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Abstract: This paper seeks to examine the effect of political regimes on actual fiscal redistribution. We first use a simplified theoretical framework which allows us to formalize the testable implications of the relevant literature. Subsequently, employing data on Gini coefficients before and after taxes and transfers we develop a measure of fiscal redistribution which allows us to capture the targeting of government transfers. Then, our empirical analysis examines the impact of the political regime on realized fiscal redistribution for a panel of 133 developed and developing countries between 1960 and 2010. Our results suggest that dictatorial regimes redistribute more than democracies through fiscal policies. Moreover, our analysis suggests that the positive impact of the dictatorial regime on fiscal redistribution is mitigating after some years of regime's stability and finally becomes negative. Our empirical findings remain robust across several different specifications and estimation techniques.

JEL: P16, H5

Keywords: democracy, fiscal redistribution

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1. Introduction

Government policies affect the distribution of income through a wide range of programs, but most directly through implemented fiscal redistribution (i.e. cash transfers to households and taxes collected from them). Since the political system is a crucial determinant for every governmental policy, a large number of theoretical and empirical studies investigate the interplay between the political institutions and fiscal redistribution (see Boix, 2003; Bueno de Mesquita et al., 2003; Acemoglu and Robinson, 2006).

According to a strand of the literature, political institutions concentrating political power within a narrow segment of the population (i.e. non-democratic regimes) generate less fiscal redistribution and greater inequality, while in contrast democratic regimes redistribute more and therefore produce more egalitarian outcomes (see e.g., Boix, 2003; Acemoglu and Robinson, 2006).[1] Another strand of the literature treats non democratic regimes as revenues maximizers (see e.g., Olson, 1993; McGuire and Olson 1996; Wintrobe, 1998). According to this view, the objective of a non-elected official is to maximize public revenues and extract from the public budget the maximum amount of resources for his private consumption. In such a context, the effect of the political regime on fiscal redistribution is ambiguous. This is because increased public revenues may not be directed to the poorer segments of the population through transfers, since they become private consumption of the non-elected official.

Starting from Lindert (1994) a large number of empirical studies have tested the relationship between democracy and fiscal outcomes. Specifically, a strand of this literature employs historical data in order to examine the effect of democratization on government spending (e.g., Lindert, 1994; 2004; Boix 2003; Aidt et al., 2006; Aidt and Jensen, 2013) and taxation (Aidt and Jensen 2009a; 2009b), whereas another strand relies on modern data in order to investigate the relationship under consideration (see e.g., Plümper and Martin, 2003; Mulligan et al., 2004; Acemoglu et al., 2013; Profeta et al., 2013). Most of these studies conclude that democracy exerts a positive and significant impact on government spending and especially to

[1] The driving force behind this result is the mechanism highlighted by Romer (1975), Roberts (1977) and Meltzer and Richard (1981) according to which the lower is the income of the median voter relative to the average income, the higher will be the demand for fiscal redistribution. Therefore, since democracy extends the voting franchise to poorer segments of the population the distance between the median's voter and the average income increases, leading to increased demand for redistribution.

those government accounts that could be viewed as redistributive (e.g., social spending, health and education), as well as on total tax revenues.[2]

Having established such a clear cut positive impact of the democratic institutions on the level of government spending and tax revenues, it appears to be puzzling that the parallel empirical literature investigating the relationship between democracy and income inequality fails to provide any straightforward result (see e.g., Acemoglu et al., 2013). Specifically, Scheve and Stasavage (2009) suggest that the extension of the voting franchise had no impact on the share of national income held by the top one percent whereas Li et al. (1998) verify a negative and significant relationship between civil liberties and income inequality. More recently, Acemoglu et al. (2013), using an extensive panel dataset of 128 countries, over the period 1960-2010, conclude that democracy does not decrease post-tax income inequality although it exerts a positive and significant impact on total tax revenues.[3]

Contradicting findings could be attributed to the fact that both tax revenues and government spending are at best indirect proxies of fiscal redistribution and they present a number of shortcomings. More precisely, using tax revenues as a proxy of fiscal redistribution does not take into account that non-tax revenues make up a substantial amount of government revenues around the world. There is a large theoretical and empirical literature that dates back to the pioneering work of Mahdavy (1970) about the functioning of the "rentier state" that highlights the importance of revenues coming from natural resources (i.e., state owned oil companies) on domestic politics (see e.g., Ross, 1999, 2004; Smith, 2004; Morrison, 2007). Non-tax revenues obviously increase the available public funds and consequently they affect fiscal redistribution (see Morrison, 2007). Thus, it appears to be crucial to employ a measure that takes into account non tax revenues in order to capture the real effect of implemented fiscal policy on income inequality. Similarly, using government spending, or even specific public spending items (e.g. social spending, health expenditures etc), as proxies of fiscal redistribution fails to reflect the potential weak targeting of these resources that mitigate their distributional effects. In

[2] To the best of our knowledge the only paper that fails to provide evidence in favor of a positive impact of democracy on government spending and taxation is Mulligan et al. (2004). However, according to Acemoglu et al. (2013) this counter finding could be attributed to the fact that their econometric analysis relies on cross-section techniques.

[3] Correspondingly, Ross (2006) provides empirical evidence that although democracies spend more money on education and health than non-democracies they fail to achieve better results (i.e. lower infant mortality). This failure is attributed to the targeting of health benefits towards the middle and the upper income groups of agents. Similarly, Reinikka and Svensson (2004), Deolalikar (1995) and Castro et al. (1999) suggest that in many cases increased government spending provide jobs, patronage and subsidies to the middle and the upper quintiles instead of being directed to the lower income groups of agents.

particular a large strand of the literature examining low income or recently democratized countries (see e.g. Robinson and Torvik, 2005; Mani and Mukand, 2007) suggests that elected officials deliberately produce public goods that are socially inefficient since they are unable to make credible commitments to their supporters. Correspondingly, in dictatorships public funds may be used to finance private consumption of the non-elected official -or of some privilege groups of agents- and therefore may not be directed to the citizens through public goods (see e.g., Olson, 1993; McGuire and Olson 1996; Wintrobe, 1998). For these reasons, government spending presents major shortcomings as a proxy of fiscal redistribution and therefore we are in need of an output measure able to capture the potential weak targeting of spending accounts.

The present paper seeks to tackle the above mentioned issues by employing a measure of actual fiscal redistribution similar to that employed by Milanovic (2000) and Iversen and Soscise (2006). More precisely, in our empirical analysis we apply a measure of actual fiscal redistribution that equals to the difference between market income inequality (i.e. Gini coefficient before taxes and transfers) and net income inequality (i.e. Gini coefficient after taxes and transfers). This measure of fiscal redistribution reflects in a clear-cut way the change in income inequality due to taxes and transfers. Moreover, this straightforward output measure presents the additional advantage of capturing both the targeting of fiscal policy as well as the positive impact of non-tax revenues on fiscal redistribution.

