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ECONOMIC CRISIS AND SOCIAL TRUST: REVIEWING THE EFFECTS OF ECONOMIC HARDSHIP ON INTERPERSONAL AND INSTITUTIONAL CONFIDENCE

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Economic Crisis and Social Trust:

Reviewing the effects of economic hardship

on interpersonal and institutional confidence

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The economic crisis of 2008 led to a significant erosion of trust in those countries that were hit hardest. However, whether this fall in trust can best be explained by external economic factors or by the lack of response on the part of the institutions to civic needs and demands is unclear. This study seeks to address this question by examining the specific case of Spain. Its aim is to analyse in comparison with other factors, the effect of increasing socioeconomic precariousness upon levels of interpersonal and institutional trust. The study examines the respective impact of these factors upon different social groups according to their degree of exposure to the effects of the crisis. Our results show that the deterioration suffered by household economies has important consequences in terms of interpersonal trust. Those most severely affected by the recession lose a great deal of trust in others. We also find that a deterioration in socioeconomic conditions has different effects in relation to institutional trust. The perception of the overall state of the economy is important for all types of institutional trust. Without calling into question the importance of institutional performance on levels of institutional trust, our research sheds new light on the importance of different economic factors for social cohesion.

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Introduction

This article explores the consequences of the socioeconomic effects brought on by the crisis of 2008 upon levels of social distrust. It assesses the extent to which the abrupt increase in poverty and inequality has weakened the foundations of social cohesion. It is widely known that trust, both in other people and in public institutions, tends to deteriorate when socioeconomic conditions worsen (Brooks and Manza 2007; Chanley et al. 2001; Polavieja 2013; Dotti Sani and Magistro 2016). However, in the case of institutional trust, it is not so clear whether this effect is produced directly by economic hardship, or indirectly due to an unsatisfactory response on the part of these institutions to increased citizen needs and demands (Newton and Norris 2000). Some recent evidence seems to support this second explanation (Torcal 2014; Armingeon and Ceka 2013), whereas other studies point to the combined role played by the policies of international organisations and the citizens' perception of a deteriorating national economy (Armingeon and Guthmann 2014).

Our research seeks to bring new insights to this debate by combining two methodological innovations. First, we measure how attitudes of trust change over time within different socioeconomic segments of the population to obtain a better understanding of variations in trust in relation to the personal situation of citizens (Dotti Sani and Magistro 2016). We control for these effects by considering other major factors that can strengthen or weaken trust: namely, the degree of development of civil society, the degree of community cohesion, and the strength of social values and culture. Second, we undertake a joint analysis of changes in interpersonal and institutional trust, two variables that while conceptually different are also related (Brhem and Rhan 1997; Rothstein 2011; Newton and Norris 2000). Here, we specifically wish to observe how they interact during an economic recession. To do so, a structural equation model with five dependent variables (interpersonal trust and four indicators of institutional trust) is built. In this way, we also control the mutual interactions between these variables. The model is replicated for two different time points –before and during the crisis– to determine the variations.

The effects of the economic crisis on trust in Spain

The 2008 economic crisis offers an opportunity to better understand the short-term impact of economic recession upon social trust. Since the outbreak of the crisis, levels of trust have fallen in those European countries that have been worst affected (Armingeon and Ceka 2013; Roth, Nowak-Lehmann, and Otter 2013). The Spanish case is of particular interest. Spain underwent rapid economic growth from 2000 to 2007 (3.8% inter-annual average increase), in a period in which it was frequently recognised as one of Europe's most successful economies. However, when the crisis came, the recession had a profound impact on people's daily lives, increasing poverty, inequality and uncertainty (Laparra and Pérez 2012; Fundación Foessa 2014).

In Spain, the effects of the economic crisis have been far-reaching. Unemployment, which in 2007 stood at nearly 1,760,000 people (7.9% of the active population), reached a record high in 2013 with more than 6,200,000 unemployed (27.2%). Youth unemployment (the jobless under the age of 25) in that year was recorded at 960,000 people (57.2%), according to data provided by the Spanish Labour Force Survey (INE 2013). Spain's GDP per capita fell from 105% of the European Union average in 2006 to 95% in 2013 (EUROSTAT 2015). Public debt, which in 2007 was equivalent to 36.1% of GDP, grew to 93.4% in 2013 (Banco de España 2013). Collectively, these trends represent a severe decline in quality of life, further confirmed by the fall in average household income from 29,634 euros per year in 2009 to 26,174 in 2013, according to the Spanish Income and Living Conditions Survey (INE 2015). Income inequalities between Spaniards also increased sharply. The crisis affected the whole population, but the poor lost much more than the wealthy: between 2008 and 2011, the poorest 10% of the country saw their annual incomes drop 42.4%, whilst the richest 10% saw a reduction of only 5.6% over the same period. According to the Income Inequality Update (OECD 2014), Spain is the country with the second highest level of economic inequality in the European Union, only surpassed by the United Kingdom.

In parallel with the effects of the economic crisis in terms of increased levels of "precariousness and inequality", a significant loss of trust was recorded in public

institutions, at a level that was only surpassed by Cyprus and Slovenia, and on a par with levels in Portugal and Greece (Fernández de Guevara, Pérez, and Serrano 2015). However, indicators of interpersonal trust and solidarity reported a degree of improvement. This can be interpreted, a priori, as constituting an interesting compensatory mechanism whereby the negative effect of the crisis is mitigated by solidarity and interpersonal connections.

Table 1 shows how interpersonal and institutional trust has evolved in Spain before and during the economic crisis. For example, between 2010 and 2012, trust in political institutions collapsed, at a time when the effects of the economic crisis were at their severest. The percentage of people claiming to trust Parliament between 2004 and 2012 fell from 42 to 21%. Trust in political parties was already low in 2004 (19%), and even before the economic recession presented a clear downward trend. But, during the crisis, this tendency was exacerbated: in 2012, a mere 7% of the population claimed they still trusted Spain's political parties. A great deal of trust was also eroded in the legal system. Before the crisis there had been an upward tendency in trust levels, so that in 2006, 44% of people claimed to trust the legal system. After 2008, however, this percentage fell to reach 25% in 2012. The only institution whose prestige increased before and during the crisis was that of the police. Yet, even its levels were affected in 2012, as protests strengthened. All these movements occurred against a backdrop of harsh government economic measures and the subsequent increase in poverty and inequality.

In contrast, regardless of the specific indicator employed, levels of interpersonal trust tended to be maintained or to even rise slightly between 2004 (pre-crisis) and 2010 (during the crisis itself). However, in 2012, at the height of the crisis, the proportion of people claiming to trust others rose markedly. Thus, while it is no surprise that the economic crisis undermined the Spanish people's trust in their democratic institutions (Nannestad 2008; Rothstein and Uslaner 2005; Zmerli and Castillo 2015), it is indeed a surprise that this erosion of trust in institutions was not accompanied by a corresponding fall in interpersonal trust (Putnam 2000; Rahn and Transue 1998).

Table 1

Variation of indicators of interpersonal and institutional trust in Spain (2004-2012)

(In percentages)

Distrust indicator:	2004	2006	2008	2010	2012
Interpersonal:					
Most people can be trusted[a]	39.3%	41.3%	40.1%	41.1%	45.7%
	(1660)	(1870)	(2565)	(1880)	(1887)
Most people try to be fair[b]	44.5	44.8	45.8	43.4	50.3
	(1655)	(1864)	(2550)	(1869)	(1884)
Most of the time people are helpful[c]	28.5	27.5	31.1	34.0	35.0
	(1661)	(1870)	(2556)	(1881)	(1881)
Institutional:					
Parliament[d]	42.1	42.4	41.6	29.6	21.1
	(1558)	(1785)	(2376)	(1817)	(1814)
Political parties[d]	19.4	16.0	15.1	10.1	7.0
	(1613)	(1832)	(2499)	(1865)	(1870)
Legal system[d]	36.0	43.7	30.3	32.8	25.1
	(1611)	(1836)	(2518)	(1844)	(1856)
Police[d]	58.8	61.8	64.1	66.8	58.9
	(1633)	(1861)	(2562)	(1873)	(1877)

Source: European Social Survey. 2004 to 2012 waves.

Note: Answers are recorded on a scale from 0 to 10, where 0 is the highest feeling of distrust and 10 the highest feeling of trust. Scores on both variables from 0 to 4 are considered indicative of distrust, 5 is a neutral response, and scores from 6 to 10 are indicative of trust.
[a] Generally speaking, would you say that most people can be trusted. or that you can't be too careful in dealing with people?
[b] Do most people try to take advantage of you if they get a chance or do they try to be fair?
[c] Would you say that most of the time people try to be helpful or that they are mostly just looking out for themselves?
[d] How much you personally trust each of the institutions?

