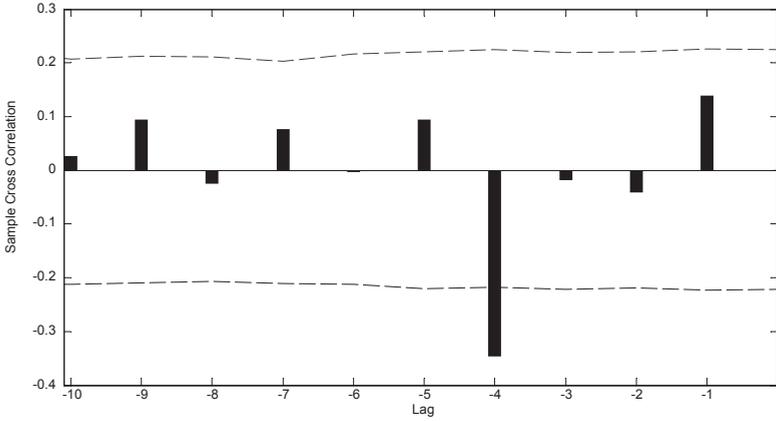
Figure 3. Sample cross-correlation between residuals of *unemployment rate* and the residuals of *political situation*

Nevertheless, the cross-correlation analysis is an adequate approach to relate two time series only in terms of co-movements. Therefore, the existence of a significant cross-correlation coefficient does not necessarily imply causation. It is for this reason that we also perform a regression analysis where the dependent variable is the residual series of the political situation (e_t), and the explanatory variables are p delays of the residual series of the unemployment rate (w_t)

$$e_t = \lambda_0 + \sum_{j=0}^{p} \delta_j \cdot w_{t-j} + \varepsilon_t \tag{3}$$

The modeling procedure is based on the general-to-specific approach (Hendry, 1995). That is, we start with the general specification represented in equation (3), and we incorporate as explanatory variables the contemporary value of the time series w_t, as well as p lags. The next step is to estimate the general equation, and the least significant variable is removed. This process of estimation and elimination is repeated continuously until all the variables left in the equation are statistically significant. According to this, the final estimated regression equation was

$$e_t = \underset{(0.00)}{-2.23} \cdot w_{t-4} + \hat{\varepsilon}_t \tag{4}$$

where the p-value is in parenthesis below the estimated value. The residuals of the regression ($\hat{\varepsilon}_t$) do not show any problem of heteroskedasticity or autocorrelation. The latter facts guarantee the econometric robustness and efficiency of our estimation process. The most remarkable results of this simple regression are that (i) the only surviving significant variable is at lag 4, and (ii) that the estimated coefficient $\hat{\delta}_4 = -2.23$ reflects the negative relationship between the variables. Therefore, the regression analysis seems to confirm those results obtained using the cross-correlation analysis. It is also worth noting at this point that the regres-

sion analysis only helps us to corroborate the existence of a negative statistical relationship between the assessment of *political situation* and *unemployment rates* at lag 4, but we cannot interpret the coefficient $\hat{\delta}_4$ as an estimate of the direct impact of the latter variable on the former. The reason for this is that the variables that we have regressed are the residual series, and not the original ones.

In order to corroborate the finding obtained by the regression analysis, we also use the test proposed by Granger (1969), which tests causality between two variables. The procedure is based on the construction of a simple causal model

$$e_t = \alpha_0 + \alpha_1 \cdot e_{t-1} + \text{.......} + \alpha_p \cdot e_{t-p} + \beta_1 \cdot w_{t-1} + \text{.......} + \beta_p \cdot w_{t-p} + \varepsilon_t \qquad (5)$$

where ε_t is assumed to be a white-noise error term. The optimal number of lags (p) for the equation is chosen according to a specific information criterion such as the Akaike Information Criterion. The equation (5) reflects the fact that the variable e_t can be expressed as a function of its own past and of the past of w_t. Therefore, we say that the variable w_t will have a casual effect on e_t in the sense of Granger if some parameter β_i is statistically nonzero. Table 3 presents the null hypothesis to be contrasted $\left(H_0 : \beta_1 = \beta_2 = \text{........} = \beta_p = 0 \right)$ and the results of the statistical hypothesis testing. Specifically, the statistic has a value of 3.10, and its associated p-value is 0.02. As a result of this, the null hypothesis for *unemployment rate* not having a casual effect on *political situation* in the sense of Granger can be rejected at 5% level of statistical significance.

<div align="center">

Table 3

RESULTS OF THE GRANGER CAUSALITY TEST

</div>

NULL HYPOTHESIS	Lags	F-Statistic	p-value
Unemployment rate does not Granger Cause Assessment of Political Situation	4	3.10	0.02

Note: The lag length is based on the Akaike Information criterion. The residuals show no serial autocorrelation.