In the theoretical considerations' section we develop a simplified theoretical framework which allows us to investigate the effect of the political regime on actual fiscal redistribution and therefore to formalize the testable implications of the relevant literature. We find that the relationship between the political regime and actual fiscal redistribution is a priori ambiguous from a theoretical point of view. This is because dictatorial regimes on the one hand rely more heavily on taxation compared to democracies, but on the other hand they extract a higher amount of resources from the public budget which in turn reduces the amount of resources directed to citizens as government transfers. So, the overall effect of the political regime on actual fiscal redistribution remains, theoretically unclear. However, our analysis suggests that young (old) dictatorships which are characterized by a relatively lower (higher) probability of survival redistribute more (less) as compared to democracies.

Then, in the empirical section, we investigate the empirical validity of the above hypothesized relationships. To carry out our analysis, we employ the Standardized World

Income Inequality Database (SWIID) developed by Solt (2009) which provides both pre-tax-and-transfers and post- tax-and-transfers Gini coefficients for a wide set of countries from 1960 to 2010. Based on this dataset we develop two straightforward measures of actual fiscal redistribution that allow us to infer the extent to which public resources are indeed directed towards the poorer segments of the population, or in contrast are transformed to rents for more privileged groups of agents. In turn, in a panel dataset of 133 developing and developed countries from 1960 to 2010, we investigate whether alternative political institutions affect actual fiscal redistribution. Our empirical analysis suggests that dictatorial regimes redistribute more than democracies through fiscal policies. Moreover, our results suggest that the positive effect of dictatorship on actual fiscal redistribution diminishes from year to year as the dictatorial regime consolidates and finally turns out to be negative. These empirical findings are in accordance with our theoretical priors illustrating that relatively vulnerable (secure) dictatorships tend to redistribute more (less) compared to democracies.

The remainder of the paper is organized as follows: Section 2 introduces the theoretical framework and formalizes the testable implications of the relevant literature. Section 3 illustrates the data and the econometric techniques employed; Section 4 discusses the empirical results. Finally, Section 5 summarizes the main points.

2. Theoretical Framework

This section elaborates on the theoretical link between the political regime and fiscal redistribution so as to formalize the testable empirical implications driven by the relevant theoretical literature. To this end, we present a simple theoretical framework which allows us to examine fiscal redistribution under alternative political regimes. In the case of a democratic regime, our theoretical framework builds on the standard model of fiscal redistribution of Meltzer and Richard (1981), whereas in the case of a dictatorial regime our analysis follows the rationale of the De Luca et al. (2014) model.

Consider a model of fiscal redistribution where the regime type can either be a democracy or a dictatorship. Agents are heterogeneous in their income y_i. If the regime is democratic, the government determines a nonnegative tax rate $\tau \geq 0$ proportional to income in order to finance a lump sum transfer (T) which is common for all the citizens. In this case, the optimal tax policy is summarized by the tax rate preferred by the median voter (i.e. agent with

the median income (y_M)). If the economy is run by a dictator, then the dictator is determining the tax rate of the economy (τ) and a level of extraction (θ) from the public budget that finances his personal consumption. In the following sub-sections, we describe the structure of the economy under both regimes and we derive the theoretical implications of the political regime on fiscal redistribution.

2.1 Fiscal redistribution in a democratic regime

In the case of a democratic regime, our model builds on the seminal papers of Romer (1975), Roberts (1977) and Meltzer and Richard (1981). More precisely, we consider a society consisting of n citizens which are heterogeneous on their income $y_{i.}$ Ordering people from poorest to richest, we think of the median person as the person with the median income (y_M). Moreover, we let $\bar{y}$ denote average income in this economy, thus, $\bar{y} = \frac{1}{n}\sum_{i=1}^{n} y_i$. The political system determines a nonnegative tax rate $\tau \geq 0$ proportional to income in order to finance a lump sum transfer (T) to all the citizens. We also assume that imposing taxes implies distortions and therefore a general deadweight cost which is increasing in the level of taxation. In our model, these distortions are captured by an aggregate cost coming out of the government budget constraint of $C(\tau)n\bar{y}$ when the tax rate is τ.[4] We assume that $C(0) = 0; C(1) = 1; C'(\tau) > 0; C''(\tau) > 0$, so that these costs are strictly convex. Hence, the government budget constraint takes the following form:

$$T = \frac{1}{n}\left(\sum_{i=1}^{n} \tau y_i - C(\tau)n\bar{y}\right) = \tau\bar{y} - C(\tau)\bar{y} \qquad (1)$$

All individuals in the society maximize their consumption, which is equal to their post-tax income. Using the government budget constraint (1) we have that, when the tax rate is τ, the indirect utility of individual i and his post-tax income are:

[4] These distortions are generating the so-called "Laffer curve" which is the non monotonic relationship between the tax rate and the level of total tax revenues. When the tax rate is low, increasing the tax rate increases tax revenues. However, as the tax rate increases, distortions become more severe and eventually tax revenues reach a maximum. After this point further increases in the tax rate decrease the total tax revenues since the distortions created by taxation are so high.

$$V_i(\tau) = (1-\tau)y_i + (\tau - C(\tau))\bar{y} \qquad (2)$$

It is straightforward to derive each individual i's ideal tax rate from this indirect utility-function. This is the tax rate that satisfies the following first-order condition:

$$y_i = \bar{y} - C'(\tau)\bar{y} \qquad (3a)$$

Equation (3a) implies that poorer (richer) individuals prefer higher (lower) taxation and therefore higher (lower) fiscal redistribution. Since preferences over τ are single peaked, the median voter theorem applies. Therefore, we conclude that, in a democratic regime, the equilibrium tax rate will be the tax rate preferred by the median voter (i.e. the person with the median income (y_M)). It is straightforward to show that in a democratic regime, the optimal tax rate (τ_{dem}) is determined by the following equation:

$$y_M = \bar{y}(1 - C'(\tau_{dem})) \qquad (3b)$$

Then Appendix A shows that:

Result 1: The t*ax rate in a democratic regime is summarized by the tax rate that solves (3b). This tax rate* $0 < \tau_{dem} < 1$ *is unique and comparative static exercises imply that* $\tau_{dem} = \tau(\overset{-}{y_M}, \overset{+}{\bar{y}})$

Thus, the tax rate decreases with median voter income (for given average income) which is the standard Meltzer and Richard (1981) result.

Combining (1) and (3b) we get the government transfers in a democratic regime:

$$T_{dem} = \tau_{dem}\bar{y} - C(\tau_{dem})\bar{y} \qquad (4)$$

2.2 Fiscal redistribution in a dictatorial regime

We now extend the analysis to a dictatorial regime so as to compare the outcomes concerning fiscal redistribution under both regimes. In a dictatorial regime, the ruler is a self-interested leader who extracts resources from the public funds in order to finance his personal consumption.