Literature review

There is robust evidence indicating that trust is associated with economic equality and fair opportunities (Delhey and Newton 2005; Nannestad 2008; Rothstein and Uslaner 2005; Bergh and Bjørnskov 2014). Countries with high levels of inequality suffer from a significant lack of trust in their institutions (Zmerli and Castillo 2015). Indeed, several authors maintain that the increasingly unequal distribution of income and wealth is responsible for a general reduction in trust (Putnam 1993; Fukuyama 1995). The mechanism in operation here seems to be that inequality increases the social distance

between individuals, making them believe they have fewer interests in common and, in the medium-term, this results in the development of different subcultures (Fairbrother and Martin 2013; Rothstein 2011). For example, upwardly mobile social groups experience increased levels of trust, and *vice versa* (Li, Savage, and Warde 2008). Inequalities are negatively associated with political trust no matter whether they are measured by objective or subjective indicators (Zmerli and Castillo 2015). At the individual level, there is also evidence that situations of socioeconomic difficulty, such as unemployment, are associated with increased distrust (Iravani and Dindar 2011). Although there is a broad consensus in the literature regarding the importance of inequality, not all studies are equally conclusive. Bergh and Bjørnskov (2014), for example, find that low levels of social trust have a more direct impact on inequality.

Some of the most recent studies of the effects of the 2008 crisis support the central role played by the economic variables. The rise in unemployment in Greece, Portugal, Ireland, and, especially, in Spain, contributed markedly to a pronounced fall in institutional trust (Roth, Nowak-Lehmann, and Otter 2013). Trust in the European Parliament also fell in the peripheral European countries. This decline was more pronounced among subjects of lower social status (Dotti Sani and Magistro 2016). As a result of the EU's economic adjustment programme, citizens in crisis-hit countries appear to have become 'detached' from their democratic political system (Armingeon, Guthmann, and Weisstanner 2016). Nevertheless, in this regard, other studies stress the importance of institutional performance (Norris 2000; Torcal 2014; Armingeon and Ceklca 2013).

Two methodological issues need to be addressed if more definitive conclusions are to be reached about the link between economic hardship and distrust. First, most studies undertake comparative analyses within a determined period, but only a few are longitudinal (Fairbrother and Martin 2013; Armingeon and Guthmann 2014; Armingeon, Guthmann, and Weisstanner 2016; Caïs, Folguera, and Formoso 2014). Moreover, many of these studies were conducted in times of relative economic stability and not in situations of acute crisis. More specifically, the results of cross-national studies, based on state-level indicators, may be influenced by other cultural and

historical factors, whereas longitudinal studies measuring variations in trust at different points in the economic trajectory of a single country are more reliable in this respect. Second, the effect of inequality on attitudes of distrust should be more visible among the disadvantaged segments of society. Thus, in order to obtain more reliable evidence, variations in trust need to be studied in a disaggregated fashion in different segments of the population (Dotti Sani and Magisgtro 2016).

The effects of socioeconomic inequalities on institutional and interpersonal trust have generally been studied separately. Yet, there is sufficient evidence to suggest that, at the national level (if not at the individual level), interpersonal trust and confidence in institutions are strongly associated (Brehm and Rahn 1997; Newton and Norris 2000; Rothstein 2011; Searing 2013). While conceptually different, the two variables appear to be indirectly connected: interpersonal trust can help build effective social and political institutions, which can help governments perform effectively, which in turn encourages confidence in civic institutions (Newton and Norris 2000). In short, the two would appear to be mutually supportive (Brehm and Rahn 1997; Rothstein 2011).

Besides the prevailing socioeconomic conditions, other factors may also influence levels of interpersonal and institutional trust and need to be taken into account when explaining variations in trust. Indeed, the literature identifies four other major factors that can strengthen or weaken trust levels (Nannestad 2008). These factors are (a) the degree of development of civil society; (b) the degree of community cohesion; (c) social values and culture, and (d) the performance of institutions. In the following paragraphs, we summarise the main findings on how they might influence confidence.

The degree of *development of civil society* has received enormous attention. The existence of mature civil societies is a reflection of, but also a condition for, flourishing mutual trust. Putnam (1993) notes that individuals learn civic virtues and how to trust within the framework of their personal relationships, mostly from those into which they enter voluntarily. Reciprocal exchanges inspire greater trust and emotional attachment when they are spontaneous than when they are negotiated (Molm, Takahashi, and

Peterson 2000). Individuals with a richer network of social relationships tend to place more trust in others than do those who live more isolated lives. Thus, people who have enjoyed greater success in life tend to trust others more readily or, at least, they are more inclined to trust others owing to their own positive personal experiences (Delhey and Newton 2003; Buskens 1998). Furthermore, an important connection exists between levels of interpersonal trust and civic participation. As the groups and organisations of civil society mediate between citizens and the state, this increased social capital, in turn, leads to more effective public institutions (Newton and Norris 2000).

The degree of social *cohesion* is another factor that needs to be considered. A bi-directional relationship exists between social order and trust (Delhey and Newton 2005), with individuals demonstrating greater trust when they can expect a just, stable social framework, and *vice versa* (Misztal 1996). Delinquency (Halpern 2001; Thomé and Torrente 2003), or the fear of it (Walklate 1998; Torrente 2001), also has an impact on social trust. Finally, some studies have demonstrated the importance of social cohesion and the effectiveness of informal social control (collective efficacy) in the establishment of community safety (Sampson and Raudenbush 1999).

Cultural theories suggest that *social values* influence the degree to which individuals trust one another, although these effects are seen only in the medium- and long-term. For example, Rahn and Transue (1998) revealed that the rapid growth of materialistic values among young North Americans in the 1970s and early 1980s reduced their level of trust in other people. Putnam (2000) also points to a decline in social trust in the United States and links this with a change in daily lifestyle, citing a lack of spare time, the incorporation of women into the labour market, increasing city size and individual anonymity, mobility facilitated by the mass use of cars and the influence of technology and communication media as factors. Individual and collective levels of optimism are also related to levels of trust (Uslaner 2002). From this perspective, and in the long-term, trust in institutions is based on a system of shared values and a framework of interpersonal trust (Uslaner 2002; Citrin 1975).

The *quality of public institutions and their performance* also affect levels of trust (Rothstein 2011; Newton and Norris 2000). Lipset and Schneider (1987) stressed that the level of institutional trust was most closely related to the influence that the institution's actions had over the economic wellbeing of a given individual. Other authors, such as Kramer (1983), indicate that the relative success and prestige of the State are also central in determining the level of trust people place in their democratic institutions. From an institutional perspective, an effective State creates an environment that also encourages interpersonal trust, more so than participation in civil society or even the level of equality (Robbins 2011; Newton and Norris 2000). On a comparative level, there is evidence to support these ideas. Countries that have a solid legal structure and enjoy an effective protection of property can conduct economic transactions more easily because the mechanisms that generate social trust are more fluid (Buskens 1998; Berggren and Jordahl 2006). Societies that have experienced a rapid process of social and economic transformation, such as many Eastern European countries, tend to have less confidence in their fellow man. This can be attributed to the fact that social change has often affected the personal circumstances of given individuals, and also because it becomes imperative to redefine the role of institutions in such contexts (Delhey and Newton 2003).

Objectives, hypothesis and methodology

The main objective of this study is to analyse the effect of increased socioeconomic difficulties and precariousness on interpersonal and institutional trust against the backdrop of a deep economic crisis. The specific case of Spain is examined during the 2008 crisis. Our aim is to demonstrate the veracity of our central hypothesis: In times of intense economic crisis, economic factors, in relation to other contributing factors, gain greater significance in explaining fluctuations in levels of institutional and interpersonal trust. We work from the premise that an increase in socioeconomic inequalities leads to increased polarisation in interpersonal and institutional trust between different social

groups. In other words, the degree to which a crisis affects different social groups is a dominant factor in explaining the attitudes of these groups to trust.

The objectives and hypothesis of this study make it necessary to measure variations in the explanatory capacity of the different factors impacting interpersonal and institutional trust over time (Fairbrother and Martin 2013). Economic precariousness must also be measured. In order to capture "the effect of the crisis", we employ a model using simultaneous equations, considered at two distinct moments in time. Specifically, we compare the years 2004 (pre-crisis) and 2012 (during the crisis). We choose these years because of their importance as economic points of reference: In 2004 the Spanish economy was at the height of its growth, while in 2012 (just 8 years on) it was in a trough of recession. Various socioeconomic indicators are used as explanatory variables. The model's parameters are calculated in relation to a reference category (for example, the unemployed vs. the employed), which allows us to compare the variation in effects between the two years, and to generate observations on the consequences of inequality. The data were obtained from the second and sixth editions of the European Social Survey (ESS), for which the sample sizes were 1,663 (ESS2) and 1,889 (ESS6) individuals over the age of 15. The sampling method used is two-stage stratified probability sampling. The fieldwork was carried out between September 2004 and January 2005, and between January and May 2013.

The model employs five indicators as dependent variables: one for interpersonal trust and four for institutional trust. The first indicator is the degree to which the surveyed subject "believes they can trust others". The rest measure the level of trust expressed in four institutions representing the political order (parties and Parliament) and the normative order (the legal system and the police). In this way, we capture different dimensions of institutional trust. Several indicators of socioeconomic inequality are considered as the independent variable (Rothstein 2011). As an indicator of income, the surveyed subject's opinion of whether their income is sufficient to live comfortably is used. Being unemployed is a further factor we incorporate into the model (Iravani and Dindar 2011). Two further indicators are added as measures of economic uncertainty: the source of the household's main income and the subject's category of work contract.

