THE IMPACT OF INCOME INEQUALITY AND FISCAL STIMULI ON POLITICAL (IN)STABILITY

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We use data for a panel of developed and developing countries to assess the impact of income inequality and fiscal stimuli episodes on political instability. We find that government crises are likely to rise when inequality increases and this effect is especially important in the case of OECD countries. However, expansionary and increasingly expansionary fiscal stimuli episodes can help dampening the detrimental impact of an uneven distribution of income on political stability. From a macroeconomic point of view, economic growth and low inflation seem to be crucial to avoid the occurrence of government crises.

1   Introduction

By fuelling political disaffection, income inequality is typically seen as being at the roots of political instability. Yet, the severity of the most recent financial turmoil that emerged in 2008 forced fiscal authorities in many G20 countries to implement comprehensive support packages based on expenditure hikes. These ended up leading to sharp increases in budget deficits.

As concerns about long-term (un)sustainability of public finances started mounting, governments across the world faced the need to implement budgetary consolidation measures and decided to shift wealth towards banks and debtors and away from taxpayers, fuelling public anger about the unfairness of such decisions.

While the recent literature has started to provide some guidelines about the linkages between fiscal policy and income inequality (Agnello and Sousa, 2012a, b), there is still an important gap regarding our understanding about the effects of an uneven distribution of income and the implementation of fiscal adjustments on the occurrence of government crises.

Is an increase in income inequality likely to shorten a government's mandate? Can fiscal stimuli reduce the probability of a government crisis? Is the impact of inequality on political instability abated in the context of fiscal stimuli episodes?

From a theoretical point of view, the tentative answer to the above mentioned questions should be *"yes"*. Fiscally constrained governments loose popularity and this is particularly true when restrictive fiscal measures and fiscal consolidation programs are implemented in countries experiencing a high degree of income inequality. Contrarily, the effects of inequality (on political stability) might be muted when fiscal adjustments are perceived as equalizing and stimuli programs are put into place. In this context, investigating the impact of inequality and fiscal stimuli on political instability emerges as the main goal of our paper.

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We show that inequality raises the prospects of political instability. More specifically, when the income gap rises, the likelihood of a government crisis increases. This effect of inequality on political instability is particularly important for OECD countries, as economies characterized by high inequality in income distribution are more susceptible to face an unstable political environment.

With regard to fiscal stimulus programs, the empirical findings reveal that both expansionary and increasingly expansionary fiscal stimuli help preserving political stability. Moreover, when conditioning the effect of inequality on the occurrence of fiscal stimuli episodes, our results suggest that such episodes abate the impact of inequality on political instability. This finding is corroborated, in particular, when fiscal stimuli are expansionary (and, thus, promote economic growth) or when they lead to an increasingly expansionary environment (and, therefore, contribute to a sustainable growth path).

Additionally, we show that some factors characterizing the legislature, such as whether the government has a majority of seats in the parliament and whether the government consists of a coalition or not, help explaining a reduction in political instability. Similarly, while the level of government fractionalization increases the number of government crises, the regime durability and the level of political competition provide the ground for a more stable legislature. Moreover, the political regime (as measured by the level of democracy) has a positive effect on the occurrence of government crises, signalling a potentially nonlinear relationship between political instability and the level of democracy. We also find that the larger the number of years in office of the chief executive is, the more likely the number of government crises will fall.

Finally, economic growth seems to be the key for a stable legislature, but inflation tends to deteriorate political stability. Consequently, economic growth and low inflation appear to be crucial ingredients for avoiding the occurrence of government crises.

The rest of the paper is organized as follows. Section 2 briefly looks at the related literature. Section 3 presents the econometric methodology. Section 4 describes the data and discusses the empirical results. Section 5 provides the sensitivity analysis. Finally, Section 6 concludes.

2   Literature review

Several studies looked at the relationship between political instability and the economic performance of a country, as weak growth is likely to shorten policymakers' horizons leading to the implementation of sub-optimal macroeconomic policies in both democracies and dictatorships (Kramer, 1971; Fair, 1978). These studies find that, in general, high income growth rates during pre-election years are likely to increase the probability of the re-election of the incumbent government in democratic countries. A finding that is supported by the idea of the political business cycle developed by Nordhaus (1975) and the partisan effects emphasized by Hibbs (1977). As for dictatorships and military regimes, the likelihood of experiencing coups increases with the decline of GDP per capita. Londregan and Poole (1990) consider the number of coups experienced by 121 countries over the period 1950-1982 and uncover a pronounced inverse relationship between coups and income. In addition, coups are more likely to occur among the poorest countries than among the wealthiest ones. Alesina *et al.* (1996) use data on 113 countries from 1950 to 1982 and show that a high propensity of government collapse is characterized by low GDP growth. Klomp and de Haan (2009) note that economic volatility and political instability and policy uncertainty tend to be positively linked. More recently, Aisen and Veiga (2013) show that higher degrees of political instability are associated with lower growth rates of GDP per capita, as a reflex of the lower rates of productivity growth and physical and human capital accumulation.

Other studies assessed the relationship between political instability and the dynamics of inflation. Paldam (1987) compares the path of consumer price with the incidence of political change for eight Latin American countries over the period 1946-1984. The author uncovers a significant connection between the frequency of military regimes and the level of inflation. Interestingly, while military regimes are relatively strong in fighting inflation, civilian regimes are less stringent about the level of inflation. In addition, just a few regimes survive to the spell of hyperinflation. Aisen and Veiga (2008a) use a dataset covering around 100 countries for the period 1960-1999 and show that greater political instability is associated with high inflation, especially, in developing, less democratic and socially-polarized countries, with low access to domestic and external debt financing and high turnover of central bank presidents. One important policy implication of their study is the need to develop strong institutions conducive to greater political stability. Similar conclusions are found by Aisen and Veiga (2008b) concerning the linkages between political instability and inflation volatility.

Another strand of the literature investigated how the institutional framework affects political instability. Taylor and Herman (1971) find a fairly strong relation between government stability and the fractionalization of the parliamentary party system: the more fragmented the party system is, the more unstable the cabinet is. Gates *et al.* (2006) show that regimes exhibiting a mix of democracy and autocracy characteristics tend to be short-lived. The least stable political system is the dictatorship with a large degree of political participation. Similarly, when the executive is highly constrained and the electorate is very small, the political configuration will be unstable.

With regard to the relationship between political instability and income inequality, Alesina and Perotti (1996) show that the two variables are positively related because of the social discontent associated with income inequality. Perotti (1996) and Odedokun and Round (2001) show that countries with high income inequality are more likely to be politically unstable. Acemoglu and Robinson (2006) develop a theoretical model of democracy and income inequality where they argue that high income inequality in Latin America can be one of the main causes of weak democracy in the region. Blanco and Grier (2009) investigate the underlying causes of political instability in a panel of 18 Latin American countries from 1971 to 2000 and find that income inequality, in particular, have an important nonlinear effect on political instability: increases in income inequality raise instability up to a point, after which any further increases lower instability.

Despite the recent mounting interest of the effects of fiscal consolidation on growth prospects (Cimadomo *et al.*, 2010; Cimadomo, 2012), a thorough analysis of the impact of fiscal retrenchment on political stability has been neglected. To the best of our knowledge, only a few works assess how budget cuts affect the lack of political stability. Paldam (1987) points that fiscal austerity measures are typically associated with higher levels of social unrest. Haggard *et al.* (1995) show that the IMF interventions in developing countries were accompanied with greater instability. Rogoff and Sibert (1988) and Persson and Tabellini (2000) focus on the role played by political budget cycles, that is, the idea that incumbent governments tend to raise spending or cut taxes before elections in order to maximize the probability of re-election. Using data for OECD countries up to the nineties, Alesina *et al.* (1998) do not uncover a statistically significant relationship between fiscal adjustments and the probability of re-election. More recently, Alesina *et al.* (2012) use data for a group of 19 OECD countries from 1975 to 2008 and find no evidence that governments that quickly reduce budget deficits are systematically voted out of office. In fact, many governments are able to decisively reduce deficit and avoiding an electoral defeat.

Other works tackle a somewhat related question from a different angle. Agnello and Sousa (2013) stress that fiscal prudence – *i.e.*, a low and stable public deficit – is essential for the achievement of economic prosperity, while Agnello and Sousa (2014) suggest that more political instability (as expressed by an incoming signal of a government crisis) increases the likelihood of

fiscal policy discretion. Agnello *et al.* (2013a) emphasize that fiscal variables (such as the budget deficit and the level of public debt) and economic factors (such as the degree of openness, the inflation rate, the interest rate and per capita GDP) are crucial for the fiscal consolidation process. Agnello *et al.* (2013b) find evidence pointing that fiscal fatigue may compromise the implementation and successfulness of fiscal consolidation programs. The authors conclude that chronic fiscal imbalances might lead to a vicious austerity cycle, while discipline in the behaviour of fiscal authorities is a means of achieving credible and shorter adjustments.