More precisely, we assume that the non-elected leader chooses the tax rate (τ_{dic}) imposed on income as well as the degree of extraction (θ) from public revenues. By extracting resources, the dictator decreases the political support he receives and therefore hurts his probability of survival. Following the rationale of the relevant literature (see e.g., De Luca et al., 2014), we assume that the dictator faces a survival probability $p(\theta, z)$ which depends negatively on the amount of extracted tax revenues (i.e. $\frac{\partial p}{\partial \theta} < 0$) and positively on the maturity of the regime which is denoted as z (i.e. $\frac{\partial p}{\partial z} > 0$)[5]. Moreover, we assume that when the dictator does not extract resources his probability of survival equals to one (i.e. $p(0, z) = 1$ for any $z > 0$). Whereas, on the other hand, when he extracts the full amount of the public budget his probability of survival is equal to zero (i.e. $p(1, z) = 0$ for any $z > 0$). Finally, we assume that the effect of extraction on the probability of survival varies with the maturity of the political regime (i.e. $\frac{\partial^2 p}{\partial \theta \partial z} > 0$) and that the effect of extraction on the probability of survival is non increasing on the degree of extraction (i.e. $\frac{\partial^2 p}{\partial \theta^2} \leq 0$).

The dictator maximizes his utility as described by:

$$V_d = p(\theta, z)[\theta(\tau \bar{y} - C(\tau)\bar{y}] + (1 - p(\theta, z))\tilde{V}_d \qquad (5)$$

where $p(\theta, z)$ is the probability of survival, $\tilde{V}_d$ denotes the dictator's utility when he is out of office and R denotes the amount of rents extracted from public revenues for private consumption of the dictator which equals to:

[5] Following the rationale of the relevant literature we assume that a dictatorial regime consolidates after some years in power and that is more vulnerable during the first years after regime transition.

$$R = \theta(\tau\overline{y} - C(\tau)\overline{y}) \tag{6}$$

Since the budget constraint of the dictator is: $T + R = (\tau\overline{y} - C(\tau)\overline{y})$ we conclude that government transfers in a dictatorial regime equal to:

$$T = (1-\theta)(\tau\overline{y} - C(\tau)\overline{y}) \tag{7}$$

Substituting (6) into equation (5) and assuming that $\tilde{V}_d = 0$ we get the following indirect utility function of the dictator:

$$V_d = p(\theta, z)[\theta(\tau\overline{y} - C(\tau)\overline{y}] \tag{8}$$

It is straightforward to derive the tax rate (τ_{dic}) and the degree of extraction (θ^*) from this indirect utility-function. These are: (i) the tax rate and (ii) the degree of extraction that satisfy the following first-order conditions:

$$p(\theta, z)\theta\overline{y}(1 - C'(\tau)) = 0 \tag{9a}$$

which in turn implies[6]:

$$1 - C'(\tau) = 0 \tag{9b}$$

and

$$\frac{\partial p}{\partial \theta}[\theta(\tau\overline{y} - C(\tau)\overline{y}] + p(\theta, z)(\tau\overline{y} - C(\tau)\overline{y}) = 0 \tag{10}$$

[6] From equation (8) we get that when $\theta=1$ or $\theta=0$, $Vd=0$. So neither $\theta=1$(that ensures $p(\theta,z)=0$) nor $\theta=0$ can be optimal solutions and therefore $p(\theta,z)\theta$ has to be different from zero.

Then, Appendix A shows:

Result 2: *Tax rate in a dictatorial regime is summarized by the tax rate (τ_{dic}) that solves (9b). This tax rate $0 < \tau_{dic} < 1$ is unique and maximizes public revenues $\overline{y}(\tau - C(\tau))$.*[7]

Result 3: *The degree of extraction from the public funds for private consumption of the dictator is summarized by the share of extraction (θ) that solves (10). This share $0 < \theta^* < 1$ is unique and comparative static exercises imply that $\theta^* = \theta(\overset{+}{z})$.*

Substituting tax rate (τ_{dic}) and the degree of extraction (θ^*) into (7), we conclude that transfers in a dictatorial regime equals to:

$$T_{dic} = (1-\theta^*)[\tau_{dic}\overline{y} - C(\tau_{dic})\overline{y}] \qquad (11)$$

2.3 Comparing actual fiscal redistribution in democracies and dictatorships

In this sub-section, we examine the effect of the political regime on fiscal redistribution. From equations (3b) and (9b) we get the tax rates from the democratic and dictatorial regimes, respectively. By comparing (3b) and (9b) we can conclude that τ_{dic} always exceeds τ_{dem} which in turn ensures that public revenues under dictatorship are always larger than public revenues in a democratic regime (i.e. $\overline{y}(\tau_{dic} - C(\tau_{dic})) > \overline{y}(\tau_{dem} - C(\tau_{dem}))$); however, in the case of the dictatorial regime a share (θ^*) of public revenues is not directed to the citizens through transfers but instead is becoming private consumption in favor of the dictator. Therefore, in order to examine the effect of the political regime on actual fiscal redistribution we have to compare equations (4) and (11).

Comparison of (4) and (11) implies that:

[7] Our results are in line with previous studies treating non democratic regimes as revenues maximizers (see e.g., Olson, 1993; McGuire and Olson 1996; Wintrobe, 1998). Following the rationale of this literature, we conclude that dictators implement government policies that fully exploit available public funds (i.e. they choose to increase tax rates as long as they are on the positive sloped side of the Laffer curve). Although in our theoretical model these funds are driven from income taxation the theoretical argument can be easily extended to public revenues driven from other resources (i.e. non-tax revenues).

Proposition 1. *Given that* $\bar{y}(\tau_{dic} - C(\tau_{dic})) > \bar{y}(\tau_{dem} - C(\tau_{dem}))$, *there is a unique threshold degree of extraction* $\theta^* = \tilde{\theta}$ *which ensures that government transfers in democracy* (T_{dem}) *equal government transfers in dictatorship* (T_{dic}).

Corollary 1. *For each degree of extraction* $\theta^* > \tilde{\theta}$ *(resp.* $\theta^* < \tilde{\theta}$ *) government transfers in democracy* (T_{dem}) *are higher (resp. lower) than government transfers in dictatorship* (T_{dic}).

Corollary 1 suggests that the relationship between the political regime and actual fiscal redistribution is a priori ambiguous. This is because dictatorial regimes on the one hand increase public revenues but on the other hand they extract a larger amount of resources from public funds which in turn reduces the budget that is directed to the citizens as transfers. Therefore, the overall effect of the political regime on actual fiscal redistribution remains from a theoretical point of view unclear.

2.4 The effect of dictatorial regime's maturity on fiscal redistribution

In this sub-section we examine the effect of the dictatorial regime's maturity on fiscal redistribution. That is, we investigate whether younger dictatorships redistribute more relative to older dictatorships and democracies.

Proposition 2. *Given the strictly monotonic relationship between* θ^* *and z, for given level of* τ_{dic} *each level of dictatorial regime's maturity z corresponds uniquely to a degree of extraction* θ^*. *Therefore, there will always be a unique threshold level of dictatorial regime's maturity* $z = \tilde{z}$ *that corresponds to the threshold degree of extraction* $\tilde{\theta}$. *This threshold level* $\tilde{z}$ *ensures that government transfers in democracy* (T_{dem}) *equal government transfers in dictatorship* (T_{dic}).

Corollary 2. *For each level of dictatorial regime's maturity* $z < \tilde{z}$ *(resp.* $z > \tilde{z}$*), the degree of extraction is* $\theta < \tilde{\theta}$ *(resp.* $\theta > \tilde{\theta}$*) and therefore the government transfers in a democratic political regime* (T_{dem}) *are lower (resp higher) than government transfers in dictatorship*(T_{dic})

Corollary 2 suggests that relatively young -and therefore less secure- dictatorships redistribute more compared to democracies whereas older and relatively more secure dictatorships redistribute less compared to democracies.

