

# The influence of government ideology on corruption: the impact of the Great Recession

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## Abstract

This paper studies the relationship between government ideology and the level of perceived corruption, using a panel data of OECD countries covering the years 1996 to 2015, and the effect that the Great Recession has exerted on that relationship. We find that, before the onset of the Great Recession, governments formed by one (or more) right-wing parties are perceived as being around 1% more corrupt than those formed by one (or more) left-wing parties. We also find that misuse of public funds under coalitional governments is more likely to be perceived, that the longer the party of the current chief executive has been in office, the higher is the level of perceived corruption, and that minority governments and parties with a greater weight in the legislative chamber are also perceived as being more corrupt. However, the Great Recession has altered these relationships, increasing perceived corruption as the elections come closer, and softening or changing the impact of other political variables on perceived corruption.

*JEL codes:* C23; D72; H11; K42.

*Keywords:* government ideology; corruption; public opinion; panel data.

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## 1. INTRODUCTION

Corruption could be seen as an exclusive feature of developing countries, but industrialized nations are not free of this scourge. Increasing press freedom, civil participation in politics, and administrative transparency have all contributed to unmask numerous political scandals involving the governments of developed countries, increasing the perception of corruption in administrations. In fact, over 50% of OECD citizens think that corruption is widespread throughout their public administration.<sup>1</sup> This is not a trivial matter. According to the OECD, corruption in the public sector “hampers the efficiency of public services, undermines confidence in public institutions and increases the cost of public transactions”. Therefore, the diversion of public assets for individual gain can severely erode economic growth, individual welfare, and the very reputation of democracy.

The perception of honesty in politics has declined since the onset of the economic crisis. The increasing discontent of citizens in developed countries with the political establishment has been reflected in the appearance of new political parties. In the general elections that have taken place in our sample countries during and after the recent economic crisis, citizens have generally punished governments in power, and newer parties have gained ground. These parties may belong to ideological extremes: from right-wing (*Alternative für Deutschland* in Germany) to left-wing positions (*Syriza* in Greece, *Movimento 5 Stelle* in Italy, *Podemos* in Spain), but there are also examples of parties placed in the centre of the ideological spectrum (*La République En Marche!* in France, *Ciudadanos* in Spain, *Akce Nespokojených Občanů 2011* in Czech Republic). Moreover, voters have increased their support for several right-wing, extremist, older parties, such as *Front national* in France, *Party for Freedom* in the Netherlands, and *Golden Dawn* in Greece, and the discourse of certain traditional parties has drifted towards more conservative ideas. In many countries, this political renewal, usually characterized by populist arguments and personality cults, has left the traditional two-party predominance behind. Evidencing their concerns, citizens have sanctioned corrupt behaviour by voting for these alternative parties, which incorporate in their electoral programmes the regeneration of a corrupt political class. Many of these new parties share common economic proposals aimed at

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<sup>1</sup> According to the Gallup database (2015 survey).

augmenting economic protectionism and being sceptical about political and trade agreements, such as NAFTA, or even the European Union. Thus, future economic trajectories in many countries are strongly linked to the political landscape.

However, the degree and extent of political change among the countries in our sample is wide-ranged, and some of them have not been involved in this “cathartic” process or, at least, its effect has been marginal. The reasons behind these different political paths, among many others, could be the corruption caused by the political party or parties that were in power before and during the crisis. In those countries where the voters question the honesty of incumbents, the political scene is more likely to have changed and, therefore, economic performance could be affected. But, in those countries with governments perceived as honest, the previous scenario is more likely to have remained. In this context, one question arises: does any political or electoral feature especially encourage corruption in the public sector? And, therefore, what characteristics of the ruling government determine the citizens’ perceptions of corruption? Have these characteristics maintained their effect on perceived corruption from the onset of the Great Recession?

Though the academic literature has largely analysed the determinants of perceived corruption, as shown in the next section, the political aspects have not been closely examined. The management of this recent economic crisis has varied from one government to another, with times of shortage being propitious in unveiling public abuse/misuse that was previously hidden. Thus, the relationship between political factors and perceived corruption could have been affected by the recent economic crisis, with its influence still waiting to be explored.

This paper aims to bridge the gap by proposing a panel data model to analyse the influence of government ideology and other political and electoral factors on the level of perceived corruption in OECD countries, in the period 1996-2015, focusing on the impact of the Great Recession on these relations. As the crisis has asymmetrically impacted developed and developing countries, we analyse only the former to account for a more homogeneous sample and more accurately identify the fundamentals. Our findings suggest that political factors do play a role in the perceived level of corruption, and that these relationships have been modified by the Great Recession. The consequences

of the budgetary constraints of such a steep economic downturn may have changed perceptions of public corruption because, with fewer public resources available, the fewer the opportunities for corruption, regardless of the ideology of the ruling political party. Moreover, the discouragement of citizens generated by the complex and varied management of the crisis could have led to the rise of less distinguished political parties. Results seem to confirm this hypothesis: a government made up of one (or more) right-wing parties is perceived as almost 0.1 points more corrupt than a government made up of one (or more) left-wing parties, on a scale of 0 to 10. However, this relationship disappears since the beginning of the Great Recession. In the same line, the percentage of seats in the lower house held by the government, coalitional cabinets, and minority governments positively affect the perceived corruption in the pre-crisis period, but then lose their impact. Furthermore, the time that the party of the chief executive has been in office is found to increase the level of perceived corruption before the crisis, and decrease it after the economic downturn. Additionally, in the post-crisis period, an increase in the perceived corruption is detected as the elections come closer. Therefore, the empirical analysis evidences the importance of governments' ideology, and other political and electoral factors, on the perception of corruption, and finds a paradigm shift with the onset of the Great Recession, either by the vanishing of the relationship or by a change of direction.

The rest of the paper is organized as follows. Section 2 is devoted to reviewing the relevant literature. Section 3 describes the data and the empirical methodology. Section 4 presents the analysis of our main results and the proposed robustness checks. Finally, Section 5 concludes with an outline of the most significant insights.

## **2. LITERATURE REVIEW**

Academic research has focused on the negative consequences of corruption: Al-Marhubi (2000) finds a positive impact of corruption on inflation; Gupta et al. (2002) determine that corruption not only increases poverty, but also inequality in income distribution, and Méon and Sekkat (2005) conclude there is empirical evidence for the negative impact of corruption (the “sand the wheel” effect, in their terms) on both economic growth and investment, in the same vein as the results

obtained by Mauro (1995). Moreover, corruption can also alter the share of public expenditure and divert spending towards non-competitive industries (Hessami, 2014). These are only few examples of the prolific literature on the consequences of corruption.<sup>2</sup>

All these negative consequences amply justify the study of the determinants of public corruption, which has already revealed a great variety of socio-economic fundamentals, as well as other institutional, cultural, and historical factors.<sup>3</sup> Income level is a key obstacle to corruption: per capita GDP and corruption present a strong negative relationship, as found by Ades and Di Tella (1999), Treisman (2000), Brunetti and Weder (2003) and Aidt (2009), among others. However, this economic development has to be equally distributed in order to prevent corruption, as shown in Paldam (2002) and Gyimah-Brempong and de Gyimah-Brempong (2006).<sup>4</sup> The level of integration in the world economy, measured by the weight of international trade, is negatively correlated with corruption, according to Ades and Di Tella (1997), Sandholtz and Koetzle (2000), Gokcekus and Knörich (2006) and Neeman et al. (2008). Other economic features, such as international financial flows (Wei and Shleifer, 2000), financial aid (Ali and Isse, 2003), the degree of market competition (Laffont and Tchetche, 1999), the inflation rate (Braun and Di Tella, 2000; Braun, 2004) and temporal budget increases derived from the celebration of mega-events (Olmos et al., 2020), are also mentioned as determinants of corruption. In addition, factors related to government size may affect the relationship between economic variables and perceived corruption: Kotera et al. (2012) find that perceived corruption increases with public spending when democracy is weak, and vice versa.

As mentioned above, not only economic variables influence the level of corruption; institutional components also play an important role, because the features of the established system may affect individual perceptions of corruption. The inefficiency of bureaucracy and a high level of governmental regulatory intervention are found to be promoters of corruption (Goel and Nelson, 2010), while transparency and e-government developments discourage public misconduct (Elbahnasawy, 2014).

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<sup>2</sup> For an extensive review of the effects of corruption, see Jain (2001).

<sup>3</sup> A clarifying state-of-the-art survey can be found in Dimant and Tosato (2017).