All the proposed methods until now indicate the existence of a significant and negative relationship between the lag four of the Spanish unemployment rate and the contemporaneous value of political situation[9]. A very interesting topic would be to find out if there is a long-run equilibrium between these two variables and to measure the quantitative response of political situation to a change in unemployment rate. We address these important questions in the next section.

4.2. Looking for a long-run equilibrium

In this subsection we go a step further by analyzing the existence of a long-run equilibrium between political situation and unemployment rate. This can be done by using different tradi-

tional cointegration methods such as the two-step residual-based procedure of Engle and Granger (1987), or the Johansen's rank regression technique (Johansen and Juselius, 1990) However, they have shown important technical limitations (Pesaran and Shin, 1999) In our study we use the autoregressive distributed lag (ARDL) bounds testing approach (Pesaran *et al.*, 2001)

Following the model defined in Stevenson and Wolfers (2001), we start our procedure by proposing that political situation in Spain can be correctly explained by unemployment rate according to the general expression

$$PS_t = \beta_0 + \beta_1 \cdot U_t + \beta_2 \cdot E_t + \varepsilon_t \ \forall t = 1,.....T \tag{6}$$

where ε_t is the disturbance term. Moreover, we have also added a dummy variable (E) that takes value one in the quarter where general elections are held in Spain. The reason why we have decided to include this variable in our model is that there seems to be some recurrent peaks in the time evolution of PS_t that coincide when general elections are held in Spain[10]. These recurrent peaks are visually detectable in the dynamic of the variable PS_t showed in figure 4. Therefore, the inclusion of the variable E could be relevant so as to enhance the explicative ability of our model[11]. Moreover, our analysis would be much richer since we are able to find out if general elections had a significant effect on the political situation over the sample period considered in our study[12].
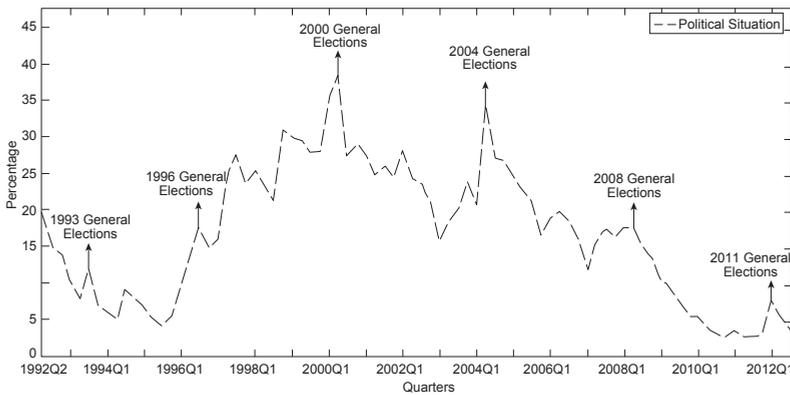

Figure 4. Temporal evolution of the assessment of the political situation and general elections in Spain

From the model represented in equation (6), it is possible to derive the following conditional Error Correction Model (ECM) using a simple reparameterization (Banerjee *et al.*, 1993)

$$\Delta PS_t = \alpha_0 + \sum_{j=1}^{p} \alpha_j \cdot \Delta PS_{t-j} + \sum_{j=1}^{p} \psi_j \cdot \Delta U_{t-j} + \vartheta \cdot PS_{t-1} + \theta \cdot U_{t-1} + \lambda \cdot E_t + \varepsilon_t \tag{7}$$

where Δ is the first-difference operator, and ε_t is assumed to be a white noise error term. ϑ and θ are the parameters that represent the long-run relationship, and α_j and ψ_j reflect the short-run dynamics of the model. Finally, the number of lags (p) is chosen using the minimum value of the AIC.

The bounds testing approach to cointegration is a method that allows us to study whether there is a significant stable relationship between the variable PS and U. According to the specification of the model represented in equation (7), which is estimated by the Ordinary Least Square method. The testing procedure is based on two F-statistics to check the null hypothesis that the variables are not cointegrated (Pesaran *et al.*, 2001)[13]. The first one (F_{II}) is associated with the hypothesis testing $H_0 : \alpha_0 = \vartheta = \theta = 0$. The second test ($F_{III}$) checks the hypothesis $H_0 : \vartheta = \theta = 0$. Both F-statistics have a non-standard distribution under the null-hypothesis of no relationship of cointegration. However, Pesaran *et al.* (2001) derived their asymptotic distributions and proposed critical value bounds for different scenarios. These critical values allow us to statistically decide whether to reject or not the null hypothesis.