3. Empirical Specification and Data.

3.1 The Data

Our sample consists of an unbalanced panel of data from 1960 to 2010 for a number of countries that varies between a minimum of 122 and a maximum of 133, reflecting limitations to data availability.[8] Explicit definitions, descriptive statistics and sources of the variables employed are provided in Appendix B.

3.1.1 Data on fiscal redistribution

We measure fiscal redistribution (denoted as *absolute fiscal redistribution*) as the difference in Gini coefficient before and after fiscal redistribution (i.e. before and after government transfers and taxes).[9] This measure allows us to infer the extent to which public resources are indeed directed –through transfers- to the poorer segments of the population (therefore achieving a reduction in income inequality) instead of being transformed to private consumption of the non-elected officials. Data on Gini coefficients (both before and after fiscal redistribution) are obtained from the Standardized World Income Inequality Database (SWIID) developed by Solt (2009).[10]

In order to provide some simple descriptive statistics of the variable *absolute fiscal redistribution*, its mean value in our sample is 6.81 (the standard deviation is equal to 6.88), with higher values indicating a higher level of fiscal redistribution. Moreover, the descriptive statistics reveal that Denmark and Sweden are amongst the countries that achieve the maximum fiscal

[8] Although we begin with all the countries from the World Bank's World Development Indicators, we exclude from our sample non-independent territories and very small-states (e.g., Andorra, Monaco, Puerto Rico, Timor-Leste, West Bank and Gaza etc). Subsequently, the sample size was restricted by the availability of income inequality data as well as from *government consumption* data for which income inequality data are available.

[9] This measure of fiscal redistribution is identical methodologically to the one developed and employed by Milanovic (2000).

[10] The *SWIID* maximizes the comparability of income inequality statistics for the largest possible sample of countries and years, namely for 173 countries over the period from 1960 to 2010. For the construction of the dataset, Solt (2009) employed a custom missing-data algorithm to standardize Gini estimates from all major existing resources of inequality data (e.g., *Luxembourg Income Study*, *World Income Inequality database* etc). For more details on the methodology and definitions of the SWIID see Solt (2009).

redistribution over the period examined with values that exceed 25 points, while, in sharp contrast, Burkina Faso and Zambia present regressive fiscal redistribution that exceeds in both cases -10 points.[11]

3.1.2 Data on political regime

For our main explanatory variable of our study, we use the dichotomous coding of regime-type data from four different sources. More precisely, we employ the dichotomous variable developed by Cheibub et al. (2010, henceforth *CGV*) that classifies regimes as democratic or dictatorial for 202 countries over the period 1946 to 2008. The key political factors that *CGV* takes into account in order to codify a period as democratic are: (i) popular elections of the executive and legislature, (ii) multiple parties competing in the election and (iii) unconsolidated incumbent advantage. We also use the measure developed by Boix et al. (2012, henceforth *BMR*) that provides information about the political regime type for 219 distinct countries from 1800 to 2007. The *BMR* dichotomous measure qualify a country as democratic if, in addition to the factors that were taken into account by *CGV*, at least half of the male electorate is enfranchised.[12] Moreover, we include in our analysis the variable developed by Geddes et al. (2014, henceforth *GWF*), which classifies regimes for 156 countries during the period from 1946 to 2010. The requirement in the *GWF* dataset for a country to be coded as democratic includes minimal conditions for suffrage and party competition, not included in *CGV*'s coding, while they do not use the *CGV*'s unconsolidated incumbent advantage rule. Finally, our analysis also relies on the dichotomous measure developed by Papaioannou and Siourounis (2008, henceforth *P&S*) that includes observations for 174 countries over the period 1960-2005, which subsequently we extend until 2010. The definition of *P&S* builds on the theory of democratization in waves (see e.g., Huntington, 1993) and it identifies permanent changes in the democratic status. Hence, although the *CGV*, *BMR* and *GWF* measures capture political transitions to democracy as well as reversals (i.e. transitions to non-democratic regimes), the *P&S* measure places the spotlight solely on permanent democratization episodes.

[11] It is worth noting that Burkina Faso, Cameroon, Peru and Zambia are the only countries in our sample that present significant negative values of *fiscal redistribution* (i.e. regressive fiscal redistribution).In some other cases (e.g., Bangladesh and Colombia) the negative values of *absolute fiscal redistribution* are on average close to zero over the period examined.

[12] It is worth noting that both datasets are different updates and revisions of the well established measure developed by Przeworski et al. (2000).

3.1.3 Control variables

To ensure robust econometric identification, in our empirical analysis, we consider a number of covariates that are expected to affect *absolute fiscal redistribution*. In particular, we control for the level of economic development by employing the (log of) real GDP per capita (denoted as *GDP per capita*) obtained from the Penn World Tables 8.0 (*PWT*). Moreover, we control for government consumption spending, as a percentage of GDP (denoted as *government consumption*), taken from the World Banks' World Development Indicators (*WDI*). Controlling for government spending allows us to investigate fiscal redistribution for a given level of government spending, which better reflects the targeting of government spending between different groups of agents. In addition to the two basic control variables that are included in all analyses, later we introduce some additional covariates in order to assess the robustness of our results.

3.2 Econometric Model

To analyse the effect of a dictatorial versus a democratic regime upon fiscal redistribution, we formulate the following empirical model:

$$Y_{it,t+2} = \alpha_1 Dictatorship_{it} + \beta X_{it} + \gamma_i + \delta_t + \varepsilon_{it} \qquad (12)$$

where Y_{it} represents *absolute fiscal redistribution*, as proxied by the difference between the market Gini and the net Gini coefficients, in country *i* over a three year period**.** Given that annual macroeconomic data are noisy we resort to non-overlapping 3-year averages for the period from 1960 to 2010 (1960-1962 to 2008-2010).[13] To allow for time lags, data for the explanatory variables are used in the beginning year of each sub-period (1960, 1963,…2008). Specifically, $Dictatorhip_{it}$ is dummy variable that takes value 1 if a country is categorized as non-democratic in country *i* at time *t*, according to the *CGV*, *BMR*, *GWF* and *P&S* dichotomous classification of the regime, and 0 otherwise. Moreover, X_{it} includes the additional covariates that are expected

[13] Although the cross-country literature often uses five-year averages we choose to employ 3-year averages, because the latter choice allows us to have a sufficient number of observations for each cross section and especially for some of the developing countries of our sample. Note, however, that results are very similar when we employ 5-year averages.

to affect *absolute fiscal redistribution*, γ_i and δ_t correspond to country and time fixed effects, respectively, and ε_{it} is the error term.