<sup>4</sup> The relationship between income distribution and corruption has been found to depend on the countries analyzed, as shown in Dobson and Ramlogan-Dobson (2010; 2012) for the case of Latin America. The poverty rate is also positively correlated with corruption, in Gupta et al. (2002).

Furthermore, social liberties and rights, such as economic freedom (Paldam, 2002), and civil participation in politics and freedom of the press (Brunetti and Weder, 2003; Bhattacharyya and Hodler, 2015) assure useful instruments to combat corruption. Globalization, as a mechanism of economic and social integration among states, and the increasing interaction that it entails, may also reduce perceived corruption (Badinger and Nindl, 2014). Prior literature has also determined that certain historical and cultural drivers affect the level of corruption: former British colonies and countries ruled by its common law benefit from having lower levels of perceived corruption (Herzfeld and Weiss, 2003).<sup>5</sup> In addition, countries where Protestantism is widespread are less corrupt than others (North et al. 2013).

Socio-demographic factors are also highlighted as determinants of public corruption in the literature. Countries with higher levels of education (Glaeser and Saks, 2006), and greater female participation in politics (Dollar et al., 2001) and in the labour market (Swamy et al., 2001) are found to be less corrupt, since more highly-educated people (especially women) are less prone to illegal activities. Higher wages also prevent corruption (Azfar and Nelson, 2007), while the literature has found mixed results regarding the impact of the proportion of urban population. Dincer (2008) finds that ethnic diversity reduces corruption by diminishing the formation of elite groups, while immigration from highly corrupt countries enhances corruption in the host state (Dimant et al., 2015). Finally, the concentration of natural resources, especially raw materials, generates opportunistic behaviours that could increase corruption, but only in the presence of poor-quality democratic institutions (Bhattacharyya and Hodler, 2010).

As for political factors, which are our main research interest, the existence, quality, and stability of a democratic system are found to be negatively correlated with corruption (Sandholtz and Koetzle, 2000; Pellegrini and Gerlagh, 2008), although political stability could reduce corruption *per se* (Lederman et al., 2005). Hollyer and Wantchekon (2014) examine the mechanisms of corruption under autocratic political systems, focusing on the cases of South Korea and Rwanda. Persson and Tabellini (2004) study the relationship between the level of corruption and the form of political government,

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<sup>5</sup> However, Pellegrini (2011) finds no empirical evidence on the effect of once being a British colony on corruption.

finding that parliamentary democracies are associated with less corruption than presidential, and that the electoral rules (majoritarian versus proportional systems) are not causal factors, while Kunicova and Rose-Ackerman (2005) find that proportional rules are more susceptible to corrupt politicians. Other studies focus on the parties that dominate different power positions in the same democracy, such as in bicameral structures (Testa, 2010). In a similar line, Fisman and Gatti (2002), Fan et al. (2009) and Dell'Anno and Teobaldelli (2015) study the role of decentralization, distinguishing between fiscal and administrative decentralization: while the former reduces the level of corruption, the latter enhances corrupt activities.

Other political factors that are potential determinants of corruption have been, generally, overlooked. For example, although the impact of the partisan effect on certain socio-economic variables has been widely studied,<sup>6</sup> its effect on the level of perceived corruption has rarely been analysed. As regards the relationship between corruption and ideology, Hessami (2012) proposes a cross-sectional model to analyse this link for 106 countries, including some standard control variables and a set of institutional and political factors, introducing a dummy for right-wing cabinets, and finding that these parties are more prone to be perceived as corrupt administrations. Brown et al. (2011) analyse the composition of the legislative chamber and its ideological position relative to the chief executive, finding that ideological polarization leads to perceived corruption. Nevertheless, none of these papers takes into account the Great Recession or other economic crisis. The only research that deal with the disruption that the Great Recession could have exerted on perceived corruption do not examine the role of the political factors in this relationship (Arechavala et al., 2015), or focus on other dimensions, such as institutional trust, but without considering governments' ideological positions (Torcal, 2014).

### **3. DATA AND METHODOLOGY**

#### *3.1. Data and Statistical Properties*

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<sup>6</sup> For a review, see Potrafke (2016).

For our main analysis, the database covers the period 1996-2015 for 33 member countries of the OECD.<sup>7</sup> Regarding our dependent variable, we note that, as discussed by Galtung (2006), measuring corruption is not an easy task, since there is no objective measurement to quantify the magnitude of the phenomenon. For this reason, the most common technique is to consider the perceived corruption collected by surveys as the best proxy for actual corruption. Though perceived corruption is a self-perceived measure, it is beyond doubt that this value and actual corruption are highly correlated. One of the most common indices is the International Country Risk Guide (ICRG) elaborated by the Political Risk Services Group and, though it covers a large temporary sample, contains several oddities, as noted by Treisman (2000; 2007). Another widely-used corruption perception index is that developed by Transparency International (TI), based on the opinions of analysts, businesspeople, and experts. However, as stated by TI, the methodology used to construct this index was updated in the year 2012, which means that the period 2012-2015 is not comparable with the previous years. This is a problem for our research, since this methodological change affects data availability for the years after the Great Recession, our main contribution to the literature. Because of that, we use the “control of corruption” index of the Worldwide Governance Indicators project developed by the World Bank (Kaufmann et al., 2011), which, according to the source, “reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests”.<sup>8</sup> This index (hereafter, PCI-WGI) captures perceptions of experts and opinion polls from different sources, not only of experts, like the aggregate proposed by TI.<sup>9</sup> Estimated by using an unobserved components model, the PCI-WGI is highly correlated with the indices of TI and ICRG previously mentioned, and has the best performance in the comparative analyses with experienced corruption (Treisman, 2007). However, the most interesting advantage of this indicator is found in its evaluation. Developers have studied whether any organization among the contestants is biased according to the ideological position (left or right-wing)

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<sup>7</sup> Latvia was invited to join the OECD in 2016, and Lithuania and Colombia in 2018, bringing the number of member countries to 37. However, these incorporations took place out of our temporary sample, which is why these three countries are not considered in this study. In addition, some of the political variables do not cover Switzerland for the full sample, so this country is also excluded from the sample.

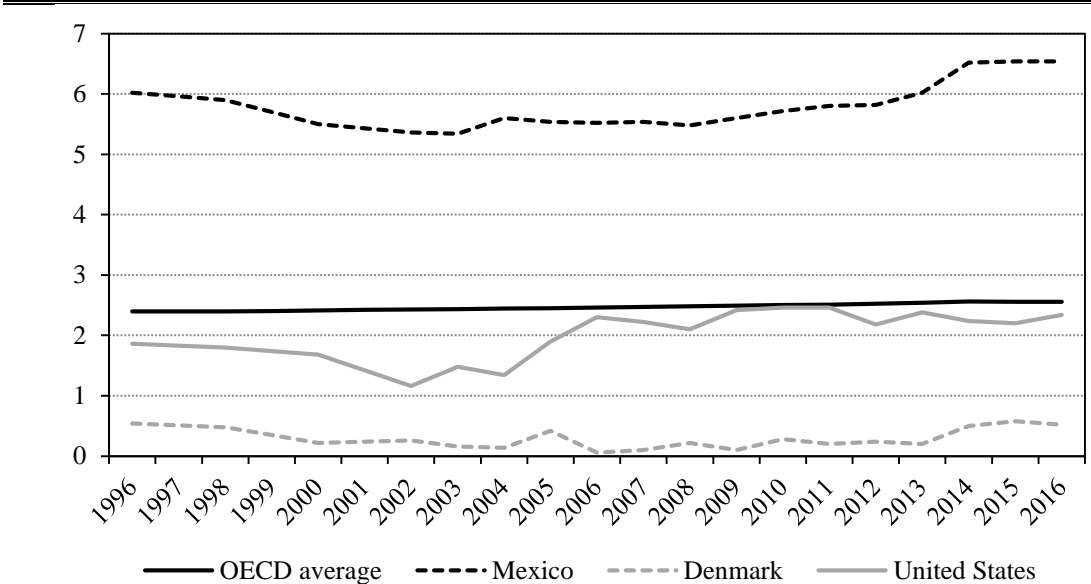
<sup>8</sup> More details in <http://info.worldbank.org/governance/wgi>

<sup>9</sup> Other measures for the level of perceived corruption are based on citizens’ surveys, as the Eurobarometer. See Pellegata and Memoli (2016) for a deep analysis of this kind of indexes.



of the government when rating a country. By comparing the ratings of the different countries submitted by the organizations' experts with the scores given by local businesses, they found that this particular index is not affected by ideological bias. Consequently, results about the relationship between government ideology and perceived corruption will not be influenced by this issue. Apart from the changes in the sources for constructing the PCI-WGI, which also affects the TI index, the main concern with the use of the PCI-WGI is that it was only published bi-annually before 2002, so we lack information for 1997, 1999, and 2001. We linearly interpolate the corruption index for these years to obtain our main results but, as we show in Section 4.2, results do not change when we do not interpolate this index.

