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Determinants of Trust in Institutions in Times of Crisis: Survey-based evidence from the European Union

Konstantinos Drakos^a, Christos Kallandranis^b and Socrates Karidis^c

Abstract

We employ Eurobarometer micro-level data on trust in institutions, in order to explore its determinants, considering socio-demographic characteristics, and macroeconomic indicators. The main contribution of our analysis is the investigation of the potential impact of sovereign credit rating episodes and the adoption of bail-out programmes. We find that trust in institutions is substantially eroded in countries that experience downgrade episodes and participate in fiscal adjustment programs while it is significantly strengthened following credit rating upgrades.

Keywords: European Central Bank, European Parliament, EU Commission, National Government, Trust, Survey, Probit Model.

JEL Classification: C25, G28

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1. Introduction

There has always been an implicit economic and social contract between institutions and the society they serve. Trust is fundamental for a competitive and properly functioning financial and political system, however its fragility and complexity means it can take time to be restored once damaged. Following government bailouts, political and economic scandals, volatile economic conditions, and a persistent recession among European Union countries and particularly those in the periphery (Theodoropoulou and Watt 2011), the relationship between government, citizens and the financial sector has entered into a vicious cycle of blame and anger. It would be reasonable to argue that the current situation has inevitably damaged the trust people have in their government and in other institutions. This is linked to an increasing interest in exploring the determinants of trust, particularly given that during the last three decades, there has been a documented tendency of trust in institutions to decline in the most developed-industrialized countries (e.g. Citrin & Muste, 1999; Putnam, 2000; Dalton, 2004; Catterberg & Moreno, 2006 etc.).

At the same time, the questions posed regarding the European Union's democratic legitimacy in its existence as a 'regional Union of nation states' (Schmidt, 2004) adds another and even more interesting dimension, that of the different ways trust is built when it comes to comparing the national Government with European institutions. In this context, Schmidt's thesis that while the EU might be achieving democratic legitimacy based on its composite identity, its citizens may feel a significant democratic deficit because the Member States are losing their traditional legitimacy, adds a whole new perspective when considering the dynamics of trust towards national and EU institutions.

According to Eurobarometer surveys, trust in the EU reached, on average, an unprecedented low of 31% in the spring of 2012, while trust in national governments reached a low of 23% in the autumn of 2013. This development brings forward the issue of growing

mistrust during abnormal times. Newton (2008), Kosfeld *et al.* (2005) and Kaltenthaler et al. (2010), argue that people's distrust in institutions threatens their legitimacy and authority, which might ultimately lead to their abolishment by creating structural malfunctions in the overall system. It therefore becomes crucial to understand how and why individuals develop their commitment and trust in institutions.

According to Roth (2009), the relevant literature broadly groups the notion of trust into three main categories: thick, interpersonal and systemic. As Roth notes a sufficient level of systemic or institutional trust is key in maintaining the stability of the economic system, otherwise the legitimate character of the market-based economy is called into question. Eroded levels of trust will lead to calls for more government intervention and less economic integration. We acknowledge the particular economic and political importance of systemic/institutional trust and we make it the focal point of our investigation. More precisely, we concentrate on trust towards national and EU-level institutions.

We go beyond the study of individual characteristics and their effect on trust, by considering the larger social and institutional structures in which individual trust is rooted. Firstly, we attempt to shed light on the debate regarding the determinants of institutional trust for a number of relatively homogeneous, in terms of structure and political status, countries in the EU. However, we extend the existing literature by exploring the idea that tight economic conditions serve as an accelerating mechanism of distrust in institutions. We believe that these conditions are not reflected solely on the (already considered) macroeconomic variables that affect the business cycle but are also mirrored in changes in credit ratings and the participation in bailout memoranda of agreement.

In light of the above, the present study aims at providing new evidence on the drivers of trust for a set of European and national institutions, namely the ECB, the European Commission, the European Parliament and the national governments across EU members.

Surprisingly, within an environment of increasing Euroscepticism and questionable democratic legitimacy, there are only a handful of empirical studies that examine the determinants of trust in EU institutions (e.g. Kaltenthaler, et.al. 2010; Munoz, et.al. 2011; Roth, 2009 & 2011, Kalbhenn and Stracca, 2015 etc.). Our ambition is to assess whether the decline in trust is a standard cyclical response (Stevenson and Wolfers, 2011), reflects other non-economic related factors, or it is due to the specific character of the current financial downturn. The paper contributes to the rapidly expanding literature on the impact of the financial turmoil on trust by presenting empirical results of the financial crisis on public opinion vis-à-vis institutional or systemic trust, while controlling for the factors that prior studies have found to be important in shaping the level of trust. Within this framework, special attention is given to the confidence invested in: a) political and financial institutions at European level and b) the national government and the importance of credit rating episodes as well as the role of bailout memorandum agreements.

Our findings are consistent with the suggestions of the relevant theory regarding the effects of socio-demographic and economic factors. We classify our results in three groups, individual and sociodemographic characteristics, macroeconomic and other financial conditions and episodes of economic nature that are not direct outcomes of economic policy. We believe the most interesting finding of this work to be the deterioration of trust resulting in towards the European institutions because of the introduction of bailout agreements whilst those do not seem to substantially change (the already low levels of) citizens' trust on their national government.

The paper proceeds as follows: In Section 2 we review the relevant empirical findings from previous studies on trust in the European institutions. Section 3 describes the data utilized and the empirical methodology applied. Section 4 presents the empirical results, and finally Section 5 concludes by highlighting the broader implications of our findings.