Table 4
RESULTS OF THE BOUNDS TESTING APPROACH AND CRITICAL VALUES

Scenario	F-statistic	Lower Bound Critical Value	Upper Bound Critical Value	Long-run Relationship
Model with restricted intercept and no trend $(H_0 : \alpha_0 = \vartheta = \theta = 0)$	F_{II}=3.96	3.02	3.51	YES
Model with unrestricted intercept and no trend $(H_0 : \vartheta = \theta = 0)$	F_{III}=5.11	4.04	4.78	YES

Table 4 contains the values of the F-statistics, the critical values at a level of significance of 10 percent, and the optimal number of lags. As we can see, the value of the statistics F_{II} (3.96) and F_{III} (5.11) are both above the critical upper bounds at a level of significance of 10 percent (3.51 and 4.78, respectively). The null hypothesis of no cointegration is therefore rejected on the basis that we have statistical arguments that allow us to reject the null hypotheses $H_0 : \alpha_0 = \vartheta = \theta = 0$ and $H_0 : \vartheta = \theta = 0$. This result supports the presence of a long-run relationship between *political situation* and *unemployment rate*. Therefore, the ARDL bounds testing approach to cointegration provides statistical evidence that the variable unemployment is an influencing factor of the political situation in the long-run. This fact guarantees the existence of a causal relationship, and not by chance, between these two variables. The next step is to construct a model that allows us to estimate the impact of unemployment rate on the political situation. We follow the modeling procedure explained in Pesaran *et al.* (2001), and widely applied in economic modeling (Shambaugh, 2004; Frankel *et al.*, 2004;

Narayan, 2005). Accordingly, the ECM associated with the estimation of the long-run level relationship represented in equation (6) is given by the expression

$$\Delta PS_t = \gamma_0 + \sum_{i=1}^{p-1} \gamma_i \cdot \Delta PS_{t-i} + \sum_{j=0}^{p-1} \mu_j \cdot \Delta U_{t-j} + \phi \cdot ECT_{t-1} + \omega_t \tag{8}$$

where ω_t is the disturbance terms and ECT_t is the error correction term, which is defined as

$$ECT_t = y_t - \hat{\beta}_0 - \hat{\beta}_1 \cdot U_t - \hat{\beta}_2 \cdot E_t \tag{9}$$

Therefore, the ECM model allows us to examine the short-run reactions (the μ_j coefficients) but also to take into account the forces generating a long-run return to equilibrium. The ϕ parameter describes the speed of the adjustment back from any deviation from the long-run equilibrium (Frankel *et al.,* 2004). However, our main goal is to estimate the long-run impact of the explanatory variables on the variable *Political Situation,* the parameters β_1 and β_2. The estimates of these parameters are valid to assess the long-run causal effect if and only if the estimated ECM satisfies certain econometric requirements: (i) the estimated coefficient must be statistically significant and show a sign coherent with the economic theory; (ii) it must not exhibit any problems of autocorrelation, heteroskedasticity or misspecification; and (iii) the estimated coefficient of the lagged error correction term $\hat{\phi}$ must have a negative sign and be statistically significant to corroborate cointegration (Kremers *et al.*, 1992; Granger *et al.*, 2000). If the estimated model satisfies all these requirements, then the estimated coefficient of the parameters β_1 and β_2 are assumed to adequately assess the long-run effect of the variables U and E on PS, respectively.

The estimated long-run coefficients are contained in table 5. As we can see, all estimates have the expected signs, but the most remarkable finding is that these coefficients give us a quantification of the long-rung impact of the variables U and E on PS. The estimated coefficient of U is –1.01. According to this, we can affirm that if the unemployment rate increases by 1%, then the assessment of political situation will worsen by 1%. On the contrary, the estimated coefficient of E was 5.52; therefore, if general elections are held in one quarter, then the assessment of the political situation will increase by 5.52% in the following quarter. To make our analysis more complete, we use the accelerated bias-corrected bootstrap method to construct an efficient confidence interval for each long-run parameter β_i (Efron and Tibshirani, 1998). Bootstrapping allows us to verify the statistical significance of the long-run parameters without assuming the restrictive hypotheses of the classical inferential statistics. The decision rule is that if the zero value is contained in the bootstrap interval, then the null hypothesis $H_0 : \beta_i = 0$ would be accepted. Consequently, the impact of the associated variable would not be statistically significant. Table 5 shows the bootstrap intervals associated with each parameter of the model at a significance level of 90 percent. As we can see, the null hypotheses that the explanatory variables U and E have no statistically significant impact on PS can be rejected[14].

<div align="center">

Table 5

POINT AND BOOTSTRAP INTERVAL ESTIMATION OF THE LONG-RUN PARAMETERS

</div>

Variable	Estimated Coefficients	p-value	Bootstrap Interval Estimation
Intercept	32.99	0.00	(28.94, 37.18)
U	–1.01	0.00	(–1.25, –0.77)
E	5.52	0.08	(0.62, 10.88)

Note: The bootstrap confidence interval is constructed using the accelerated bias-corrected method considering 10,000 replications and a confidence interval of 90 percent.