Our paper contributes to the existing literature in three major directions. First, it specifically looks at the relationship between fiscal stimuli and political instability (as proxied by episodes of government crises). Second, given the strong linkage between income inequality and fiscal adjustment programs (Agnello and Sousa, 2012b), we assess the interaction between fiscal stimuli and the gap in income distribution in determining the likelihood of government crises. Therefore, we evaluate the impact of inequality on political instability, in particular, when countries undertake fiscal stimulus programs. Finally, because of the crucial role played by the composition of the fiscal adjustments (Alesina and Ardagna, 1998), we identify several measures of fiscal stimuli with the aim of assessing their effect on political stability. These are avenues of research that the previous theoretical and empirical works have not fully addressed, but denote important dimensions to be considered for a better understanding of the relationship between income inequality, fiscal stimuli and political (in)stability. With the current paper, we aim at fill such gaps.

3   Econometric methodology

Our modelling strategy consists of three steps. First, we explore the empirical relationship between income inequality and political stability by estimating the following equation:

$$C_{i,t} = Y_{i,t}^{'}\Gamma + X_{i,t}^{'}\beta + \lambda Gini_{i,t} + \alpha_i + \varepsilon_{i,t} \qquad (1)$$

where $C_{i,t}$ denotes, for each country i included in the sample, our proxy of government instability; $Y_{i,t}$ and $X_{i,t}$ are a set of institutional and macroeconomic controls, respectively, that we assume to be correlated with the degree of government fragility; and $Gini_{i,t}$ is the income inequality index.

Then, we broaden our analysis and extend the model specification (1) by considering the relationship between fiscal stimuli episodes ($F_{i,t}$) and government stability. Specifically, we evaluate the impact of specific fiscal episodes on political instability. Similarly to Alesina and Ardagna (1998), we use a statistical approach to identify episodes of: (i) fiscal stimuli; (ii) expansionary fiscal stimuli; (iii) increasingly expansionary fiscal stimuli; (iv) contractionary fiscal stimuli; (v) increasingly contractionary fiscal stimuli; (vi) successful fiscal stimuli; and (vii) unsuccessful fiscal stimuli. A detailed description of these events is presented in the data section. Formally, we run the following regression model:

$$C_{i,t} = Y_{i,t}^{'}\Gamma + X_{i,t}^{'}\beta + \lambda Gini_{i,t} + \phi F_{i,t} + \alpha_i + \varepsilon_{i,t} \qquad (2)$$

where $F_{i,t}$ is a binary variable taking the value of one when a specific fiscal stimuli episode ((i)-(vii)) occurs, and zero otherwise.

Finally, we assess the importance of the interplay between income inequality and fiscal stimuli by running the following regression:

$$C_{i,t} = Y_{i,t}^{'}\Gamma + X_{i,t}^{'}\beta + \lambda_1 Gini_{i,t} + \lambda_2 Gini_{i,t} \cdot 1_F\left(F_{i,t}\right) + \alpha_i + \varepsilon_{i,t} \qquad (3)$$

where $1_F(F_{i,t})$ is a fiscal indicator function taking value of one during periods of fiscal stimuli, and zero otherwise. Its inclusion aims at checking whether the effects of income inequality on government stability change during periods of fiscal stimuli. Under the assumption that fiscal

consolidation plans are detrimental for income distribution (Agnello and Sousa, 2012b), we would expect, for instance, that the impact of inequality on government stability is reduced during the years of the implementation of programs of fiscal stimulus.

Due to the endogenous nature of the regressors, models (1)-(3) are estimated using an instrumental variables (IV) approach. As is standard in the literature, we instrument the endogenous variables with their own lags.

4 Data and empirical results

4.1 Data

We start by using a panel dataset consisting of 128 countries. However, the presence of missing values for several variables and the limited time span of fiscal variables (mainly, for developing countries) reduce the number of countries in the estimation to at most 58.

The dependent variable, $C_{i,t}$, used in our specification is Government Crisis, which is provided by the Cross-National Time-Series Data Archive (CNTS). It counts the number of any rapidly developing situation that might lead to the fall of the current regime and remove a particular government from power with the exclusion of situations of revolt.

The set of institutional variables (*Y*) is retrieved from the Database of Political Institutions (DPI) of the World Bank, the Polity IV Database (Polity IV) and the CNTS and includes:

- *military* (DPI): It is a dummy variable that takes the value one if the Chief Executive is military officer and zero otherwise.
- *stabs* (DPI): It counts the percentage of veto players who drop from the government in a specific year and, as such, it provides information about the veto points in the decision making process and the constraints that governments face in the course of policy implementation.
- *system* (DPI). This variable characterizes the political system. A value of 0 is given in the case of a presidential system, a value of 1 is allocated in the case of an Assembly-elected presidential system, and a value of 2 is associated to a parliamentary system.
- *govfrac* (Polity IV). It refers to the degree of government fragmentation as measured by the probability that two deputies picked at random from among the government parties will be of different parties.
- *polity2* (Polity IV). This describes how democratic a country is. It subtracts the country's score in an *"Autocracy"* index from its score in a *"Democracy"* index and produces a polity scale ranging from -10 (strongly autocratic) to +10 (strongly democratic).
- *durable* (DPI). This variable counts the number of years that a cabinet has been in power, up to the current year. A cabinet that falls during its first year in power is counted as 1. Every time there is a government termination, the variable is reset to 1 the year after the termination.
- *polcomp* (Polity IV). It measures the level of political competition in the next election that is expected by the incumbent when making policy decisions over the administration cycle.
- *yrsoffc* (DPI). It counts the number of years the chief executive has been in office.
- *maj* (DPI). It is a dummy variable equal to 1 if the cabinet has majority support in parliament.
- *party_coal* (DPI). It is a dummy variable equal to 1 if a coalition cabinet (including ministers from two or more parties) is in power.

The set of macroeconomic variables (*X*) is provided by the World Economic Outlook (WEO) of the International Monetary Fund (IMF) and includes: the GDP growth rate, the inflation rate and the real interest rate.

The net income Gini inequality index data comes from the Standardized World Income Inequality Database (SWIID).

Finally, fiscal data are retrieved from the WEO of the IMF. The cyclically adjusted budget balance is computed as in Alesina and Perotti (1995) and Alesina and Ardagna (1998, 2010), and is based on the method proposed by Blanchard (1990). Data on public debt are retrieved from the Historical Public Debt Database assembled by the Fiscal Affairs Department of the IMF (Ali Abbas *et al.*, 2011). In addition, the fiscal stimuli episodes considered in our study can be defined as follows:

- *Fiscal stimulus*. A period of fiscal stimulus is a year in which the cyclically adjusted primary balance deteriorates by at least 1.5 per cent of GDP.

- *Expansionary (contractionary) fiscal stimulus*. It corresponds to a period of fiscal stimulus followed by a positive (negative) GDP growth for two consecutive years.

- *Increasingly (decreasingly) expansionary fiscal stimulus*. It is a period of fiscal stimulus followed by an increasing (declining) GDP for two consecutive years. As we are not able to identify increasingly contractionary fiscal stimuli episodes, we do not consider these in the analysis.

- *Successful (unsuccessful) fiscal stimulus*. It is a period of fiscal stimulus followed by the cumulative reduction of the debt to GDP ratio greater (smaller) than 4.5 percentage points over two consecutive years after the beginning of a fiscal stimulus.

4.2   Political instability

We start by investigating the institutional and economic determinants of political instability and the impact of income inequality on the occurrence of government crises. Therefore, we estimate the baseline model and provide a summary of the findings in Table 1. In Column 1, we focus on the set of institutional variables; in Column 2, we add a set of economic determinants; in Column 3, we also consider the level of inequality; and, in Column 4, we condition the results on the strength of the income gap.

Looking at the set of institutional variables, we find that some factors providing details on the legislature, such as whether the government has a majority of seats in the parliament (*maj*) and whether the government consists of a coalition or not (*party_coal*), are important determinants of political instability. Both variables have a negative effect on the number of episodes of government crisis, in line with the conventional wisdom, being particularly relevant in the case of *party_coal* as shown by the large magnitude of the estimated coefficient. Similarly, the level of government fractionalization (*govfrac*) – which represents a Party variable in the legislature – helps explaining the occurrence of government crises and it has a positive and statistically significant impact on the dependent variable, in line with the findings of Taylor and Herman (1971). As expected, the regime durability (*durable*) reduces the probability of government crisis and the level of political competition (*polcomp*) seems to provide the ground for a more stable legislature. In what concerns to the political regime (*polity2*), the evidence suggests that it has a positive effect on the number of government crises, which indicates that the relationship between political instability and the level of democracy might be nonlinear. Indeed, Gates *et al.* (2006) show that regimes that are strongly autocratic and strongly democratic display a high degree of stability, as the maintenance of the institutional framework is in the interest of the political elites. In contrast, inconsistent regimes (as those with a mix of characteristics of autocracy and democracy) lack self- enforcing equilibrium and tend to be shorter. As for the chief executive variables (*yrsoffc*, *system* and *military*) and the stability and checks and balances determinants, our results show that only the number of years in office of the chief executive contributes significantly for a more stable political environment.