2. Empirical Evidence

The majority of the existing literature examining institutional trust in the context of the European Union focuses on the European Central Bank, and particularly in the period following the beginning of the financial crisis. As anticipated, European citizens' level of trust in the main financial institution of the Union, reflecting the evolution and strengthening of the common currency, is of particular interest among scholars.

The importance of macroeconomic variables such as inflation levels and national income as well as unemployment in determining the trust on ECB following the start-up of the European Union and the introduction of the new currency is considered by Fischer and Hahn (2008) and Wälti (2012). Financial distresses as well as country-level fiscal developments have a negative effect on building a trust relationship.

The issue of democratic legitimacy is contextually relevant in the work of Kaltenthaler et.al. (2010) who ask the question as to whether the levels of distrust observed towards the ECB are the results of the institution's policies or are due to the fact that citizens cannot control the institution. They find that Europeans distrust the European Central Bank because either they have no knowledge of its functions or because they believe that their voices (or that of their countries) cannot be heard.

Individual characteristics and socio-demographic determinants, such as education, wealth, and political orientation, and their effect on people's trust towards the ECB are considered by Farvaque et.al. (2011) and by Bursian and Furth (2013). Finally, Ehrmann et.al. (2013) use individual but also country specific variables in order to study the trust in the ECB during the global financial and the EU sovereign debt crisis. They conclude that the fall in trust levels towards the European Central Bank can be explained by pre-crisis factors such as the general macroeconomic deterioration, the decline in levels of trust in the other

European institutions in general and the severely problematic banking sector to which the ECB is strongly associated according to public opinion.

A smaller number of studies have attempted to examine the determinants of trust towards other European institutions. The relationship between trust in national and European institutions has been addressed by Munoz et.al. (2011) who, although they find that in general there is a positive association between the confidence in national parliaments and the European parliament, when the performance of national institutions increases, and in countries with well performing and highly trusted institutions, trust in the European Parliament tends to weaken. Roth (2009) finds a significant fall in confidence of European citizens in the EU institutions (European Commission, European Parliament, ECB) when at the same time confidence levels in national governments, although still lower than in EU institutions, are rising. However, Roth et.al. (2013), having observed a significant decline for the periphery (Greece, Spain, Portugal and Ireland), conclude that unemployment is a major factor in the trust building relationship, and deterioration in labour market conditions has a significant negative effect on institutional trust at both the national and the European levels. When economic policy is considered, Kalbhenn and Stracca (2015) show that fiscal austerity measures do not seem to have a significant effect on public opinion and in particular on institutional trust.

3. Data

Empirical studies on institutional trust have shown that there is, in most cases, a link between a country's macroeconomic performance and its citizens' individual characteristics with institutional trust. However, there is no evidence on the potential impact of changes in credit ratings on trust and nor is there for the cases where a country participates in bailout/memorandum agreements. With this in mind, this section presents the data utilized in the

analysis and provides a clear account of the measures of trust used, the rationale behind the selection of European and national institutions and the set of determining variables as well as of the relevant controls.

3.1 Trust in Institutions

Trust in European institutions is based on data from the Eurobarometer surveys which are conducted on behalf of the European Commission at least twice a year in all European Union (EU) member states. In particular, we combine micro data from Eurobarometer surveys in order to build a pooled dataset consisting of 29 cross sections, sampled semi-annually during the time span of 2000 until the first half of 2014. With 28 countries constituting the European Union, 18 of them being Eurozone members, and observed for 14 years, we obtain a total number of more than 240,000 observations.

The survey asks participants the following question:

“I would like to ask you a question about how much trust you have in certain institutions.

For each of the following institution, please tell me if you tend to trust it or tend not to trust it?”

There are four dependent variables capturing institutional trust, namely, trust in the European Central Bank (ECB), trust in the European Parliament, trust in the European Commission and trust in the national government.

Participants are given the choice between three possible answers: “1, Tend to trust”, “2, Tend not to trust”, and “3, Do not know”. In order to have an operational and uniformed measurement, we recode the raw responses in the following manner. Let (i) , denote the type of institution and (c) , and (t) the country in which the survey was conducted and time period respectively. Then we generate a set of new variables ($Trust$) that attain the following values:

$$Trust_{i,c,t} = \begin{cases} 0, & \text{if the } i^{\text{th}} \text{ type of institution at country } c \text{ in year } t \text{ is not trusted} \\ 1, & \text{if the } i^{\text{th}} \text{ type of institution at country } c \text{ in year } t \text{ is trusted} \end{cases}$$

As we test for the tendency to trust or mistrust we focus only on positive and negative responses. As it becomes apparent the new variables retain the information embodied in the original responses.

There are various reasons for the selection of the particular institutions and for our attempt to closely monitor citizens' trust in them. The association of European and national institutions is of great importance in this study. European citizens are governed by a complicated multi-layered administrative system including both national and European institutions. Despite that, causality is not our main focus in this paper and to avoid possible limitations in our approach we examine both national and European institutions and explore the differences in people's attitudes towards them. Previous works (e.g. Sanchez-Cuenca, 2000; Rohrschneider, 2002; Kritzinger, 2003; Brinegar and Jolly, 2005; Scheuer and van der Brug, 2007 etc.) have provided contradicting results regarding people's trust in European institutions relative to national ones. Trust in European institutions is basically a reflection of citizens' levels of trust in national institutions. However, the opposite argument is that increased confidence in, and satisfaction with, national institutions will impede support for European institutions.

3.2 Socio-Demographic Attributes

To address the questions stated above we use Eurobarometer surveys from 2000 to 2014 to construct the socio-demographic profile of respondents (see Table A1 in Appendix A). We choose to include the variable of presence of other persons during the interview in an attempt to control for people's behaviour. Alesina and La Ferrara (2002) claim that people have the tendency to feel good about themselves when responding in a politically correct manner to questions relating to trust. However, in order to avoid an upward bias in the

number of affirmative responses, we believe that the presence of others during the interview forces interviewees to respond with honesty and moderation.