**Figure 1: Perceived Corruption index. 1996 – 2015**



Note: This figure shows the evolution of the perceived corruption index for the average of the 33 OECD countries and for several other selected countries. Source: adaptation from the Worldwide Governance Indicators (WGI) project.

The original PCI-WGI ranges from -2.5 (weak) to 2.5 (strong) governance performance. However, in order to make the perceived corruption index more intuitive, and to avoid interpretation concerns derived from negative and positive values, we rescale the range from 0 (weak) to 10 (strong) perceived corruption. Figure 1 shows the evolution of the perceived corruption index for the OECD average, and for several selected countries. We can observe that the average index has been stable but slightly

increasing since the beginning of the new millennium, maintaining values below 3 throughout the entire period. When we focus on individual countries, we observe the high values reached by Mexico and the very low perception of corruption in Denmark. Meanwhile, the United States shows a relative growing trend during our temporary sample, approaching the OECD average in the second half of the period.

For our main explanatory variables - political and electoral factors - we use the “Database of Political institutions” by Beck et al. (2001), which is updated and covers our full sample. In order to measure our main political factor, which is the ideology of the government, we have designed the following index:

$$Ideology_{i,t} = \frac{\sum_{k=1}^3 (S_{k,i,t}^{R,g} * 1 + S_{k,i,t}^{C,g} * 3 + S_{k,i,t}^{L,g} * 5)}{\sum_{k=1}^3 S_{k,i,t}^g} \quad (1)$$

where subscript  $i = 1, \dots, 33$  denotes the country, and  $t = 1996, \dots, 2015$  denotes the year. *Ideology* is a representative index of the ideological position of the government (single party or coalition) from an economic point of view.  $S_k^g$  is the number of seats held by party  $k$  in the government  $g$ , whilst superscripts  $R, C$  and  $L$  represent the right-wing, centre, and left-wing parties, respectively, that form the government. Parties are classified according to their economic ideology in consonance with the “Database of Political Institutions”.<sup>10</sup> The *Ideology* index takes value 1 if the government is composed of one or more right-wing parties, value 3 if the government is integrated by centre parties, and value 5 if all the seats held by the government are occupied by one or more left-wing parties. Thus, coalitions formed by parties with different economic ideologies take intermediate values.

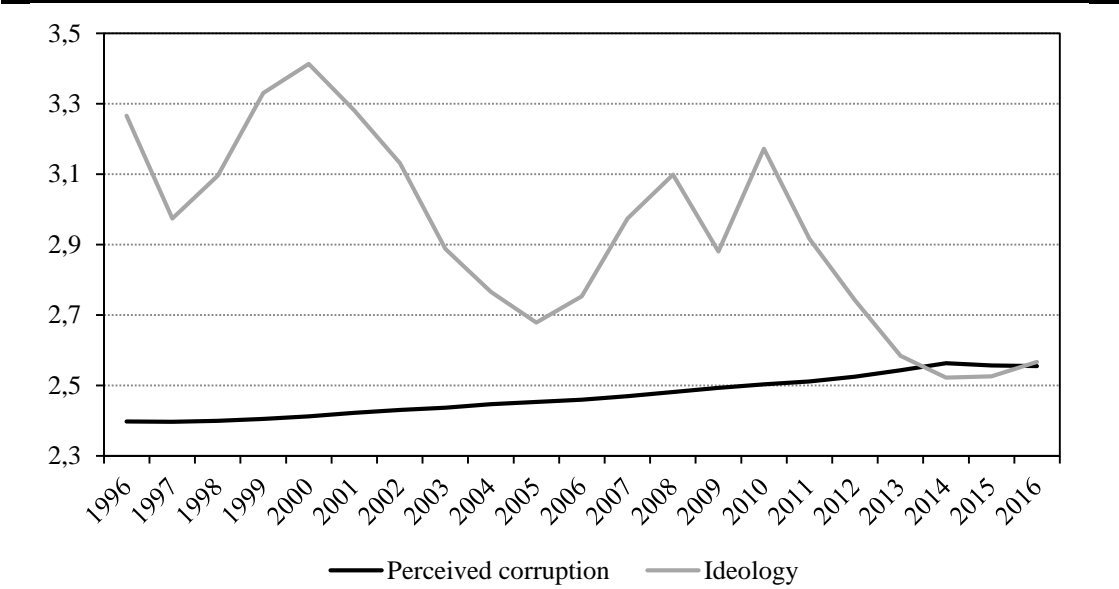
This index, similar to others found in the partisan politics literature (among others, Potrafke, 2010, and Bellido et al., 2019), has one advantage: it is a continuous variable that reflects the ideological range of a government, so it is not restricted to right, centre, and left-wing pure stances. Figure 2 shows the relationship between the perceived corruption index and the ideology index. It can be seen that, while the perceived corruption index does not exhibit significant variations, at least in its OECD

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<sup>10</sup> Seats held by non-classifiable parties from an economic point of view are ignored (for example, parties that focus on religious, rural, or regional factors).

average, the ideology index is more volatile and features two decreasing stages (2000-2005 and 2010-2014), evidencing a right-wing trend.

**Figure 2: Perceived Corruption index and Ideology index. OECD average 1996 – 2015**



Note: This figure shows the evolution of the perceived corruption index and the ideology index for the average of the 33 OECD countries. Sources: adaptation from the Worldwide Governance Indicators (WGI) project and from the Database of Political Institutions (Beck et al., 2001).

We use the same database to define the following variable considering the proximity of the elections:

$$Elections_{i,t} = Y_{i,t} + \frac{M_{i,t}}{12} \tag{2}$$

where  $Y_{i,t}$  are the years left in the current term, and  $M_{i,t} = 1, \dots, 12$  is the month when the elections take place. Thus, the longer it is until the following elections, the greater the value of this indicator, which ranges from 5 to 0 for the year in which elections are held. A positive value for the coefficient of this variable would imply that people perceive opportunistic behaviour of the political parties: as the elections come closer, the perceived corruption decreases. A negative value would suggest that during the electoral campaigns, political parties focus on corruption scandals of their opponents and, therefore, perceived corruption increases. The variable *Elections* does not just capture the impact of the campaigns, but that of the entire electoral cycle. Therefore, and in order to deeply analyse this issue, we include a variable named *Campaign*. This dummy variable takes value 1 if there was a

legislative election that year, and 0 otherwise. The interpretation of this factor is analogous to *Elections*, but it stresses the specific effects of the canvassing period.

We also define the variable *Coalition*, a dummy that takes value 1 if the government is formed by at least two political parties, and 0 otherwise. Moreover, we include the variable *Years in Office*, measuring the number of years that the party of the current chief executive has been in office. In addition, the dummy *Minority* takes minority governments into account, namely, if the number of seats held by all government parties are less than one half of the total seats of the lower house. Finally, we introduce *Force Government*, the percentage of the seats held by all government parties in the legislative chamber. Though these two variables are related, they measure different dimensions. *Minority* represents governments with weak positions in the chamber, since these governments must seek alliances in order to pass new laws, whilst *Force Government* reflects every power position, collecting the degree of dependence of minority governments, but also the degree of strength of majority governments due to, for example, the need for qualified majorities.

In our study, we include other variables related to the quality of the institutions of each country that may have an impact on the level of perceived corruption for reasons independent of political and electoral factors. We include the index *Political Stability* to measure the stability of the current political situation, and the absence of terrorism or violence related to politics. Since our sample includes developed countries, with a long tradition of democracy, we consider that the degree of political stability is more discriminatory than the years of democracy, a widely-used control variable. We also introduce the index *Regulatory Quality* to capture perceptions of the ability of the government to implement policies that permit and promote private sector development, and the index *Voice and Accountability*, which reflects perceptions about the citizens' ability to participate in selecting their government, as well as freedom of expression, freedom of association, and free media. These three dimensions are highlighted by Treisman (2007) in his cross-country analysis of the determinants of perceived corruption. All these indices are defined by the WGI and, to facilitate their interpretation, we rescale them in the range of 0 to 10, with 10 being the highest level of stability, regulatory quality, or voice and accountability, respectively.