Table 6 shows the results of estimating the ECM represented in equation (8). The modeling procedure is based on a general-to-specific approach, starting with a number of lags equal to $p=8$. The estimated coefficients are statistically significant and have the expected sign. That is, the survival variable is ΔU_{t-4}, and has a negative impact on ΔPS_t. The estimated coefficient of the lagged error correction term $\hat{\phi}$ is equal to –0.10. Therefore, it has the required negative sign necessary to corroborate the earlier finding of a long-run relationship using the bounds testing approach. Moreover, this estimated coefficient also gives us information on the speed of adjustment to the long-run equilibrium in face of a shock. Specifically, the deviation from the long-run equilibrium induced by a shock is corrected by nearly 10 percent over the following quarter.

<div align="center">

Table 6

RESULTS OF THE SHORT-RUN MODEL

</div>

Short-run Variable	Estimated Coefficients	p-value	Bootstrap Interval Estimation
ΔU_{t-4}	–1.50	0.00	(–2.34, –0.65)
ECT_{t-1}	–0.10	0.09	(–0.20, –0.004)

<div align="center">

DIAGNOSTIC CHECKING

</div>

			Value	p-value
Adjusted-R^2			0.09	–
Autocorrelation	Ljung-Box Q-Statistic	Q(1)	1.35	0.25
		Q(4)	1.82	0.77
Heteroskedasticity	WhiteTest		0.89	0.47
	ARCH	ARCH(1)	0.22	0.64
	Test	ARCH(4)	1.24	0.87
Misspecification	Ramsey Test		0.47	0.49

Note: The bootstrap confidence interval is constructed using the accelerated bias-corrected method considering 10,000 replications and a confidence interval of 90 percent.

In addition to the estimated coefficients, table 6 also provides a battery of diagnostic tests on the estimated short-run model. These tests verify the econometric strength of our estimations, and the validity of the estimated long-run coefficients β_1 and β_2. Specifically, the estimated model passes all the diagnostic tests commonly used in the literature to detect problems of serial correlation and heteroskedasticity. Additionally, we use the Ramsey's RESET test to check the existence of misspecification problems. The results of this test allow us to assert that there is neither omission of relevant explanatory variables nor incorrect choice of the functional form of the model. Moreover, the lack of autocorrelation problems of the residuals corroborates that there is a linear effect of unemployment on political situation.

Finally, following Pesaran and Pesaran (1997), we have examined the stability of the long-run coefficients using the cumulative sum of the recursive residuals (CUSUM) and the cumulative sum of squares (CUSUMQ) tests. The plots of the CUSUM and CUSUMSQ show the stability of the long-run coefficients. Stability is also corroborated by using the recursive least squares procedure. Moreover, the BDS test (Brock *et al.*, 1996) does not reject the null hypothesis that the residuals are independent and identically distributed (i.i.d.). Therefore, a direct consequence of this test is that our model is well-specified and a linear specification seems to be adequate. There seems not to be a non-linear relationship between *Political Situation* and the explanatory variable *Unemployment Rate*, and this discards the existence of asymmetric effects over the business cycle[15].

5. Conclusions

The Great Recession is deeply undermining the economic, institutional and social basis of many countries. This situation has been especially tough in Spain. This country has suffered one of the highest unemployment rates of all the developed economies. The dire economic situation has generated a deep institutional crisis, an increasing political distrust, a deterioration of the political situation and an intense disaffection with political representatives. In spite of the seriousness of this situation, no empirical research has yet analyzed the impact of the economic crisis on the decline of assessment of the Spanish political situation. Our study tries to throw some light on this problem by using a complete and robust statistical and econometric analysis where the specific problem of working with non-stationary processes has been taken into account.

The aim of our study is twofold. Our first aim was to study whether the political situation and the unemployment rate have been statistically related in Spain. For this purpose, we applied a simple but very useful statistical tool: the sample cross-correlation function. The results revealed that the only statistical significant cross-correlation coefficient was at lag four. Therefore, there was a relationship between the contemporaneous value of political situation and the level of unemployment four quarters ago. However, a significant cross-correlation does not necessarily imply a causal relationship. This is why we have carried out a regression analysis and applied the Granger causality test. The results of both

methods indicate that unemployment rate causes a significant change in the political situation of the Spanish society.