Following the existing literature, we add socio-demographic characteristics such as marital status, education, age, and the respondent's occupation in order to control for the expectations already formed by those who respond.

The fact that people perceive the world differently over their life cycle drove researchers to adopt age as a proxy to capture the way young or elder people tend to trust (Hudson, 2006; Putnam, 2000). Young people may have less experience in dealing with public institutions and hence be less critical while elder people behave in the opposite way. Trust might increase with age as a result of a maturing process (Mishler & Rose, 2001; Glaeser et al., 1999; Patterson, 1999) while others report a curvilinear relationship (Brewer et.al., 2004; Hudson, 2006; Wollebaek & Selle, 2002). In addition, the type of a respondent's occupation can be viewed as a reflection of cumulative influences, like education, employment, all of them leading to higher occupational status (Schoon and Cheng, 2011). As Alesina and La Ferrara (2002) find, a successful professional is keen to trust more. According to Deary et.al., (2008), the participants' current social class or professional status (professional/managerial, skilled non-manual, skilled manual, semi- or unskilled) as it is derived from their profession advocates that people in more managerial positions exhibit higher levels of trust. In addition, Gleave et al. (2011) claim that "being successful in the labour market is likely to promote trust because it provides people with the necessary resources to take risks and hence trust others."

Marital Status is included in an effort to clarify the mixed findings in the literature, ranging from higher levels of institutional trust for married respondents (Diener et.al., 2000, Hudson, 2006, etc.) to non-influential effects (Alesina and La Ferrara, 2000).

3.3 Macroeconomic Conditions and Financial Stress

People's perceptions of institutions can also be influenced by the phase of the economic cycle (e.g. Inglehart, 1997; Hudson, 2006). The public might hold the financial and political institutions accountable for high levels of unemployment and low growth. Hence, we add real national GDP growth (GDP Growth) and the national unemployment rate (Unemployment Rate) as proxies for a country's macroeconomic conditions. Data on macroeconomic variables are obtained from Eurostat. Bursian and Furth (2013), in line with La Porta et al. (1997), report that a high level of real GDP as a proxy for national income might be regarded as an indicator of an economy that is well-functioning as well as of a certain level of efficiency associated with different economic institutions. Fischer and Hahn (2008) provide evidence that confidence in ECB significantly benefits from higher national income.

In addition, unemployment which in turn influences attributes such as social status, is assumed to reflect individual perceptions of the economic system. It is expected that employed people tend to trust public institutions more than the unemployed or those with no occupation. Losing a job might lead to less confidence in the government, particularly in the presence of long unemployment spells, as would the failure to climb the occupational ladder (Hudson, 2006; Mishler & Rose, 2001; Youniss et al., 2002).

To avoid potential endogeneity issues we decompose our macroeconomic determinants (GDP Growth & Unemployment rate) using the Christiano-Fitzgerald filter (1999) into a cyclical and a trend component. We name the business cycle component `cycle_cf`.

However, the recent financial crisis brought to the surface factors that were not typically considered in trust modelling. For instance, the issue of banking sector soundness is such a factor, given that several systemic European banks were involved in the crisis. Thus, as a proxy for banking sector financial soundness we use the ratio of Non-Performing Loans

to Total Loans as an inverse soundness indicator. Similarly, since the financial crisis soon in Europe was transformed into a sovereign debt crisis, we also use Sovereign Bond Yields to capture sovereign financial distress (Walti, 2012). Data on financial stability are obtained from IMF's Financial Soundness Indicators (FSIs), while yields correspond to the 10 year sovereign bond yield from Datastream.

3.4 Events of Interest: Sovereign Credit Rating Episodes & Memoranda

Sovereign credit rating is a complex measure capturing various country performance indicators. Prior to the outbreak of the sovereign debt crisis, the EU countries ratings' paths were almost a 'one-way bet' with downgrades being essentially absent. However, following the crisis, a number of EU countries have witnessed several and, in some cases severe, downgrade episodes. These unprecedented events, having a real economic effect, are also taken into account when we try to explore the determinants of institutional trust.

Data on sovereign credit ratings are obtained from Moody's. The ratings range from Aaa (highest credit quality possible) to CCC (default). Ratings of Aa3 and above are denoted as Prime-1, indicating high quality and very low credit risk. We follow Moody's announcements regarding each country's rating for the period 2000-2014 and create two variables, capturing the upgrade and downgrade episodes:

$$UP_{c,t} = \begin{cases} 1, & \text{if country } c \text{ in year } t \text{ is upgraded} \\ 0, & \text{if country } c \text{ in year } t \text{ is not upgraded} \end{cases}$$

$$DOWN_{c,t} = \begin{cases} 1, & \text{if country } c \text{ in year } t \text{ is downgraded} \\ 0, & \text{if country } c \text{ in year } t \text{ is not downgraded} \end{cases}$$

where (c) denotes the country and (t) the time period.

In the sample period there are nine countries that never experienced any change in their credit rating status (Austria, Denmark, Finland, Germany, Luxembourg, Netherlands,

Sweden, Czech Republic and Estonia). All other countries witnessed rating changes, and as it turns out most of them were downgrades, especially in countries where economic adjustment plans were implemented¹.