Table 1

Political Instability

Government Crisis	[1]	[2]	[3]	[4]
military	0.0131 *[0.020]*	0.0027 *[0.027]*	0.1035* *[0.062]*	0.0909 *[0.062]*
stabs	0.0091 *[0.035]*	-0.0088 *[0.041]*	-0.0816 *[0.057]*	-0.0852 *[0.056]*
system	0.0105 *[0.012]*	-0.0071 *[0.015]*	0.0214 *[0.025]*	-0.001 *[0.025]*
govfrac	0.0751** *[0.037]*	0.0822* *[0.044]*	0.0688 *[0.063]*	0.0945 *[0.064]*
polity2	0.0183*** *[0.004]*	0.0156*** *[0.005]*	0.0335*** *[0.010]*	0.0347*** *[0.010]*
durable	-0.0010*** *[0.000]*	-0.0006* *[0.000]*	-0.0009** *[0.000]*	-0.0011*** *[0.000]*
polcomp	-0.0217*** *[0.008]*	-0.0219** *[0.009]*	-0.0557*** *[0.019]*	-0.0563*** *[0.019]*
yrsoffc	-0.0014 *[0.001]*	-0.0026** *[0.001]*	-0.0031 *[0.002]*	-0.0031 *[0.002]*
maj	-0.2345*** *[0.054]*	-0.1939*** *[0.062]*	-0.1815* *[0.108]*	-0.2317** *[0.111]*
party_coal	-0.0308*** *[0.008]*	-0.0124 *[0.012]*	-0.0430* *[0.024]*	-0.0572** *[0.025]*
GDP growth rate		-1.3798*** *[0.359]*	-2.7839*** *[0.767]*	-2.7863*** *[0.769]*
inflation		0.0144*** *[0.004]*	0.0290*** *[0.008]*	0.0291*** *[0.008]*
real interest rate		0.0001 *[0.000]*	0.0000 *[0.000]*	0.0000 *[0.000]*
inequality			0.0047** *[0.002]*	
(inequality < average)				0.0155*** *[0.004]*
(inequality > average)				0.0098*** *[0.003]*
constant	0.4721*** *[0.071]*	0.4492*** *[0.087]*	0.5410*** *[0.189]*	0.3482* *[0.195]*
Observations	2690	1752	991	991
R-squared	0.053	0.068	0.093	0.102
Hansen Statistic	-	3.242	4.991	5.221
p-value	-	0.518	0.288	0.265

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Turning to the group of economic variables, the empirical findings interestingly reveal that while economic growth contributes to stable legislature, an increase in inflation tends to deteriorate it, corroborating the findings of Aisen and Veiga (2008a, 2008b). In light of the magnitude of the coefficient associated to real GDP growth, the baseline model suggests that the underlying performance of the economy is, perhaps, the most important determinant of political stability. In addition, the positive coefficient of inflation shows that government crises are likely to rise as a result of an increase in inflation. As for the interest rate, it does not seem to play a significant role in explaining the number of government crises.

Moving to the analysis of the impact of inequality on political instability, our results clearly suggest that when the income gap rises, the likelihood of a government crisis increases (Column 3). This, in turn, highlights that countries which fail to address the problem of inequality in income distribution are more susceptible to face social polarization and, hence, an unstable political environment. Alesina and Perotti (1996), Perotti (1996) and Odedokun and Round (2001) show that income inequality affects growth, but the problem is more complex since in this process worse income distribution generates social dissatisfaction which in turn leads to social and political instability, as we show in our analysis. Moreover, we also find that this effect does not seem to depend on how large the income gap is, as shown in Column 4. Hence, income inequality arises as an important trigger for political instability as soon as it is spotted by society.

4.3   Political instability and fiscal stimuli

We now move a step forward and assess the effects of fiscal stimuli on political (in)stability, as proxied by the number of episodes of government crises. We consider different typologies of fiscal episodes, namely: (i) fiscal stimuli, (ii) increasingly expansionary fiscal stimuli, (iii) expansionary fiscal stimuli, (iv) increasingly contractionary fiscal stimuli, (v) contractionary fiscal stimuli, (vi) successful fiscal stimuli, and (vii) unsuccessful fiscal stimuli. The results are summarized in Table 2.

It can be seen that episodes of fiscal stimuli are not associated with more unstable political environments *per se*. In fact, the results suggest that fiscal stimuli episodes do not significantly reduce the occurrence of government crises. However, the typology of fiscal stimuli matters. Indeed, expansionary and increasingly expansionary fiscal stimuli programs help reducing the likelihood of political instability. Thus, the fall in unemployment and the effectiveness of such programs in boosting the economy are likely to contribute to less political instability. Contractionary fiscal stimuli reforms have not proven to contribute to more political stability. These results suggest that it might be easier for political forces to reach an agreement when an expansionary package is being discussed than when a contractionary one is *on the table*. Hence, additional political stability is more likely to be obtained in the first kind of stimuli. In sum, our empirical findings show that the design of fiscal packages exerts an effect on the occurrence of government crises that cannot be neglected. Due to their redistributive nature, expansionary programs are more easily accepted by society, therefore, generating a higher social cohesion and stability than contractionary packages. In fact, social stability is also an important driver for a higher degree of political stability (Annett, 2000).

Additionally, the results are still indicating that when the income inequality increases social discontent is fuelled and, therefore, it contributes to more politically unstable governments, no matter the kind of fiscal stimuli that is considered. Regarding the institutional and economic conditionings the main results and conclusions remain unchanged.

4.4   Political instability and interaction between inequality and fiscal consolidation

We concluded above that income inequality contributes to political instability regardless the type of fiscal stimuli program put in place by the fiscal authority. However, in the previous analysis, we did not disentangle the interaction between these two effects on political (in)stability. Hence, next, we condition the effect of inequality on political instability by accounting for the occurrence of fiscal stimuli episodes, that is, we interact the net income Gini inequality index with the various fiscal stimuli episodes and assess whether the impact on the likelihood of a government crisis is dampened.

The results are summarized in Table 3 and show that when expansionary and increasingly expansionary fiscal stimuli programs are implemented, the detrimental impact that inequality has on political instability is abated. The results also point out to the fact that the more expansionary the program is, the larger the reduction in the degree of political instability will be.

All in all, these findings interestingly suggest that in countries where income distribution is uneven, governments implementing fiscal stimuli programs are more likely to avoid political instability. In particular, these expansionary stimuli generate a redistribution of income in favour of a sizeable group of the population, which helps to reduce the overall level of inequality. Fiscal policy can favourably influence long-term trends in both inequality and growth by promoting education and training among low- and middle-income workers. This is more relevant when the initial level of inequality is high. Agnello and Sousa (2012a) show that expansionary fiscal adjustments are more effective in shortening the income gap, which means that growth-promoting consolidation programs lead to a more stable social and political environment. Hence, fiscal authorities, in countries where income inequality is more striking, should carefully design their fiscal stimuli programs: ultimately, they need to be expansionary (*i.e.*, generate economic growth) or increasingly expansionary (in the sense of generating positive sustainable growth) in order to be able to significantly reduce the likelihood of government crises. In sum, the redistributive role of these programs helps mitigating some of the inequalities in society and, therefore, reduce social and political instability.

5   Sensitivity analysis

In this section, we provide the sensitivity analysis. We assess the robustness of the previous findings along different dimensions, namely: (i) by analysing the evidence for OECD and non-OECD countries; and (ii) by estimating an ordered probit model.

5.1   Evidence for OECD and non-OECD countries

We start by investigating the effects of income inequality on political instability in two sets of countries: (i) OECD countries and (ii) non-OECD countries. In Tables 4-6, we present the main findings using data for OECD countries. As we are not able to identify contractionary fiscal stimuli episodes for OECD countries, we do not consider these in the analysis. In Tables 7-9, we provide the evidence for non-OECD countries.