Our second aim was to find out if there is a long-run equilibrium between political situation and unemployment. In particular, we studied whether both variables were cointegrated by using the ARDL bounds testing approach. The tests showed that effectively both variables are cointegrated. They validated the existence of a long-run equilibrium between these variables from a statistical point of view. This finding is extremely relevant since it guarantees the possibility of modeling the political situation in function of the unemployment rates. The next step was to construct and estimate an ARDL model. The estimated model generated some interesting results not only for academics, but also for political advisors and policy-makers. Firstly, if the Spanish unemployment rate increases by 1%, then assessment of political situation will worsen approximately by 1% four quarters later. Secondly, if there was an election in one quarter, then the assessment of political situation in the following quarter would increase by 5.52%. The different checking diagnosis tests carried out in our study verify the consistency and the econometric strength of our results. Moreover, the absence of serial correlation of the residuals is indicative that there was no omission of relevant explanatory variables. If we had eventually forgotten to include influencing variables, the residuals would have exhibited problems of autocorrelation. Thus, our study provides statistical arguments that support the procyclicality of the assessment of political situation in Spain.

This is an empirical finding that seems to support the academic literature that attributes the recent changes in political attitudes, perceived assessment and trust decline to the economic effects of the current economic crisis (Polavieja, 2013). Our paper is in the line of Stevenson and Wolfers (2011) and Polavieja (2013), but our model is more similar to Stevenson and Wolfers (2011) because they use a time series analysis for the US case and its general conclusion is coherent with the Spanish case[16].

The results of our time series analysis do not conclude the research program on the political and institutional effects of the Spanish crisis. Nevertheless, it provides modest but new and clear evidence that is relevant for those interested in understanding the Spanish institutional crisis and the change of political assessments.

Notes

1. In this sense, Torcal (2014) considers that political responsiveness is the most important and robust predictor of institutional trust in Spain, but he obtains that political corruption is other complementary factor to explain the deterioration of political trust. Thus, he points out that the public perception of corruption has increased substantially in recent years in Spain, and he argues the relevance of specific political scandals in the deterioration of political trust. Along the same lines, Solé-Ollé and Sorribas-Navarro (2014) study the effect of political scandals on trust in local government.

2. It can be considered that "political situation" and "political trust" are very-related concepts, especially if we are using public perceptions to measure them because they could be ill-defined concepts in the mind of citizens. Other related concept in the mind of citizens would be the assessment of political institution. But this

      not implies that the theoretical literature in political economy cannot distinguish among the different concepts. For example, the concept of institutions is normally related to a quite stable and permanent rule, while the political situation is a more temporary concept.

3. To be more precise, Esteller-Moré (2013) uses the unemployement rate, the inflation rate and the Okun's misery index. Roth *et al.* (2011) include other economic variables too.

4. The CIS provides an index of political situation called "Current Political Situation", which takes into account the variability of the answers. In any case, this index shows a high correlation ($\hat{\rho} = 0.92$) with the index that we have constructed following the procedure of Stevenson and Wolfers (2011). This fact leads to conclude that both indices have a similar temporal behavior.

5. We use the bootstrap method to test the null hypothesis H0: $\rho = 0$ (non-existence of relationship), against the alternative hypothesis H1: $\rho \neq 0$ (there are statistical arguments that confirm a relationship between the variables). Given that the zero value is not included into the interval, we can conclude that the correlation coefficient is different from zero at a 5 percent level of significance.

6. From an empirical perspective, this paper shows the correlation between political trust and assessment of political situation for the Spanish case. From a theoretical perspective, there are several approaches on the definition, origins, measure and relationships of political trust (Mishler and Rose (2001), Zmerli *et al.* (2007), Newton (2007), Zmerli and Newton (2011), Esteller-Moré (2013), Marozi, 2014). This paper does not attempt to provide a general theoretical solution to the relationship between political situation and political trust, and we assume that our empirical evidence is specific for our sample.

7. These results are omitted here due to space constraints, but are available from the authors on request.

8. Specifically, the Montecarlo experiment was carried out as follows: we generate randomly 5,000 time series with the same characteristics as a random white variable and with the same standard deviation as the variable e_t. Then, each one of these artificial variables was cross-correlated with the residual series of the variable w_t. An empirical distribution of each cross-correlation coefficient for each lag was computed. Using this empirical distribution, a confidence interval with a specific significant level is built and, in this case, the significance was determined to be 95%.

9. A similar analysis (cross correlation, Granger causality and OLS) has been applied to test the relationship between political trust and the business cycle in Spain for the period 1996-2012. This analysis concludes the relevance of U on political trust with a delay of four quarters. Therefore, the result for the variable Political Trust (1996-2012) corroborates and strengthens our estimation obtained for the variable Political Situation (1992-2012).

10. This argument can be incorporated into the research program that studies the effects of elections on political attitudes (Clark and Acock, 1989; Banducci and Karp, 2003; Singh *et al.,* 2012; Beaudonnet *et al.,* 2014).

11. On the whole, the empirical results obtained in this study were quite similar from a statistical point of view to those from the basic specification of a model without the variable E, and hence to save space they are not reported.