Finally, we incorporate into the empirical model some fundamentals contemplated by the prior literature, mentioned in Section 2. These variables control for the country's wealth and openness (per capita GDP and trade openness), the population structure (percentage of urban population and the size of the population), socio-demographic factors (the index of globalization and the female labour force participation rate), economic factors (the size of the government measured by its expenditures and by taxes as a percentage of GDP) and cultural factors (percentage of Protestants), all of these being determinants that may have an effect on the level of perceived corruption for reasons other than politics. Each variable included in the analysis is properly defined in Appendix A.

Table 1 presents summary statistics on the political, electoral, and other relevant explanatory variables included in the analysis. As stated earlier, it is worth noting that the highest value for the perceived corruption index is 6.54 on a scale from 0 to 10, a relatively low value, which may be a consequence of the composition of our sample, all being OECD developed countries. In addition, it is striking that the average value for the ideological index is 2.98, almost the centre of the range for this indicator. Governments are formed by more than 1 political party in about 71% of the cases, and they are in minority in 25% of the observations. The mean period until the next election is somewhat shorter than two years, and these elections take place in 29% of the observations. We can also observe that the political party of the current chief executive has been in office for 6.5 years on average, and that the weight of the parties that constitute the government is 54.2% of the total seats in the legislative chamber.

**Table 1: Descriptive statistics. 1996-2015**

Variable	Mean	Std. Dev.	Min.	Max.
Corruption index	2.30	1.52	0.06	6.54
Ideology index	2.98	1.66	1	5
Coalition	0.71	0.45	0	1
Elections	1.95	1.16	0	5
Campaign	0.29	0.45	0	1
Years in office	6.48	7.87	1	71
Minority	0.25	0.44	0	1
Force government (%)	54.23	8.46	25.45	79.87
Per capita GDP	33,787	13,342	11,470	91,367
Urban population (%)	76.88	11.38	49.70	97.90
Political stability	6.52	1.35	1	8.52
Regulatory quality	7.59	0.86	5.2	9.2

Population	36,839	56,116	270	319,929
Index of globalization	79.04	7.41	54.85	90.67
Trade Openness (%)	87.43	55.20	19.85	386.13
Voice and accountability	7.39	0.75	3.76	8.6
Female labour force (%)	51.70	7.90	26.29	73.74
Government expenditures (% GDP)	19.25	3.66	9.93	27.94
Tax revenues (% GDP)	33.94	7.59	10.98	48.98
Protestants rate (%)	20.85	28.62	0	94.09

Note: This table displays the main descriptive statistics for the variables included in Table 3, where the main results are shown.

To provide a better understanding of the sample with which we work, we illustrate the relationship between ideology and perceived corruption by splitting the sample according to the ideology of the government. Table 2 shows that perceived corruption is greater when governments are formed by one or more parties that share the same ideology, especially if they are right-wing parties. In any case, a more detailed analysis is needed to establish a relationship between ideology and perceived corruption.

**Table 2: Descriptive statistics by government economic ideology. 1996-2015**

		Left gov.	Mostly left gov.	Mostly right gov.	Right gov.
Corruption index	Mean	2.40	1.61	2.12	2.46
	Std. Deviation	1.46	1.13	1.51	1.53
	Min.	0.20	0.08	0.32	0.06
	Max.	5.2	4.46	6.04	5.82
	Observations	187	113	117	189

Note: This table shows the descriptive statistics for the perceived corruption index according to the ideology index for the 33 countries analysed. Left governments are formed by one or more parties sharing the same left-wing ideology. The same holds for right governments. Mostly left governments are formed by more than 1 party, and the ideology index obtains a value higher than 3, which is the centre from an ideological point of view. The same holds for mostly right governments, but the index gets a value lower than 3. We eliminate from this descriptive analysis governments formed by one or more parties and whose ideology is centre (ideology index of exactly 3), due to the scarcity of observations (27).

### 3.2. Methodology

The primary focus of this study is to test the impact of several political and electoral factors, especially government ideology, on the level of perceived corruption. Furthermore, we consider whether the most recent economic crisis, the Great Recession, and its consequences (Rose and Spiegel, 2011; Ball, 2014; Ollivaud and Turner, 2015) has had an impact on the effect of these

political factors on the level of perceived corruption. To tackle this issue, we divide our sample period (1996-2015) into two scenarios: a pre-crisis period, 1996-2006, and a post-crisis period, 2007-2015.<sup>11</sup> To do so, we create a *crisis* dummy variable that takes value 1 in the years after the Great Recession (2007-2015), and 0 otherwise. Moreover, we incorporate the interaction of this *crisis* dummy with each variable included in the set of political and electoral factors of our model. This strategy allows us to identify the changes in the impact of the political variables on the level of perceived corruption before and after the Great Recession.<sup>12</sup> In this context, we propose the following model:

$$corruption_{i,t} = \beta_0 + crisis + \delta PF'_{i,t} + crisis * \gamma PF'_{i,t} + \varphi X'_{i,t} + \lambda_i + \epsilon_{i,t} \quad (3)$$

where  $corruption_{i,t}$  represents the perceived corruption in country  $i$  in year  $t$ ,  $PF'_{i,t}$  is a vector including the political variables in the analysis (the government ideology, the presence of a coalition in the government, the holding of legislative elections that year, the time remaining until the next elections, the number of years that the party of the current chief executive has been in office, the dummy variable representing minority governments, and the weight of all the government parties in the legislative chamber), and  $\delta$  the corresponding vector of parameters. Then, we add the same vector of political variables interacted with the *crisis* dummy, in order to determine the effects of these factors after the onset of the Great Recession. The mechanism underlying the connection between political factors and perceived corruption will be discussed in Section 4.  $X'_{i,t}$  incorporates a set of economic, institutional and demographic factors widely considered in the literature as determinants of corruption, and  $\varphi$  includes a vector of parameters.<sup>13</sup>

Note that we use a fixed-effects model, so the impact of other interesting time-invariant political and historical variables, such as those defining the decentralization of the administration, the electoral

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<sup>11</sup> The first period (1996-2006) is formed by 355 observations, and the second period (2007-2015) is formed by 278 observations.

<sup>12</sup> The reason for limiting the interaction of the *crisis* dummy to the political and electoral set of variables is threefold. First, to be consistent with previous literature (for example, Potrafke (2010), who includes in his work a "post-Soviet" dummy similar to our *crisis* dummy, and which is only interacted with the political and electoral variables). Second, for the very motivation of our research: to study the effect of the Great Recession on the impact that political and electoral factors have on corruption. Finally, we believe that the impact of the economic and demographic variables incorporated into our model is independent of the economic cycle: structural aspects of a country, such as the percentage of urban population, the population, or the percentage of Protestants, will hardly vary its impact on the level of corruption due to the effect of an economic crisis.

<sup>13</sup> Ratios, dummies and bounded variables, such as the WGI indices and the percentages, are included in levels, so only the per capita GDP and the size of the total population are included in logs.

rules, the type of political system, and the presence of a British legal scheme or a colonial past, will be included in the fixed effects component ( $\lambda_i$ ). Moreover, we are restricted by data availability, so we do not incorporate additional exogenous variables such as those related to the education level of the population. Other factors highlighted by the literature are not appropriate for our sample, such as the concentration of natural resources, which is a fundamental when developing countries are analysed. Finally,  $\epsilon_{it}$  is the error term assumed to be normally distributed.

The fact that the dependent variable is bounded, which in our sample is evidenced in the lower bound values, may affect the results. Being aware of that, we conduct a robustness check omitting the countries with less perceived corruption (see Section 4.2). Furthermore, as can be observed in Table 3, we present eight models, where we exclude certain explanatory variables, one by one, in successive columns (as proposed by Treisman, 2000). The reason for this approach is twofold: first, since we include several variables from the same database (WGI), we deal with the problems that this could originate. Second, we tackle the endogeneity concerns that may arise with some of the explanatory variables introduced into the analysis. For example, one may surmise that the trade openness of a country affects the level of perceived corruption, but also that a more corrupted country creates barriers that hinder trade between territories. In this situation, the standard procedure is to implement an Instrumental Variable Approach but, as stated by Treisman (2000), it is very difficult to find good instruments (independent from the dependent variable, which is the level of perceived corruption, and highly correlated with the independent variable that they are supposed to replace).

## **4. RESULTS**

### *4.1. Main results*

Table 3 reports the estimates for Equation (3). As explained above, we present eight different models, each one eliminating a new explanatory variable. The initial model (3.1) incorporates all the relevant exogenous variables. Then, from model 3.2 to 3.6, we exclude one non-statistically significant variable of the set of non-political factors, following the strategy of subsequently eliminating the variable with the lowest level of statistical significance. Finally, in models 3.7 and 3.8, we omit the



indices collected from the same database, the WGI of the World Bank, to avoid multicollinearity problems and other concerns pointed out by Treisman (2007). Nevertheless, we maintain in the last model the regulatory quality measure because of its high explanatory power. Note that we have performed the Hausman's (1978) specification test in order to ascertain the adequacy of the fixed-effects model against a random-effects model, rejecting, for all the proposed specifications, the null hypothesis that states the non-systematic differences in coefficients. As we can observe, the conclusions that we draw from these results are quite robust, regardless of the model on which we focus.