The economic crisis may impact on trust not only in terms of rising inequalities, but it may also result in the deterioration, for instance, of social capital and social values. To control for these effects, the design incorporates various indicators related to factors identified in the theoretical framework. As a variable of participation in civil society, the model indicates whether the subject has worked in a tertiary sector organisation or similar (Putnam 1993). Likewise, tolerance is a social value linked with trust (Putnam 2000); for this reason, the model uses tolerance of immigration as a control element. Delinquency is often used as an indicator of the level of social cohesion (Halpern 2001; Walklate 2009); therefore, the experience of having been the victim of a robbery in the street or a burglary is incorporated into the model. The degree to which institutions are able to respond to citizens' expectations is an important factor for the construction of social trust (Torcal 2014); but, unfortunately, the ESS does not include any questions about institutional performance. Finally, some key socio-demographic variables are also incorporated, including gender, age, level of education, place on political spectrum (left-wing or right-wing), whether the subject is native to Spain or not, and degree of religiosity.

In conducting the data analysis, the model considers apparently related simultaneous equations, which take into account the fact that the dependent variables are dichotomous. All in all, however, the model allows us to analyse interpersonal and institutional trust in a comprehensive manner.

In this study, we are interested in analysing five indicators of trust, where Y_j^*, $j = 1, \ldots, 5$ are the five continuous random variables whose values measure the degree of trust in j. Our objective is to consider the following multivariate model consisting of five related regression equations through their random errors:

$$Y_1^* = x'\beta_1 + \varepsilon_1$$

$$Y_2^* = x'^{\beta_2} + \varepsilon_2$$

$$Y_3^* = x'\beta_3 + \varepsilon_3$$

$$Y_4^* = x'\beta_4 + \varepsilon_4$$

$$Y_5^* = x'\beta_5 + \varepsilon_5$$

where [4]$x = (x_1, \dots, x_k)'$ is the vector of explanatory variables, which in our models are the same for each dependent variable, although they could be different; $\beta_j = (\beta_{j1}, \dots, \beta_{jk})'$, $j = 1, \dots, 5$, are the vectors of parameters associated with the explanatory variables; and ε_j, $j = 1, \dots, 5$, are random errors that are distributed as standard normal and are correlated to each other.

In practice, the level of trust, Y_j^*, cannot be measured as a continuous variable. This is because, in our case, individuals are asked to locate themselves on a subjective scale between 0 and 10. This means that the methods used to estimate the parameters of the model defined in (1), which are based on the idea that the joint distribution of the dependent variables is a multivariate normal distribution, do not maintain their optimal properties.

Modelling the univariate or multivariate behaviour of five categorical or ordinal variables is extremely difficult and requires especially large samples to guarantee that all categories (in our case 11) have enough sample information. For this reason, we chose to simplify the problem and to use a model with binary dependent variables that measure whether individuals trust or do not trust other people and institutions, considering that in Spain a score of five or above is believed to be a "pass".

For Y_j, $j = 1, \dots, 5$, the levels of trust measured, so:

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[4]' Indicates the transpose of the vector.

$$Y_j = \begin{cases} \geq 5 \; if \; Y_j^* > 0 \\ < 5 \; if \; Y_j^* \leq 0 \end{cases}, j = 1, \dots, 5.$$

In addition, if the level of trust indicated is five or more, the following binary variables are defined:

$$y_j = \begin{cases} = 1 \; if \; Y_j^* > 0, \; the \; indivudal \; trusts \; j \\ = 0 \; if \; Y_j^* \leq 0, \; the \; individual \; doesn't \; trust \; j \end{cases}, \; j = 1, \dots, 5.$$

Finally, we model the collective probability of the individual trusting all five items under analysis. This model, the Probit multivariate model, in our case is expressed as follows:

$$P(y_1 = 1, y_2 = 1, y_3 = 1, y_4 = 1, y_5 = 1) = \Phi_5(x'\beta_1, x'\beta_2, x'\beta_3, x'\beta_4, x'\beta_5; R) \quad (1)$$

where $\Phi_5(\cdot; R)$ is the cumulative probability function of a multivariate standard normal (dimension 5), with a correlation matrix of R.

It is important to note that if R is not an identity and it presents positive correlations (as it does in our case), we underestimate the standard errors of the estimated parameters when using univariate estimations for each dependent variable. When the standard errors are underestimated, individual inference is affected, leading us to conclude that a parameter is non-zero when, in fact, it is not.

The estimation of the vectors of parameters $\beta_j = (\beta_{j1}, \dots, \beta_{jk})', j = 1, \dots, 5$, is conducted by maximising the logarithm of the likelihood function of the model. Greene (1999) has described this process in detail. The interpretation of the parameters under consideration, $\hat{\beta}_j = (\hat{\beta}_{j1}, \dots, \hat{\beta}_{jk})', j = 1, \dots, 5$, is completed in the same way as if five univariate and independent Probit or Logit models were being estimated.

In order to estimate the model specified in (1), we cleaned the raw data and eliminated observations with no values among the explanatory variables included in the model. By so doing the sample sizes fell to 1,155 individuals in 2004 and 1,518 in 2012. After this

data refinement, the weighting of the observations in the sample were corrected in such a way to guarantee the representativeness of the original sample. Furthermore, given that we only had information for all observations in the original sample about gender and age, we used these two variables to ensure that its distribution before and after the refinement process did not change significantly. Besides, we analysed all variables included in the model and checked that all the categories were sufficiently representative.

Results

In this section, we present the descriptive statistics and the estimation results of the multivariate model specified in (1). Table 2 shows the mean and the standard deviation (STD) of the dependent variables in our multivariate model. We tested the significance of the variations of means before and during the economic crisis. Trust in the Parliament, the Political Parties, the Legal System and the Police all fall significantly (the first three at the 1% and the last at the 5% confidence levels). Conversely, trust in other people increases slightly between 2004 and 2012.

Table 2

Descriptive analysis of the dependent variables.

	2004			2012		
Variables:	N	Mean	STD	N	Mean	STD
Trust in other people*	1155	0.676	0.469	1518	0.705	0.457
Trust in Parliament***	1155	0.719	0.451	1518	0.381	0.486
Trust in Political Parties***	1155	0.442	0.498	1518	0.147	0.355
Trust in the Legal System***	1155	0.598	0.492	1518	0.389	0.488
Trust in the Police**	1155	0.786	0.411	1518	0.757	0.430

Source: European Social Survey 2004 and 2012 waves.
Notes: Confidence levels: *10%, **5% and ***1%

The explanatory variables included in our multivariate model are described in Table 3. We also test the significance of the mean differences of these variables recorded before and during the crisis. Given the changes in the distributions of three of these variables,

namely "Feeling about household's income", "Unemployment within last 5 years" and "Main source of household's income", we detect a clear economic deterioration and greater uncertainty. Specifically, between 2004 and 2012 the number of people living without financial difficulties decreases while people living with difficulties increases. This is accompanied by an increase in unemployment in the last five years. As for the sources of household income, earnings based on employment decrease at the expense of unemployment benefits and social assistance. This is accompanied by an increase in the number of pensioners. Consequently, a marked fall (from 47.5 to 6%) in satisfaction with the state of the economy was registered. All this implies greater economic precariousness and uncertainty in 2012 with respect to 2004. Cohesion and social order, measured by the indicator "Victim of burglary or assault in the last 5 years", decreased slightly, while, in contrast, civic participation increased. Finally, given the gap in the period analysed, some socio-demographics characteristics had changed and we include these as control variables.

Table 3

Descriptive analysis of explanatory variables in the multivariate model.

Variables:	2004		2012	
	Mean	STD	Mean	STD
Feeling about household's income: Living without difficulties***	0.392	0.490	0.267	0.443
Feeling about household's income: Living with fair income	0.454	0.499	0.440	0.497
Feeling about household's income: Living with difficulties***	0.154	0.362	0.293	0.456
Unemployment within last 5 years***	0.136	0.344	0.238	0.426
Main source of household income: Employed***	0.649	0.479	0.554	0.498
Main source of household income: Self employed	0.153	0.361	0.140	0.347
Main source of household income: Pension**	0.185	0.389	0.220	0.414
Main source of household income: Unemployed***	0.009	0.093	0.054	0.227
Main source of household income: Social assistance***	0.001	0.034	0.017	0.128
Main source of household income: Investment or other***	0.004	0.060	0.015	0.122
Employment contract duration: Unlimited	0.465	0.500	0.477	0.500
Employment contract duration: Temporary	0.191	0.395	0.180	0.385
Employment contract duration: No contract	0.050	0.219	0.053	0.225
Satisfaction with state of economy in country***	0.475	0.501	0.060	0.237
Tolerance: Immigrants make country a better place to live	0.423	0.496	0.438	0.497
Victim of burglary or assault in the last 5 years**	0.280	0.450	0.309	0.463
Worked in civic organisation or association in the last 12 months***	0.197	0.399	0.245	0.431
Gender (1=Men,0=Women)	0.531	0.501	0.509	0.500
Age***	43.110	17.580	46.746	17.227
Education level: Without studies***	0.182	0.387	0.103	0.304
Education level: Primary	0.151	0.359	0.161	0.368
Education level: Secondary***	0.449	0.499	0.309	0.463
Education level: University***	0.218	0.414	0.173	0.379
Religiosity: Not religious**	0.156	0.364	0.188	0.391
Religiosity: Moderately religious***	0.520	0.501	0.460	0.499
Religiosity: More religious*	0.324	0.470	0.352	0.478
Born in Spain***	0.943	0.233	0.899	0.302
Political scale self-placement: Centre***	0.481	0.501	0.398	0.490
Political scale self-placement: Left***	0.283	0.452	0.343	0.475
Political scale self-placement: Right*	0.236	0.426	0.259	0.439