The model could be dynamic due to the persistence in inequality and fiscal commitments that carry over from one year to the next. To capture this persistence, previous empirical studies have applied dynamic panel specifications (see e.g., Aidt and Jensen, 2013; Amendola et al., 2013). Following the rationale of this literature, we include a lagged dependent variable in our model estimating the following equation:

$$Y_{it,t+2} = \alpha_1 Y_{it-1,t-3} + a_2 Dictatorship_{it} + \beta X_{it} + \gamma_i + \delta_t + \varepsilon_{it} \quad (13)$$

We seek a robust method to identify how the regime affects fiscal redistribution. To establish baseline results, we estimate equation (12) using ordinary least squares (OLS) with country and time fixed effects. We include a full set of country and fixed effects so that our estimates are not contaminated by aggregate shocks and trends common to all countries or by time invariant country-specific characteristics.

In order to estimate equation (13), we first rely on a dynamic OLS model with country and time fixed effects. However, estimation of equations (12) and (13) via OLS may entail several econometric issues. This is because including a lagged dependent variable introduces a potential bias by not satisfying the strict exogeneity assumption of the error term ε_{it}. As shown in the literature, the estimated bias of this formulation is of order *1/T*, where *T* is the time length of the panel, even as the number of countries becomes large (see, among others, Nickell, 1981; Kiviet, 1995). The average time series length of our panel is below 10 years and the bias is not negligible. In order to deal with this econometric problem, we rely on the generalized method of moments (GMM) for dynamic panel models, developed by Holtz-Eakin et al. (1988) and Arellano and Bond (1991).

The difference-GMM methodology consists in taking first-differences of the equation in levels

$$\Delta Y_{it,t+2} = a_1 \Delta Y_{it-1,t-3} + a_2 \Delta Dictatorship_{it} + \beta \Delta X_{it} + \Delta \delta_t + \Delta \varepsilon_{it} \quad (14)$$

where we first difference our dependent variable and the covariates of our model − all measured initially in levels, eliminating country specific effects. Although the model given by equation (14) solves some major econometric problems, it introduces a correlation between the new error term and the lagged dependent variable. To address this issue, Arellano and Bond (1991) suggest using the lagged values of the explanatory variables in levels as instruments. Under the assumption that the original error term is not serially correlated, the second and further lags of the dependent variable and the first and further lags of the variable *Dictatorship* are used as instruments for the lagged dependent variable (see Acemoglu et al., 2013). As Roodman (2009) pointed out, using the full set of moments in GMM estimator may lead to the "too many instruments" bias, making some asymptotic results about the estimator and related specification tests misleading.[14] Therefore, in order to limit the number of instruments generated by the GMM estimator, we use only certain lags instead of all available lags for instruments.[15]

More importantly, one could argue that our results can be contaminated by potential reverse causality between the explanatory variables and *absolute fiscal redistribution*, by the measurement error in the alternative dictatorial indices that we use and the potential omitted variable bias. To address these issues, first in section 4.2.2, we adopt an alternative specification by using for the dependent the last year of each sub-period (1962, 1965,…,2010), instead of the 3-year average value. This specification allows us to mitigate concerns of endogeneity running from the basic control variables, *GDP per capita and government consumption* to *absolute fiscal redistribution*. Moreover, in section 4.2.5, to deal with this concern we adopt an instrumental variables approach. The challenge in our case is to find an instrument that affects *absolute fiscal redistribution* only through its effect on the regime. To do that, we follow an identification strategy similar to Aidt and Jensen (2013) and Acemoglu et al. (2014), where regional diffusion effects seem to be an attractive source of exogenous variation for the determination of the regime.

[14] A valid alternative to the difference-GMM is Blundell and Bond's (2000) system-GMM estimator, which maintains the differenced equation to which it adds an equation in levels with an additional set of instruments. We prefer the difference-GMM over the system-GMM estimator for two reasons. First and foremost, because for consistency the system-GMM requires that the initial value of the dependent variable is uncorrelated with the unobserved country-specific effects. Given the historically-determined nature of both democracy and redistribution, this is unlikely to be a good assumption in our case (see Acemoglu et al., 2013). Second, the additional moment conditions that are generated by the system-GMM estimator, limit even further our choices for instruments.

[15] In some of our regressions, the number of instruments marginally exceeds the number of countries. When, however, we limit even further the number of lags and therefore the number of instruments employed in our regressions, results remain unaffected.

4. Results

4.1 Baseline Results

Our baseline results are reported in Tables 1A and 1B. More precisely, Table 1A reports the estimates of equation (12) using the data and the empirical methodology described in the previous section. In columns (1), (3), (5) and (7) of Table 1A *absolute fiscal redistribution* is regressed on the four alternative measures of *Dictatorship*, as well as on *GDP per capita*. In order to make our results comparable with previous empirical studies investigating the same relationship (see e.g., Iversen and Soskice 2006; Acemoglu et al., 2013), we start our analysis without including the variable *government consumption* in our set of controls.

[Table 1A, here]

As a second step in our analysis, in columns (2), (4), (6) and (8) we add in our set of controls *government consumption*. Including *government consumption* allows us to investigate fiscal redistribution for a given level of government spending, which reflects in a better way the targeting of government spending between different groups of individuals. As can be seen in all alternative specifications presented in columns (1) to (8), *Dictatorship* bears a positive and significant coefficient. This result illustrates that dictatorial regimes are characterized by higher fiscal redistribution relative to the democratic ones. More specifically, the estimated coefficients of the variable *Dictatorship* in Table 1A imply an increase in fiscal redistribution that lies between 1.2 to 1.8 points. Given that the mean value of *absolute fiscal redistribution* in the sample is 6.9 points (with a standard deviation of 7.1 points), it is clear that this effect is quantitatively sizable. This finding appears to be in sharp contrast with previous empirical studies employing total tax revenues as a proxy of fiscal redistribution and conclude that democratic institutions generate more fiscal redistribution and consequently more egalitarian outcomes (see e.g., Acemoglu et al., 2013). One potential explanation for this contradicting finding is that our measure of actual fiscal redistribution takes into account the effect of non-tax revenues on fiscal redistribution which is different between democracies and dictatorships as suggested by Morrison (2007).[16] As far as the rest of the covariates are concerned, we observe

[16] Morrison (2007) provides evidence that an increase in the non tax revenues account is associated with less taxation of the elites in democracies and more social spending in dictatorships.

that the coefficients on both *government consumption* and *GDP per capita* are positive and significant indicating that countries characterized by higher levels of government spending and higher GDP per capita are also characterized by higher fiscal redistribution.

Moving one step forward, in Table 1B we add the lagged dependent variable into the set of controls. In the first four columns of Table 1B, we use the OLS estimator as implemented in equation (13). As can be easily verified, all three *CGV, BMR* and *GWF* measures of dictatorship lose part of their statistical significance, but they retain their positive effect on *absolute fiscal redistribution*. On the contrary, the P&S measure becomes insignificantly related to *absolute fiscal redistribution*. As we have already mentioned, the main difference between the *P&S* measure with the rest that we apply in our estimates, is that the former codes only permanent democratization incidents. Hence, if a country has both democratic periods and reversals to dictatorial regimes before the permanent democratization, it is coded entirely as dictatorial before the permanent transition. As *P&S* argue this strategy allows them to measure the effects of regime transitions more properly, on the hand, while they recognise that their binary measure might suffer from misclassification in some countries on the other hand.