First, though this is not our main interest, we focus on the effect of the non-political variables, the set of socio-economic, institutional, and cultural factors included in the analysis. Most of our results are in line with the existing literature on the causes of perceived corruption. Specifically, we find that countries with a greater per capita GDP show lower levels of perceived corruption, an outcome generally accepted by prior research (among others, Ales and Di Tella, 1999). Meanwhile, more populous countries, with more complex organizational schemes, are more prone to perceive corrupt activities, as found in Xin and Rudel (2004). But the composition of that population matters. We find that more urbanized nations have lower levels of perceived corruption,<sup>14</sup> as previously suggested by Billger and Goel (2009), since there are more individuals who can witness the corrupt behaviour, which acts as a deterrent. In addition, results show the positive relationship between globalization and perceived corruption, suggesting a somewhat counterintuitive concept: globalization increases opportunities for corrupt practices. Though a fraction of the early literature disagrees with this finding (Sandholtz and Koetzle, 2000), new approaches have examined this issue, finding that globalization and perceived corruption have a non-linear relationship (Das and Di Rienzo, 2009). When we express this potential nonlinearity in our model by including the index of globalization and this index squared, both coefficients become statistically insignificant, which is in line with the results obtained by Lalountas et al. (2011) for middle- and high-income countries. In this regard, we should recall that the KOF index of globalization is constructed on the basis of three dimensions: political, economic, and

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<sup>14</sup> The only exception is the Model 3.8, which could be affected by mis-specification.

social globalization. When we use the political globalization sub-index, the estimated coefficient is negative, while the coefficients for the other two dimensions are positive. This could imply that there are contrary mechanisms behind the globalization phenomena. In any case, this issue falls outside the main focus of our study, which is to analyse the effect of political factors on the level of perceived corruption.

Conversely, several control variables are not statistically significant. Though larger governments tend to increase state intervention, and this could enhance less accountability in more complex public administrations, the estimated coefficients representing the size of the government, measured as its expenditures and its tax revenues as a percentage of the GDP, have no impact on the perceived level of corruption. This result adds to the mixed findings of prior research, which depend on the countries and years analysed. The same holds for trade openness. Unlike most research, our results show no impact of trade openness on corruption. Intuition leads us to think that more open and integrated countries could reduce bureaucratic schemes that prompt illegal behaviours, as obtained by Neeman et al. (2008), but research has not been unanimous in this regard. Ahrend (2002) suggests that more trade could lead to more potential for corruption and, therefore, to a higher level of perceived corruption. In a much more specific piece of research, Knack and Azfar (2003) discuss the ambiguity of the theoretical relationship between trade and corruption, and the sensitivity of the empirical results to the sample selection. Thus, the lack of statistical significance could be generated by opposed forces. Moreover, the negative effect of the female labour participation rate on corruption is not supported by our results, although this is not a standard variable in the related research, and empirical evidence is not sufficiently provided.

Looking at institutional features, we find that the political stability index shows a clear negative impact on perceived corruption: the greater the stability and the absence of violence, the lower the perceptions of corruption, a result consistent with the findings of Lederman et al. (2005). The same holds for countries with higher voice and accountability, a variable that reflects the degree of freedom of participation, association, and expression, associated with the increasing costs of being corrupt, as found by the literature (Bhattacharyya and Hodler, 2010). The quality of regulation in each country

also has the expected negative sign. Thus, the efficiency of the bureaucracy generates control mechanisms that prevent or deter illegal activities.

Once we have analysed the control explanatory variables, we turn our attention to our main interest, the political factors. But first, we note that the coefficient of the crisis dummy is positive and statistically significant, indicating that citizens perceive more corrupt activities from the beginning of the Great Recession, confirming that generalized discontent has increased since the outbreak of the economic crisis. Declines in the standard of living of citizens could lead to more sensitive perceptions about illegal political behaviour.

**Table 3: Baseline Regression  
(Dependent Variable: Perceived Corruption Index)**

	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)	(3.7)	(3.8)
Crisis	0.765*** (0.230)	0.765*** (0.230)	0.766*** (0.230)	0.743*** (0.229)	0.707*** (0.226)	0.692*** (0.226)	0.669*** (0.227)	0.760*** (0.233)
Ideology	-0.020* (0.011)	-0.020* (0.011)	-0.020* (0.011)	-0.022** (0.011)	-0.023** (0.010)	-0.022** (0.010)	-0.025** (0.010)	-0.028*** (0.011)
Ideology*Crisis	0.021 (0.015)	0.021 (0.015)	0.020 (0.015)	0.022 (0.015)	0.024 (0.015)	0.022 (0.015)	0.026* (0.015)	0.019 (0.015)
Coalition	0.132*** (0.045)	0.132*** (0.045)	0.132*** (0.045)	0.129*** (0.045)	0.120*** (0.044)	0.113** (0.044)	0.111** (0.044)	0.128*** (0.045)
Coalition*Crisis	-0.160*** (0.056)	-0.160*** (0.056)	-0.160*** (0.056)	-0.159*** (0.056)	-0.148*** (0.055)	-0.157*** (0.054)	-0.160*** (0.055)	-0.209*** (0.056)
Elections	0.005 (0.013)	0.005 (0.013)	0.005 (0.013)	0.005 (0.013)	0.005 (0.013)	0.004 (0.013)	0.004 (0.013)	0.004 (0.013)
Elections*Crisis	-0.041** (0.020)	-0.041** (0.020)	-0.040** (0.020)	-0.040** (0.020)	-0.039** (0.020)	-0.035* (0.020)	-0.034* (0.020)	-0.039* (0.020)
Campaign	0.030 (0.033)	0.030 (0.032)	0.030 (0.032)	0.030 (0.032)	0.031 (0.032)	0.031 (0.032)	0.030 (0.033)	0.026 (0.034)
Campaign*Crisis	-0.087* (0.049)	-0.087* (0.048)	-0.087* (0.048)	-0.085* (0.048)	-0.089* (0.048)	-0.088* (0.048)	-0.089* (0.049)	-0.080 (0.050)
Years in office	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.008*** (0.002)
Years in office*Crisis	-0.015*** (0.004)	-0.015*** (0.004)	-0.015*** (0.004)	-0.015*** (0.004)	-0.014*** (0.004)	-0.013*** (0.004)	-0.014*** (0.004)	-0.017*** (0.004)
Minority	0.103* (0.054)	0.102* (0.054)	0.104** (0.053)	0.102* (0.053)	0.100* (0.053)	0.096* (0.053)	0.081 (0.053)	0.085 (0.054)
Minority*Crisis	-0.178** (0.078)	-0.178** (0.078)	-0.179** (0.078)	-0.174** (0.077)	-0.172** (0.077)	-0.179** (0.077)	-0.160** (0.077)	-0.160** (0.080)
Force gov.	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.005* (0.003)

	Force gov.*Crisis	-0.008** (0.004)	-0.008* (0.004)	-0.008** (0.004)	-0.007* (0.004)	-0.007* (0.004)	-0.007* (0.004)	-0.006* (0.004)	-0.006 (0.004)
Non-political factors	Per capita GDP ( <i>log</i> )	-0.686*** (0.204)	-0.689*** (0.202)	-0.680*** (0.196)	-0.660*** (0.195)	-0.579*** (0.177)	-0.658*** (0.169)	-0.673*** (0.170)	-0.799*** (0.173)
	Urban population (%)	-0.017** (0.008)	-0.017** (0.008)	-0.016** (0.008)	-0.019** (0.007)	-0.017** (0.007)	-0.017** (0.007)	-0.013* (0.007)	-0.011 (0.007)
	Regulatory quality	-0.307*** (0.042)	-0.307*** (0.042)	-0.308*** (0.042)	-0.304*** (0.041)	-0.310*** (0.041)	-0.312*** (0.041)	-0.328*** (0.041)	-0.411*** (0.039)
	Population ( <i>log</i> )	1.189*** (0.336)	1.188*** (0.336)	1.217*** (0.291)	1.273*** (0.287)	1.240*** (0.285)	1.240*** (0.285)	1.268*** (0.287)	1.142*** (0.294)
	Index of globalization	0.025*** (0.006)	0.025*** (0.006)	0.025*** (0.006)	0.024*** (0.006)	0.025*** (0.006)	0.028*** (0.006)	0.029*** (0.006)	0.030*** (0.006)
	Voice and accountability	-0.348*** (0.065)	-0.347*** (0.065)	-0.347*** (0.065)	-0.346*** (0.065)	-0.350*** (0.065)	-0.361*** (0.064)	-0.379*** (0.064)	
	Politic stability	-0.078*** (0.030)	-0.079*** (0.029)	-0.080*** (0.028)	-0.082*** (0.028)	-0.081*** (0.028)	-0.076*** (0.028)		
	Protestants (%)	0.009 (0.006)	0.009 (0.006)	0.010 (0.006)	0.009 (0.006)	0.009 (0.006)			
	Trade Openness (%)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)				
	Tax revenues (% GDP)	-0.009 (0.008)	-0.008 (0.008)	-0.008 (0.007)					
	Female labour force (%)	0.001 (0.007)	0.001 (0.007)						
	Govt. expenditure (% GDP)	0.001 (0.011)							
	Constant	2.277 (3.504)	2.324 (3.484)	2.014 (2.996)	1.245 (2.916)	0.715 (2.867)	1.576 (2.810)	0.786 (2.809)	0.873 (2.890)
	R-squared	0.364	0.364	0.364	0.363	0.362	0.359	0.351	0.312