The outbreak of the financial crisis in the fall of 2008 has produced a wave of bailout schemes for a number of Eurozone countries. These have witnessed further challenges as their economies have plunged into a recession, and at the same time they have been the subjects of an ongoing sovereign debt crisis (mainly Cyprus, Greece, Ireland, Portugal, and Spain). With no intention to downplay the importance of economic variables as determinants of trust, we think that the search for evidence should include the role of fiscal-adjustment programmes (memorandums of agreement)². The implementation of austerity policies in the memorandum era has drastically changed the socio-economic structure in countries where these reforms took and are still taking place. Greece was the first Eurozone member to come under intense pressure after markets lost their confidence in its economy and it was also the first country to turn to fellow member states and the IMF for financial assistance. Ireland and Portugal followed and were later joined by Cyprus in 2013. All countries had to adopt harsh austerity measures that were adopted as a precondition for the release of the bailout funds from the so-called *Troika* (European Union, IMF and ECB) in an environment of low economic growth, rising unemployment rates and signs of overall economic fragility.

A novelty of this paper is that it makes use of an unprecedented event for Europe. We believe that trust in institutions is very likely to be affected in countries that followed a bailout plan (Greece, Cyprus, Ireland and Portugal), due to the agreed austerity measures. Based

¹ Total Downgrade Episodes: 1: Belgium, France, UK, 2: Lithuania, Malta, 3: Croatia, Latvia, Slovak Republic, 4: Italy, 5: Spain, Ireland, Portugal, Hungary, Slovenia, 7: Cyprus, Greece. Total Upgrade Episodes: 1: Portugal, Slovenia, Slovak Republic, 2: Spain, Greece, Ireland, Italy, Cyprus, Lithuania, Latvia, 4: Bulgaria

² Memorandum: Greece (2010), Ireland (2010), Portugal (2011), Cyprus (2013), Spain followed a financial assistance programme in 2012 for the recapitalisation of financial institutions

on this, we create a variable to capture the fact that countries were in an economic adjustment program (EAP) during the period under consideration:

$$\text{MEMORANDUM}_{c,t} = \begin{cases} 1, & \text{if country } c \text{ in year } t \text{ follows an EAP} \\ 0, & \text{if country } c \text{ in year } t \text{ does not follow an EAP} \end{cases}$$

Where (c) denotes the country and (t) the time period.

4. Methodology and results

4.1 Methodology

Trust is a set of binary variables and will be modeled by a probit model. The vector of covariates is populated as follows:

- (i) **socio-demographic variables** (*SOCIO*),
- (ii) **Business Cycle indicators** (*real GDP Growth (GDP)*, *Unemployment rate (UNEM)*)
- (iii) financial soundness of the banking system (*Non-Performing Loans (NPL)*)
- (iv) sovereign financial distress (dummy of High Yield (*HYIELD*))
- (v) **Sovereign Credit Rating episodes (DOWN, UP)**
- (vi) Participation in a bailout programme/**memorandum** (*MEMO*)

To obtain the cyclical and trend components for GDP growth and unemployment we decompose the corresponding variables by employing two alternative filtering techniques, the Hodrick-Prescott (HP) and Christiano-Fitzgerald (CF) filters. We define the smoothing parameter λ of the HP filter to be equal to 100 (see Hodrick and Prescott, 1997 and Ravn and Uhlig, 2002, for a detailed discussion). Following Drehman et. al., (2012) and for the CF filter we set the minimum and maximum periods at 2 and 8 years respectively. The following model is thus employed, accounting also for country and year fixed effects:

$$\begin{aligned} \Pr(L_{i,t} = 1) = & \gamma_0 + \gamma_1 SOCIO + \gamma_2 GDP_cycle_cf + \gamma_3 UNEM_cycle_cf \\ & + \gamma_4 UPGRADE + \gamma_5 DOWNGRADE + \gamma_6 HYIELD + \gamma_7 NPL + \gamma_8 MEMO \\ & + \varepsilon_{i,t} \end{aligned}$$

We are primarily interested in the parameters ($\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5, \gamma_6, \gamma_7$ and γ_8) which capture the impact, if any, of the variables of main interest. Our main priors are:

- the propensity to trust will tend to be lower/higher for countries experiencing downgrade/upgrade episodes, so we expect $\gamma_5 < 0$ and $\gamma_4 > 0$
- the propensity to trust will tend to be lower for countries involved in a financial assistance program (MEMO), so we expect $\gamma_8 < 0$.

With respect to socio-demographic factors we expect a positive effect on trust for education, age, marriage and managerial occupation. Regarding the variables relating to macroeconomic stance, we expect a positive sign for the cyclical component of GDP and a negative for the one of unemployment $\gamma_2 > 0$, and $\gamma_3 < 0$. A negative sign is expected for both NPL and HYield: γ_6 & $\gamma_7 < 0$. Finally, country and year fixed effects are also estimated

4.2 Empirical Results

4.2.1 Baseline Results

Table 1 reports the estimated Marginal Effects³ for each of the four institutions⁴. We present two versions of results, one including country and year fixed effects and another which additionally addresses clustering issues by generating standard errors clustered by country. Columns 2, 4, 6, 8 report the results without country clustered standard errors and columns 3, 5, 7 and 9 with clustering. The model proves to be highly significant as indicated by the relevant LR tests. We start our analysis by assessing the extent to which socio-demographic attributes play a role in understanding the variation of trust in EU & national

³The actual estimation results are available upon request

⁴Estimated Marginal Effects across the two possible outcomes (tend to trust, tend not to trust) add up to unity.

institutions. These characteristics have a long-standing effect in the literature on trust (Alesina and La Ferrara, 2002; Brehm and Rahn, 1997; Knack and Keefer, 1997; Paxton, 2007; Zak and Knack, 2001). We make use of determinants of trust on individual basis focusing on marital status, age, education, respondent's occupation and the presence of other persons during the interview. All these attributes may affect the social tightness between individuals putting barriers to developing trust (e.g. Delhey and Newton, 2005; Leigh, 2006).

