

Rosaria Rita Canale
Corresponding author

University of Naples Parthenope,
Department of Accounting,
Business and Economics,
Italy

✉ rorita.canale@uniparthenope.it

Giorgio Liotti

University of Naples Federico II,
Department of Political Sciences,
Italy

✉ giorgio.liotti@unina.it

Fiscal Rules Compliance and Trust in Institution in Eurozone: The Case of European Central Bank

Summary: The institutional and policy features of Eurozone represent a field of special interest to analyse the process of integration. The aim of this study is to investigate on the existence of a trade-off between the compliance to fiscal rules and trust as a proxy of institutional legitimacy in Eurozone. At this scope, the relation between trust in the European Central Bank (ECB) and structural adjustment, together with unemployment and inflation in 11 Eurozone countries from 1999 to 2013, is tested. The empirical results showed that: (i) discretionary policy measures have an opposite sign impact on trust; (ii) in peripheral countries, the structural adjustment is the main variable affecting trust in ECB; (iii) unemployment plays a key role; and (iv) deviation from the objective of 2% of inflation is not significant. These outcomes prove the existence of a trade-off between the fiscal rules commitments and the European institutional consolidation process.

Key words: Trust, ECB, Fiscal policy, Eurozone.

JEL: D63, E02, E31, E63.

Trust in institutions is a basic feature of modern democracies and plays a key role in guaranteeing social, economic, and political stability. Since 1973, the European Commission has monitored the evolution of public opinion in the member states through the Eurobarometer, which is a biannual survey covering a wide range of topics. It includes questions ascertaining to what extent European citizens tend to trust their decision-making bodies.

The aim of this paper is to evaluate up to what extent does the compliance to fiscal rules has an autonomous capacity in affecting trust in the European Central Bank (ECB) in addition to the usual macroeconomic indicators such as unemployment and inflation. To achieve this objective, net trust in ECB is associated with structural public balance adjustment together with unemployment and inflation in 11 Eurozone countries from 1999 to 2013. The empirical results indicated that: (a) restrictive discretionary policy measures have a high, negative impact on trust in ECB and *vice-versa*; (b) unemployment plays a key role; (c) the deviation from the objective of 2% of inflation does not appear to have any relation with the dependent variable when considering the subsample from peripheral countries, namely Greece, Ireland, Italy, Spain, and Portugal; and (d) the structural adjustment is the main variable affecting trust in ECB.

The paper is organized as follows: Section 1 recalls the main literature findings on trust and economic outcomes. Section 2 presents the rationale behind the estimates. Section 3 contains the empirical analysis. After gathering the raw data, it was then divided into two subsections: Subsection 3.1 describes the data and methodology, whereas Subsection 3.2 separately presents the results for the whole sample and for the peripheral countries. Finally, the conclusions are drawn in Section 4.

1. Trust in Institutions and Economic Outcomes: The Literature Background

The prevailing literature analyses on trust through the “vote and popularity” function, according to the soundness of an institution, are examined on the basis of both economic and political determinants. Since the 1970s, the “rationality hypothesis” and the centrality of “economic man” led most authors to mainly concentrate on the economic side of the analysis. The uncontroversial result is that the two main variables considered to be relevant to trust or the so-called “big-two” (Martin Paldam 2004) are inflation and unemployment. Both variables are believed to negatively affect the level of trust.

However, recent contributions using different empirical techniques and concentrating especially on national governments and parliaments have reached mixed results regarding trust in institutions (Peter Nannestad and Paldam 1994). According to these contributions, citizens: (1) are mainly “sociotropic” or are interested in the economic situation of the whole nation; (2) are retrospective with static expectations; and (3) assign greatest importance to the unemployment rate (Linda G. Veiga and Francisco J. Veiga 2004). Conversely, David Sanders (2000) found that by studying the British case, expectations about the economic future play a key role in affecting net trust in national governments. Gebhard Kirchgässner (2009), through the examination of the behaviour of German voters, found that up to 1998, unemployment and inflation had opposite sign effects on trust. In contrast with the Schröder Government, the results were changed as unemployment became non-significant and the inflation rate switched to the opposite direction. The increase in the inflation rate correspondingly increased the net trust in government. Betsey Stevenson and Justin Wolfers (2011) analysed the decline of trust in USA public institutions from 1972 to 2010, which are also documented through the National Election Studies by Arthur H. Miller (1974), John R. Alford (2001), and Pew Research Center (2010), over the business cycle and confirmed the procyclical nature of trust.