Another concern for the estimates reported in the first four columns of Table 1B is the bias that can be present by the inclusion of the lagged dependent variable. Hence, in columns (5)-(8) of Table 1B we estimate equation (14) using the GMM estimator along the lines of Arellano and Bond (1991). Once again, the variable *Dictatorship* enters with a positive and significant coefficient in all but the *P&S* case, and moreover its statistical significance increases substantially. Moreover, adding the lagged dependent variable weakens the effect of *GDP per capita* that remains statistically significant only in 2 out of 8 specifications, while *government consumption* retain its significance only in the OLS regressions.

[Table 1B, here]

The consistency of the GMM estimator depends on the validity of the assumption of no serial correlation in the error term (i.e. no second-order autocorrelation in the first-differenced idiosyncratic errors) and on the validity of the instruments. The Arellano–Bond test of second order serial correlation indicates that there is second-order serial correlation among the differenced residuals and the Hansen test of over-identifying restrictions suggests that our

instruments are valid. Hence, although in columns (1) to (8) the lagged *absolute fiscal redistribution* is highly significant in all alternative specifications, illustrating that there is a considerable degree of persistence in the redistributive mechanisms, the positive relationship between the variables *Dictatorship* and *absolute fiscal redistribution* remains unaffected in 3 out of 4 specifications under this alternative setup.

4.2 Sensitivity analysis

In this sub-section, we inquire into the robustness of our baseline empirical findings presented in Tables 1A and 1B. To this end, we re-estimate the previous equations under various modifications. First, we re-estimate equations (12) and (14) by employing a different dependent variable. More precisely, we use the percentage change between the market Gini and the net Gini coefficients instead of their first difference. Second, we adopt an alternative specification by using for the dependent variable the last year of each sub-period of our sample, instead of the average value for the whole sub-period. Third, we re-estimate equations (12) and (14) by employing an extensive set of covariates in our specification. Fourth, we repeat regressions to ensure that the results of Table 3 are not influenced by outlier observations. Finally, we take an instrumental variables approach in order to mitigate potential endogeneity concerns about our results.

4.2.1 Alternative dependent variable

In Table 2, we inquire into the robustness of our results by investigating whether our empirical findings are driven by the specific measure of fiscal redistribution we have employed so far. To this end, in Table 2 we use as dependent variable the percentage change of Gini coefficients before and after fiscal redistribution (i.e. before and after transfers and taxes).[17] More precisely, the formula employed in order to construct *relative fiscal redistribution* is as follows:

$$relative\ \ fiscal\ redistribution_{it} = \frac{pre\ tax Gini_{it} - post\ tax\ Gini_{it}}{pre\ tax\ Gini_{it}} \qquad (15)$$

[17] A similar measure of fiscal redistribution has also been applied by Iversen and Soskice (2006).

Hence, in Table 2, *relative fiscal redistribution* is regressed on our core set of controls. More precisely, in columns (1), (3), (5) and (7), we replicate the OLS estimates presented in columns (2), (4), (6) and (8) of Table 1A, whereas in Columns (2), (4), (6) and (8) we replicate the GMM estimates presented in Columns (5) to (8) of Table 1B.

[Table 2 here]

As can be easily verified, *Dictatorship* enters again with a positive and significant coefficient in most alternative specifications. These results are in accordance with our previous findings, illustrating that dictatorial countries are characterized by higher actual fiscal redistribution relative to the democratic ones. As far as the rest of the covariates are concerned our results remain qualitatively identical to those presented in Tables 1A and 1B.

4.2.2 Alternative specification

As already mentioned, one could argue that our results are contaminated by potential reverse causality between the explanatory variables and *absolute fiscal redistribution*. In order to mitigate these concerns, we modify equation (12) (and all the rest after) in the following way:

$$Y_{it+2} = a_1 Dictatorship_{it} + \beta X_{it} + \gamma_i + \delta_t + \varepsilon_{it} \qquad (16)$$

where we use for the dependent variable the last year of each sub-period (1962, 1965,…,2010), instead of the average, while for the explanatory variables we keep on taking the first year of each sub-period (1960, 1963,…,2008) (see also Acemoglu et al., 2013). It is worth noting that when we conduct the IV analysis in section 4.2.5., apart from the original specification presented in section 3.2 we also use the modified one of this section. Moreover, this specification allows us to assess if the inclusion of the lagged dependent on the right-hand side of equations (13) and (14) induces complex patterns of serial correlation that affects our results.

[Table 3 here]

In Table 3, we follow the same strategy as we did in Table 2, by replicating the OLS estimates presented in columns (2), (4), (6) and (8) of Table 1A, and the GMM estimates presented in columns (5) to (8) presented in Tables 1B. As can be seen, once again *Dictatorship* enters with a positive and significant coefficient in all but the *P&S* case in the dynamic specification of column (8), whereas for the variables *GDP per capita* and *government consumption* results remain qualitatively identical to those presented in Tables 1A and 1B.

4.2.3. Adding control Variables

In Table 4, we inquire into the robustness of our baseline results by investigating whether the positive impact of *Dictatorship* on fiscal redistribution survives when we add control variables to the estimated equations. However, it is worth mentioning that not many previous studies have attempted to model *absolute fiscal redistribution* as we define it, making it a quite difficult task to find appropriate control variables for our specification. Therefore, we experiment with several control variables that intuitively are considered to be important determinants of fiscal redistribution. More specifically, in addition to *GDP per capita*, we use as a measure of economic development the annual percentage change of GDP per capita (denoted as *growth*), obtained from the *PWT*. Moreover, we include in our analysis the following variables obtained from World Bank's *WDI*. We use the dependency ratio of the population (denoted as *age dependency*) that is measured as the percentage of the population younger than 15 years or older than 64 to the number of people of working age between 15 and 64 years. This variable allows us to control for demographic influences on the structure of social spending and fiscal redistribution (see, e.g., Galasso and Profeta, 2004; von Weizsacker, 1996). The next control is population density (denoted as age *population density*) defined as the population divided by land area in square kilometers. A larger share of population density ensures economies of scale in the provision of the public good and therefore higher actual fiscal redistribution for a given level of spending (see e.g., Alesina and Wacziarg, 1998). Finally, we control for the effects of international market integration by including the ratio of imports plus exports to GDP (denoted as *openness*) in order to account for the effects of globalization on the structure of fiscal redistribution (see e.g., Rodrik, 1997; 1998).