We include the marital status as a psychological determinant of attitude formation which possibly captures an individual's subjective well-being. For those who are married, the probability of trust significantly increases for all European institutions. When marital status changes to single, the tendency to trust remains positive for European institutions, though it is at lower levels. Marital status does not seem to have a significant effect on trust in the national government.

The respondents' occupational status provides mixed results relative to trust in the EU institutions, but mostly insignificant for national institutions. In particular, managers, having achieved systemic recognition or professional prestige, tend to trust more particularly the ECB and the European parliament. Manual workers show high levels of mistrust to European institutions whilst the unemployed consistently mistrust all institutions. In line with our expectations, individuals with higher level of education are more likely to trust the EU and national institutions. Indeed, trust levels are strongly linked to the degree of the respondents' education: Those who feel that they have a good knowledge of European or national affairs - which increases with education - are more likely to have confidence in the EU than those who feel they know (very) little on the subject. Besides, we expected that trust would increase with age however our results suggest that the probability to mistrust is common for all age groups in our sample, and especially for the quite vulnerable age group of 45-54. Finally, the presence of others during the interview increases the probability to mistrust for the European

institutions, but it is not relevant in the case of national institutions. Similarly to the non-clustered standard errors, we find the similar pattern of results across all institutions.

According to Bursian and Furth (2013), one would expect variables that are not related to financial institutions, like the ECB, or are outside of their control to be irrelevant to the trust-building process. However, if we assume that members of the general public do not always act rationally and cannot distinguish the real mandate of each institution, they might be influenced by such factors as well. Institutional accountability could be indiscriminate in people's conscience.

Regarding our macroeconomic determinants, our results show that the cyclical component of real GDP growth has a surprising negative or insignificant impact on trust across all European institutions, with the exception of the national government. More specifically, and in line with previous findings (e.g. Bursian and Furth, 2013; La Porta et al. 1997), we find that an increase in real GDP growth by 1.0 percent implies a 0.03 pp increase in the probability of trust for the national government when standard errors are used. This is consistent with similar finding by Munoz et.al. (2011) who find that when the performance of national institutions increases, trust in the European institutions tends to weaken. The cyclical component of the unemployment rate carries the expected negative sign for all EU institutions but does not seem to significantly affect trust in the national government (similar findings by Hudson, 2006; Walti, 2012), when robust standard errors are employed.

Regarding the banking sector's financial soundness, we find that as NPL increases, trust in EU and home institutions tends to be lower. Financial distress is statistically significant in all cases leading to lower levels of trust.

We expect that a downgrade episode will lead to a decline in trust. Note here that any development regarding the country's solvency is monitored by the European Commission

and the national government and not by the ECB. The ECB is not clearly responsible for monitoring sovereign solvency. However, the recent crisis and frequent credit rating announcements by rating agencies combined with an increasing cost of borrowing, particularly for the most heavily affected economies, may have significantly shaped public perceptions about the efficiency of institutions.

We find that downgrade episodes exert a negative impact on trust in ECB and the European Parliament as opposed to other institutions where there is no significant effect. A downgrade episode decreases the average probability of trust by 0.2 pp for the ECB and 1.1 pp for EU Parliament when not clustering by country. When upgrade episodes occur, the reported results show that the national governments rip the trust benefit.

The austerity measures of the bail-out plans have led people to reduce their trust in institutions across the board. For countries that have adopted these measures the probability of trust is significantly lower across all types of European institutions. We find a higher probability of deterioration to trust mainly for the ECB, the EU Commission (7 and 5.8 pp respectively) and for the EU Parliament (5pp). The probabilities of mistrust when clustering by country are even more emphatic. This is anticipated as the ECB and the European Commission jointly formed the bailout plans with the IMF for the Eurozone countries and European institutions are held accountable for the memorandums in the mostly hit economies. Surprisingly, the corresponding probability to trust the national government remains insignificant, a result perhaps suggesting that, in the public's conscience responsibility for participation in a memorandum agreement lies outside the national borders.

*****insert Table 1 here*****

4.2.2 Mapping Trust across different sample subgroups

We further explore how trust is distributed across selected sub-groups of the sample population, where essentially we calculate the probability to trust under various scenarios.

The subgroups (scenarios) are:

- *Countries whose credit status was downgraded/upgraded.*
- *Countries being/not being in a memorandum scheme.*
- *Countries whose GDP growth falls below the 25th, between the 25th and the 75th and above the 75th percentile of the distribution (lower to higher).*
- *Countries whose Unemployment rate falls below the 25th, between the 25th and the 75th and above the 75th percentile of the distribution (lower to higher).*
- *Respondents who were employed vs. those that were unemployed.*
- *Countries whose NPL volume follows a low to high spectrum, falling below the 25th, between the 25th and the 75th and above the 75th percentile of the distribution.*
- *Countries facing financial distress.*
- *Respondents who were employed/unemployed before/after 2010.*
- *Respondents who were employed/unemployed during the presence/absence of a memorandum.*
- *Countries that were downgraded/upgraded during the presence/absence of memorandum.*
- *Countries facing high yields (top 25% of the distribution)/ no high yield during the presence/absence of memorandum.*
- *Countries not being/being in memorandum and were not/were downgraded and the respondent was employed/unemployed.*
- *Countries that were not/were upgraded and the respondent was employed/unemployed in the absence/presence of memorandum.*
- *Countries that were not/were financially distressed and the respondent was employed/unemployed in the absence/presence of memorandum.*
- *Countries that were not/were financially distressed and were not/were downgraded/upgraded in the absence/presence of memorandum.*

The relevant results for the mean predicted probabilities are reported in Table 2. We firstly compare countries that are in a bail-out plan during the examined time-period and those that witnessed a downgrade episode. Countries that have adopted a memorandum exhibit substantially lower levels of trust for all institutions with national governments reaching the lowest point at 30%.