Tables 4-6 show that the results for OECD countries are similar to the ones found when using the full sample. More specifically, among the list of institutional variables, the fact that the government in power is made of a coalition (*party_coal*) and the regime durability (*durable*) are positively associated with political stability. An increase in the level of political competition (*polcomp*) also seems to go along in tandem with a more stable legislature. Moreover, while the

Table 2

Political Instability and Fiscal Stimuli

Government Crisis	[1]	[2]	[3]	[4]	[5]	[6]
military	0.0833	0.0896	0.0863	0.0853	0.0854	0.0857
	[0.067]	[0.068]	[0.067]	[0.068]	[0.069]	[0.068]
stabs	−0.0889	−0.0935	−0.0908	−0.0854	−0.088	−0.0873
	[0.062]	[0.064]	[0.063]	[0.063]	[0.063]	[0.063]
system	0.0263	0.0257	0.0257	0.0249	0.0245	0.0256
	[0.027]	[0.027]	[0.027]	[0.027]	[0.028]	[0.028]
govfrac	0.0299	0.0299	0.0287	0.0305	0.0328	0.0307
	[0.065]	[0.065]	[0.065]	[0.065]	[0.065]	[0.065]
polity2	0.0349***	0.0347***	0.0348***	0.0343***	0.0341***	0.0351***
	[0.011]	[0.011]	[0.011]	[0.011]	[0.011]	[0.011]
durable	−0.0010**	−0.0009**	−0.0010***	−0.0010**	−0.0010**	−0.0010**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
polcomp	−0.0571***	−0.0562**	−0.0564**	−0.0556**	−0.0557**	−0.0572**
	[0.022]	[0.022]	[0.022]	[0.022]	[0.023]	[0.022]
yrsoffc	−0.0031	−0.0032	−0.0032	−0.0033	−0.0035	−0.0031
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
maj	−0.1989*	−0.1942	−0.2009*	−0.1814	−0.1955	−0.1969*
	[0.119]	[0.119]	[0.119]	[0.118]	[0.119]	[0.119]
party_coal	−0.0457**	−0.0447*	−0.0454***	−0.0428*	−0.0435*	−0.0458*
	[0.023]	[0.023]	[0.023]	[0.023]	[0.024]	[0.023]

	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth rate	−3.0762***	−3.0260***	−3.0409***	−2.8864***	−3.0040***	−3.0661***
	[0.802]	[0.807]	[0.800]	[0.796]	[0.804]	[0.819]
inflation	0.0321***	0.0315***	0.0318***	0.0300***	0.0312***	0.0318***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
real interest rate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
inequality	0.0057**	0.0058**	0.0057***	0.0053**	0.0055**	0.0055**
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
fiscal stimuli	−0.0616					
	[0.040]					
increasingly expansionary fiscal stimuli		−0.1099*				
		[0.066]				
expansionary fiscal stimuli			−0.0743*			
			[0.042]			
contractionary fiscal stimuli				0.5332		
				[0.647]		
successful fiscal stimuli					−0.0305	
					[0.081]	
unsuccessful fiscal stimuli						−0.0596
						[0.047]
Constant	0.5610***	0.5371***	0.5590***	0.5316***	0.5419***	0.5634***
	[0.196]	[0.196]	[0.196]	[0.196]	[0.196]	[0.195]
Observations	914	914	914	914	907	909
R−squared	0.102	0.102	0.103	0.102	0.10	0.101
Hansen Statistic	5.371	5.345	5.387	5.313	5.529	5.15
p−value	0.251	0.254	0.25	0.257	0.237	0.272

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 3

Political Instability and Interaction Between Inequality and Fiscal Stimuli

Government Crisis	[1]	[2]	[3]	[4]	[5]	[6]
military	0.0832	0.09	0.0858	0.0853	0.0862	0.0857
	[0.067]	[0.068]	[0.067]	[0.068]	[0.069]	[0.068]
stabs	−0.0885	−0.0945	−0.0902	−0.0857	−0.0873	−0.0864
	[0.062]	[0.064]	[0.063]	[0.063]	[0.063]	[0.063]
system	0.0263	0.0262	0.0262	0.0248	0.0243	0.0259
	[0.027]	[0.027]	[0.027]	[0.027]	[0.028]	[0.028]
govfrac	0.0306	0.0299	0.029	0.0311	0.033	0.0312
	[0.065]	[0.065]	[0.065]	[0.065]	[0.065]	[0.065]
polity2	0.0348***	0.0345***	0.0347***	0.0344***	0.0343***	0.0351***
	[0.011]	[0.011]	[0.011]	[0.011]	[0.011]	[0.011]
durable	−0.0010**	−0.0009**	−0.0010**	−0.0010**	−0.0010**	−0.0010**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
polcomp	−0.0567**	−0.0556**	−0.0560**	−0.0557**	−0.0558**	−0.0571**
	[0.022]	[0.022]	[0.022]	[0.022]	[0.023]	[0.022]
yrsoffc	−0.0031	−0.0032	−0.0031	−0.0033	−0.0034	−0.003
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
maj	−0.1985*	−0.1941	−0.2015*	−0.1826	−0.1945	−0.1979*
	[0.118]	[0.118]	[0.119]	[0.118]	[0.119]	[0.119]
party_coal	−0.0460**	−0.0458**	−0.0462**	−0.0428*	−0.0436*	−0.0462**
	[0.023]	[0.023]	[0.023]	[0.023]	[0.024]	[0.023]

	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth rate	-3.0479*** [0.797]	-3.0292*** [0.802]	-3.0244*** [0.797]	-2.8953*** [0.795]	-2.9889*** [0.803]	-3.0562*** [0.815]
inflation	0.0318*** [0.008]	0.0315*** [0.008]	0.0317*** [0.008]	0.0301*** [0.008]	0.0310*** [0.008]	0.0317*** [0.008]
real interest rate	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]
inequality	0.0060** [0.002]	0.0061** [0.002]	0.0061** [0.002]	0.0053** [0.002]	0.0055** [0.002]	0.0058** [0.002]
inequality x fiscal stimuli	-0.0013 [0.001]					
inequality x increasingly expansionary fiscal stimuli		-0.0033** [0.001]				
inequality x expansionary fiscal stimuli			-0.0019* [0.001]			
inequality x contractionary fiscal stimuli				0.0097 [0.014]		
inequality x successful fiscal stimuli					-0.0002 [0.002]	
inequality x unsuccessful fiscal stimuli						-0.0015 [0.001]
constant	0.5441*** [0.196]	0.5266*** [0.196]	0.5407*** [0.197]	0.5327*** [0.196]	0.5424*** [0.196]	0.5513*** [0.196]
Observations	914	914	914	914	907	909
R–squared	0.101	0.104	0.103	0.102	0.099	0.101
Hansen Statistic	5.396	5.348	5.413	5.331	5.454	5.133
p–value	0.249	0.253	0.247	0.255	0.244	0.274

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

number of years in office of the chief executive reduces the occurrence of government crises, the political regime (in the form of increased democracy) seems to lead to more political tensions. In general, these results show that within the group of OECD countries, those with better and more solid political institutions tend to show lower levels of political instability, but very liberal democratic systems can, nevertheless, be counterproductive in achieving political stability. Hence, our results suggest the need for these countries to find a balance between their usually higher degree of democracy and the building up of a solid set of political institutions.

Among the group of economic variables, we find that economic growth and inflation have, once again, opposite effects on political instability: while economic growth strongly reduces the occurrence of government crises in OECD countries, an increase in inflation tends to erode the stability of the political environment. It is easy to understand that a more favourable economic environment provides better opportunities for all economic agents and the population in general, creating favourable conditions for a more equal distribution of income. As mentioned before, this is a key factor for social and, consequently, political stability. On one hand, a higher economic growth is *per se* a fundamental catalyst for this stability; on the other hand, higher inflation levels generate an erosion of wealth and an unfair redistribution of the income among the economic agents, promoting social and political tensions.

In what concerns inequality, we clearly uncover a positive effect on the number of episodes of government crisis. However, this impact does not appear to depend on the magnitude of the income gap, as the coefficients associated with inequality above the average and inequality below the average are very similar in magnitude. This result confirms the important role that income distribution has at the social and political level. Without an adequate and fair distribution of income, social tensions will become more frequent with consequential repercussions at the political level.

With regard to the effects of fiscal episodes, we find that fiscal stimuli programs are particularly important at reducing the likelihood of government crises (as shown in Table 5). Moreover, for OECD countries, what matters is the implementation of such programs, independently of their kind. As developed democracies, these programs are usually perceived as needed when supported by the society, so it is easier to reach a consensus for its implementation, which will ultimately contribute to strengthen the political environment. This piece of evidence is corroborated in Table 6, when we interact the level of inequality with the implementation of fiscal stimuli. Indeed, the table shows that conditioning the impact of inequality during periods of fiscal stimulus significantly reduces the number of government crisis episodes. As this group of countries tend to present higher levels of political stability, a simple fiscal stimuli might be enough to reinforce that stability, even when the degree of inequality is higher. Reforms since the 1980s in this group of countries have been a factor behind rising income inequality by lessening the generosity of social benefits and the progressiveness of income tax systems. So, a well designed fiscal package can mitigate inequalities in the society, reinforcing the social and political stability that usually characterizes the group of OECD countries.