[Table 4 here]

To this end, in Table 4 we re-estimate the static OLS and GMM regressions presented in Tables 1A and 1B, by extending our set of covariates to include the above mentioned controls. As can be seen, qualitative results regarding the variable *Dictatorship* remain in line with those depicted in Tables 1A and 1B. Moreover, the variable *growth* is statistically insignificant in all but one case, in which it appears to be positive and significantly related to *absolute fiscal redistribution*. The variable *openness* appears to be statistically insignificant in all regressions. On the other hand, the variable *population density* bears a positive significant coefficient in most of the specifications which is in accordance with our theoretical priors. Finally, the variable *age dependency* has the expected positive effect on fiscal redistribution, but only in the OLS regressions. [18]

4.2.4. Testing for outliers

As a next step, in order to ensure that our results are not driven by extreme values, we explore the sensitivity of our basic findings to outlier observations. Therefore, in Table 5A, we re-estimate our benchmark specification without countries with a standardized residual above 2.576 or below -2.576.[19] When we repeat the regressions without the identified outlier observations, we drop up to 25% of our sample. Then, in Table 5B we proceed by excluding the ex-Soviet Union countries. In this group of countries the collapse of the regime came simultaneously with a collapse in the centrally planned economic system. Given that the profound restructuring of these countries' societies and economies during the democratization that is probably in comparison to other democratizations observed in our sample, we attempt to assess the importance of this group of countries for our results.[20]

[18] It should be mentioned that we have attempted to include in our model a series of other control variables, such as the squared term of GDP per capita to test for a hump-shaped relation between economic development and fiscal redistribution, indices of educational attainment to control for the level human capital, an index of the intensity of foreign wars, the urbanisation rate and the growth rate of the population. However, none of these variables had a significant effect on *absolute fiscal redistribution*, and due to other concerns as well (correlation of control variables, reduction of sample size), we do not include them in our estimations. Results are available upon request

[19] Two points are worth noting here. First, we prefer this cut-off point, instead of the standard textbook way where standardized residuals have an absolute value greater than 3 (see, e.g., Maddala, 2001), in order to ensure further the precision of our results. Second, when alternatively we drop countries with a Cook's distance above the rule of thumb value of 4 over the number of observations, results, available upon request, remain unaffected.

[20] An additional concern for our results might be the precision of the estimation of the *absolute fiscal redistribution* measure for Sub-Saharan Africa countries. When we exclude this group of countries, the positive effect of the variable *Dictatorship* on fiscal redistribution becomes even stronger. Results available upon request.

[Table 5A and 5B here]

As can be seen, our empirical findings, presented in Tables 5A and 5B, are qualitatively identical to those presented in previous Tables confirming the positive impact of dictatorial regimes on *absolute fiscal redistribution*. Moreover, as expected, the R- squared of the estimated equations has significantly improved by the exclusion of the outliers.

4.2.5 The 2SLS identification strategy

The empirical strategy with the lagged dependent variable on the right hand side of the estimated equation, in addition to the full set of country and time fixed effects, rules out certain types of contaminating factors for our results. However, one could still argue that our results can be affected by potential reverse causality from fiscal redistribution to the political regime, by the measurement error of the alternative regime-type measures that we use and the potential omitted variable bias. To deal with these issues, in this sub-section, we proceed by applying a 2SLS identification strategy.

The challenge is to find an instrument that is adequately correlated with the regime within the country, while it remains uncorrelated with the unobserved time-varying component that affects fiscal redistribution. In other words, we need a variable that affects fiscal redistribution only through its effect on the regime within the country. Following the rationale of the "democratization in waves" developed by Huntington (1993) as well as the "democratic capital" theory of Persson and Tabellini (2009), we conclude that regional democratic diffusion appears to be an attractive source of exogenous variation in the determination of the domestic regime.[21] To this end, we develop the variable *Democracy abroad* for country *i* in year *t* as follows:

$$Z_{it} = \sum_{j \neq i} W_{ij} D_{jt} \qquad (19)$$

where, D_{jt} is a dummy variable that takes the value one if, according to the *P&S* measure, country *j* (different from *i*) is classified as democratic and 0 otherwise, whereas W_{ij} is the inverse

[21] Aidt and Jensen (2013) and Acemoglu et al. (2014) employed a similar identification strategy in order to overcome the aforementioned econometric issues.

distance in kilometres between the capitals of country *i* and *j*. It must be noted that the *P&S* measure is ideal for our purpose since this variable has been developed based on the notion of democratic waves and therefore captures solely robust democratic diffusion and ignores brief democratic spikes.

Since instrumented variable *Dictatorship* is a binary indicator, we opt for using procedure 18.1 as suggested by Wooldridge (2002).[22] More precisely, we first estimate a probit model for each one of the four alternative endogenous variables *Dictatorship*, on *Democracy Abroad*, on the control variables and on the time fixed effects. In turn, we obtain the fitted probabilities (denoted as *Dictatorship-hat*).[23] Finally, we apply the 2SLS estimator using *Dictatorship-hat* as an instrument for *Dictatorship*, in a just-identified system, to estimate the specifications described in section 3.2. and 4.2.2. As already mentioned in our basic specification, described in section 3.2, we use the average value of the dependent variable for each sub-period (1960-62,…,2008-2010) and the first year of each sub-period for the controls (1960,…2008). On the other hand, in the alternative specification described in section 4.2.2, we deviate by using only the last year of each sub-period (1962,...2010) for the dependent variable. The latter specification, where all controls enter with a lag, helps to mitigate concerns of endogeneity for the variables *GDP per capita* and *government consumption*.

The results from the 2SLS estimates are reported in Tables 6A and 6B. The first-stage results are reported in the lower part of the Tables. As expected, the estimated coefficient of *Dictatorship-hat* is positive and statistically significant at the 1% level. Moreover, the consistency of the 2SLS model requires that the instrument *Dictatorship-hat* is strong enough and valid to predict the endogenous variable *Dictatorship*. For this reason, first we refer to the first stage F-statistic of the excluded instrument. According to Staiger and Stock (1997), the first stage F-statistic should be at least 10 for weak identification not to be a problem. Moreover, Stock and Yogo (2005) argue that for one exogenous instrument, the first-stage *F*-statistic must exceed 8.96 for the 2SLS inference to be reliable. The F-test statistic for the relevance of *Dictatorship-hat* in explaining *Dictatorship* is in most of our estimates is substantially above 10, or at worst marginally below 10, suggesting sufficient first-stage power. Second, we use the

[22] For more details see Wooldridge (2002) sections 6.1.1 and 18.4.1.

[23] Two points are worth noting here. First, we do not include country fixed effects in the probit model in order to avoid the well-known incidental parameter problem (see e.g., Neyman and Scott, 1948). Second, the variable *Democracy abroad* is statistically significant at the 1% level and has the expected sign. Results available upon request.

Kleibergen-Paap weak identification test (see Kleibergen and Paap, 2006) in order to verify that *Dictatorship abroad* is sufficiently correlated with the endogenous variable. As can be seen in all estimations, the null of no underidentification cannot be accepted. Hence, all results reported suggest a reasonable first-stage fit.

The results reported in Tables 6A and 6B reveal that 2SLS coefficients are substantially larger than those from the OLS estimation. We interpret the larger coefficients in the 2SLS estimates as a possible measurement error problem in the right hand side endogenous variable, which leads to an attenuation bias in the OLS estimates (see Angrist and Krueger, 1999). As can be seen, all estimates in both Tables, in the static and the dynamic specifications, verify the positive effect of the variable *Dictatorship* of *absolute fiscal redistribution*. Interestingly enough, the *P&S* dichotomous measure of *Dictatorship* that in the previous Tables appeared to be insignificant in the dynamic specification, retains its significance in column 8 of Tables 6A and 6B when the lagged dependent variable is included in the specification.