The tendency to trust the ECB is predicted with a probability of 32% for countries going through a fiscal stability program while for countries not following a fiscal adjustment program the tendency to trust carries a probability of 59%, producing a Predicted probability Ratio (PPR hereafter) of 1.84. This suggests that the average respondent residing in a country experiencing a bail-out program is 1.84 times more likely to respond that they do not trust the ECB.

The PPRs for the other facets are in the range of 1.20 and 1.59 indicating that the likelihood of mistrust is higher in countries that have followed a bail-out plan. For countries that have (have not) witnessed a downgrading episode, the predicted probability to trust is 0.45 (0.59) for the ECB, 0.51 (0.60) for the European Parliament, 0.50 (0.58) for the European Commission and 0.32 (0.36) for the national governments. In the same vein the predicted probability to trust is higher across all facets for countries that have experienced an uplift of their credit rating.

For the European institutions, the probability to trust diminishes collectively while governments are struggling with very low probabilities regardless of the magnitude of the recession. A similar picture is emerging when unemployment is considered both from the perspective of the economy's performance as well as of that of the individual. However, the disappointment is even more clearly visible in this case, as people seem to punish all institutions including higher levels of distrust for the already damaged national governments

(0.31 predicted probability in the presence of an unemployment rate that is higher than 10.1%).

When considering the levels of financial stability and financial distress, we see that the predicted probabilities for deterioration of trust across all facets are considerably higher for countries where the banking system faces a high ratio of non-performing loans. In particular, there are substantial differences in predicted probabilities for all types of institutions, where the probability of deterioration of trust in national governments for financially sound countries is at least 11 pp higher. This produces PPRs of 1.36 (Nat. Gov) and 1.13, 1.14 and 1.30 (EU. Com, EU Parliament and ECB respectively). A similar picture emerges when we compare high and low yield countries, with the PPR ranging between 1.02 and 1.13, implying that the probability of distrust is higher for the ECB and national governments.

Moving on to the comparison of bivariate scenarios across countries we introduce a break in 2010, the year in which Greece first agreed to enter a bailout plan with the IMF and the European institutions. The PPRs for all possible scenarios are higher than the unity implying that trust is reduced significantly across all institutions during harsh economic times. The tendency to trust seems to be affected by the time period and this is mainly reflected on national governments rather than on European institutions. When being employed the predicted probability to trust falls to 34% after 2010 which is even more emphatic (30%) for those who were unemployed in the same period. When the case of the presence of memorandum enters into the scenario, someone who is employed during the years of memorandum tends to trust less on average (30% vs. 36% in memorandum absence). This result is even stronger for those who were unemployed during those years decreasing the probability to trust to from 0.32 to 0.28 for national governments and from 0.49 to 0.24 for ECB. When a downgrading episode is included in the scenario, results show that if a country

is downgraded and at the same time follows a bail-out plan, people tend to trust less (31%) than in countries that were downgraded but were not in a bail-out plan (33%). The last scenario refers to countries with high sovereign bond yields where the probability to trust diminishes from 0.33 to 0.31 for national governments in memorandum presence while it ranges from 0.30 to 0.39 for EU institutions.

The final triangular scenarios confirm the above. The average tendency to trust is significantly lower for people who are unemployed in a country that was downgraded and simultaneously follows an economic adjustment program. Results show that institutional trust is between 0.26 and 0.34 for these countries, compared to a level between 0.36 and 0.61 (depending on the institution) for countries that were not downgraded, were not participating in a fiscal adjustment program and the respondent is employed. A similar picture emerges when we introduce two additional scenarios with high yields, downgrades and memorandum presence. These results emphatically suggest that under harsh economic conditions and especially within an environment of abnormal events the tendency to trust is significantly affected. The overall lowest levels of trust are recorded for national governments and the ECB by unemployed respondents who live in a country participating in a memorandum agreement and is financially challenged either by having being downgraded or by suffering from high sovereign bond yields.

An interesting outcome of the above analysis is that any adverse experience leads individuals to the loss of a degree of trust across all institutions. However, national governments and the ECB who determine economic policy are more emphatically blamed. The attitude of people changes dramatically with respect to memorandum presence.

*******insert Table 2 here*******

5. Conclusions

Our econometric specification links trust in national and European institutions to a range of macroeconomic variables, sociodemographic characteristics, credit rating episodes, rising sovereign bond yields, financial stability and fiscal adjustment memorandum agreements, capturing thus several of the crisis facets.

The recent decline in the public's trust in institutions is particularly large indicating that much of this decline may be attributable to the recent recession. Our results confirm that countries that experienced worsening macroeconomic conditions witnessed a markedly decline in public trust. Additionally, we attempted to shed light on the intrinsic trust building process as we consider, for the first time, the idea of sovereign rating episodes as well as the existence of mutual bail-out agreements between national governments and European institutions.

Our findings reveal interesting patterns of trust and provide useful insights when it comes to the public's perception, and therefore trust formation following the direct or indirect effects of economic policy. Our main findings are summarised below:

- When sociodemographic attributes are concerned, improvements in social and occupational status seem to have a positive effect on trust in all institutions, particularly the European ones whilst their absence results in higher level of mistrust.
- Economic and financial conditions have a direct effect on the public's institutional trust with higher levels of unemployment negatively affecting trust levels towards European institutions whilst indicators of financial distress and deteriorating conditions indiscreetly lead to higher levels of distrust within and outside national borders.