Source: European Social Survey 2004 and 2012 waves.
Notes: Confidence levels: *10%, **5% and ***1%

The results for the two multivariate models[5] before (year 2004) and during (year 2012) the crisis are presented in Table 4. The table uses two types of outcome: the estimated parameters and the significance levels of the explanatory variables before and during the economic crisis, and the significance levels of the test of differences between these parameters.[6] Estimated parameters are analysed considering both the signs and the significance levels.[7] We can observe some changes in the effects of some variables before and during the crisis. Moreover, these changes differ between the five trust indicators analysed as dependent variables. If we consider the variable "Feeling about household's income", our results show that individuals living with more financial difficulties are more distrustful than those living more comfortably. In 2012, suffering from economic difficulties produces a significant reduction in interpersonal trust. A negative relationship is also found in 2004 for "Trust in the legal system" and "Trust in the police", though this disappears in 2012. From the previous results, we deduce that income hardship led to an erosion of trust in other people during the crisis. In contrast, trust in legal institutions lost its negative effect during the crisis. If we analyse the estimated parameters associated with "Unemployment within last 5 years", the results are very similar to those above, although, in this case, the statistical test of the difference between parameters was not conclusive.

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[5] To check the robustness of the results, we estimated the same models eliminating some of the explanatory variables ("Satisfaction with state of economy in country", "Feeling about household's income" and "Main source of household income") and checked that the results were robust. The value and the statistical significance of the parameters hardly changed. The results are available from the authors on request.

[6] The matrix of correlations $\hat{R}$ provides information about the dependency between levels of trust not captured by the explanatory variables. If these correlations were zero, the optimal method would be to use five univariate Probit models. However, the estimated correlations are positive and significantly different from zero.

[7] Some variables are not applicable to all individuals in the sample. In these cases, we have added an additional category "Not applicable". For these categories, we have not included the results of the estimated parameters or the statistical significances in the tables because they cannot be interpreted.

Table 4

Parameter estimation of the 2004 and 2012 models, and test of equality between them (Diff.)

Variables:	Trust in other people			Trust in Parliament			Trust in Political Parties			Trust in the Legal System			Trust in the Police		
	2004	2012	Diff.	2004	2012	Diff.	2004	2012	Diff.	2004	2012	Diff.	2004	2012	Diff.
Intercept	-0.716**	0.520**	***	-0.574*	-0.191		-1.372***	-1.715***		-0.158	-0.207		0.352	0.252	
Feeling about household's income: Living without difficulties	0	0		0	0		0	0		0	0		0	0	
Feeling about household's income: Living with fair income	0.072	-0.102		-0.056	0.016		0.079	-0.031		-0.112	0.043		-0.080	0.008	
Feeling about household's income: Living with difficulties	-0.065	-0.416***	**	-0.089	-0.131		-0.087	-0.135		-0.358***	-0.069	**	-0.317**	-0.152	
Unemployment within last 5 years	-0.160	-0.235**		-0.012	-0.310		-0.072	0.044		-0.241*	0.016	*	-0.134	0.061	
Main source of household income: Employed	0	0		0	0		0	0		0	0		0	0	
Main source of household income: Self employed	0.074	0.147		0.052	-0.219**	*	0.060	-0.170		0.129	-0.283***	***	0.236*	0.019	
Main source of household income: Pension	-0.243*	-0.123		-0.200	0.179*	**	0.049	-0.075		-0.149	-0.048		-0.015	-0.194	
Main source of household income: Unemployed	-0.369	0.023		0.404	-0.149		0.063	-0.243		0.180	0.019		0.758	-0.161	
Main source of household income: Social assistance	3.939	-0.137		3.123	-0.604*		0.626	0.020		0.142	0.077		2.980	0.187	
Main source of household income: Investment or other	4.642	-0.054		3.052	-0.167		-0.039	0.200		-0.554	-0.437		-0.230	-0.841***	
Employment contract duration: Unlimited	0	0		0	0		0	0		0	0		0	0	
Employment contract duration: Temporary	0.100	0.017		-0.098	0.072		-0.016	0.058		0.071	-0.052		-0.206*	0.019	
Employment contract duration: No contract	0.340*	-0.075	**	0.116	0.108		-0.411**	0.334*	***	-0.517***	-0.050	**	-0.570***	-0.332**	
Satisfaction with state of economy in country	0.244***	0.643***	**	0.615***	0.412***		0.477***	0.916***	***	0.474***	0.325**		0.377***	0.053	**
Tolerance: Immigrants make country a better place to live	0.300***	0.368***		0.312***	0.250***		0.279***	0.226***		0.208**	0.246***		0.218**	0.040	*
Victim of burglary or assault in the last 5 years	-0.036	-0.218***	*	-0.059	-0.097		-0.243***	-0.217**		-0.228***	-0.213***		-0.112	-0.241***	
Worked in civic organisation or association in last 12 months	0.222**	0.382***		0.112	-0.019		0.108	0.155		-0.039	0.008		-0.048	0.030	
Gender (1=Men,0=Women)	0.102	-0.018		-0.100	0.132*	**	-0.143*	-0.018		-0.185**	0.088	***	0.063	-0.003	

Before the crisis, there were virtually no differences between the categories of the variable "main source of household income". Only pensioners were less trusting of other people and the self-employed showed more trust in the police. During the crisis, trust among the self-employed in the Parliament and Legal System fell. In contrast, trust among pensioners in Parliament rose. Furthermore, in this last period individuals living on social assistance seemed to show less trust in Parliament than did the employed and those living on their investments, while the others showed less trust in the Police.

The parameters associated with the contract duration variables did not show any statistically significant differences before and during the crisis. However, the population without a contract, compared with those on unlimited contracts, reported less trust in other people and more trust in the political parties. Furthermore, in both periods those without a contract continued to show less trust in the Police than was shown by those with contracts. The effect of the variable "Satisfaction with state of the country's economy" is positive and significant for almost all the dependent variables in both periods, but less so in 2012 for "Trust in the Police". Furthermore, the effect of this variable on interpersonal trust and trust in the Political Parties increases significantly during the economic crisis, and decreases for trust in the Police. Conversely, the effect on institutions such as Parliament and the Legal System does not change, while trust levels fall in the case of the police.

In general, economic uncertainty is inversely related to satisfaction with the economy and presents links with the variables "Main source of household income" and "Employment contract duration". Taking into account that economic uncertainty during the economic crisis in Spain had a strong effect on the self-employed, the overall results related to the effect of these variables illustrate how economic uncertainly negatively affects levels of interpersonal and institutional trust. The estimated parameters associated with the variable "Tolerance: Immigrants make country a better place to live", which captures the existence of shared social values, are positive and statistically significant. This parameter only changes between 2004 and 2012 when the dependent variable is "Trust in the Police". In this specific case, during the crisis, the parameter is not significant. As for social cohesion, captured by the indicator "Victim of burglary or

assault in the last 5 years", the signs of the estimated parameters are, as expected, negative. In the case of levels of trust in Parliament, the parameters are not significant in either period, that is, before and during the crisis. We observe statistically significant changes between 2004 and 2012 only for levels of trust in other people. Here, distrust is more acute during the economic crisis. Finally, the indicator "Worked in civic organisation or association in last 12 months" has a positive and significant effect on interpersonal trust, and does not vary between 2004 and 2012. For the rest of the trust levels, the estimated parameters were not significant.

Discussion

If we examine the data as a whole, it can be seen that during the crisis in Spain, socioeconomic factors gained in relative weight compared to other factors in terms of explaining interpersonal and (to a lesser extent) institutional trust. In 2004, at a time of economic growth, trust in other people depended primarily on individual-level variables, such as age and a high level of education. General satisfaction with the economy, tolerance or participation in civil society were also positive and significant factors, but they presented lower values, while the socioeconomic variables appear to have been of little significance. The onset of the crisis, however, completely inverted this relationship. In 2012, sociodemographic factors lost part of their significance and the economic indicators gained in relevance. At that date, the strongest factor accounting for interpersonal trust was satisfaction with the way the economy worked. In contrast, having to face socioeconomic difficulties and being unemployed led to an erosion of trust in others. The deterioration in social cohesion (measured by crime victimisation) also increased levels of distrust. Thus, economic wellbeing and economic malaise become more decisive factors in accounting for varying levels of interpersonal trust.