The same approach has been used to analyse trust in European institutions, which are considered as a whole. However, as the birth of the Eurozone is relatively recent, empirical analysis started in 1999 and applied panel data methodology with the aim of capturing the degree of strengthening of European institutions. John Hudson (2006) conducted a microeconomic empirical study, which demonstrated that although trust is endogenous with respect to the performance of the institution, changes in the individual’s personal economic circumstances have an impact on trust. Adopting a macroeconomic perspective, Justina A. V. Fischer and Volker Hahn (2008) concentrated on trust in the ECB using the Eurobarometer data from 1999 to 2004. In the

period preceding the financial crisis, the main issue defining trust in the ECB was the inflation rate (positive sign), although some real variables, namely gross domestic product (GDP) and unemployment, have to be taken into account. With the outbreak of the financial crisis, the issue of trust and its link with the economic variables became increasingly important. Sébastien Wälti (2012) empirically showed that the decline of trust in ECB appears to be significantly evident in countries experiencing increasing sovereign bond yields and financial turbulence. This leads to the seemingly counterintuitive result that country-specific variables affect trust in a supranational institution. Michael Ehrmann, Michel Soudan, and Livio Stracca (2013), through a microfounded empirical model that takes into account the numerous factors affecting personal economic situations, proved that the decline in trust in ECB is due to the combination of the following three effects: (i) the deterioration in the economic condition during the crisis; (ii) the overall decline in public trust in the European project during the crisis, because citizens perceived Europe as being unable to address issues related to the global crisis; and (iii) the fact that the ECB was associated with the problems of the financial sector. However, they concluded that the evolution of the macro-economy is sufficient to explain the decline in trust and that there was no sufficient change in the regularities of the coefficient between normal and crisis times. Focusing on the institutional commitments of the ECB, Karl Kaltenthaler, Christopher J. Anderson, and William J. Miller (2010) concluded that the lack of trust of European citizens in the ECB is due to: (a) the deterioration of the economic situation; (b) the decline in trust in the European project; and (c) the association of the ECB with the problems in the financial sector (Kaltenthaler, Anderson, and Miller 2010). The first two factors are also relevant to non-crisis times. With regards to the institutional commitments of a central bank, Muhammad A. Hayat and Étienne Farvaque (2011) estimated the probability of removal of a central banker in 103 countries all over the world. The main conclusion is that “central bankers’ removals are related to banking and currency crises, to elections and the change in the strength of democracy, and to inflation performance and globalization” (Hayat and Farvaque 2011).

Felix Roth (2009) and Roth, Felicitas Nowak-Lehmann D., and Thomas Otter (2011) analysed the determinants of trust of all three European institutions, namely the ECB, European Commission, and European Parliament. Aside from inflation and unemployment, they considered a set of macroeconomic variables, such as debt and GDP growth, as possible determinants. They concluded that unemployment and growth affect the citizens’ trust, whereas government debt and inflation do not have any effect during periods of economic distress. In particular, Daniel Gros, Nowak-Lehmann D., and Roth (2014) detected a negative and significant relationship between unemployment and trust in the ECB during crisis using a panel data analysis on 12 Eurozone countries. This loss of trust is strongly driven by the significant increase in unemployment rates in the four peripheral countries, namely Spain, Ireland, Greece, and Portugal.

The effect of discretionary policy measures on trust in European institutions has not been analysed yet with a macroeconomic perspective in the years before the crisis. There is a lot of literature – starting from the seminal contribution of James M. Buchanan and Gordon Tullock (1962) – referring to the subordination of public

expenditure to the consensus mechanism. The main idea is that, as the aim of government officials is to be re-elected, they resort to using public resources to increase the number of their votes, rather than to reach targets of true public interest. The literature refers also to an increase in confidence linked to fiscal retrenchments: it boosts both private consumption and investment and therefore growth and employment. The increase in confidence is not directly tested, but it is the channel through which a reduction in the public deficit is supposed to cause an increase in aggregate demand. These conclusions are drawn from the study by Robert J. Barro (1974) and are called Keynesian effects of non-Keynesian fiscal policies, wherein if an increase in consumption and investment is observed during a period of fiscal retrenchments, it proves that individuals and firms have revised their permanent income upward and that the cause of this revision is the consolidation of public finances. The effects of fiscal consolidations are assured by a kind of “super-Barro effect”, according to which fiscal contraction has a more than proportional effect on permanent income *via* the increase in confidence (Francesco Giavazzi and Marco Pagano 1990; Rosaria Rita Canale et al. 2008; Mariangela Bonasia and Canale 2015). If this relation were true, an increase in trust during periods of fiscal consolidation programmes should be detected. A reverse causality was detected by Yasemin Özerkek and Sadullah Çelik (2010). Furthermore, Klaus Armigeon, Kai Guthmann, and David Weisstanner (2016) found a direct link between internal devaluation and the lack of support for both national and supranational governments in the Eurozone – individuating in the impossibility to choose between alternatives, which is the key to interpret the weakening of democracy in the last years.

2. The Fiscal Policy Framework and the Trust in the European Institutions: The Rationale behind the Estimates

The policy framework in Eurozone is the most faithful implementation of the ineffective fiscal policy theoretical principles, because public expenditure is unable to change the equilibrium income in the long-run. It is better to avoid the real financial instability derived from the excessive issue of public debt. Fiscal discipline is a prerequisite for long-term stable growth. National governments belonging to the Economic and Monetary Union (EMU) are supposed to respect rigid parameters and cannot freely use fiscal policy.

The EMU is the only one that is adopting fiscal rules at a supranational level, at it is seen as an instrument of external discipline as a substitute or complement to domestic discipline. As a matter of fact, there are a number of externalities specifically linked to the presence of a common currency, namely: (1) incentive to run deficits with a fixed-exchange rate; (2) the existence of a financial cost of debt default due to banks holdings of government debt; and (3) the presence of economic costs of a debt default due to the pressure on the ECB to inflate away.