- The introduction of adjustment programmes as well as economic downgrades have a very clear negative effect on the levels of trust enjoyed by European institutions. However, in cases of upgrade announcements, the national government is the institutional entity reaping the benefit.

The latter reveals that communication of information appears to be an issue that is worth further investigation. This introduces the idea of the different ways trust is built when it comes to comparing the national government with European institutions. Citizens' perception of the role of the national government and that of EU institutions often reveals a sense of confusion as to the levels of shared responsibility. The direct exposure of general public to information communicated by national governments seems to have a greater effect on public opinion compared to that of European institutions, particularly as they seem to struggle to get a clear message to the public. Policy implications are therefore derived regarding the channels of information dissemination on the role of the ECB, the Parliament and the Commission.

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TABLES

TABLE 1
The Probability of *Tend to Trust*: Marginal Effects

Covariate	ECB		National Government		EU Parliament		EU Commission	
	Robust S.E.	Cluster S.E.	Robust S.E.	Cluster S.E.	Robust S.E.	Cluster S.E.	Robust S.E.	Cluster S.E.
Married	0.046*** (0.003)	0.040*** (0.005)	0.001 (0.002)	0.003 (0.004)	0.034*** (0.003)	0.034*** (0.005)	0.037*** (0.003)	0.037*** (0.050)
Single	0.011*** (0.003)	0.006 (0.006)	-0.0005 (0.003)	-0.002 (0.005)	0.005* (0.003)	0.002 (0.007)	0.006* (0.003)	0.004 (0.006)
up to 14-18 years old	0.074*** (0.014)	0.088*** (0.028)	-0.004 (0.012)	-0.004 (0.012)	0.068*** (0.013)	0.082** (0.034)	0.074*** (0.014)	0.089** (0.03)
up to 19-21 years old	0.140*** (0.010)	0.157*** (0.025)	0.008 (0.012)	0.007 (0.014)	0.130*** (0.012)	0.145*** (0.030)	0.139*** (0.013)	0.154*** (0.030)
up to 22 years old	0.190*** (0.010)	0.205*** (0.026)	0.030** (0.012)	0.026* (0.014)	0.179*** (0.012)	0.190*** (0.030)	0.184*** (0.013)	0.196*** (0.030)
Still studying	-0.047*** (0.008)	-0.020* (0.011)	-0.013* (0.007)	-0.018* (0.010)	-0.020** (0.007)	0.045*** (0.014)	-0.016** (0.008)	0.041** (0.017)
15-24 years old	-0.021*** (0.005)	-0.019 (0.013)	-0.013** (0.005)	-0.008 (0.007)	0.017*** (0.005)	0.005 (0.015)	0.013** (0.005)	0.001 (0.01)
25-34 years old	-0.043*** (0.004)	-0.041*** (0.013)	-0.026*** (0.004)	-0.025*** (0.006)	-0.018*** (0.004)	-0.022* (0.012)	-0.012** (0.004)	-0.015 (0.014)
35-44 years old	-0.043*** (0.004)	-0.043*** (0.009)	-0.019*** (0.003)	-0.020*** (0.005)	-0.032*** (0.004)	-0.036*** (0.010)	-0.026*** (0.004)	-0.030** (0.011)
45-54 years old	-0.045*** (0.004)	-0.048*** (0.011)	-0.020*** (0.003)	-0.022*** (0.005)	-0.038*** (0.004)	-0.043*** (0.012)	-0.032*** (0.004)	-0.038** (0.012)
55-64 years old	-0.031*** (0.003)	-0.032*** (0.007)	-0.012*** (0.003)	-0.014** (0.005)	-0.028*** (0.003)	-0.030*** (0.008)	-0.023*** (0.003)	-0.025** (0.008)
Self employed	-0.003 (0.004)	-0.0003 (0.007)	0.0006 (0.004)	0.005 (0.005)	-0.002 (0.004)	-0.003 (0.006)	-0.002 (0.004)	-0.003 (0.006)
Managers	0.037*** (0.004)	0.028*** (0.005)	0.007* (0.004)	0.013** (0.005)	0.036*** (0.004)	0.290*** (0.060)	0.040*** (0.004)	0.029*** (0.007)
Manual worker	-0.058*** (0.003)	-0.059*** (0.006)	-0.004 (0.003)	-0.002 (0.003)	-0.046*** (0.003)	-0.047*** (0.054)	-0.045*** (0.003)	-0.048*** (0.005)
Unemployed	-0.110*** (0.004)	-0.109*** (0.007)	-0.017*** (0.004)	-0.014** (0.007)	-0.102*** (0.004)	-0.105*** (0.088)	-0.102*** (0.004)	-0.105*** (0.009)
Retired	-0.058*** (0.004)	-0.057*** (0.008)	-0.004 (0.004)	0.0003 (0.004)	-0.043*** (0.004)	-0.046*** (0.008)	-0.043*** (0.004)	-0.047*** (0.007)
Students	0.003 (0.007)	-0.020 (0.013)	-0.005 (0.006)	0.003 (0.011)	0.013** (0.007)	-0.047*** (0.013)	0.008 (0.007)	-0.046** (0.016)
Number of persons	-0.065*** (0.004)	-0.060*** (0.012)	0.00008 (0.004)	0.003 (0.005)	-0.041*** (0.004)	-0.042*** (0.01)	-0.043*** (0.004)	-0.046*** (0.016)
Unemployment Rate_cycle_cf	-0.005*** (0.000)	0.001 (0.003)	-0.0014 (0.001)	0.004 (0.007)	-0.003** (0.001)	-0.001 (0.003)	-0.004*** (0.000)	0.0002 (0.003)
GDP Growth_cycle_cf	-0.002*** (0.00)	-0.003*** (0.00)	0.003*** (0.0005)	0.004 (0.002)	-0.0005 (0.0005)	-0.0019 (0.001)	0.0002 (0.0005)	-0.001 (0.001)
NPL	-0.0008*** (0.000)	-0.001*** (0.000)	-0.0001*** (0.000)	-0.0004** (0.000)	-0.0007*** (0.000)	-0.0006** (0.000)	-0.0009*** (0.000)	-0.0008*** (0.000)
HYield	-0.065*** (0.030)	-0.022 (0.030)	-0.030*** (0.003)	-0.019* (0.016)	-0.030*** (0.003)	-0.034 (0.036)	-0.040*** (0.003)	-0.034 (0.034)
Downgrade	-0.02*** (0.003)	-0.002 (0.010)	0.0007 (0.003)	0.014 (0.012)	-0.011** (0.003)	0.001 (0.01)	-0.005 (0.003)	0.005 (0.01)
Upgrade	-0.040*** (0.009)	-0.041 (0.053)	0.059*** (0.008)	0.050** (0.019)	0.010 (0.008)	0.013 (0.030)	-0.001 (0.009)	0.001 (0.030)
Memorandum	-0.070*** (0.005)	-0.111*** (0.023)	-0.002 (0.005)	0.014 (0.037)	-0.055*** (0.005)	-0.12*** (0.020)	-0.058*** (0.005)	-0.124*** (0.024)
Diagnostics								
Observations	265276	223478	277971	233580	280999	237811	268051	226343
Wald test	22000.94 (0.00)	.	7791.73 (0.00)	.	18608.89 (0.00)	.	18745.77 (0.00)	.
Pseudo R²	0.065	0.068	0.022	0.029	0.05	0.05	0.05	0.05
Log Likelihood	-168481.31	-140266.88	-176876.5	-148531.06	-179372.92	-149998.72	-171937.32	-143677.88