Before the crisis, trust in *Parliament*, the representative institution *par excellence*, was relatively independent of the citizens' socio-demographical status (except for age and religiosity) and of an individual's economic situation. Only the perception of the

economy had a certain role to play. This suggests that political trust depends mostly on institutional performance (Torcal 2014; Armingcon and Ceka 2013). After 2012, the economic disadvantages faced by many citizens did not lead to significant changes. Distrust in Parliament only increased among the self-employed, whereas trust grew among pensioners. The perception of the state of the economy continues to be important. Holding a conservative political ideology and, to some extent, religiosity are the only socio-demographic variables that gained in relevance. In sum, satisfaction with the economy and ideological factors account for the changes in parliamentary trust. Moreover, during the crisis, the population's confidence in the *political parties* became increasingly conditional on their perception of the state of the economy as the sole explanatory factor.

In the case of the normative institutions, the pattern is reversed. Before the recession, the legal system was called in to question by the young and those living with financial difficulties, working without a contract, or dissatisfied with the general economic situation. In short, economic marginalisation led to feelings of distrust in the legal order. During the crisis, distrust among the young and the most disadvantaged social groups waned, but it rose among the more advantaged (i.e. those living on investments and small autonomous entrepreneurs). Thus, the law was increasingly seen as an element of protection among the former, and as an element of risk among the latter. The case of the *police* is similar: before the economic crisis, those who were most distrustful of the police were groups in economically and contractually marginal situations. However, during the crisis, the main detractors of the police became the privileged few living off their rents who felt they were being overly persecuted by the Treasury. Satisfaction with the economy no longer seemed to be a guarantee of trust in the police.

In conclusion, the economic crisis appears to have shifted some of the foundations of interpersonal and institutional trust. The bases of interpersonal trust have clearly moved from sociodemographic to economic questions, as most of the disadvantaged have seen their trust in others eroded. At the same time, the individual's personal economic situation does not fully account for the loss of institutional trust. But, among certain

social groups, especially the self-employed, feelings of distrust in parliament and the legal system have grown.

If we examine the explanatory factors in more detail, Table 4 demonstrates that the increase in situations of *socioeconomic* difficulty have had a dual effect. On the one hand, trust in individuals fell among those sectors of society hit hardest by the economic crisis. In contrast, levels of interpersonal trust and trust in political parties rose among those who reported being satisfied with the economy. Overall, trust in the political institutions appears to be more strongly linked to a general perception of the economy than it is to an individual's personal economic situation. Note, however, that only 6% of the total population expressed feeling satisfied with the economic situation in 2012. On the other hand, we observe a certain process of polarisation of attitudes towards the institutions among certain economic groups, such as the self-employed and the pensioners.

During the crisis, trust in the political institutions was eroded more than it was in the legal institutions. Trust in Parliament fell among the self-employed, but increased among pensioners. What these groups have in common is precisely the perception that their situations are directly affected by Parliamentary decisions (negatively, in the case of the first group; positively, in that of the second). This reinforces the institutionalist belief that attitudes towards the institutions depend on the extent to which different groups are exposed to and impacted by the decisions the institutions take. It also explains how, with the onset of the economic crisis, trust in the legal system and in the police was eroded significantly among the most economically better off social groups (e.g., landlords, investors) who felt harassed by a system that imposed tighter tax and profit controls. However, the opposite was the case with the more disadvantaged sectors. This general idea is further strengthened if we take into consideration the fact that the few people who claimed to be satisfied with the state of the economy also expressed higher levels of trust in the political parties than did the rest of the population. These findings bring to mind the system of political clientelism.

Cultural theories emphasise the long-term importance of attitudes and *social values* in accounting for trust (Uslaner 2002; Brehm and Rahn 1997). In line with this claim, in our model, the indicator of tolerance of immigration has a significant effect in explaining almost all types of trust before and during the crisis. At the global level, the total volume of those who stated that "immigration makes a country a better place to live" hardly changed between 2004 and 2012, and remained at above 40% of the population. A classic indicator of social cohesion is the level of criminal victimisation in a community (Halpern 2001; Walklate 1998). The victims of robberies barely changed their attitude towards institutions between 2004 and 2012. However, victimisation during the crisis did result in a loss of trust in others. With the crisis, factors of civic insecurity and socioeconomic vulnerability interacted as they had never done so before.[8]

In the literature, the existence of a *strong and mobilised civil society* is associated with greater trust (Putnam 1993; Brehn and Rahn 1997). In Spain as a whole, the proportion of people working in civic associations increased four percentage points during the crisis, from 18% in 2004 to 22% of the population in 2013. This slight increase went hand-in-hand with a change in the profile of individuals performing such tasks, as well as a change in the problems, originating from the crisis, that they addressed. In our data, civic participation was found to have no significant effect on levels of institutional trust, neither before nor during the crisis. However, participation did have a positive effect on interpersonal trust before the crisis, and this effect was strengthened a little as the crisis ran its course. This fact, together with the finding that civic participation increased while trust in institutions fell, could indicate greater self-management on the part of the citizenry. People begin to organize themselves on the margins of those institutions that they perceive as failing to offer solutions to their problems. Given that the victims of the crisis are those with the lowest levels of trust both in other people and in representative institutions, the active incorporation of these groups into the tertiary sector would be desirable, as a means to improve social cohesion.

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[8] The same effects are also generated in a context in which victimisation rates are slightly lower during the crisis (Torrente 2015).

Conclusion

The aim of this study was to examine the effect of socioeconomic difficulties on levels of interpersonal and institutional trust in the context of a severe economic recession. To do so, the case of Spain in the 2008 crisis was selected for analysis. Out initial hypothesis was that, under these circumstances, economic factors become more significant than other factors in explaining levels of trust, because of rising socioeconomic inequality and the accompanying polarisation of attitudes. To test this hypothesis, we devised a multivariate Probit model of five equations, which we replicated both before and during the crisis. Our data were drawn from the European Social Survey.

Our results show that the economic crisis modified the factors that define trust in Spain, and that socioeconomic variables played an important role in some of the changes seen. In the case of interpersonal trust – which increased slightly across the whole population when measured at a global level, the analysis shows that the most disadvantaged and least disadvantaged by the crisis presented diametrically opposed behaviours. Thus, those that were hit hardest by its consequences (e.g., through low incomes and unemployment) saw their trust in each other eroded. Indeed, their reported satisfaction with the state of the economy became the variable that best explained their levels of interpersonal trust. Socioeconomic inequality resulted in a polarisation of attitudes towards other people, undermining the foundations of social cohesion. Civic insecurity increased the vulnerability of the worst affected groups and weakened interpersonal trust further. However, participation in civil society was found to play a certain corrective role.

Trust in institutions (in particular, the country's representative institutions) declined dramatically in the course of the crisis. However, the factors that account for the citizens' trust in political and legal institutions behave differently. Satisfaction with and

trust in institutions increasingly came to depend on the perception that distinct social groups (most notably, pensioners, workers without contract and the self-employed) had of whether these institutions' actions were favourable, or not, to their interests. Here, economic variations at the personal level appear to underlie some of the attitudinal changes observed. For example, the self-employed became more critical of Parliament, while those that live off their rents and investments expressed significantly less trust in the legal system and in the police. In contrast, some of the less advantaged groups (the unemployed and those living with economic difficulties) expressed greater trust in the legal institutions as they felt they afforded them greater protection from the effects of the crisis. In short, we find increasingly differentiated levels of institutional trust between groups that have been affected by the crisis in quite distinct ways. In this respect, their perception of the performance of institutions, which is the main underlying explanatory variable, is conditioned by this fact.

All in all, the data analysed here allow us to confirm, in part, our initial hypothesis. Against the backdrop of the far-reaching economic crisis, the power of socioeconomic factors to account for interpersonal trust rises, primarily owing to the deterioration in the individuals' personal economy. Indeed, a person's current economic situation seems to have a stronger impact than any future uncertainty. The outcome is a process marked by the general polarisation of attitudes in which an individual's economic situation plays a key role. Yet, our findings suggest that the deterioration of an individual's personal economy plays a less important role in the erosion of institutional trust and the polarisation of attitudes towards these institutions. This said, however, the general perception of the functioning of the economy maintains an important role. Indeed, the fall in levels of trust recorded in Spain has been notoriously dramatic. Without calling into question the importance of institutional performance in levels of institutional trust, our research contributes new perspectives to the existing literature. First, the marked deterioration in the domestic economies of certain disadvantaged groups has had major consequences in terms of their levels of interpersonal trust. Second, the socioeconomic deterioration has resulted in different impacts on institutional trust. Overall, the relationship between personal economic difficulties and trust in political institutions is not a determining factor; yet, it is a factor that clearly affects the attitudes of some groups. On the other hand, legal institutions are perceived as a protective factor by the

more disadvantaged against the worst effects of the crisis, but as something of a threat by the more privileged. Yet, the perception of the overall state of the economy is important for all types of institutional trust, indicating that, in short, the economy matters for trust.