Increasing public deficit to be financed by additional debt is likely to produce asymmetrical macroeconomic effects among EMU countries. In the absence of a shared policy mechanism, it is desirable to have common rules to avoid inflation contagion and sudden stops in capital flows. Increasing reliance on rules improves

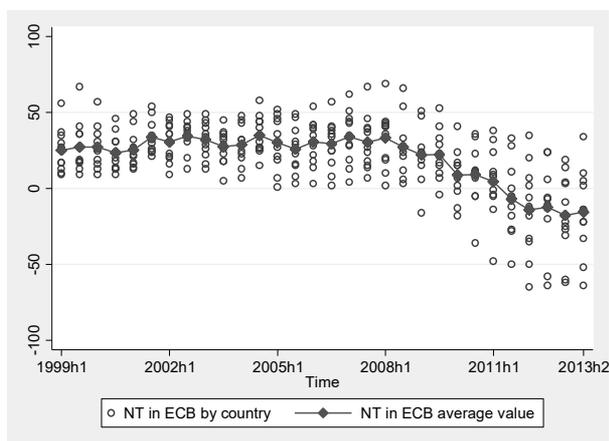
predictability, addresses political failures, increases credibility, and enforces coordination among different countries. In this context, national governments do not have the autonomous ability to manage fiscal policy for internal purposes. Countries are forced to implement fiscal retrenchments and structural public balance adjustments when their parameters are above the threshold, thus transforming fiscal policy from a policy instrument into a policy objective. All the countries in our samples experienced periods of structural adjustments. Majority of them started to implement discretionary fiscal policy measures before the crisis. However, the measures increased after the crisis, especially in the countries experiencing a greater decline in their general macroeconomic conditions. Following the argument of the paper, it has a great role in defining the wave of trust in each country. When structural adjustments are implemented because of supranational fiscal rules, citizens perceive that the constraint of the Eurozone reduces their ability to choose the action of their governments and attribute the responsibility of restrictive fiscal measures to the European institutions. When on the contrary, as the fiscal expansions are implemented, the average trust increases, thus increasing their support to the European consolidation process.

In other words, in the absence of a shared policy action, as citizens perceive the conflict between internal and supranational interest, they attribute the responsibility of internal devaluation to European institution. This is not in contrast with the fact that citizens may attribute responsibility or merit of internal condition to national governments, but rather, it is a sign of awareness that whatever the national past and present responsibilities or the merits about public account dynamics are, the European policy framework is given and it provides the future threshold in which the national policy can move (Armigeon, Guthmann, and Weisstanner 2016). In a country outside the Eurozone, policy authorities can choose between a set of options – implying a higher or a lower level of sacrifice either in the short- or in the long-run. The crucial difference between the currency union countries is the absence of choice regarding fiscal policy options, which therefore implies that trust in European institutions can be autonomously analysed with respect to the national governments. It can be considered as a by-product of the consent registered by national governments, and it can also be interpreted as the judgement toward the ability of national policy authority to pursue internal objectives in presence of external constraints. As a matter of fact, the conflict arises when the trade-off between internal goals and the compliance to rules forces governments to choose the latter in deciding to exit the EMU. Under this matter, the case of the Greek referendum in July 2015 is emblematic: despite the fact that majority of the population voted “no” to the reforms and structural adjustment programs proposed by the “Troyka”, the government was bound to avoid the departure from the EMU (Armigeon, Guthmann, and Weisstanner 2016).

3. Empirical Analysis

This paper focuses on Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain and covers the time span from 1999 to 2013. These countries share the common currency from the beginning except Greece, which joined the Euro only in 2001. Following the literature on the Eurozone, Luxembourg is excluded from this analysis due to its particular real and financial features (Paul De

Grauwe and Yumei Ji 2013). These 11 Eurozone countries were considered as they share the same policy rules from the introduction of the common currency. The policy framework of the Eurozone suggests that compliance to rules is necessary to share a common and reliable currency, and it forces each country to implement fiscal retrenchments every time the thresholds are not met and provide the “permission” to expand fiscal deficits when otherwise. Therefore, they represent a homogeneous sample in which the opinions about the policy choices were evaluated from.



Notes: We used data from Standard Eurobarometer number 51 to Standard Eurobarometer number 80.

Source: Authors' calculation based on data from European Commission (2013)¹.