As for the evidence for non-OECD countries (reported in Tables 7-9), our results show that the level of political competition (*polcomp*) and, to some extent, the fact that the government in power has a majority of seats in the parliament (*maj*) or is made of a coalition (*party_coal*) reduces the occurrence of government crises, while more democracy (*polity2*) may exacerbate political instability. However, only political competition and the degree of democracy remain relevant when the economic environment and the level of inequality are controlled for. In fact, non-OECD countries need political competition to promote a more stable political system. However, like the OECD countries, stronger democratic systems tend to generate more instability, maybe because the complex nature of the political system under these regimes – perhaps not very well apprehended by the political authorities in such developing countries – might complicate the quest for political

Table 4

Political Instability – Evidence for OECD Countries

Government Crisis	[1]	[2]	[3]	[4]
military	0.5912**	–0.1103	–0.0019	–0.1583
	[0.244]	[0.176]	[0.146]	[0.127]
stabs	–0.0835	–0.074	–0.1339	–0.1279
	[0.080]	[0.086]	[0.090]	[0.089]
system	0.0123	–0.0339	0.1567***	0.0955*
	[0.033]	[0.048]	[0.056]	[0.052]
govfrac	–0.0507	–0.0334	–0.0092	0.1047
	[0.102]	[0.109]	[0.119]	[0.132]
polity2	0.1334***	0.1416***	0.1514***	0.1279***
	[0.044]	[0.036]	[0.039]	[0.035]
durable	–0.0016***	–0.0006	–0.0016***	–0.0017***
	[0.000]	[0.001]	[0.001]	[0.001]
polcomp	–0.1407**	–0.1323**	–0.1582*	–0.1786**
	[0.068]	[0.060]	[0.081]	[0.078]
yrsoffc	–0.0154*	–0.0135*	–0.0118	–0.0118
	[0.008]	[0.008]	[0.008]	[0.008]
maj	0.1355	0.0319	–0.0207	–0.0968
	[0.193]	[0.186]	[0.194]	[0.201]
party_coal	–0.0986*	–0.1017*	–0.1084*	–0.0836
	[0.054]	[0.058]	[0.061]	[0.061]
GDP growth rate		–2.6183***	–3.4111***	–3.1144***
		[0.815]	[0.906]	[0.878]
inflation rate		0.0397**	0.0394***	0.0374***
		[0.009]	[0.010]	[0.010]
real interest rate		–0.0042**	–0.0027	–0.0005
		[0.002]	[0.005]	[0.005]
inequality			0.0181***	
			[0.005]	
(inequality < average)				0.0286***
				[0.007]
(inequality > average)				0.0173***
				[0.005]
constant	0.606	0.5154	–0.0619	0.1326
	[0.391]	[0.387]	[0.563]	[0.532]
Observations	671	520	461	461
R–squared	0.054	0.081	0.11	0.125
Hansen Statistic	–	0.993	3.008	2.488
p–value	–	0.803	0.39	0.477

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 5

Political Instability and Fiscal Stimuli – Evidence for OECD Countries

Government Crisis	[1]	[2]	[3]	[4]	[5]
military	-0.1435	-0.1467	-0.1417	-0.1049	-0.1934
	[0.116]	[0.120]	[0.116]	[0.125]	[0.121]
stabs	-0.1391	-0.1289	-0.1401	-0.1319	-0.1387
	[0.092]	[0.092]	[0.092]	[0.092]	[0.092]
system	0.1487**	0.1492**	0.1496**	0.1520**	0.1466**
	[0.062]	[0.063]	[0.062]	[0.063]	[0.062]
govfrac	0.0227	0.0261	0.0247	0.0275	0.0196
	[0.123]	[0.123]	[0.124]	[0.124]	[0.123]
polity2	0.1510***	0.1604***	0.1528***	0.1555***	0.1551***
	[0.040]	[0.039]	[0.040]	[0.039]	[0.040]
durable	-0.0015**	-0.0016**	-0.0016**	-0.0016**	-0.0016**
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
polcomp	-0.1146	-0.1302	-0.1176	-0.1276	-0.1157
	[0.091]	[0.090]	[0.091]	[0.090]	[0.092]
yrsoffc	-0.0112	-0.012	-0.0111	-0.0116	-0.0117
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
maj	-0.079	-0.0429	-0.0664	-0.0477	-0.074
	[0.205]	[0.204]	[0.204]	[0.203]	[0.204]
party_coal	-0.0977	-0.0954	-0.0958	-0.0935	-0.0991
	[0.061]	[0.062]	[0.061]	[0.062]	[0.061]

	(1)	(2)	(3)	(4)	(5)
GDP growth rate	-3.8643*** [1.024]	-3.3767*** [0.981]	-3.6856*** [0.993]	-3.4776*** [0.949]	-3.7889*** [1.014]
inflation	0.0458*** [0.012]	0.0403*** [0.011]	0.0441*** [0.012]	0.0417*** [0.011]	0.0442*** [0.012]
real interest rate	-0.0012 [0.006]	-0.0025 [0.006]	-0.0017 [0.006]	-0.0026 [0.006]	-0.0009 [0.006]
inequality	0.0192*** [0.005]	0.0195*** [0.006]	0.0193*** [0.005]	0.0197*** [0.006]	0.0191*** [0.005]
fiscal stimuli	-0.1087** [0.053]				
increasingly expansionary fiscal stimuli		0.0503 [0.131]			
expansionary fiscal stimuli			-0.0825 [0.055]		
successful fiscal stimuli				-0.091 [0.077]	
unsuccessful fiscal stimuli					-0.0982* [0.057]
Constant	-0.5024 [0.834]	-0.4929 [0.823]	-0.5151 [0.832]	-0.4831 [0.834]	-0.5244 [0.835]
Observations	453	453	453	453	453
R–squared	0.118	0.113	0.115	0.113	0.116
Hansen Statistic	2.091	2.306	1.965	2.093	2.153
p–value	0.554	0.511	0.58	0.553	0.541

Note: Robust standard errors in brackets. *** *p*<0.01, ** *p*<0.05, * *p*<0.1.

Table 6

Political Instability and Interaction Between Inequality and Fiscal Stimuli Evidence for OECD Countries

Government Crisis	[1]	[2]	[3]	[4]	[5]
military	-0.1195	-0.146	-0.1246	-0.0944	-0.1963
	[0.119]	[0.120]	[0.119]	[0.135]	[0.125]
stabs	-0.1398	-0.1303	-0.14	-0.1328	-0.138
	[0.092]	[0.092]	[0.093]	[0.092]	[0.092]
system	0.1524**	0.1490**	0.1520**	0.1522**	0.1491**
	[0.063]	[0.063]	[0.063]	[0.063]	[0.062]
govfrac	0.025	0.0263	0.0266	0.0285	0.0197
	[0.124]	[0.123]	[0.125]	[0.125]	[0.123]
polity2	0.1478***	0.1607***	0.1503***	0.1549***	0.1540***
	[0.040]	[0.039]	[0.040]	[0.039]	[0.041]
durable	-0.0015**	-0.0016**	-0.0016**	-0.0016**	-0.0016**
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
polcomp	-0.1123	-0.1304	-0.1158	-0.1269	-0.115
	[0.092]	[0.089]	[0.092]	[0.090]	[0.094]
yrsoffc	-0.0111	-0.0121	-0.0111	-0.0118	-0.0115
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
maj	-0.0717	-0.0451	-0.0628	-0.0465	-0.0677
	[0.205]	[0.203]	[0.204]	[0.203]	[0.203]
party_coal	-0.0969	-0.0949	-0.0954	-0.0932	-0.0991
	[0.061]	[0.061]	[0.062]	[0.062]	[0.061]

	(1)	(2)	(3)	(4)	(5)
GDP growth rate	-3.7924***	-3.4079***	-3.6468***	-3.4745***	-3.7094***
	[1.015]	[0.967]	[0.989]	[0.949]	[1.004]
inflation	0.0450***	0.0406***	0.0436***	0.0416***	0.0433***
	[0.012]	[0.011]	[0.012]	[0.011]	[0.012]
real interest rate	-0.0009	-0.0025	-0.0014	-0.0025	-0.0006
	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]
inequality	0.0198***	0.0195***	0.0197***	0.0197***	0.0195***
	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]
inequality x fiscal stimuli	-0.0033*				
	[0.002]				
inequality x increasingly expansionary fiscal stimuli		0.0012			
		[0.004]			
inequality x expansionary fiscal stimuli			-0.0025		
			[0.002]		
inequality x successful fiscal stimuli				-0.0022	
				[0.002]	
inequality x unsuccessful fiscal stimuli					-0.0028
					[0.002]
constant	-0.5337	-0.4915	-0.5346	-0.4882	-0.5495
	[0.844]	[0.819]	[0.840]	[0.834]	[0.847]
Observations	453	453	453	453	453
R-squared	0.117	0.112	0.115	0.113	0.115
Hansen Statistic	2.033	2.219	1.962	2.094	2.101
p-value	0.566	0.528	0.58	0.553	0.552

Note: Robust standard errors in brackets. *** *p*<0.01, ** *p*<0.05, * *p*<0.1.