Notes: Standard errors in parenthesis. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5% and 10% levels, respectively. Results correspond to the model presented in Equation (3) of the methodology section. The number of observations in all models is 633.

Furthermore, the coefficients of the set of political factors are, mainly, statistically significant, -with few exceptions: the elections and campaign variables without interaction and the ideology variable when interacted with the crisis dummy. In all other cases the sign of the coefficient changes in the post-crisis period, suggesting that the beginning of the Great Recession may have introduced a distortion in the relationship between the political variables included in our analysis and the level of perceived corruption. Nevertheless, the effect of the political variables must be interpreted conditionally on the interaction with the *crisis* dummy variable (see Friedrich, 1982). In order to isolate the effect of each political variable on the level of perceived corruption in the post-crisis period (2007-2015), we sum the coefficients of the political variable itself with the coefficient of the interaction between the political variable and the dummy *crisis*. Then, we conduct a test of statistical

significance to evaluate the impact. Results of these marginal effects of the set of political variables are shown in Table 4.

**Table 4: Marginal Effects. Set of political factors.**

		(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)	(3.7)	(3.8)
Ideology	Pre-crisis	-0.020* (0.011)	-0.020* (0.011)	-0.020* (0.011)	-0.022** (0.011)	-0.023** (0.010)	-0.022** (0.010)	-0.025** (0.010)	-0.028*** (0.011)
	Post-crisis	0.001 [0.00]	0.001 [0.00]	0.000 [0.00]	0.000 [0.00]	0.001 [0.01]	0.000 [0.00]	0.006 [0.01]	-0.009 [0.61]
Coalition	Pre-crisis	0.132*** (0.045)	0.132*** (0.045)	0.132*** (0.045)	0.129*** (0.045)	0.120*** (0.044)	0.113** (0.044)	0.111** (0.044)	0.128*** (0.045)
	Post-crisis	-0.028 [0.33]	-0.028 [0.33]	-0.028 [0.34]	-0.030 [0.36]	-0.028 [0.34]	-0.044 [0.86]	-0.049 [1.03]	-0.081 [2.66]
Elections	Pre-crisis	0.005 (0.013)	0.005 (0.013)	0.005 (0.013)	0.005 (0.013)	0.005 (0.013)	0.004 (0.013)	0.004 (0.013)	0.004 (0.013)
	Post-crisis	-0.036** [5.10]	-0.036** [5.09]	-0.035** [5.10]	-0.035** [5.06]	-0.034** [4.77]	-0.031** [4.11]	-0.030* [3.75]	-0.035** [4.65]
Campaign	Pre-crisis	0.030 (0.033)	0.030 (0.032)	0.030 (0.032)	0.030 (0.032)	0.031 (0.032)	0.031 (0.032)	0.030 (0.033)	0.026 (0.034)
	Post-crisis	-0.057 [2.48]	-0.057 [2.48]	-0.057 [2.49]	-0.055 [2.39]	-0.058 [2.53]	-0.057 [2.53]	-0.059 [2.66]	-0.054 [2.11]
Years in office	Pre-crisis	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.008*** (0.002)
	Post-crisis	-0.008** [4.92]	-0.008** [4.92]	-0.008** [4.91]	-0.008** [4.83]	-0.007** [4.43]	-0.006** [4.21]	-0.007** [4.75]	-0.009*** [7.14]
Minority	Pre-crisis	0.103* (0.054)	0.102* (0.054)	0.104** (0.053)	0.102* (0.053)	0.100* (0.053)	0.096* (0.053)	0.081 (0.053)	0.085 (0.054)
	Post-crisis	-0.075 [1.83]	-0.076 [1.86]	-0.075 [1.84]	-0.072 [1.71]	-0.072 [1.73]	-0.083 [2.32]	-0.079 [2.06]	-0.075 [1.74]
Force gov.	Pre-crisis	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.005* (0.003)
	Post-crisis	-0.002 [0.21]	-0.002 [0.22]	-0.002 [0.22]	-0.001 [0.19]	-0.001 [0.10]	-0.001 [0.11]	0.000 [0.11]	-0.001 [0.01]

Note: This table shows the marginal effects of the set of political variables included in the analysis. Pre-crisis period corresponds to years 1996-2006 and post-crisis period to years 2007-2015. Standard errors in parenthesis. In brackets, the *F* statistic for the null hypothesis of no statistical significance. \*\*\*, \*\*, \* statistical significance at 1%, 5% and 10% levels.

We observe that the impact of the ideology index on perceived corruption is negative and statistically significant in the pre-crisis period. A government formed by one (or more) left-wing political parties will be perceived as 0.08-0.11 points less corrupt, depending on the specification, than a government formed by one (or more) right-wing parties, which represents a 0.8-1.1% lower level of

perceived corruption.<sup>15</sup> Although the magnitude of the effect is slight, the negative and significant impact is quite robust and agrees with the finding of Hessami (2012). Traditionally, right-wing parties have been considered as ideologically closer to the owners of capital and the business class, while left-wing parties have been thought to protect the interests of the working class and the owners of the labour factor. The closer proximity of right-wing parties to capital could underlay the public perception that corruption is greater under their governments. This result is in line with the general idea that right-wing parties favour the private sector to the detriment of the public interest and, therefore, citizens may see them as more corrupt. For example, the privatization of public goods, where payoffs can be diverted, is traditionally associated with right-wing parties. Another reason could be politicians' personal relationships with businessmen, which could generate the so-called revolving doors.<sup>16</sup> This input-output mechanism can emerge from the personal background of politicians and entrepreneurs, or as a payback of entrepreneurs to politicians for their prior support. If, as mentioned above, right-wing politicians have closer relationships to the business class, they may also be more likely to take advantage of this revolving door, which would contribute to the public perception of corruption.

When the post-crisis period is analysed, the coefficients are not statistically significant. According to this result, the difference in perceived corruption between right-wing and left-wing political parties disappears after the beginning of the Great Recession. When faced with an economic downturn, individuals no longer perceive differences between ideologies in terms of corruption. One may argue that the greater the economic constraints and the lower the available budget, the fewer the possibilities for corruption, regardless of the ideological position of the current government. But one may also surmise that citizens are fed up with the entire political class, whom they blame for the loss of their purchasing power and of other welfare-state privileges derived from the management of the crisis.

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<sup>15</sup> If a government is made up of only right-wing parties, the ideology index takes value 1, while its value is 5 for governments made up of only left-wing parties. Considering that an increase of 1 point of this index is linked with 0.02 less corruption, governments made up only by right-wing parties are perceived as 0.08 points (0.8%) more corrupt than those made up only by left-wing parties.

<sup>16</sup> See Miller and Dinan (2009) for OECD evidence.

As regards the number of parties in the government, one would expect a negative impact of this variable (coalition) on the level of perceived corruption: the presence of politicians from different parties in the government may increase vigilance and oversight, along with the costs of being corrupted, due to the mutual control. However, coefficients are positive before 2007. When the government is formed by more than one political party, the perceived corruption increases by more than 1%. This result, which is homogenous across the nested models, is in line with the work of Rose-Ackerman (1978), which states that parties forming coalitions compete to gain votes, and that this type of government may reduce the costs of corruption. Nonetheless, the effect disappears when the financial crisis emerges. Again, evidence indicates that perceived corruption is no longer explained by this political factor from the onset of the Great Recession, since citizens do not perceive differences between single-party governments and coalitions.