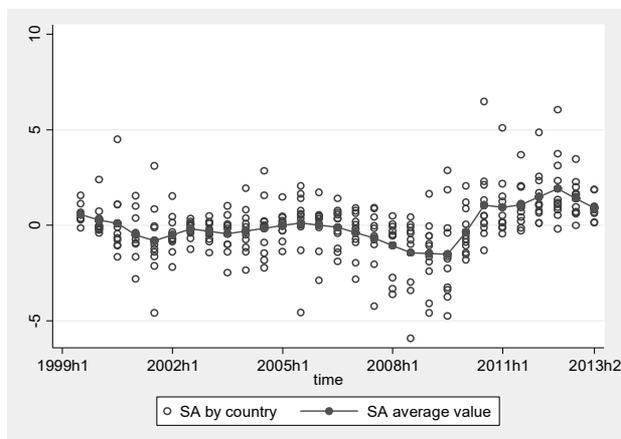
Figure 1 Net Trust in ECB: Time Dynamics

The description of the two main variables considered provides a glimpse of the argument presented in this study. In Figures 1 and 2, the net trust for ECB, or the difference between the percentages of those who trust and of those who do not trust in ECB, and structural adjustment are presented in respective time dynamics. Here, the net trust is calculated as the percentage of all the population interviewed by using raw data available on the European Commission website (Standard Eurobarometer). In the empirical analysis, further steps in calculating the indexes are presented.

The structural public balance adjustment is the change in structural public balance that occurred in the present and in the past, and it is the measure of the nature, either expansionary or restrictive, and the amount of discretionary policy measures. Following the Organization for Economic Co-operation and Development's (OECD) definition, the decomposition of the public budget into current, cyclical, and structural components is aimed at separating cyclical from non-cyclical influences on the budget balance resulting from the divergence between actual and potential output or the output gap. As a consequence, changes in structural budgets “can be seen as a cause rather

¹ **European Commission.** 2013. Standard Eurobarometer. http://ec.europa.eu/commfrontoffice/publicopinion/archives/eb_arch_en.htm (accessed November 27, 2015).

than an effect of output fluctuations and may be interpreted as indicative of discretionary policy adjustments” and therefore as exogenous measures (OECD 2002)².



Source: Authors' calculation based on data from International Monetary Fund (IMF 2013)³.

Figure 2 Structural Adjustment: Time Dynamics

Following the Eurobarometer survey, data on trust are collected biannually, whereas data on structural adjustment are collected annually; hence, the half-yearly observations were derived through the interpolation method (Erik Meijering 2002).

In the two graphs, the hollow circles indicate data on net trust in ECB and structural adjustment, respectively, in each country in the time span considered, whereas the continuous line indicates the average values for the whole sample. Figure 1 shows that the average net trust ranges from approximately -50% to +50%, while the structural adjustment depicted in Figure 2, varies from +5% to -5%, and only Greece reached a value of about 7%. At the launch of the Euro, average net trust was positive and rather stable with slight differences among single countries. In the second decade of 2000s, the differences increased and net trust started to decline, reaching the average negative values at the end of 2011. The structural adjustment shows a wider range of oscillation among countries in the time span considered. At the eruption of the crisis in the second half of 2007, its average value decreased, indicating average expansionary discretionary fiscal policies. However, after a year and a half, restrictive fiscal measures were implemented, especially in some countries, and the line representing the average became upward sloped.

After the first initial shock coming from the crisis during which there was a short period of tolerance and in the absence of a common fiscal authority, spendthrift countries were forced to implement fiscal retrenchments in the conviction that a sound

² **Organization for Economic Co-operation and Development (OECD)**. 2002. Glossary of Statistical Terms. <http://stats.oecd.org/glossary/detail.asp?ID=3343> (accessed December 10, 2015).

³ **International Monetary Fund (IMF)**. 2013. World Economic Outlook Database. <http://www.imf.org/external/pubs/ft/weo/2013/02/weodata/index.aspx> (accessed March 02, 2017).

public finance is a prerequisite for the stability of interest rates and long-term stable growth (Miroslav Prokopijević 2010; Casimir Dadak 2011).

According to the figures presented, average net trust and structural adjustments vary in the opposite direction: the heterogeneity across countries does not alter the picture as the average values and the width of the biannual observations are associated with opposite sign average values and similar width of the biannual observation of the second variable. The data presented in the graphs paved the way for an empirical model by taking into account the heterogeneity across countries both in terms of individual features and time in which exogenous measures are implemented. It seems counterintuitive that national policy measures define trust in supranational institutions. However, the former are always implemented by taking into account the supranational constraints.

3.1 Data and Methodology

The countries included in our study were Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain, wherein most of which joined the Euro since its establishment. However, Greece joined the Euro only in 2001.

Net trust in ECB is regarded as a dependent variable and is collected from the standard Eurobarometer dataset (European Commission 2013). The standard Eurobarometer was established in 1973. Each survey consisted of approximately 1,000 face-to-face interviews per member state and reports published twice yearly – with the exception of Germany, Luxembourg, and United Kingdom including Northern Ireland, which had 1,500, 500, and 1,300 interviews, respectively. The question in the standard Eurobarometer survey with which our study is concerned in is: “For each of the following European bodies, please tell me if you tend to trust it or tend not to trust it”. The possibility of responding “I don’t know” was also considered. The answers regarding trust in ECB were recorded.