12. According to our empirical analysis, this recurrent pattern is weakly observed for the elections held in 1993, 1996 and 2008, but much more noticeable for the elections held in 2000, 2004 and 2011. This paper is not focused on electoral analysis but, at this point, we should report that the results of the 2000 and 2011 general elections were characterized by the absolute majority of the conservative political party, while the 2004 general election was affected by the March 11 2004 terrorist attack (Montalvo, 2011; Castells and Trillas, 2013). Beyond this descriptive information, our paper does not provide any statistical electoral analysis about the causes of the impact on PS of each one of the different elections.

13. We have estimated the ECM represented in equation (7) by ordinary least squares adding a deterministic linear trend ($\delta \cdot T$). This model with intercept and linear trend is associated with the scenarios IV and V described in Pesaran *et al.* (2001). However, in our specific case, we found that the parameter δ was not statistically significant in all regressions that we have run, and for this reason we decided not to include the trend term in our model.

14. This result reveals that general elections in Spain had a significant impact on the assessment of the political situation and, therefore, it is relevant to explain its temporal evolution. This result justifies that this variable has been included in our model.

15. For the sake of brevity, the plots of CUSUM, CUSUMQ, the recursive least squares for each estimated parameter and the results of the BDS test are not reported here, but they can be delivered upon request.

16.   Finally, comparative political economy analysis is very relevant but we have to recognize its limitations and complexity. For example, a possible comparison for the Spanish case would be with the estimated coefficients of the unemployment rate on political trust in US (the US Congress) reported in Stevenson and Wolfers (2011). These estimated coefficients go from -0.89 to -1.36 depending on the data sources. These coefficients are quite similar to our estimate of the impact of unemployment on the Spanish political situation (-1.01). Nevertheless, we must be very cautious of making such comparison. The reason for this is that the study carried out by Stevenson and Wolfers (2011) uses different variables, different data periods and data sources. For the same reason we cannot make clear comparisons with the analysis of Polavieja (2013), although his empirical results on the drop in trust and satisfaction with democracy in Spain seems to show the same pro-cyclical pattern of our study.

References

Akaike, H. (1973), "Information theory and an extension of the maximum likelihood principle", in B. Petrov and F. Csake (Eds.), *Second international symposium on information theory.* Springer-Verlag.

Banducci S. A. and Karp J. A. (2003), "How elections change the way citizens view the political system: campaigns, media effects and electoral outcomes in comparative perspective", *British Journal of Political Science*, 33 (3): 443-467.

Banerjee, A.; Dolado, J.; Galbraith, J., and Hendry, D. (1993), *Co-integration, Error Correction, and the Econometric Analysis of Non-stationary Data.* Oxford: Oxford University Press.

Beaudonnet L.; Blais A.; Bol D., and Foucault M. (2014), "The impact of election outcomes on satisfaction with democracy under a two-round system", *French Politics* (2014) 12, 22-35.

Brock, W.A., W.D. Dechert, J.A. Scheinkman and B. LeBaron (1996), "A Test for Independence Based on the Correlation Dimension", *Econometric Reviews*, 15, 197-235.

Calvo, K.; Gómez-Pastruana, T. and L. Mena (2012), "Especial 15-M", *Zoom Político*, 4, 1-28.

Castells, P. and F. Trillas (2014), "The effects of surprise political events on quoted firms: the March 2004 election in Spain", *SERIEs*, 4: 83-112.

Chanley V. A., T. J. Chanley and W. M. Rahn (2000): "The Origins and Consequences of Public Trust in Government: A Time Series Analysis", *Public Opinion Quarterly*, 64: 239-256.

Clarke, H. D. and Acock, A. C. (1989), "National Elections and Political Attitudes: The Case of Political Efficacy", *British Journal of Political Science*, 19, 4, 551-562.

Coibion, O., Gorodnichenko Y. and D. Koustas (2013), "Amerisclerosis? The Puzzle of Rising U.S. Unemployment Persistence", NBER Working Paper No. 19600.

Dalton, R. J. (2005), The Social Transformation of Trust in Government, *International Review of Sociology*, 15(1): 133-154.

De Boef S. and P. M. Kellstedt (2004), "The Political (and Economic) Origins of Consumer Confidence", *American Journal of Political Science*, 48(4): 633-649.

Dickey, D. A. and Fuller, W.A. (1981), "Likelihood ratio statistics for autoregressive time series with a unit root", *Econometrica*, 49, 1057-1072.

Efron, B., and Tibshirani, R. (1998), *An introduction to the bootstrap*. Boca Raton, Fla: Chapman & Hall/CRC.