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CREAP2006-08
Garrido, A. (IEB)**; Arqué, P.** (IEB)
“The choice of banking firm: Are the interest rate a significant criteria?”
(Desembre 2006)

CREAP2006-09
Segarra, A. (GRIT)**; Teruel-Carrizosa, M.** (GRIT)
"Productivity growth and competition in spanish manufacturing firms:
What has happened in recent years?”
(Desembre 2006)

CREAP2006-10
Andonova, V.; Díaz-Serrano, Luis. (CREB)
"Political institutions and the development of telecommunications”
(Desembre 2006)

CREAP2006-11
Raymond, J.L.(GEAP)**; Roig, J.L..** (GEAP)
"Capital humano: un análisis comparativo Catalunya-España”
(Desembre 2006)

CREAP2006-12
Rodríguez, M.(CREB)**; Stoyanova, A.** (CREB)
"Changes in the demand for private medical insurance following a shift in tax incentives”
(Desembre 2006)

CREAP2006-13
Royuela, V. (AQR-IREA)**; Lambiri, D.**; **Biagi**, **B.**
"Economía urbana y calidad de vida. Una revisión del estado del conocimiento en España”
(Desembre 2006)

CREAP2006-14

Camarero, M.; Carrion-i-Silvestre, J.LL. (AQR-IREA)**.;Tamarit**, **C.**
"New evidence of the real interest rate parity for OECD countries using panel unit root tests with breaks"
(Desembre 2006)

CREAP2006-15
Karanassou, M.; Sala, H. (GEAP)**.;Snower** , **D. J.**
"The macroeconomics of the labor market: Three fundamental views"
(Desembre 2006)

<div style="background-color:orange">**2007**</div>

XREAP2007-01
Castany, L (AQR-IREA)**; López-Bazo, E.** (AQR-IREA)**.;Moreno** , **R.** (AQR-IREA)
"Decomposing differences in total factor productivity across firm size"
(Març 2007)

XREAP2007-02
Raymond, J. Ll. (GEAP)**; Roig, J. Ll.** (GEAP)
"Una propuesta de evaluación de las externalidades de capital humano en la empresa"
(Abril 2007)

XREAP2007-03
Durán, J. M. (IEB)**; Esteller, A.** (IEB)
"An empirical analysis of wealth taxation: Equity vs. Tax compliance"
(Juny 2007)

XREAP2007-04
Matas, A. (GEAP)**; Raymond, J.Ll.** (GEAP)
"Cross-section data, disequilibrium situations and estimated coefficients: evidence from car ownership demand"
(Juny 2007)

XREAP2007-05
Jofre-Montseny, J. (IEB)**; Solé-Ollé, A.** (IEB)
"Tax differentials and agglomeration economies in intraregional firm location"
(Juny 2007)

XREAP2007-06
Álvarez-Albelo, C. (CREB)**; Hernández-Martín, R.**
"Explaining high economic growth in small tourism countries with a dynamic general equilibrium model"
(Juliol 2007)

XREAP2007-07
Duch, N. (IEB)**; Montolio, D.** (IEB)**; Mediavilla, M.**
"Evaluating the impact of public subsidies on a firm's performance: a quasi-experimental approach"
(Juliol 2007)

XREAP2007-08
Segarra-Blasco, A. (GRIT)
"Innovation sources and productivity: a quantile regression analysis"
(Octubre 2007)

XREAP2007-09
Albalate, D. (PPRE-IREA)
"Shifting death to their Alternatives: The case of Toll Motorways"
(Octubre 2007)

XREAP2007-10
Segarra-Blasco, A. (GRIT); **Garcia-Quevedo, J.** (IEB); **Teruel-Carrizosa, M.** (GRIT)
"Barriers to innovation and public policy in catalonia"
(Novembre 2007)

XREAP2007-11
Bel, G. (PPRE-IREA); **Foote, J.**
"Comparison of recent toll road concession transactions in the United States and France"
(Novembre 2007)

XREAP2007-12
Segarra-Blasco, A. (GRIT);
"Innovation, R&D spillovers and productivity: the role of knowledge-intensive services"
(Novembre 2007)

XREAP2007-13
Bermúdez Morata, Ll. (RFA-IREA); **Guillén Estany, M.** (RFA-IREA), **Solé Auró, A**. (RFA-IREA)
"Impacto de la inmigración sobre la esperanza de vida en salud y en discapacidad de la población española"
(Novembre 2007)

XREAP2007-14
Calaeys, P. (AQR-IREA); **Ramos, R.** (AQR-IREA), **Suriñach, J**. (AQR-IREA)
"Fiscal sustainability across government tiers"
(Desembre 2007)

XREAP2007-15
Sánchez Hugalbe, A. (IEB)
"Influencia de la inmigración en la elección escolar"
(Desembre 2007)

<h3>2008</h3>

XREAP2008-01
Durán Weitkamp, C. (GRIT)**; Martín Bofarull, M.** (GRIT) ; **Pablo Martí, F.**
"Economic effects of road accessibility in the Pyrenees: User perspective"
(Gener 2008)

XREAP2008-02
Díaz-Serrano, L.; Stoyanova, A. P. (CREB)
"The Causal Relationship between Individual's Choice Behavior and Self-Reported Satisfaction: the Case of Residential Mobility in the EU"
(Març 2008)

XREAP2008-03
Matas, A. (GEAP)**; Raymond, J. L.** (GEAP)**; Roig, J. L.** (GEAP)
"Car ownership and access to jobs in Spain"
(Abril 2008)

XREAP2008-04
Bel, G. (PPRE-IREA) **; Fageda, X.** (PPRE-IREA)
"Privatization and competition in the delivery of local services: An empirical examination of the dual market hypothesis"
(Abril 2008)

XREAP2008-05
Matas, A. (GEAP); **Raymond, J. L.** (GEAP); **Roig, J. L.** (GEAP)
"**Job accessibility and employment probability**"
(Maig 2008)

XREAP2008-06
Basher, S. A.; Carrión, J. Ll. (AQR-IREA)
Deconstructing Shocks and Persistence in OECD Real Exchange Rates
(Juny 2008)

XREAP2008-07
Sanromá, E. (IEB)**; Ramos, R.** (AQR-IREA); Simón, H.
Portabilidad del capital humano y asimilación de los inmigrantes. Evidencia para España
(Juliol 2008)

XREAP2008-08
Basher, S. A.; Carrión, J. Ll. (AQR-IREA)
Price level convergence, purchasing power parity and multiple structural breaks: An application to US cities
(Juliol 2008)

XREAP2008-09
Bermúdez, Ll. (RFA-IREA)
A priori ratemaking using bivariate poisson regression models
(Juliol 2008)

XREAP2008-10
Solé-Ollé, A. (IEB), **Hortas Rico, M.** (IEB)
Does urban sprawl increase the costs of providing local public services? Evidence from Spanish municipalities
(Novembre 2008)

XREAP2008-11
Teruel-Carrizosa, M. (GRIT), **Segarra-Blasco, A.** (GRIT)
Immigration and Firm Growth: Evidence from Spanish cities
(Novembre 2008)

XREAP2008-12
Duch-Brown, N. (IEB), **García-Quevedo, J.** (IEB), **Montolio, D.** (IEB)
Assessing the assignation of public subsidies: Do the experts choose the most efficient R&D projects?
(Novembre 2008)

XREAP2008-13
Bilotkach, V., **Fageda, X.** (PPRE-IREA), **Flores-Fillol, R.**
Scheduled service versus personal transportation: the role of distance
(Desembre 2008)

XREAP2008-14
Albalate, D. (PPRE-IREA), **Gel, G.** (PPRE-IREA)
Tourism and urban transport: Holding demand pressure under supply constraints
 (Desembre 2008)

2009

XREAP2009-01
Calonge, S. (CREB)**; Tejada, O.**
"A theoretical and practical study on linear reforms of dual taxes"
(Febrer 2009)

XREAP2009-02
Albalate, D. (PPRE-IREA)**; Fernández-Villadangos, L.** (PPRE-IREA)
"Exploring Determinants of Urban Motorcycle Accident Severity: The Case of Barcelona"
(Març 2009)

XREAP2009-03
Borrell, J. R. (PPRE-IREA)**; Fernández-Villadangos, L.** (PPRE-IREA)
"Assessing excess profits from different entry regulations"
(Abril 2009)

XREAP2009-04
Sanromá, E. (IEB)**; Ramos, R.** (AQR-IREA), **Simon, H.**
"Los salarios de los inmigrantes en el mercado de trabajo español. ¿Importa el origen del capital humano?"
(Abril 2009)

XREAP2009-05
Jiménez, J. L.; Perdiguero, J. (PPRE-IREA)
"(No)competition in the Spanish retailing gasoline market: a variance filter approach"
(Maig 2009)

XREAP2009-06
Álvarez-Albelo,C. D. (CREB)**, Manresa, A.** (CREB)**, Pigem-Vigo, M.** (CREB)
"International trade as the sole engine of growth for an economy"
(Juny 2009)

XREAP2009-07
Callejón, M. (PPRE-IREA)**, Ortún V, M.**
"The Black Box of Business Dynamics"
(Setembre 2009)

XREAP2009-08
Lucena, A. (CREB)
"The antecedents and innovation consequences of organizational search: empirical evidence for Spain"
(Octubre 2009)