To calculate the measure of trust ranging from zero to 100, two measures were considered in the estimates: the first measure, or net trust, was calculated as the difference between the percentages of those who answered “tend to trust” and those who replied “tend not to trust”. The percentage is calculated on the total population interviewed. Hereafter, the indicator is called *NTP* (from “Net Trust as a percentage of total population” including “don’t knows”) (Gros, Nowak-Lehmann D., and Roth 2014). The second indicator is calculated as the ratio between net trust and the sum of those who answered “tend to trust” plus those who answered “tend not to trust” (Wälti 2012). Hereafter, the indicator is called *NEDK* (from “Net Trust as a percentage of total population” excluding “don’t knows”). The two methods are quite different as the *NTP* indicator is calculated as a percentage of total interviewees, while the *NEDK* index is calculated as a percentage of those who show some knowledge about European institutions. The *NTP* indicator is not affected by the size of the sample, but it includes even those who do not have enough information to astutely express an opinion. The *NEDK* index overcomes this limit, but it is biased due to the change in the number of those who know nothing about the institutions concerned. Each of these two indicators captures different views of the interviewees, thus assigning a different meaning to the “don’t knows”. The *NTP* indicator is supposed to be included as it expresses a sense

of dissatisfaction towards the institutions' performance. On the other hand, *NDEK* indicator is supposed to be excluded, because there are not enough instruments to express a judgement. If the results regarding the two indicators were similar, it would prove that the dissatisfaction towards the European institution cannot be imputed to ignorance.

The data on structural balance were collected from the International Monetary Fund database (2013). Structural adjustment was computed as the difference between two consecutive structural balances $SA_{t,i} = SB_{t,i} - SB_{t-1,i}$, where $SA_{t,i}$ is the structural adjustment occurring between the final year t and the initial t_{1-1} in the i^{th} country, and $SB_{t,i}$ and $SA_{t-1,i}$ are the structural balances as percentages of the output potential in the current and preceding years, respectively. A positive value of $SA_{t,i}$ corresponds to the implementation of restrictive discretionary fiscal policy measures, whereas a negative value indicates expansive discretionary fiscal policy measures. In addition, as suggested by the standard literature about the "popularity function", inflation and unemployment were included. Data about unemployment and inflation are available in the Eurostat (2015) website⁴. As the standard Eurobarometer is a biannual survey, the sample period dates from the first six months of 1999 until the last six months of 2013. However, structural adjustment is computed as the difference between the structural balance at time t minus the structural balance at time $t-1$, so that $t = 29$, $n = 11$, making a total of 319 observations. The same occurs for the lagged dependent variable. As the Eurobarometer survey is carried out twice a year, during April and October, May and November, or June and December, the independent variables had to be transformed to make them consistent with the dependent variables. Inflation and unemployment were calculated as the averages between the months before two consecutive surveys were conducted. For instance, when surveys were conducted in June and December, the explanatory variables were calculated as the monthly averages between May and November. Furthermore, the data on inflation deviated from the ECB target value of 2% (Wälti 2012). Finally, the data on Structural Balance, and hence Structural adjustment, were collected annually, and the missing values were calculated using the linear interpolation method as previously stated:

$$NT_{i,t} = \alpha_i + \beta_1 NT_{i,t-1} + \beta_2 UN_{i,t} + \beta_3 INF_{i,t} + \beta_4 SA_{i,t} + \varepsilon_{i,t} \quad (1)$$

NT or net trust in ECB is measured using the *NTP* indicator or the *NEDK* indicator, wherein *UN* refers to unemployment, *INF* refers to inflation, *SA* refers to structural adjustment, and $\varepsilon_{i,t}$ represents the error term. The suffix t indicates the time period, and i represents each country. In Equation (1), α_i is the constant term considering heterogeneity across countries, β_1 is the coefficient of the lagged dependent variable introduced in the regression to account for autocorrelation and both institutional and national specific factors affecting the net trust in each single country, and β_2 , β_3 , and β_4 are the coefficients of the independent variables. The empirical methodology adopted is a panel regression, which included countries and time fixed effects. The countries and time fixed effects are introduced, because of the assumption that each country is different and had different experiences during these years in regard to both macroeconomic context and the time in which the shocks occurred. These hypotheses prevented

⁴ Eurostat. 2015. Database. <http://ec.europa.eu/eurostat/data/database> (accessed November 15, 2015).

the individual aggregate trends, which are not connected to causal relationships, to affect the estimates. The goodness of these two assumptions is confirmed by post-estimation tests rejecting the null hypothesis of zero joint time coefficients and by the Jerry A. Hausman (1978) test.

3.2 Empirical Results

As stated above, two indicators, namely *NTP* and *NEDK*, were taken into account. Table 1 presents the estimation results of Equation (1).

In Table 1, the results of the coefficients for the *NTP* indicator are as follows: (i) unemployment is significant and has a negative sign ($\beta_2 = -0.896$); (ii) inflation is not relevant; and (iii) discretionary policy measures increase trust when they are expansionary and reduce trust when they are restrictive ($\beta_4 = -0.846$).