Ehrmann, M., Soudan, M. and L. Stracca (2013): "Explaining European Union Citizens' Trust in the European Central Bank in Normal and Crisis Times", *The Scandinavian Journal of Economics*, V. 115 (3): 781-807,

Engle, R. F. and Granger, C. W. J. (1987), "Cointegration and error correction: representation, estimation and testing", *Econometrica*, 55, 251-276.

Esteller- Moré, A. (2013), "Trust in the justice-administration: is it dependent on the economic cycle and on decentralization?", *Environment and Planning C: Government and Policy*, 21: 506-521.

Fernández-Villaverde, J., Garicano, L. and Santos T. (2013), "Political Credit Cycles: The case of the Eurozone", *Journal of Economic Perspectives*, 27 (3): 145-166.

Fiorina, M. P. (1978): "Economic Retrospective Voting in American National Elections: A Micro-Analysis", *American Journal of Political Science*, 22: 426-443.

Frankel J., Schmukler S. L. and Servén L. (2004), "Global transmission of interest rates: monetary independence and currency regime", *Journal of International Money and Finance,* 23: 701-733.

Freeman J. R., J. T. Williams and L. Tse-Min (1989), "Vector Autoregression and the Study of Politics", *American Journal of Political Science*, 33, 4, 842-77.

Freeman J. R. (1983), "Granger Causality and the Times Series Analysis of Political Relationships", *American Journal of Political Science*, 27(2): 327-358.

Granger C.W.J. and Newbold P. (1974), "Spurious regressions in econometrics", *Journal of Econometrics*, 2: 111-120

Granger, C.W.J. (1969), "Investigating causal relations by econometrics models and cross spectral methods", *Econometrica*, 37: 424-438.

Granger, C.W.J., Huang B., Yang, C. (2000), "A bivariate causality between stock prices and exchange rates: evidence from recent Asian flu", *The Quarterly Review of Economics and Finance*, 40: 337-354.

Grosjean, P. Ricka F. and C. Senik (2013), "Learning, political attitudes and crises: Lessons from transition countries", *Journal of Comparative Economics*, 41 (2): 490-505.

Habibi F. and Rahim K. A. (2009), "Bound Test Approach to Cointegration of Tourism Demand", *American Journal of Applied Sciences*, 6 (11): 1924-1931.

Haugh L. D. (1976), "Checking the Independence of Two Covariance-Stationary Time Series: A Univariate Residual Cross-Correlation Approach", *Journal of the American Statistical Association*, 71, 354, 378-385.

Hendry, D. F. (1995), *Dynamic Econometrics: Advanced Text in Econometrics*. Oxford, UK: Oxford University Press.

Hylleberg, S., Engle, R. F., Granger, C. W. J. and Yoo, B. S. (1990), "Seasonal Integration and Cointegration", *Journal of Econometrics*, 44: 215-238.

Johansen, S. and Juselius, K. (1990), "Maximum likelihood estimation and inference on cointegration with applications to the demand for money", *Oxford Bulletin of Economics and Statistics*, 52: 169-210.

Katz R. W. (1988), "Use of cross correlation in the search for teleconnections", *International Journal of Climatology*, 8: 241-253.

Kremers, J. J, Ericson, N. R. and Dolado, J. J. (1992), "The power of cointegration tests", *Oxford Bulletin of Economics and Statistics*, 54: 325-47

Laurenceson, J. and Chai, J.C.H. (2003), *Financial Reform and Economic Development in China*. Northampton, MA : Edward Elgar.

Likki, T. (2012), "15M Revisited: A Diverse Movement United for Change", *Zoom Político*, 11, 1-15.

Ljung G. M. and Box G. E. P. (1978), **"**On a measure of lack of fit in time series models", *Biometrika*, 65, 2, 297-303.

Mackuen, M. B., Erikson, R. S. and J. A. Stimson (1992), "Peasants and Bankers? The American Electorate and the US Economy", *American Political Science Review*, 86(3): 597-611.

Marozzi, M. (2014): "Construction, dimension reduction and uncertainty analysis of an index of trust in public institutions", *Quality & Quantity*, 48 (2): 939-953.

Mishler, W. and R. Rose (2014), "What Are the Origins of Political Trust? Testing Institutional and Cultural Theories in Post-communist Societies", *Comparative political Studies*, 34(1): 30-62.

Montalvo, J. G. (2011): "Voting after the bombings: A natural experiment on the effect of terrorist attacks on democratic elections", *The Review of Economics and Statistics*, 93 (4): 1146-1154.

Narayan, P.K., (2005), "The Saving and investment nexus for China: evidence from cointegration tests", *Applied Economics*, 37: 1979-1990.

Newton, K. (2007), "Social political trust", in R. J. Dalton and H. D. Klingemann (eds): *The Oxford Handbook of Political Behaviour*, pp. 342-361, Oxford, UK: Oxford University Press.