XREAP2009-09
Domènech Campmajó, L. (PPRE-IREA)
"Competition between TV Platforms"
(Octubre 2009)

XREAP2009-10
Solé-Auró, A. (RFA-IREA),**Guillén, M.** (RFA-IREA), **Crimmins, E. M.**
"Health care utilization among immigrants and native-born populations in 11 European countries. Results from the Survey of Health, Ageing and Retirement in Europe"
(Octubre 2009)

XREAP2009-11
Segarra, A. (GRIT)**, Teruel, M.** (GRIT)
"Small firms, growth and financial constraints"
(Octubre 2009)

XREAP2009-12
Matas, A. (GEAP)**, Raymond, J.Ll.** (GEAP), **Ruiz, A.** (GEAP)
"Traffic forecasts under uncertainty and capacity constraints"
(Novembre 2009)

XREAP2009-13
Sole-Ollé, A. (IEB)
"Inter-regional redistribution through infrastructure investment: tactical or programmatic?"
(Novembre 2009)

XREAP2009-14
Del Barrio-Castro, T., **García-Quevedo, J.** (IEB)
"The determinants of university patenting: Do incentives matter?"
(Novembre 2009)

XREAP2009-15
Ramos, R. (AQR-IREA), **Suriñach, J.** (AQR-IREA)**, Artís, M.** (AQR-IREA)
"Human capital spillovers, productivity and regional convergence in Spain"
(Novembre 2009)

XREAP2009-16
Álvarez-Albelo, C. D. (CREB), **Hernández-Martín, R.**
"The commons and anti-commons problems in the tourism economy"
(Desembre 2009)

2010

XREAP2010-01
García-López, M. A. (GEAP)
"The Accessibility City. When Transport Infrastructure Matters in Urban Spatial Structure"
(Febrer 2010)

XREAP2010-02
García-Quevedo, J. (IEB), **Mas-Verdú, F.** (IEB), **Polo-Otero, J.** (IEB)
"Which firms want PhDs? The effect of the university-industry relationship on the PhD labour market"
(Març 2010)

XREAP2010-03
Pitt, D., **Guillén, M.** (RFA-IREA)
"An introduction to parametric and non-parametric models for bivariate positive insurance claim severity distributions"
(Març 2010)

XREAP2010-04
Bermúdez, Ll. (RFA-IREA), **Karlis, D.**
"Modelling dependence in a ratemaking procedure with multivariate Poisson regression models"
(Abril 2010)

XREAP2010-05
Di Paolo, A. (IEB)
"Parental education and family characteristics: educational opportunities across cohorts in Italy and Spain"
(Maig 2010)

XREAP2010-06
Simón, H. (IEB), **Ramos, R.** (AQR-IREA), **Sanromá, E.** (IEB)

"Movilidad ocupacional de los inmigrantes en una economía de bajas cualificaciones. El caso de España"
(Juny 2010)

XREAP2010-07
Di Paolo, A. (GEAP & IEB), **Raymond, J. Ll.** (GEAP & IEB)
"Language knowledge and earnings in Catalonia"
(Juliol 2010)

XREAP2010-08
Bolancé, C. (RFA-IREA), **Alemany, R.** (RFA-IREA), **Guillén, M.** (RFA-IREA)
"Prediction of the economic cost of individual long-term care in the Spanish population"
(Setembre 2010)

XREAP2010-09
Di Paolo, A. (GEAP & IEB)
"Knowledge of catalan, public/private sector choice and earnings: Evidence from a double sample selection model"
(Setembre 2010)

XREAP2010-10
Coad, A., **Segarra, A.** (GRIT), **Teruel, M.** (GRIT)
"Like milk or wine: Does firm performance improve with age?"
(Setembre 2010)

XREAP2010-11
Di Paolo, A. (GEAP & IEB), **Raymond, J. Ll.** (GEAP & IEB), **Calero, J.** (IEB)
"Exploring educational mobility in Europe"
(Octubre 2010)

XREAP2010-12
Borrell, A. (GiM-IREA), **Fernández-Villadangos, L.** (GiM-IREA)
"Clustering or scattering: the underlying reason for regulating distance among retail outlets"
(Desembre 2010)

XREAP2010-13
Di Paolo, A. (GEAP & IEB)
"School composition effects in Spain"
(Desembre 2010)

XREAP2010-14
Fageda, X. (GiM-IREA), **Flores-Fillol, R.**
"Technology, Business Models and Network Structure in the Airline Industry"
(Desembre 2010)

XREAP2010-15
Albalate, D. (GiM-IREA), **Bel, G.** (GiM-IREA), **Fageda, X.** (GiM-IREA)
"Is it Redistribution or Centralization? On the Determinants of Government Investment in Infrastructure"
(Desembre 2010)

XREAP2010-16
Oppedisano, V., **Turati, G.**
"What are the causes of educational inequalities and of their evolution over time in Europe? Evidence from PISA"
(Desembre 2010)

XREAP2010-17
Canova, L., **Vaglio, A.**
"Why do educated mothers matter? A model of parental help"
(Desembre 2010)

2011

XREAP2011-01
Fageda, X. (GiM-IREA), **Perdiguero, J.** (GiM-IREA)
"An empirical analysis of a merger between a network and low-cost airlines"
(Maig 2011)

XREAP2011-02
Moreno-Torres, I. (ACCO, CRES & GiM-IREA)
"What if there was a stronger pharmaceutical price competition in Spain? When regulation has a similar effect to collusion"
(Maig 2011)

XREAP2011-03
Miguélez, E. (AQR-IREA); **Gómez-Miguélez, I.**
"Singling out individual inventors from patent data"
(Maig 2011)

XREAP2011-04
Moreno-Torres, I. (ACCO, CRES & GiM-IREA)
"Generic drugs in Spain: price competition vs. moral hazard"
(Maig 2011)

XREAP2011-05
Nieto, S. (AQR-IREA)**, Ramos, R.** (AQR-IREA)
"¿Afecta la sobreeducación de los padres al rendimiento académico de sus hijos?"
(Maig 2011)

XREAP2011-06
Pitt, D., **Guillén, M.** (RFA-IREA), **Bolancé, C.** (RFA-IREA)
"Estimation of Parametric and Nonparametric Models for Univariate Claim Severity Distributions - an approach using R"
(Juny 2011)

XREAP2011-07
Guillén, M. (RFA-IREA), **Comas-Herrera, A.**
"How much risk is mitigated by LTC Insurance? A case study of the public system in Spain"
(Juny 2011)

XREAP2011-08
Ayuso, M. (RFA-IREA), **Guillén, M.** (RFA-IREA), **Bolancé, C.** (RFA-IREA)
"Loss risk through fraud in car insurance"
(Juny 2011)

XREAP2011-09
Duch-Brown, N. (IEB), **García-Quevedo, J.** (IEB), **Montolio, D.** (IEB)
"The link between public support and private R&D effort: What is the optimal subsidy?"
(Juny 2011)

XREAP2011-10
Bermúdez, Ll. (RFA-IREA), **Karlis, D.**
"Mixture of bivariate Poisson regression models with an application to insurance"
(Juliol 2011)

XREAP2011-11
Varela-Irimia, X-L. (GRIT)
"Age effects, unobserved characteristics and hedonic price indexes: The Spanish car market in the 1990s"
(Agost 2011)

XREAP2011-12
Bermúdez, Ll. (RFA-IREA), **Ferri, A.** (RFA-IREA), **Guillén, M.** (RFA-IREA)
"A correlation sensitivity analysis of non-life underwriting risk in solvency capital requirement estimation"
(Setembre 2011)

XREAP2011-13
Guillén, M. (RFA-IREA), **Pérez-Marín, A.** (RFA-IREA), **Alcañiz, M.** (RFA-IREA)
"A logistic regression approach to estimating customer profit loss due to lapses in insurance"
(Octubre 2011)

XREAP2011-14
Jiménez, J. L., **Perdiguero, J.** (GiM-IREA), **García, C.**
"Evaluation of subsidies programs to sell green cars: Impact on prices, quantities and efficiency"
(Octubre 2011)

XREAP2011-15
Arespa, M. (CREB)
"A New Open Economy Macroeconomic Model with Endogenous Portfolio Diversification and Firms Entry"
(Octubre 2011)

XREAP2011-16
Matas, A. (GEAP), **Raymond, J. L.** (GEAP), **Roig, J.L.** (GEAP)
"The impact of agglomeration effects and accessibility on wages"
(Novembre 2011)

XREAP2011-17
Segarra, A. (GRIT)
"R&D cooperation between Spanish firms and scientific partners: what is the role of tertiary education?"
(Novembre 2011)

XREAP2011-18
García-Pérez, J. I.; **Hidalgo-Hidalgo, M.**; **Robles-Zurita, J. A.**
"Does grade retention affect achievement? Some evidence from PISA"
(Novembre 2011)

XREAP2011-19
Arespa, M. (CREB)
"Macroeconomics of extensive margins: a simple model"
(Novembre 2011)

XREAP2011-20
García-Quevedo, J. (IEB), **Pellegrino, G.** (IEB), **Vivarelli, M.**
"The determinants of YICs' R&D activity"
(Desembre 2011)