Table 1 Net Trust in the ECB and Macroeconomic Indicators (1999-2013): Whole Sample

Independent variables	<i>NTP</i> indicator	<i>NEDK</i> indicator
Constant	15.4762*** (3.444)	21.514*** (3.635)
NT_{t-1}	0.602*** (0.049)	0.558*** (0.050)
<i>UN</i>	-0.896*** (0.232)	-1.466*** (0.269)
<i>INF</i>	0.005 (0.609)	-0.469 (0.560)
<i>SA</i>	-0.846** (0.379)	-1.022** (0.413)
Observations	319	319
Number of groups	11	11
R-squared	0.8963	0.8836

Notes: Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The *NTP* indicator is calculated as the difference between those who trust minus those who do not trust and is expressed as a percentage of the total population interviewed. *INF* and *UN* are calculated as the average of monthly data between the month before the fieldwork t and the first month after the fieldwork $t-1$. Monthly *INF* data are calculated as the deviation from the 2% ECB target. *SA* is the difference between *SB* at time t and *SB* at time $t-1$.

Source: Authors' estimation.

When considering the *NEDK* indicator, the following values were derived: (a) $\beta_2 = -1.466$; (b) β_3 is not significant; and (c) $\beta_4 = -1.022$. According to the study participants who were capable of evaluating the monetary policy body behaviour, unemployment and structural adjustment have a greater impact on net trust.

The same empirical estimates were performed for the peripheral countries, as shown in Table 2. The structural adjustment appears to be the variable that greatly influenced trust in ECB. The coefficient had greater values, which are $\beta_4 = -2.105$ and

$\beta_4 = -2.571$ for *NTP* and *NEDK* indicators, respectively, as compared with the previous estimates. Citizens who stated they knew how Eurozone functions appear to individualize a stronger link between national discretionary policy measures and net trust in ECB.

To check for the robustness of the results under the methodology adopted, the test for heteroskedasticity based on Breusch-Pagan (Travor S. Breusch and Adrian R. Pagan 1979, 1980) and Cook-Weisberg (R. Dennis Cook and Sanford Weisberg 1983) tests has been performed on all the regressions. The hypothesis of constant variance is accepted for all of the tests.

Table 2 Net Trust in the ECB and Macroeconomic Indicators (1999-2013): Peripheral Countries

Independent variables	<i>NTP</i> indicator	<i>NEDK</i> indicator
Constant	28.704 *** (5.972)	40.052 *** (7.807)
<i>NT</i> _{<i>t</i>-1}	0.357*** (0.087)	0.296*** (0.090)
<i>UN</i>	-0.654* (0.353)	-0.456 (0.449)
<i>INF</i>	1.084 (0.966)	0.618 (1.230)
<i>SA</i>	-2.105*** (0.574)	-2.571 *** (0.730)
Observations	139	139
Number of groups	5	5
<i>R</i> -squared	0.9176	0.8982

Notes: Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The *NTP* indicator is calculated as the difference between those who trust and those who do not trust and is expressed as a percentage of the total population interviewed. *INF* and *UN* are calculated as the average of monthly data between the month before the fieldwork *t* and the first month after the fieldwork *t*-1. Monthly *INF* data are calculated as the deviation from the 2% ECB target. *SA* is the difference between *SB* at time *t* and *SB* at time *t*-1.

Source: Authors' estimation.

Furthermore, the presence of cross-sectional dependence was verified through the Milton Friedman (1937), Edward W. Frees (1995), and M. Hashem Pesaran (2004) tests. The null hypothesis of cross-sectional independence is accepted for all the estimations (John C. Driscoll and Aart C. Kraay 1998). Furthermore, supposing that the variance of the coefficient estimates could be inflated by multicollinearity among the predictors, especially between unemployment and structural adjustment, the variance inflation factor and the correlation matrix were computed (Canale and Giorgio Liotti 2015). Variance inflation factor had values that are below 5 in which the variables performance as a whole and their reciprocal relationship were both considered. Therefore, the hypothesis of multicollinearity is rejected. Finally, the correlation between

the structural adjustment and each individual error term of the regressions are very low, which indicates that it can be considered as an exogenous regressor. However, this can be attributed to the nature of the variable, which is defined as the government autonomous decisions.

Based on the results, a trade-off between fiscal rule compliance and trust in ECB exists. When fiscal parameters require structural adjustments, it causes a decrease in net trust; and when countries, on the contrary, have room to expand fiscal deficit, citizens perceive Eurozone not as a “coercive” framework, and therefore they increase their trust in its main institution. This result is reinforced for peripheral countries, which perceived that the renunciation of the policy autonomy is made in exchange of greater losses rather than greater gains.

4. Conclusion

Trust is a very important feature of democratic institutions, as it measures the perception of how such institutions serve the public interest. The institutional structure of the Eurozone offers a very particular field of investigation, allowing the degree of integration of national economies into a supranational cohesive framework to be evaluated. Therefore, the question of up to what extent European do citizens hold the ECB responsible for their national economic situation can be raised.

The aim of this paper is to evaluate the existence of a trade-off between fiscal rules compliance and institutional legitimacy in the Eurozone to estimate if the citizens believe that being member of the Eurozone leads to more losses rather than gains. The results help to understand what could contribute to a more trusted and integrated EMU. Based on the main literature on the subject, it was concluded that economic outcomes are of great importance in defining trust. In particular, the compliance to fiscal rules and the nature and amount of structural public balance adjustments have, according to the citizens from the 11 Euro Area countries examined, an opposite sign impact on trust in ECB. When the subsample of peripheral countries is considered, this result appeared to be reinforced. This can be assured due to the very high negative impact of the fiscal consolidation programmes that were imposed in the previous years.