The coefficient of the variable *elections* can be interpreted as a test for the existence of an opportunistic behaviour of parties in the government. Our findings do not support this hypothesis before 2007, since the coefficients show no impact on perceived corruption. When we focus on the post-crisis period, results indicate the opposite connection. We can observe that, as the following legislative election approaches, perceived corruption increases. This may be a consequence of an increasingly important role of the mass media. When elections are close, the media become more disposed to focus on political scandals. Even the members of the different political parties, entrenched in an electoral battle, publicly criticize their adversaries, which could raise the perception of dishonest behaviours. This impact is maintained in all the models presented in Table 3. In this connection, estimated coefficients of the variable *campaign* are not statistically significant, so the exact time when the elections are celebrated does not explain the level of perceived corruption.

The next political factor considered is the number of years that the party of the chief executive has been in office. We expected a positive effect on perceived corruption, since the longer a party is in charge, the more opportunities they have to build the structures that allow them to misuse public funds. And this hypothesis is supported for the pre-crisis period. However, the coefficients capturing the effect after 2007 are negative, suggesting a higher level of confidence in experienced parties when

the management of the crisis came to the fore. It may be thought that the sentence “better the devil you know than the devil you don't” applies in this context. Thus, veteran governments are perceived as insurance against corruption during lean times of economic performance.

Finally, we focus on the political factors that measure the power of the government for legislative purposes. Both variables, which represent minority governments and the force of all parties in the government in the lower house, affect the perceived corruption in the same way. We note that, though these variables could be considered as opposite variables, they represent different dimensions. Before 2007, the two variables exert a positive impact on perceived corruption. Therefore, minority governments, who are weaker, since they have to set up alliances with other non-government parties, are perceived as more corrupt (with the exception of Models 3.7 and 3.8). The pursuit of strategic alliances could erode confidence in those governments. Regarding the second variable, the higher the level of representation of the government, the greater is the perceived corruption. All-powerful governments (single-party or coalitions) evoke out-of-control and unpunished behaviours. But, in the same way that the variables *ideology* and *coalition* lost their statistical significance after the onset of the Great Recession, the impact of minority governments and of the weight of the government in the legislative chamber disappears. This finding reasserts the loss of the influence of political factors over citizens' perceptions of corruption from the beginning of the Great Recession.

In sum, our results show important differences in the impact of the set of political variables on the level of perceived corruption during the two periods considered, pre-crisis (1996-2006) and post-crisis (2007-2015). The impact of certain political factors (government ideology, coalitions, minority governments, and the weight of all parties in the government in the legislative chamber) disappears in the post-crisis period, which is in line with our expectations. This is especially important in the case of our main variable of interest: while the level of perceived corruption was about 1% lower with left-wing governments before the Great Recession, after the crisis we find no evidence that this difference persists. There are two exceptions to this finding: the time remaining until the next election, and the years that the party of the chief executive has been in office, both negatively affect the level of perceived corruption after 2007.



#### 4.2. Robustness checks

In the preceding section, we have presented eight different specifications to address certain concerns already mentioned above. Results show a high degree of robustness for the political factors and for the rest of the exogenous variables. However, in the light of the criticisms put forward in some of the prior literature (Treisman, 2007), we want to check the coherence of our findings. To do so, we propose several variations in the sample and in the estimation methodology with respect to the baseline models:

- (a) Observations of years 1997, 1999, and 2001 are missing in the database of the PCI-WGI, so we rerun our results without linearly interpolating our corruption index for these years.
- (b) We are considering countries from the OECD but, according to the classification of the World Bank, not all the OECD members are high-income states. Thus, in order to homogenize the sample, we exclude Mexico and Turkey.
- (c) In the US, according to the National Bureau of Economic Research, the Great Recession began in 2007. However, as our sample includes 33 countries, with particular economic characteristics, we have replicated these results considering that the Great Recession began in 2008.
- (d) In Table 2, it can be observed that, when the ideology index takes values different to the extremes, the level of perceived corruption decreases. Therefore, one may argue that the relationship between both variables is not linear. To check the validity of our results and get an additional outcome, we eliminate those observations with values of the ideology index higher than 2 and lower than 4, thus excluding the near to centre values. Results are similar when we consider only the extreme values of the ideology index, that is, “pure” right- and left-wing governments.
- (e) As noted by Treisman (2007), the fact that the dependent variable is bounded could bias the results if some countries included in the sample approach the extreme values. In our case, the upper level is not caught, but the zero lower bound is almost reached by Denmark and Finland, so we replicate the estimates omitting these two countries.

(f) We cannot overlook the presence of potential cross-sectional dependence in the models presented in Table 3, since ignoring this feature could alter the estimates. To tackle this issue, we use the test proposed by Pesaran (2004), which ratifies the presence of cross-sectional dependence.<sup>17</sup> To prevent our results from being biased by this, we re-estimate the model using the standard errors as proposed by Driscoll and Kraay (1998), which are robust to general forms of cross-sectional dependence, both spatial and temporal. As stated by De Hoyos and Sarafidis (2006) and Sarafidis and Wansbeek (2012), this is a standard procedure to correct the standard errors in the presence of cross-sectional dependence, obtaining unbiased results. Obviously, we maintain the fixed-effects component.

Results on the marginal effects are displayed in Table 5.<sup>18</sup> For the sake of simplicity, we present the robustness checks for the model specification 3.8, but we also replicate the remaining estimates, and conclusions do not significantly change. First, we note that the robustness of our estimates is not significantly altered. The negative and statistically-significant impact of the *ideology* index in the pre-crisis period, and the lack of statistical significance after 2007, remain unchanged. It is worth noting that, in Column (d), when the centre values of the ideology index are excluded, its estimated coefficient before the Great Recession increases and is still significant after the crisis, suggesting that the relationship between ideology and corruption is softer when centre governments are ruling. The estimation that corrects for the presence of cross-sectional dependence also maintains the statistical significance after 2007.

The positive effect of coalitional governments on the perceived corruption in the pre-crisis period, and its absence of influence after the Great Recession, are, in most of the robustness checks, unaltered. Nonetheless, there are some deviations from the baseline models. Estimated models with a lower number of observations show a negative impact for this variable. This reinforces our hypothesis of a change in the mechanisms generated by the Great Recession. Concerning the timing of the elections, results are maintained: the variable that measures the electoral cycle has no impact during the pre-

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<sup>17</sup> We reject the null hypothesis of cross-sectional independence with values of the test from 2.790 (Model 3.8) to 5.662 (Model 3.7), thus rejecting the null hypothesis at a 1% level of significance in all the specifications.

<sup>18</sup> We do not show the whole model because all the non-political variables maintain their sign and impact, except for the loss of statistical significance of the percentage of urban population.

crisis period, and a negative one after the economic crisis, whilst estimated coefficients for campaign are not statistically significant with just two exceptions. With regard to the years that the party of the chief executive has been in office, only one coefficient deviates from previous results: it is not statistically significant after 2007, when only extreme values of the ideology index are considered. Meanwhile, the variable that represents minority governments suffers from several changes, so the robustness of the positive relationship in the pre-crisis period is arguable in some contexts, pointing these alternative findings to a negative effect after the Great Recession. Thus, minorities could be seen as fairer when they are ruling in adverse economic conditions. Finally, results for the weight of the government parties in the lower house are quite robust, with the only exception of the statistical significance found for the post-crisis period when centre governments are excluded from the sample (Column (d)).

In short, our main interest, the relationship between the ideology and the perceived corruption, remains intact. And, though some coefficients lose their statistical significance or change their impact, general conclusions are not affected by the proposed changes in the sample or in the methodology.