Notes: (a) ***, **, * denote statistical significance at the 1%, 5% and 10% level respectively, (b) numbers in brackets denote robust standard errors (c) country and year fixed effects are included.

TABLE 2				
Predicted Probability of Trust across sample subgroups				
	ECB	National Government	EU Parliament	European Commission
Scenarios based on a single characteristic	Mean Value	Mean Value	Mean Value	Mean Value
Being in Memorandum/ Not being in Memorandum	0.32/0.59	0.30/0.36	0.40/0.60	0.37/0.59
No downgrade/ Downgrade	0.59/0.45	0.36/0.32	0.60/0.51	0.58/0.50
No upgrade/ Upgrade	0.57/0.68	0.35/0.42	0.59/0.72	0.57/0.71
GDP growth <-0.1 (25 th percentile)	0.52	0.35	0.55	0.54
GDP growth >=-0.1 (25 th percentile) or <3.6 (75 th percentile)	0.57	0.35	0.59	0.57
GDP growth >= 3.6 (75 th percentile)	0.64	0.35	0.65	0.63
Unemployment<5.9 (25 th percentile)	0.64	0.41	0.61	0.59
Unemployment>=5.9 (25 th percentile) or <10.1 (75 th percentile)	0.57	0.35	0.59	0.57
Unemployment>=10.1 (75 th percentile)	0.50	0.31	0.55	0.53
Being Employed/ Unemployed	0.58/0.47	0.36/0.32	0.60/0.49	0.58/0.48
NPL<11.19 (25 th percentile)	0.64	0.41	0.62	0.60
NPL>=11.19 (25 th percentile) or <37.78 (75 th percentile)	0.57	0.35	0.59	0.57
NPL>=37.78 (75 th percentile)	0.49	0.30	0.54	0.53
No High Yield/ High Yield	0.59/0.53	0.36/0.33	0.59/0.58	0.58/0.56
Scenarios based on two characteristics				
If Employed before 2010	0.66	0.38	0.65	0.64
If Employed after 2010 inclusive	0.53	0.34	0.56	0.55
If Unemployed before 2010	0.57	0.35	0.58	0.56
If Unemployed after 2010 inclusive	0.41	0.30	0.45	0.44
If Employed in memorandum absence/ presence	0.59/0.33	0.36/0.30	0.61/0.41	0.59/0.38
If Unemployed in memorandum absence/ presence	0.49/0.24	0.32/0.28	0.51/0.31	0.50/0.29
If downgraded in memorandum absence/ presence	0.48/0.35	0.33/0.31	0.54/0.43	0.52/0.40
If upgraded in memorandum absence	0.68	0.42	0.72	0.71
If high yielded in memorandum absence/ presence	0.55/0.30	0.33/0.31	0.60/0.39	0.58/0.36
If not high yielded in memorandum absence/ presence	0.60/0.34	0.37/0.28	0.60/0.40	0.59/0.37
Scenarios based on three characteristics				
If not downgraded and being employed in memorandum absence	0.60	0.36	0.61	0.60
If downgraded and being unemployed in memorandum presence	0.26	0.29	0.34	0.31
If not upgraded and being employed in memorandum absence	0.59	0.36	0.61	0.59
If not high yielded and being employed in memorandum absence	0.61	0.37	0.60	0.59
If high yielded and being unemployed in memorandum presence	0.21	0.29	0.29	0.26
If not high yielded and not being downgraded in memorandum absence	0.61	0.37	0.60	0.59
If high yielded and being downgraded in memorandum presence	0.34	0.32	0.43	0.40
If not high yielded and not being upgraded in memorandum absence	0.60	0.37	0.60	0.58
Notes: Sociodemographic variables are not mentioned in the table				