Table 7

Political Instability – Evidence for Non-OECD Countries

Government Crisis	[1]	[2]	[3]	[4]
military	−0.0034 [0.020]	0.0024 [0.027]	0.0831 [0.065]	0.0726 [0.066]
stabs	0.0176 [0.038]	−0.0129 [0.047]	−0.1121 [0.077]	−0.1158 [0.077]
system	0.0055 [0.014]	−0.0147 [0.016]	−0.0436 [0.031]	−0.0482 [0.031]
govfrac	0.0659 [0.043]	0.0773 [0.052]	0.1347 [0.086]	0.1307 [0.086]
polity2	0.0161*** [0.004]	0.0137*** [0.005]	0.0307*** [0.010]	0.0303*** [0.011]
durable	0.0001 [0.001]	−0.0003 [0.001]	−0.0014 [0.001]	−0.0012 [0.001]
polcomp	−0.0198** [0.008]	−0.0175* [0.009]	−0.0528** [0.021]	−0.0480** [0.022]
yrsoffc	−0.0015 [0.001]	−0.0024* [0.001]	−0.0033 [0.003]	−0.0031 [0.003]
maj	−0.2584*** [0.058]	−0.1987*** [0.067]	−0.1872 [0.125]	−0.2139 [0.130]
party_coal	−0.0237*** [0.009]	−0.0069 [0.012]	−0.0216 [0.026]	−0.0353 [0.030]
GDP growth rate		−1.3826*** [0.380]	−2.6312*** [0.966]	−2.6612*** [0.968]
inflation rate		0.0143*** [0.004]	0.0271*** [0.010]	0.0275*** [0.010]
real interest rate		0.0001* [0.000]	0.0000 [0.000]	0.0000 [0.000]
inequality			−0.0006 [0.003]	
(inequality < average)				0.0069 [0.006]
(inequality > average)				0.0033 [0.004]
constant	0.4577*** [0.074]	0.4207*** [0.088]	0.7517*** [0.247]	0.5759** [0.246]
Observations	2019	1297	568	568
R–squared	0.058	0.093	0.121	0.125
Hansen Statistic	–	2.625	5.312	5.364
p–value	–	0.453	0.15	0.147

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

parties to reach a consensus. This in turn, generates political instability and delays in the implementation of important programs necessary to stabilize the economy when affected by adverse shocks. Indeed, the state of the economic environment is a crucial determinant of the number of government crises. We observe that economic growth is undoubtedly the most important factor contributing to the stability of the government, as can be seen by the large magnitude of the coefficient associated to this variable. In contrast, inflation and increasing funding costs (as expressed in a higher interest rate) boost the possibility of political tensions (albeit weakly in the later variable). This is because many developing countries are characterized by less democratic and socially-polarized environments with low access to either domestic or external sources of debt financing (Aisen and Veiga, 2008a).

Finally, we show that inequality does not have a significant impact on the number of government crises, a result that is in sharp contrast with the evidence found for OECD countries. Moreover, this impact does not seem to rely on the size of the income gap, as the coefficients associated with inequality above and below the average are also statistically insignificant. In non-OECD countries the average lower literacy rates and education levels act as obstacles for the median voter to exert active civic and political pressure and demand public accountability from their political leaders and governments. Moreover, the traditionally higher average starting level of income inequality means that any marginal increase in the Gini coefficient is not felt as much as in OECD countries. Moreover, contrary to the group of OECD countries, non-OECD countries are usually characterized by a higher level of political instability and even periods of dictatorship and repression. This might mean that institutional and economic conditions can be overcastting the impact of income inequality on political instability that is observed in more stable political systems. In fact, we observe that the degree of democracy (*polity2*), GDP growth and inflation are the most relevant factors for this group of non-OECD countries.

Turning to the effects of fiscal episodes, our results suggest that it is the kind of program that ultimately matters: both expansionary and increasingly expansionary fiscal stimuli are particularly important in reducing the likelihood of government crises (as shown in Table 8). This, to some extent, can be interpreted as the mirror image of the finding of Haggard *et al.* (1995) that contractionary measures implemented in developing countries towards fiscal adjustments, as a result of external interventions, were accompanied by greater instability. Thus, the simple implementation of a program is not enough, like it has proven to be the case for the group of OECD countries; in non-OECD economies, only expansionary fiscal stimuli seem to be able to promote political stability.

Our previous piece of evidence is corroborated in Table 9, when we interact the level of inequality with the implementation of fiscal stimuli. Indeed, the table shows that conditioning the impact of inequality during periods of fiscal stimulus significantly reduces the number of government crisis episodes, since the magnitude of the resulting interacting coefficients gets significantly smaller. Blanco and Grier (2009) show that Latin American countries with low levels of inequality tend to suffer, on average, less political instability. In fact, in low-income countries and some emerging market economies, reforms of fuel and food subsidies are crucial to improving the equity impact of fiscal policy (Coady *et al.*, 2010). For non-OECD countries, we also observe that trend but only when redistributive expansionary measures are put in place. They seem to provide some positive re-adjustments in the income distribution, which in turn contributes to a more peaceful social and political environment.

Table 8

Political Instability and Fiscal Stimuli – Evidence for Non-OECD Countries

Government Crisis	[1]	[2]	[3]	[4]	[5]	[6]
military	0.0674	0.076	0.0717	0.0697	0.0733	0.074
	[0.070]	[0.071]	[0.071]	[0.072]	[0.073]	[0.072]
stabs	−0.1204	−0.1326	−0.1215	−0.1143	−0.1174	−0.1184
	[0.094]	[0.098]	[0.094]	[0.093]	[0.094]	[0.095]
system	−0.0326	−0.0303	−0.0339	−0.0362	−0.0378	−0.0357
	[0.033]	[0.033]	[0.033]	[0.033]	[0.032]	[0.033]
govfrac	0.053	0.0555	0.0461	0.0563	0.063	0.0579
	[0.093]	[0.092]	[0.092]	[0.091]	[0.092]	[0.093]
polity2	0.0263**	0.0270**	0.0258**	0.0265**	0.0256**	0.0261**
	[0.012]	[0.012]	[0.012]	[0.012]	[0.012]	[0.012]
durable	−0.0015	−0.0013	−0.0015	−0.0015	−0.0015	−0.0014
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
polcomp	−0.0416*	−0.0422*	−0.0404*	−0.0422*	−0.0407	−0.0411*
	[0.024]	[0.024]	[0.024]	[0.024]	[0.025]	[0.025]
yrsoffc	−0.0046	−0.0046	−0.0047	−0.0046	−0.005	−0.0045
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
maj	−0.2101	−0.2046	−0.2152	−0.1904	−0.2116	−0.2094
	[0.135]	[0.136]	[0.135]	[0.135]	[0.136]	[0.136]
party_coal	−0.0372	−0.0373	−0.0386	−0.0322	−0.0353	−0.0389
	[0.026]	[0.026]	[0.026]	[0.026]	[0.027]	[0.027]

	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth rate	−2.9778*** [1.015]	−2.9986*** [1.026]	−2.9605*** [1.016]	−2.8007*** [1.018]	−2.9399*** [1.028]	−3.0044*** [1.042]
inflation	0.0307*** [0.010]	0.0309*** [0.010]	0.0307*** [0.010]	0.0288*** [0.010]	0.0301*** [0.010]	0.0308*** [0.010]
real interest rate	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
inequality	−0.0012 [0.004]	−0.0007 [0.004]	−0.0013 [0.004]	−0.0014 [0.004]	−0.0014 [0.004]	−0.0013 [0.004]
fiscal stimuli	−0.0598 [0.052]					
increasingly expansionary fiscal stimuli		−0.1761** [0.069]				
expansionary fiscal stimuli			−0.1042* [0.054]			
contractionary fiscal stimuli				0.5274 [0.629]		
successful fiscal stimuli					0.0001 [0.095]	
unsuccessful fiscal stimuli						−0.0734 [0.063]
constant	0.8334*** [0.253]	0.8031*** [0.255]	0.8440*** [0.253]	0.7990*** [0.251]	0.8194*** [0.253]	0.8331*** [0.252]
Observations	493	493	493	493	485	487
R–squared	0.137	0.143	0.141	0.139	0.134	0.137
Hansen Statistic	5.78	5.656	5.777	5.707	5.793	5.528
p–value	0.123	0.13	0.123	0.127	0.122	0.137

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 9

Political Instability and Interaction Between Inequality and Fiscal Stimuli Evidence for Non-OECD Countries