**Table 5: Marginal Effects. Robustness checks**

		(a)	(b)	(c)	(d)	(e)	(f)
Ideology	Pre-crisis	-0.024** (0.012)	-0.032*** (0.011)	-0.025** (0.010)	-0.041*** (0.011)	-0.032*** (0.011)	-0.028** (0.012)
	Post-crisis	-0.008 [0.49]	-0.014 [1.39]	-0.007 [0.34]	-0.023* [3.81]	-0.008 [0.53]	-0.009** [3.36]
Coalition	Pre-crisis	0.157*** (0.052)	0.117** (0.046)	0.101** (0.044)	0.123** (0.049)	0.128*** (0.046)	0.128* (0.072)
	Post-crisis	-0.053 [1.02]	-0.115** [4.96]	-0.08 [2.32]	-0.144*** [7.62]	-0.084* [2.77]	-0.081 [2.00]
Elections	Pre-crisis	0.011 (0.017)	0.009 (0.014)	0.006 (0.013)	0.012 (0.017)	0.005 (0.014)	0.004 (0.016)
	Post-crisis	-0.036** [4.84]	-0.041** [6.10]	-0.039** [4.86]	-0.031* [2.72]	-0.032* [3.59]	-0.035*** [22.65]
Campaign	Pre-crisis	0.040 (0.042)	0.027 (0.034)	0.019 (0.032)	0.020 (0.038)	0.024 (0.035)	0.026 (0.025)
	Post-crisis	-0.051 [1.86]	-0.07* [3.47]	-0.063 [2.40]	-0.065 [2.56]	-0.05 [1.68]	-0.054*** [14.02]
Years in office	Pre-crisis	0.008*** (0.002)	0.013*** (0.003)	0.007*** (0.002)	0.023*** (0.006)	0.008*** (0.002)	0.008*** (0.002)
	Post-crisis	-0.009** [5.33]	-0.007* [3.67]	-0.009** [6.00]	-0.003 [0.22]	-0.011*** [8.39]	-0.009*** [12.82]
Minority	Pre-crisis	0.098 (0.064)	0.115** (0.056)	0.072 (0.052)	0.195*** (0.064)	0.094 (0.057)	0.085* (0.048)
	Post-crisis	-0.047	-0.112**	-0.084	-0.188***	-0.086	-0.075

		[0.66]	[3.89]	[1.90]	[8.46]	[2.21]	[2.08]
Force gov.	Pre-crisis	0.007** (0.003)	0.006** (0.003)	0.005** (0.003)	0.008** (0.003)	0.007** (0.003)	0.005* (0.003)
	Post-crisis	0.001 [0.14]	-0.001 [0.10]	-0.001 [0.10]	-0.01** [5.04]	-0.001 [0.17]	-0.001 [0.01]

Note: This table shows the marginal effects of the set of political variables included in the analysis. Pre-crisis period corresponds to years 1996-2006, and post-crisis period to years 2007-2015, except for Column (c), when these periods are 1996-2007 and 2008-2015, respectively. Standard errors in parenthesis (Column (g) shows the Driscoll-Kraay standard errors). In brackets, the *F* statistic for the null hypothesis of no statistical significance. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

## 5. CONCLUSIONS

Corruption is a widespread phenomenon with damaging consequences: public funds diverted with private intent mean fewer resources for pensions, public health, and education, among others, which, in the end, means lower levels of welfare. And, in this scourge, politics may play a determinant role.

The relationship between perceived corruption and political factors has barely been explored until now, even less the impact of an economic crisis on this connection. In this paper, we focus on a set of political factors, especially on an index that measures the ideology of the ruling party (or coalition), for a sample of 33 OECD countries throughout the period 1996-2015. We find that politics play an important role when determining the level of corruption perceived by citizens. Our main finding highlights an ideological component in the pre-crisis period: governments formed by left-wing parties are perceived as being almost 1% less corrupt than those formed by right-wing parties. Coalitional governments are related to higher levels of corruption because of the competition for votes between the parties involved, which may increase the perceptions of corrupt behaviours. Furthermore, we do not find opportunistic behaviours of political parties, since we have not found empirical evidence related to better behaviour when the following elections get closer. But we do observe that, the longer the party of the current chief executive has been in office, the higher the level of perceived corruption. This outcome could be related to the time required to build mechanisms that give politicians leeway to misuse public funds. We also find that minority governments, with their political strategies based on alliances, and governments with a higher weight in the legislative chamber, seen as powerful and immune to control by the chamber, are perceived as more corrupt.

However, the Great recession has altered all these relationships. The severe budgetary constraints and the social discontent associated with the recession may have changed or even eliminated the political differences in terms of perceived corruption. Our results support this hypothesis. We observe clear differences in the impact of political factors in the two periods under consideration, pre-crisis (1996-2006) and post-crisis (2007-2015). The impact of the political variables disappears or changes direction, suggesting a paradigm shift caused by the economic collapse. Moreover, we detect that the timing of the electoral cycles has a significant impact on the level of perceived corruption after 2007: as elections come closer, perceived corruption increases.

In sum, political factors appear to be important in explaining perceived corruption. These findings contribute to the prolific literature on political economy that analyse the determinants of corruption, and call attention to the importance and impact that the Great Recession has had at various levels. In the political arena, it has introduced a distortion in the perception that citizens have about the relationship between political factors and corruption. The traditional political parties must take this paradigm shift seriously if they want, on the one hand, to regain the trust of the voters, and on the other hand, to stop the emergence of the new populist political options.

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## APPENDIX A

**Table A.1: Brief description of every variable included in the analysis**

Variable	Category	Source	Description
Corruption index	Dependent variable	Worldwide Governance Indicators	Prepared by the authors on the basis of data supplied by Worldwide Governance Indicators (WGI). It ranges from 0 (low) to 10 (high) perceived corruption.
Ideology index	Political factor	Database of Political institutions (Beck et al. 2001)	Prepared by the authors on the basis of data supplied by the Database of Political institutions (Beck et al. 2001). It ranges from 1 (right governments) to 5 (left governments).
Coalition	Political factor	Database of Political institutions (Beck et al. 2001)	Dummy variable that takes value 1 if the government is formed by more than one party and 0 otherwise.
Elections	Political factor	Database of Political institutions (Beck et al. 2001)	This variable measures the period of time until the next elections. It ranges from 0 (the year in which elections are held) to 5.
Campaign	Political factor	Database of Political institutions (Beck et al. 2001)	Dummy variable that takes value 1 if the elections take place in a country that year and 0 otherwise.
Years in office	Political factor	Database of Political institutions (Beck et al. 2001)	This variable measures the number of years that the party of the current chief executive has been in office.
Minority	Political factor	Database of Political institutions (Beck et al. 2001)	Dummy variable that takes value 1 if the number of seats held by all government parties in the legislative chamber is equal to or lower than 50%.
Force government	Political factor	Database of Political institutions (Beck et al. 2001)	Percentage of seats held by all government parties in the legislative chamber.
Per capita GDP	Explanatory variable	OECD	Per capita GDP in US\$ at constant prices, expenditure approach. Constant PPPs reference year 2010. Per capita GDP has been included in the model in logs.
Political stability	Explanatory variable	Worldwide Governance Indicators	Prepared by the authors on the basis of data supplied by Worldwide Governance Indicators (WGI). Political stability and absence of violence/terrorism index. It ranges from 0 (minimum stability) to 10 (maximum stability).
Regulatory quality	Explanatory variable	Worldwide Governance Indicators	Prepared by the authors on the basis of data supplied by Worldwide Governance Indicators (WGI). Ability of government to implement regulations that promote private sector development. It ranges from 0 (minimum ability) to 10 (maximum ability).

Urban population (%)	Explanatory variable	The United Nations; Population Divisions; World Urbanization Prospects.	Percentage of individuals living in urban areas over the total in the country.
Population	Explanatory variable	The United Nations; Population Division; World Population Prospects	Total population by country, expressed in thousands. Population has been included in the model in logs.
Index of Globalization	Explanatory variable	KOF Swiss Economic Institute. Gygli et al. (2018).	Index that measures the economic, social and political dimensions of globalization. It ranges from 0 (minimum degree) to 100 (maximum degree).
Trade Openness	Explanatory variable	OECD	Ratio of the sum of exports and imports over the total GDP.
Voice and accountability	Explanatory variable	Worldwide Governance Indicators	Prepared by the authors on the basis of data supplied by Worldwide Governance Indicators (WGI). Extent to which a country's citizens are able to participate in selecting their government, freedom of expression, association, and a free media. It ranges from 0 (minimum freedom) to 10 (maximum freedom).
Female labour force (%)	Explanatory variable	The World Bank Data. International Labour Organization, ILOSTAT database	Percentage of the female population ages 15 and older that is economically active: all women who supply labour for the production of goods and services during a specified period.
Government expenditure (% GDP)	Explanatory variable	World Bank national accounts data, and OECD National Accounts data files	General government final consumption expenditure includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defence and security, but excludes government military expenditures part of government capital formation. variable considered as a percentage of the GDP.
Tax revenue (% GDP)	Explanatory variable	OECD	Tax revenue as a percentage of the GDP.
Protestants (%)	Explanatory variable	World Religion Dataset (WRD)	Percentage of protestants over the total population of the country.
Crisis Dummy	Explanatory variable	Prepared by the authors	Dummy variable that takes value 0 in the pre-crisis period (from 1996 to 2006) and 1 in the post-crisis period (from 2007 to 2015).