Pesaran, M. H. and Pesaran, B. (1997), *Working with Microfit 4.0: Interactive Econometric Analysis*, Oxford: Oxford University Press

Pesaran, M. H. and Shin, Y. (1999), An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis", in S. Strom and P. Diamond (Eds.), *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, Cambridge: Cambridge University Press.

Pesaran, M., Shin, Y. and Smith, R. (2001), "Bounds testing approaches to the analysis of level relationships", *Journal of Applied Econometrics*, 16: 289-326.

Phillips, P. C. B. and Perron, P. (1988), "Testing for a unit root in time series regression", *Biometrika*, 75 (2): 335-346.

Polavieja, J. (2013), "Economic crisis, political legitimacy, and social cohesion», in Gallie, D. (ed.): *Economic crisis, quality of work and social integration: The European experience*, pp. 256-278. Oxford: Oxford University Press.

Roth, F. (2009), "The Effect of the Financial Crisis on Systematic Trust", *Intereconomics*, 203-208.

Roth, F., Grosb, D. and F. Nowak-Lehmann D. (2014), "Crisis and Citizens' Trust in the European Central Bank — Panel Data Evidence for the Euro Area, 1999-2012", *Journal of European Integration*, V. 36 (3).

Roth, F., Nowak-Lehmann F. D. and Otter T. (2011), "Has the financial crisis shattered citizens' trust in national and European governmental institutions? Evidence from the EU member states, 1999-2010", *CEPS Working Documents*. Nº 343. Centre for European Policy Studies.

Schofield, N. and G. Caballero (*eds*) (2011), *The Political Economy of Institutions, Democracy and Voting*. Berlin: Springer.

Schofield, N., Caballero, G. and D. Kselman (*eds*) (2013), *Advances in Political Economy: Institutions, Modeling and Empirical Analysis*. New York: Springer.

Shambaugh J. C. (2004), "The Effect of Fixed Exchange Rates on Monetary Policy", *The Quarterly Journal of Economics*, 119 (1): 301-352.

Singh, S., Karakoç, E. and Blais, A. (2012), "Differentiating winners: How elections affect satisfaction with democracy", *Electoral Studies* 31 (1): 201-211.

Solé-Ollé A. and Sorribas-Navarro P. (2014), "Does Corruption Erode Trust in Government? Evidence from a Recent Surge of Local Scandals in Spain", CESIFO WORKING PAPER NO. 4888.

Stevenson, B. and J. Wolfers (2011), "Trust in Public Institutions over the Business Cycle", *American Economic Review: Papers and Proceedings*, 101 (3): 281-287.

Torcal, M. (2014), "The Decline of Political Trust in Spain and Portugal: Economic Performance or Political Responsiveness»", *American Behavioral Scientist*, forthcoming.

Van de Walle, S. Van Roosbroek, S. and G. Bouckaert (2008), "Trust in the Public Sector: Is there any evidence for a long-term decline?", *International Review of Administrative Sciences*, 74 (1): 45-62.

Wolak J. and C. K. Palus (2010), "The Dynamics of Public Confidence in U.S. State and Local Government", *State Politics and Policy Quarterly,* 10 (4): 421-445.

Zmerli, S. and K. Newton (2011), "Winners, losers and three types of trust", pp. 67-94, in S. Zmerli & M. Hooghe (eds): *Political trust. Why context matters*. Colchester, UK: ECPR Press.

Zmerli, S., Newton, K. and J. R. Montero (2007), "Trust in people, confidence in political institutions and satisfaction with democracy", pp. 35-65, in J. W. van Deth, Montero, J. R. and A. Westholm (eds): *Citizenship and involvement in European democracies: A comparative analysis*. London, UK. Routledge.

Resumen

La Gran Recesión ha originado un fuerte aumento de la tasa de desempleo en España que sobrepasó el 25% en 2012, la tasa más elevada de las economías occidentales en ese año. A su vez, la valoración de la situación política se ha visto muy dañada. El objetivo de este artículo es estudiar la relación existente entre la valoración de la situación política y el ciclo económico en España durante los últimos 20 años, usando una serie de métodos estadísticos. También se investiga la existencia de una relación a largo plazo por medio de contrastes de cotas basados en un modelo de retardos autorregresivos distribuidos (ARDL). Una vez verificada la existencia de una relación a largo plazo, construimos un modelo que nos permite hacer una valoración cuantitativa del impacto del ciclo económico sobre la valoración de la situación política en España. Los resultados obtenidos muestran que la tasa de desempleo tiene un impacto significativo retardado sobre la valoración de la situación política.

Palabras clave: Crisis económica, situación política, España, correlación-cruzada, causalidad de Granger, Contraste de Cotas, ARDL.

Clasificación JEL: E32, C22, P48.