Government Crisis	[1]	[2]	[3]	[4]	[5]	[6]
military	0.0675	0.0767	0.0712	0.0697	0.075	0.0746
	[0.070]	[0.071]	[0.071]	[0.072]	[0.073]	[0.072]
stabs	−0.1204	−0.1339	−0.1216	−0.1149	−0.1155	−0.1173
	[0.094]	[0.098]	[0.094]	[0.093]	[0.095]	[0.095]
system	−0.0329	−0.0307	−0.0341	−0.0363	−0.0387	−0.0354
	[0.033]	[0.033]	[0.033]	[0.033]	[0.032]	[0.033]
govfrac	0.054	0.0578	0.0471	0.0574	0.0647	0.0586
	[0.093]	[0.092]	[0.092]	[0.092]	[0.092]	[0.093]
polity2	0.0263**	0.0268**	0.0259**	0.0266**	0.0258**	0.0260**
	[0.012]	[0.012]	[0.012]	[0.012]	[0.012]	[0.012]
durable	−0.0015	−0.0013	−0.0015	−0.0015	−0.0015	−0.0014
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
polcomp	−0.0417*	−0.0420*	−0.0406*	−0.0422*	−0.041	−0.0408
	[0.024]	[0.024]	[0.024]	[0.024]	[0.025]	[0.025]
yrsoffc	−0.0045	−0.0046	−0.0045	−0.0046	−0.0049	−0.0044
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
maj	−0.2106	−0.2037	−0.2147	−0.192	−0.2106	−0.212
	[0.135]	[0.135]	[0.135]	[0.135]	[0.136]	[0.135]
party_coal	−0.0372	−0.038	−0.0388	−0.0323	−0.0353	−0.0402
	[0.026]	[0.026]	[0.026]	[0.026]	[0.027]	[0.027]

	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth rate	-2.9705*** [1.013]	-3.0033*** [1.023]	-2.9479*** [1.016]	-2.8123*** [1.018]	-2.9253*** [1.027]	-3.0201*** [1.041]
Inflation	0.0306*** [0.010]	0.0309*** [0.010]	0.0306*** [0.010]	0.0289*** [0.010]	0.0299*** [0.010]	0.0310*** [0.010]
real interest rate	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]	0.0000 [0.000]
inequality	-0.0008 [0.004]	-0.0003 [0.004]	-0.0006 [0.004]	-0.0014 [0.004]	-0.0015 [0.004]	-0.0009 [0.004]
inequality x fiscal stimuli	-0.0013 [0.001]					
inequality x increasingly expansionary fiscal stimuli		-0.0042*** [0.001]				
inequality x expansionary fiscal stimuli			-0.0024* [0.001]			
inequality x contractionary fiscal stimuli				0.0096		
inequality x successful fiscal stimuli					0.0006 [0.002]	
Inequality x unsuccessful fiscal stimuli						-0.002 [0.001]
constant	0.8169*** [0.253]	0.7867*** [0.256]	0.8145*** [0.253]	0.8015*** [0.251]	0.8207*** [0.253]	0.8210*** [0.253]
Observations	493	493	493	493	485	487
R–squared	0.137	0.144	0.141	0.138	0.134	0.138
Hansen Statistic	5.808	5.707	5.826	5.73	5.715	5.476
p–value	0.121	0.127	0.12	0.126	0.126	0.14

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

5.2   Evidence from an Ordered Probit Model

As a final robustness exercise, we estimate an ordered probit model, which assesses the institutional and economic determinants of the probability of political instability and evaluates the impact of inequality and fiscal stimuli on the likelihood of government crises.

Table 10 provides evidence of the relationship between political instability and inequality. The results are in line with our baseline model estimated using an IV approach. Indeed, they suggest that variables providing detailed information about the legislature, such as the existence of a majority of seats in the parliament by the incumbent government (*maj*) as well as whether it consists of a coalition or not (*party_coal*), strongly reduce the probability of occurrence of government crises. Similarly, the regime durability (*durable*) and the level of political competition (*polcomp*) both have a negative effect on the likelihood of political instability. In contrast, the level of government fractionalization (*govfrac*) and the political regime (*polity2*) increase the probability of occurrence of government crises, while the number of years in office of the chief executive (*yrsoffc*) warrants a more stable government (albeit only weakly from a statistical point of view).

In what concerns the group of economic determinants, our results show that economic growth increases the likelihood of a stable legislature. The importance of the economic environment is, therefore, clear and robust. In fact, Alesina *et al.* (1996) have also found, for a large heterogeneous sample, a higher propensity for government collapses in countries characterized by lower growth. Moreover, this different specification confirms that high inflation erodes the likelihood of a stable legislature and contributes to an increase in the probability of government crises. Inflation always creates an environment of instability at the economic, social and political levels.

With regard to inequality, the empirical findings do not corroborate the existence of a significant impact on the likelihood of government crises, despite the fact that the coefficient estimate has the expected positive sign. However, we uncover a nonlinear effect of inequality on the probability of the occurrence of government crises in that the magnitude of the income gap matters for political instability. When inequality is above average, the likelihood of political instability almost doubles relatively to the case in which it is below average. Therefore, political parties must pay attention to the distribution of income, otherwise they might end up trapped in an unstable social and political setup.

In Table 11, we include the different fiscal stimuli episodes in the group of regressors. Such type of programs and, in particular, expansionary fiscal stimuli strongly reduce the prospects of government crises. A similar conclusion is reached when we interact inequality with fiscal stimuli programs, as can be seen in Table 12. Thus, the impact of the income gap on the occurrence of government crises is dampened during periods of fiscal stimuli. This may reflect the fact that incumbent governments tend to raise spending or cut taxes before elections in order to maximize the probability of re-election (Rogoff and Sibert, 1988; Persson and Tabellini, 2000). In this way, they can erode any underlying social tensions arising from worse income distribution and, consequently, lower the prospects of political instability.

6   Conclusion

In this paper, we use data for a panel of developed and developing countries to assess the impact of income inequality and fiscal stimuli on political instability.

Table 10

Political Instability – Ordered Probit Model

Government Crisis	[1]	[2]	[3]	[4]
military	0.0961	0.039	0.2489	0.2372
	[0.117]	[0.154]	[0.196]	[0.197]
stabs	−0.0279	−0.1138	−0.3570*	−0.3940**
	[0.117]	[0.138]	[0.183]	[0.184]
system	0.0461	0.0039	0.0588	−0.0058
	[0.039]	[0.048]	[0.072]	[0.074]
govfrac	0.2652**	0.3312**	0.1942	0.315
	[0.121]	[0.148]	[0.192]	[0.197]
polity2	0.0857***	0.0729***	0.1026***	0.1114***
	[0.021]	[0.024]	[0.035]	[0.036]
durable	−0.0048***	−0.0037***	−0.0047***	−0.0055***
	[0.001]	[0.001]	[0.002]	[0.002]
polcomp	−0.0907**	−0.0800*	−0.1237*	−0.1400**
	[0.036]	[0.041]	[0.064]	[0.066]
yrsoffc	−0.014	−0.0229**	−0.0195	−0.0201
	[0.009]	[0.010]	[0.013]	[0.013]
maj	−0.7961***	−0.6213***	−0.2869	−0.4234
	[0.199]	[0.231]	[0.319]	[0.334]
party_coal	−0.1055**	−0.0336	−0.1858**	−0.2082**
	[0.047]	[0.062]	[0.081]	[0.082]
GDP growth rate		−4.7104***	−7.0495***	−7.2997***
		[0.926]	[1.411]	[1.440]
inflation rate		0.0491***	0.0725***	0.0753***
		[0.009]	[0.014]	[0.014]
real interest rate		0.0000	0.0000	0.0000
		[0.000]	[0.000]	[0.000]
inequality			0.011	
			[0.007]	
(inequality > average)				0.0491***
				[0.014]
(inequality < average)				0.0290***
				[0.009]
threshold 1	0.0782	0.2456	0.2116	0.921
	[0.260]	[0.306]	[0.594]	[0.625]
threshold 2	0.9558***	1.1501***	1.0962*	1.8182***
	[0.261]	[0.309]	[0.601]	[0.632]
threshold 3	1.6334***	1.9940***	2.0061***	2.7302***
	[0.277]	[0.337]	[0.608]	[0.646]
threshold 4	1.9386***	2.3781***	2.3653***	3.0881***
	[0.304]	[0.369]	[0.620]	[0.642]
Observations	2690	1922	1079	3.3254***