XREAP2011-21
González-Val, R. (IEB), **Olmo, J.**
"Growth in a Cross-Section of Cities: Location, Increasing Returns or Random Growth?"
(Desembre 2011)

XREAP2011-22
Gombau, V. (GRIT), **Segarra, A.** (GRIT)
"The Innovation and Imitation Dichotomy in Spanish firms: do absorptive capacity and the technological frontier matter?"
(Desembre 2011)

2012

XREAP2012-01
Borrell, J. R. (GiM-IREA), **Jiménez, J. L.**, **García, C.**
"Evaluating Antitrust Leniency Programs"
(Gener 2012)

XREAP2012-02
Ferri, A. (RFA-IREA), **Guillén, M.** (RFA-IREA), **Bermúdez, Ll.** (RFA-IREA)
"Solvency capital estimation and risk measures"
(Gener 2012)

XREAP2012-03
Ferri, A. (RFA-IREA), **Bermúdez, Ll.** (RFA-IREA), **Guillén, M.** (RFA-IREA)
"How to use the standard model with own data"
(Febrer 2012)

XREAP2012-04
Perdiguero, J. (GiM-IREA), **Borrell, J.R.** (GiM-IREA)
"Driving competition in local gasoline markets"
(Març 2012)

XREAP2012-05
D'Amico, G., **Guillen, M.** (RFA-IREA), Manca, R.
"Discrete time Non-homogeneous Semi-Markov Processes applied to Models for Disability Insurance"
(Març 2012)

XREAP2012-06
Bové-Sans, M. A. (GRIT), Laguado-Ramírez, R.
"Quantitative analysis of image factors in a cultural heritage tourist destination"
(Abril 2012)

XREAP2012-07
Tello, C. (AQR-IREA), **Ramos, R.** (AQR-IREA), **Artís, M.** (AQR-IREA)
"Changes in wage structure in Mexico going beyond the mean: An analysis of differences in distribution, 1987-2008"
(Maig 2012)

XREAP2012-08
Jofre-Monseny, J. (IEB), **Marín-López, R.** (IEB), **Viladecans-Marsal, E.** (IEB)
"What underlies localization and urbanization economies? Evidence from the location of new firms"
(Maig 2012)

XREAP2012-09
Muñiz, I. (GEAP), **Calatayud, D.**, **Dobaño, R.**
"Los límites de la compacidad urbana como instrumento a favor de la sostenibilidad. La hipótesis de la compensación en Barcelona medida a través de la huella ecológica de la movilidad y la vivienda"
(Maig 2012)

XREAP2012-10
Arqué-Castells, P. (GEAP), **Mohnen, P.**
"Sunk costs, extensive R&D subsidies and permanent inducement effects"
(Maig 2012)

XREAP2012-11
Boj, E. (CREB), **Delicado, P.**, **Fortiana, J**., **Esteve, A.**, **Caballé, A.**
"Local Distance-Based Generalized Linear Models using the dbstats package for R"
(Maig 2012)

XREAP2012-12
Royuela, V. (AQR-IREA)
"What about people in European Regional Science?"
(Maig 2012)

XREAP2012-13
Osorio A. M. (RFA-IREA)**, Bolancé, C.** (RFA-IREA), **Madise, N.**
"Intermediary and structural determinants of early childhood health in Colombia: exploring the role of communities"
(Juny 2012)

XREAP2012-14
Miguelez. E. (AQR-IREA)**, Moreno, R.** (AQR-IREA)
"Do labour mobility and networks foster geographical knowledge diffusion? The case of European regions"
(Juliol 2012)

XREAP2012-15
Teixidó-Figueras, J. (GRIT)**, Duró, J. A.** (GRIT)
"Ecological Footprint Inequality: A methodological review and some results"
(Setembre 2012)

XREAP2012-16
Varela-Irimia, X-L. (GRIT)
"Profitability, uncertainty and multi-product firm product proliferation: The Spanish car industry"
(Setembre 2012)

XREAP2012-17
Duró, J. A. (GRIT), **Teixidó-Figueras, J.** (GRIT)
"Ecological Footprint Inequality across countries: the role of environment intensity, income and interaction effects"
(Octubre 2012)

XREAP2012-18
Manresa, A. (CREB), **Sancho, F.**
"Leontief versus Ghosh: two faces of the same coin"
(Octubre 2012)

XREAP2012-19
Alemany, R. (RFA-IREA), **Bolancé, C.** (RFA-IREA), **Guillén, M.** (RFA-IREA)
"Nonparametric estimation of Value-at-Risk"
(Octubre 2012)

XREAP2012-20
Herrera-Idárraga, P. (AQR-IREA), **López-Bazo, E.** (AQR-IREA), **Motellón, E.** (AQR-IREA)
"Informality and overeducation in the labor market of a developing country"
(Novembre 2012)

XREAP2012-21
Di Paolo, A. (AQR-IREA)
"(Endogenous) occupational choices and job satisfaction among recent PhD recipients: evidence from Catalonia"
(Desembre 2012)

2013

XREAP2013-01
Segarra, A. (GRIT), **García-Quevedo, J.** (IEB), **Teruel, M.** (GRIT)
"Financial constraints and the failure of innovation projects"
(Març 2013)

XREAP2013-02
Osorio, A. M. (RFA-IREA), **Bolancé, C.** (RFA-IREA), Madise, N., Rathmann, K.
"Social Determinants of Child Health in Colombia: Can Community Education Moderate the Effect of Family Characteristics?"
(Març 2013)

XREAP2013-03
Teixidó-Figueras, J. (GRIT), **Duró, J. A.** (GRIT)
"The building blocks of international ecological footprint inequality: a regression-based decomposition"
(Abril 2013)

XREAP2013-04
Salcedo-Sanz, S., **Carro-Calvo, L.**, **Claramunt, M.** (CREB), **Castañer, A.** (CREB), **Marmol, M.** (CREB)
"An Analysis of Black-box Optimization Problems in Reinsurance: Evolutionary-based Approaches"
(Maig 2013)

XREAP2013-05
Alcañiz, M. (RFA), **Guillén, M.** (RFA), **Sánchez-Moscona, D.** (RFA), **Santolino, M.** (RFA), **Llatje, O., Ramon, Ll.**
"Prevalence of alcohol-impaired drivers based on random breath tests in a roadside survey"
(Juliol 2013)

XREAP2013-06
Matas, A. (GEAP & IEB), **Raymond, J. Ll.** (GEAP & IEB), **Roig, J. L.** (GEAP)
"How market access shapes human capital investment in a peripheral country"
(Octubre 2013)

XREAP2013-07
Di Paolo, A. (AQR-IREA), **Tansel, A.**
"Returns to Foreign Language Skills in a Developing Country: The Case of Turkey"
(Novembre 2013)

XREAP2013-08
Fernández Gual, V. (GRIT), **Segarra, A.** (GRIT)
"The Impact of Cooperation on R&D, Innovation andProductivity: an Analysis of Spanish Manufacturing and Services Firms"
(Novembre 2013)

XREAP2013-09
Bahraoui, Z. (RFA); **Bolancé, C.** (RFA); **Pérez-Marín. A. M.** (RFA)
"Testing extreme value copulas to estimate the quantile"
(Novembre 2013)

2014

XREAP2014-01
Solé-Auró, A. (RFA), **Alcañiz, M.** (RFA)
"Are we living longer but less healthy? Trends in mortality and morbidity in Catalonia (Spain), 1994-2011"
(Gener 2014)

XREAP2014-02

Teixidó-Figueres, J. (GRIT), **Duro, J. A.** (GRIT)
"Spatial Polarization of the Ecological Footprint distribution"
(Febrer 2014)

XREAP2014-03
Cristobal-Cebolla, A.; Gil Lafuente, A. M. (RFA), **Merigó Lindhal, J. M.** (RFA)
"La importancia del control de los costes de la no-calidad en la empresa"
(Febrer 2014)

XREAP2014-04
Castañer, A. (CREB); **Claramunt, M.M.** (CREB)
"Optimal stop-loss reinsurance: a dependence analysis"
(Abril 2014)

XREAP2014-05
Di Paolo, A. (AQR-IREA); **Matas, A.** (GEAP); **Raymond, J. Ll.** (GEAP)
"Job accessibility, employment and job-education mismatch in the metropolitan area of Barcelona"
(Maig 2014)

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Di Paolo, A. (AQR-IREA); **Mañé, F.**
"Are we wasting our talent? Overqualification and overskilling among PhD graduates"
(Juny 2014)

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Segarra, A. (GRIT); **Teruel, M.** (GRIT); **Bové, M. A.** (GRIT)
"A territorial approach to R&D subsidies: Empirical evidence for Catalonian firms"
(Setembre 2014)

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Ramos, R. (AQR-IREA); **Sanromá, E.** (IEB); **Simón, H.**
"Public-private sector wage differentials by type of contract: evidence from Spain"
(Octubre 2014)

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Bel, G. (GiM-IREA); **Bolancé, C.** (Riskcenter-IREA); **Guillén, M.** (Riskcenter-IREA)**; Rosell, J.** (GiM-IREA)
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