Furthermore, the results support the conclusion that citizens’ trust depend on unemployment as well but not on the deviation from the inflation target. These conclusions appear to be in conflict with those reached by the standard macroeconomic literature according to which a stable inflation rate increases confidence and assures convergence towards long-term stable growth. The consequence that could be derived from the results is that when national fiscal policies are forced inside supranational constraints, they appear to undermine the process of institutional consolidation of the Eurozone because of a widely held belief that the European policy framework represents a constraint that is preventing national interests from being taken into consideration rather than a guarantee of long-term stable growth. The fiscal parameters could be obtained at the expense of the institutional consolidation process in the Eurozone and an ever increasing loss of legitimacy.

References

- Alford, John R.** 2001. "We're All in this Together: The Decline of Trust in Government, 1958-1996." In *What Is It about Government that Americans Dislike?*, ed. John R. Hibbing and Elizabeth Theiss-Morse, 28-46. New York: Cambridge University Press.
- Armigeon, Klaus, Kai Guthmann, and David Weisstanner.** 2016. "How the Euro Divides the Union: The Effect of Economic Adjustment on Support for Democracy in Europe." *Socio Economic Review*, 14(1): 1-26. <http://dx.doi.org/10.1093/ser/mwv028>
- Barro, Robert J.** 1974. "Are Government Bonds Net Wealth?" *Journal of Political Economy*, 82(6): 1095-1117. <http://dx.doi.org/10.1086/260266>
- Bonasia, Mariangela, and Rosaria Rita Canale.** 2015. "On the Objective of Sound Public Finance in Eurozone." *Rivista Internazionale di Scienze Sociali*, 129(2): 161-178.
- Breusch, Trevor S., and Adrian R. Pagan.** 1979. "A Simple Test for Heteroskedasticity and Random Coefficient Variation." *Econometrica*, 47(5): 1287-1294. <http://dx.doi.org/10.2307/1911963>
- Breusch, Trevor S., and Adrian R. Pagan.** 1980. "The Lagrange Multiplier Test and Its Applications to Model Specification in Econometrics." *Review of Economic Studies*, 47(1): 239-253. <http://dx.doi.org/10.2307/2297111>
- Buchanan, James M., and Gordon Tullock,** ed. 1962. *The Collected Works of James M. Buchanan - The Calculus of Consent: Logical Foundation of Constitutional Democracy*. Vol. 3. Ann Arbor: University of Michigan Press.
- Canale, Rosaria Rita, Pasquale Foresti, Ugo Marani, and Oreste Napolitano.** 2008. "On Keynesian Effects of (Apparent) Non-Keynesian Fiscal Policies." *Politica Economica*, 24(1): 5-46. <http://dx.doi.org/10.1429/26965>
- Canale, Rosaria Rita, and Giorgio Liotti.** 2015. "Structural Adjustment and Unemployment in Selected Eurozone Countries." *Australian Economic Review*, 48(2): 113-121. <http://dx.doi.org/10.1111/1467-8462.12094>
- Cook, R. Dennis, and Sanford Weisberg.** 1983. "Diagnostics for Heteroskedasticity in Regression." *Biometrika*, 70(1): 1-10. <http://dx.doi.org/10.1093/biomet/70.1.1>
- Dadak, Casimir.** 2011. "Political Economy of the Euro Area Crisis." *Panoeconomicus*, 58(5): 593-604. <http://dx.doi.org/10.2298/PAN1105593D>
- De Grauwe, Paul, and Yumei Ji.** 2013. "Self-Fulfilling Crisis in the Eurozone: An Empirical Test." *Journal of International Money and Finance*, 34: 15-36. <http://dx.doi.org/10.1016/j.jimonfin.2012.11.003>
- Driscoll, John C., and Aart C. Kraay.** 1998. "Consistent Covariance Matrix Estimation with Spatially Dependent Panel Data." *Review of Economics and Statistics*, 80(4): 549-560. <http://dx.doi.org/10.1162/003465398557825>
- Ehrmann, Michael, Michel Soudan, and Livio Stracca.** 2013. "Explaining EU Citizens' Trust in the ECB in Normal and Crisis Time." *Scandinavian Journal of Economics*, 115(3): 781-807. <http://dx.doi.org/10.1111/sjoe.12020>
- Fischer, Justina A. V., and Volker Hahn.** 2008. "Determinants of Trust in the European Central Bank." Stockholm School of Economics Working Paper in Economics and Finance 695.
- Frees, Edward W.** 1995. "Assessing Cross-Sectional Correlation in Panel Data." *Journal of Econometrics*, 69(2): 393-414. [http://dx.doi.org/10.1016/0304-4076\(94\)01658-M](http://dx.doi.org/10.1016/0304-4076(94)01658-M)
- Friedman, Milton.** 1937. "The Use of Ranks to Avoid the Assumption of Normality Implicit in the Analysis of Variance." *Journal of the American Statistical Association*, 32(200): 675-701. <http://dx.doi.org/10.1080/01621459.1937.10503522>