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 11

Political Instability and Fiscal Stimuli – Ordered Probit Model

Government Crisis	[1]	[2]	[3]	[4]	[5]	[6]
military	0.1218	0.1396	0.1306	0.1388	0.1223	0.1308
	[0.226]	[0.226]	[0.226]	[0.228]	[0.226]	[0.227]
stabs	-0.3864**	-0.3850*	-0.3868**	-0.3670*	-0.3785*	-0.3700*
	[0.196]	[0.199]	[0.196]	[0.197]	[0.197]	[0.197]
system	0.0853	0.078	0.0835	0.0755	0.0792	0.0823
	[0.080]	[0.079]	[0.079]	[0.078]	[0.078]	[0.079]
govfrac	0.033	0.0352	0.0247	0.0377	0.0456	0.0367
	[0.205]	[0.204]	[0.204]	[0.205]	[0.205]	[0.204]
polity2	0.0921**	0.0903**	0.0929**	0.0896**	0.0910**	0.0944**
	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]
durable	-0.0044**	-0.0041**	-0.0044**	-0.0042**	-0.0043**	-0.0043**
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
polcomp	-0.1038	-0.0993	-0.1032	-0.0987	-0.1033	-0.108
	[0.072]	[0.071]	[0.072]	[0.071]	[0.072]	[0.073]
yrsoffc	-0.0221	-0.0225	-0.0218	-0.0228	-0.0225	-0.0212
	[0.015]	[0.015]	[0.015]	[0.015]	[0.015]	[0.015]
maj	-0.2325	-0.2037	-0.2269	-0.1843	-0.1992	-0.2077
	[0.341]	[0.337]	[0.341]	[0.338]	[0.338]	[0.340]
party_coal	-0.2119**	-0.2054**	-0.2111**	-0.2023**	-0.1974**	-0.2058**
	[0.087]	[0.088]	[0.087]	[0.088]	[0.089]	[0.088]

	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth rate	-7.4400***	-7.1514***	-7.2552***	-6.9170***	-7.0966***	-7.2202***
	[1.558]	[1.513]	[1.524]	[1.508]	[1.525]	[1.533]
inflation	0.0771***	0.0737***	0.0754***	0.0712***	0.0732***	0.0744***
	[0.015]	[0.015]	[0.015]	[0.015]	[0.015]	[0.015]
real interest rate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
inequality	0.0169**	0.0164**	0.0167**	0.0155**	0.0164**	0.0158**
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
fiscal stimuli	-0.2217*					
	[0.127]					
increasingly expansionary fiscal stimuli		-0.2222				
		[0.204]				
expansionary fiscal stimuli			-0.2338*			
			[0.133]			
contractionary fiscal stimuli				0.5772		
				[0.728]		
successful fiscal stimuli					-0.1791	
					[0.188]	
unsuccessful fiscal stimuli						-0.1724
						[0.137]
threshold 1	0.4178	0.4936	0.432	0.4979	0.4876	0.4128
	[0.657]	[0.654]	[0.657]	[0.655]	[0.653]	[0.654]
threshold 2	1.2980*	1.3711**	1.3130**	1.3757**	1.3649**	1.2913*
	[0.664]	[0.661]	[0.664]	[0.662]	[0.660]	[0.661]
threshold 3	2.1816***	2.2606***	2.2008***	2.2634***	2.2501***	2.1744***
	[0.674]	[0.671]	[0.675]	[0.674]	[0.670]	[0.671]
threshold 4	2.5407***	2.6269***	2.5601***	2.6251***	2.6088***	2.5384***
	[0.678]	[0.677]	[0.679]	[0.678]	[0.676]	[0.678]
threshold 5	2.7732***	2.8598***	2.7911***	2.8562***	2.8380***	2.7730***
	[0.727]	[0.728]	[0.726]	[0.726]	[0.721]	[0.728]
Observations	959	959	959	959	951	953

Note: Robust standard errors in brackets. *** *p*<0.01, ** *p*<0.05, * *p*<0.1.

Table 12

Political Instability and Interaction Between Inequality and Fiscal Stimuli Ordered Probit Model

Government Crisis	[1]	[2]	[3]	[4]	[5]	[6]
military	0.1176	0.1405	0.1257	0.1386	0.1254	0.1281
	[0.225]	[0.225]	[0.225]	[0.228]	[0.226]	[0.226]
stabs	-0.3826*	-0.3894*	-0.3826*	-0.3676*	-0.3758*	-0.3639*
	[0.197]	[0.199]	[0.197]	[0.197]	[0.197]	[0.198]
system	0.0867	0.0804	0.086	0.0753	0.0783	0.0843
	[0.080]	[0.079]	[0.079]	[0.078]	[0.078]	[0.080]
govfrac	0.0401	0.0353	0.0298	0.0392	0.0461	0.0409
	[0.205]	[0.204]	[0.204]	[0.205]	[0.205]	[0.204]
polity2	0.0918**	0.0901**	0.0931**	0.0896**	0.0911**	0.0949**
	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]
durable	-0.0043**	-0.0041**	-0.0043**	-0.0042**	-0.0043**	-0.0043**
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
polcomp	-0.1032	-0.0987	-0.1034	-0.0986	-0.1032	-0.1088
	[0.072]	[0.071]	[0.072]	[0.071]	[0.072]	[0.073]
yrsoffc	-0.0218	-0.0223	-0.0214	-0.0228	-0.0223	-0.0208
	[0.015]	[0.015]	[0.014]	[0.015]	[0.015]	[0.015]
maj	-0.2398	-0.2071	-0.2369	-0.1865	-0.1962	-0.2155
	[0.340]	[0.337]	[0.340]	[0.338]	[0.338]	[0.340]
party_coal	-0.2130**	-0.2080**	-0.2133**	-0.2024**	-0.1980**	-0.2066**
	[0.087]	[0.088]	[0.087]	[0.088]	[0.089]	[0.088]

	(1)	(2)	(3)	(4)	(5)	(6)
GDP growth rate	-7.4083*** [1.553]	-7.1908*** [1.509]	-7.2275*** [1.522]	-6.9318*** [1.507]	-7.0538*** [1.520]	-7.2242*** [1.529]
inflation	0.0769*** [0.015]	0.0743*** [0.015]	0.0753*** [0.015]	0.0713*** [0.015]	0.0727*** [0.015]	0.0745*** [0.015]
real interest rate	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
inequality	0.0182** [0.008]	0.0171** [0.008]	0.0181** [0.008]	0.0156** [0.008]	0.0162** [0.008]	0.0167** [0.008]
inequality x fiscal stimuli	-0.0054* [0.003]					
inequality x increasingly expansionary fiscal stimuli		-0.0082* [0.005]				
inequality x expansionary fiscal stimuli			-0.0063* [0.003]			
inequality x contractionary fiscal stimuli				0.0106 [0.016]		
inequality x successful fiscal stimuli					-0.0026 [0.004]	
inequality x unsuccessful fiscal stimuli						-0.0048 [0.003]
threshold 1	0.4723 [0.654]	0.515 [0.654]	0.483 [0.655]	0.4965 [0.655]	0.4886 [0.653]	0.4437 [0.652]
threshold 2	1.3524** [0.662]	1.3939** [0.662]	1.3647** [0.662]	1.3740** [0.662]	1.3653** [0.659]	1.3226** [0.659]
threshold 3	2.2345*** [0.672]	2.2862*** [0.672]	2.2520*** [0.674]	2.2611*** [0.674]	2.2501*** [0.670]	2.2046*** [0.670]
threshold 4	2.5919*** [0.676]	2.6536*** [0.678]	2.6091*** [0.678]	2.6231*** [0.678]	2.6101*** [0.676]	2.5680*** [0.675]
threshold 5	2.8237*** [0.723]	2.8867*** [0.729]	2.8389*** [0.723]	2.8544*** [0.726]	2.8400*** [0.721]	2.8028*** [0.726]
Observations	959	959	959	959	951	953

Note: Robust standard errors in brackets. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

We find that government crises are more frequent when inequality increases. This result is particularly important for OECD countries, where a widening of the income gap leads to less stable legislatures. Considering that economic agents are sensitive to changes in the income gap, they will react more actively when they feel penalized, which in turn fuels social and political instability. This is an aspect to which political authorities should pay attention to and address by implementing measures aimed at promoting a fair distribution of income and wealth. In fact, our results show that expansionary and increasingly expansionary fiscal stimuli can help improving the stability of the political system. As they tend to promote a more equitative distribution of income and it is easier to reach a consensus for their implementation, they contribute to a more stable environment. Moreover, the implementation of fiscal stimuli is likely to abate the impact of inequality on political instability, especially, when fiscal stimuli are effective at inducing growth.

Finally, we find that the existence of a majority of seats or a coalition government, the regime durability, the level of political competition and the number of years in office of the chief executive reduce political instability, while the level of government fractionalization and the political regime has a positive effect on the occurrence of government crises. These results confirm that the political setup (the composition of the political spectrum, the level of competition among parties, their structure, …) play an important role in promoting political stability. Therefore, the more solid the underlying political institutions is, the more stable the political environment will be.

In addition, and from a macroeconomic point of view, economic growth and low inflation seem to be key determinants for political stability. This is another important result that arises from our study and consolidates the idea that fiscal and monetary authorities must act to promote a stable economic framework: fiscal authorities should take special care in designing growth promoting packages, such like expansionary fiscal stimuli programs; while monetary authorities must play their role in stabilizing inflation. If these roles are successfully accomplished, the necessary conditions for a stable economic, social and political environment are observed and the economy can thrive therein.

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