- Giavazzi, Francesco, and Marco Pagano.** 1990. "Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries." National Bureau of Economic Research Working Paper 3372.
- Gros, Daniel, Felicitas Nowak-Lehmann D., and Felix Roth.** 2014. "Crisis and Citizens' Trust in the European Central Bank - Panel Data Evidence for the Euro Area, 1999-2012." *Journal of European Integration*, 36(3): 303-320. <http://dx.doi.org/10.1080/07036337.2014.886400>
- Hausman, Jerry A.** 1978. "Specification Tests in Econometrics." *Econometrica*, 46(6): 1251-1271. <http://dx.doi.org/10.2307/1913827>
- Hayat, Muhammad A., and Étienne Farvaque.** 2011. "When Are Central Bankers Removed?" *Revue Economique*, 62(3): 471-478. <http://dx.doi.org/10.3917/reco.623.0471>
- Hudson, John.** 2006. "Institutional Trust and Subjective Well-Being across the EU." *Kyklos*, 59(1): 43-62. <http://dx.doi.org/10.1111/j.1467-6435.2006.00319.x>
- Kaltenthaler, Karl, Christopher J. Anderson, and William J. Miller.** 2010. "Accountability and Independent Central Banks: Europeans and Distrust of the European Central Bank." *Journal of Common Market Studies*, 48(5): 1261-1281. <http://dx.doi.org/10.1111/j.1468-5965.2010.02112.x>
- Kirchgässner, Gebhard.** 2009. "The Lost Popularity Function: Are Unemployment and Inflation No Longer Relevant for the Behaviour of German Voters?" Center for Economic Studies ifo Working Paper 2882.
- Meijering, Erik.** 2002. "A Chronology of Interpolation: From Ancient Astronomy to Modern Signal and Image Processing." *Proceedings of the Institute of Electrical and Electronics Engineers*, 90(3): 319-342. <http://dx.doi.org/10.1109/5.993400>
- Miller, Arthur H.** 1974. "Political Issues and Trust in Government: 1964-1970." *American Political Science Review*, 68(3): 951-972. <http://dx.doi.org/10.2307/1959140>
- Nannestad, Peter, and Martin Paldam.** 1994. "The VP Function: A Survey of the Literature on Vote and Popularity Functions after 25 Years." *Public Choice*, 79(3-4): 213-245. <http://dx.doi.org/10.1007/BF01047771>
- Özerkek, Yasemin, and Sadullah Çelik.** 2010. "The Link between Government Spending, Consumer Confidence and Consumption Expenditures in Emerging Market Countries." *Panoeconomicus*, 57(4): 471-485. <http://dx.doi.org/10.2298/PAN1004471O>
- Paldam, Martin.** 2004. "Are Vote and Popularity Functions Economically Correct?" In *The Encyclopedia of Public Choice*, ed. Charles K. Rowley and Friedrich Schneider, 49-59. Boston, M.A.: Springer.
- Pesaran, M. Hashem.** 2004. "General Diagnostic Tests for Cross Section Dependence in Panels." Cambridge Working Paper in Economics 0435. <http://dx.doi.org/10.17863/CAM.5113>
- Pew Research Center.** 2010. "Distrust, Discontent, Anger and Partisan Rancor: The People and Their Government." <http://www.people-press.org/2010/04/18/distrust-discontent-anger-and-partisan-rancor/> (accessed April 18, 2010).
- Prokopijević, Miroslav.** 2010. "Euro Crisis." *Panoeconomicus*, 57(3): 369-384. <http://dx.doi.org/10.2298/PAN1003369P>
- Roth, Felix.** 2009. "The Effect of the Financial Crisis on Systemic Trust." *Intereconomics*, 44(4): 203-208. <http://dx.doi.org/10.1007/s10272-009-0296-9>
- Roth, Felix, Felicitas Nowak-Lehmann D., and Thomas Otter.** 2011. "Has the Financial Crisis Shattered Citizens' Trust in National and European Governmental Institutions?"

- Evidence from the EU Member States, 1999-2010.” Centre for European Policy Studies Working Document 343.
- Sanders, David.** 2000. “The Real Economy and the Perceived Economy in Popularity Function: How Much Do Voters Need to Know? A Study of British Data, 1974-1997.” Institut de Ciències Polítiques i Socials Working Paper 170.
- Stevenson, Betsey, and Justin Wolfers.** 2011. “Trust in Public Institutions over the Business Cycle.” *American Economic Review*, 101(3): 281-287.
<http://dx.doi.org/10.1257/aer.101.3.281>
- Veiga, Linda G., and Francisco J. Veiga.** 2004. “Political Business Cycles at the Municipal Level.” *Public Choice*, 131(2): 45-64.
- Wälti, Sébastien.** 2012. “Trust No More? The Impact of the Crisis on Citizens’ Trust in Central Banks.” *Journal of International Money and Finance*, 31(3): 593-605.
<http://dx.doi.org/10.1016/j.jimonfin.2011.11.012>

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