4.3 The Effect of Regime's maturity on fiscal redistribution

Our theoretical priors presented in Section 2 suggest that the relationship between the regime and fiscal redistribution is a priori ambiguous. This is because, dictatorial regimes on the one hand rely heavier on taxation and therefore increase public revenues but on the other hand they extract a larger amount of resources from public funds which in turn reduces the amount of public funds directed to the citizens as transfers. Therefore, the overall effect of the political regime on actual fiscal redistribution remains from a theoretical point of view unclear [see Corollary 1]. However, our theoretical priors also suggest that relatively young, and therefore less secure, dictatorships redistribute more compared to democracies whereas older and relatively more secure dictatorships redistribute less compared to democracies [see Corollary 2].

In this sub-section, we place the spotlight on the theoretical priors driven from Corollary 2 and we therefore seek to investigate the effect of a regime's maturity on the relationship between the variable *Dictatorship* and actual fiscal redistribution.[24] To this end, we modify equation (12) (and all the rest after) in the following way:

[24] The underlying assumption is that relatively young dictatorships are fragile and face lower probability of survival, whereas after some years in power they consolidate through the removal of opponents, societal penetration, and the therefore the probability of survival for the dictator increases

$$Y_{it,t+2} = a_1 Dictatorship_{it} + \alpha_2 age\ of\ the\ regime + \\ + \alpha_3 Dictatorhip * age\ of\ the\ regime + \beta X_{it} + \gamma_i + \delta_t + \varepsilon_{it} \quad (20)$$

where the variable *age of the regime* enters in equation (20), on its own and interacted with the variable *Dictatorship*. By introducing this interaction term we allow the effect of *Dictatorship* to be different across countries that are characterized by relatively fragile regimes (i.e. young dictatorships), and different within the same country after some years of continuation of the regime that implies consolidation.

To measure the *age of the regime* we develop three alternative variables. First, we use from the *CGV* and *BMR* datasets the variable that counts the consecutive years the country has been democratic, or non-democratic respectively, according to the classification of their dichotomous measure (denoted as *age of the regime*). Moreover, from the *CGV* and *GWF* datasets we use the variable that identifies the consecutive years in which the same dictatorial regime has been in power, while as before the ageing of the democratic regime is treated homogenously (denoted as *age of the regime_2*).[25] Finally, from the *CGV* dataset, we construct a more detailed measure, which identifies the consecutive years in which the same dictator has been in power, while the duration of the democratic regime is treated homogenously irrespective of whether we had a change in the elected official (denoted as *age of the regime_3*).[26] The results of this experiment are presented in Table 7. It is worth noting that for each specification, we adopt the static OLS, the dynamic OLS and the GMM estimators in order to check the robustness of our results.

[Table 7, here]

As can be seen, once again, the variable *Dictatorship* bears a positive and significant coefficient in all alternative specifications. Moreover, the different definitions we use to capture the *age of the regime* have a positive, though not robust, effect on *absolute fiscal redistribution*.

[25] In *CGV* the different types of dictatorial regimes are the civilian dictatorship, the military dictatorship and the royal dictatorship. In *GWF*, respectively, the four different types are the party-based dictatorship, the military dictatorship, the personalist dictatorship and the monarchical dictatorship.
[26] Unfortunately, the *P&S* dataset does not contain a similar variable.

As far as the rest of the covariates are concerned, our findings remain comparable to those presented in the previous Tables. Moreover, in columns (1)-(3) and (10)-(12) of Table 7A that we interact the variable *Dictatorship* with the variable *age of the regime*, we find a negative and significant effect on *absolute fiscal redistribution* across all estimates. This empirical finding suggests that although dictatorial institutions exert a clear cut positive impact on actual fiscal redistribution, this positive effect diminishes from year to year as the dictatorship consolidates. In columns (4)-(6) and (13)-(15) that we follow the consecutive years in which the same dictatorial regime has been in power on the one hand and the maturity of the democratic regime on the other, as captured by the variable *age of the regime_2*, once again the interaction term bears a negative and statistically significant effect on *absolute fiscal redistribution*. Finally, in columns (7)-(9) that we follow the consecutive years in which the same dictator has been in power, as captured by variable *age of the regime_3*, the coefficient of the interaction term is negative with an even stronger effect on *absolute fiscal redistribution*. Using the estimated coefficients of Table 7, for all the alternative measures we apply to capture the maturity of the regime, the derivative of the variable *absolute fiscal redistribution* with respect to the variable *Dictatorship* turns out to be negative after 13 to 21 years of a continued dictatorship. The mean value of the different measures we apply to capture the maturity of the dictatorial regime lies between 11 and 38 years. The lowest value of 11 years is associated with the variable *age of the regime_3* that we follow the term of specific dictators, while the value of 38 years is associated with the variable *age of the regime* that we follow the regime when a country is characterised as dictatorial.[27] Hence, it seems that our estimated coefficients represent plausible scenarios where after 13 to 21 years that the dictatorial regime consolidates its further continuation shifts the effect on fiscal redistribution from positive to negative.

The empirical findings are in accordance with the theoretical priors driven by Corollary 2. Namely, relatively young, and therefore less secure, dictatorships redistribute more compared to democracies whereas older and relatively more secure dictatorships redistribute less compared to democracies. This is because, according to our theoretical priors, as the dictatorial regime consolidates, a larger amount of resources are extracted from public funds in order to finance the

[27] These statistics are not significantly affected even when we drop from our sample some of the most long-standing dictatorships that are concentrated in the Northern Africa and the Middle East.

private consumption of the non-elected leader and therefore are not directed to the citizens through transfers.

5. Conclusions

In this paper, we first specify a simple theoretical framework which allows us to investigate the relationship between the political regime and fiscal redistribution and whether this relationship depends on the probability of survival of the non-elected official. Then, our empirical analysis examines the impact of the political regime on fiscal redistribution for a panel of 133 developed and developing countries between 1960 and 2010. Backed by strong empirical results, obtained from several different specifications and sensitivity analyses, we contend that dictatorial regimes are characterized by higher fiscal redistribution relative to the democratic ones. Moreover, our analysis suggests that the positive impact of dictatorship on fiscal redistribution declines from year to year as the dictatorial regime consolidates and finally turns out to be negative. In other words, our empirical findings indicate that older (younger) dictatorships redistribute more (less) as compared to democracies

To the best of our knowledge, this is the first study to investigate the relationship between the political regime and fiscal redistribution by employing a measure of actual fiscal redistribution. In this sense, our findings contribute to the well-established agenda studying the interplay between political institutions and fiscal redistribution (see Boix, 2003; Acemoglu and Robinson, 2006; Aidt and Jensen, 2013). More precisely, we provide a potential explanation for why democratic regimes fail to reduce post-tax income inequality, although they increase total tax revenues as a share of GDP (see e.g., Scheve and Stasavage, 2009; Acemoglu et al., 2013). However, these findings and their potential policy implications call for a deeper understanding of the inter- and intra-country mechanisms that create this pattern and this is an issue that definitely warrants future research.

Appendix A:

Tax rate in a democratic regime

The optimal tax rate in a democratic regime is summarized by the tax rate that solves (3b). This tax rate $0 < \tau_{dem} < 1$ *is unique and comparative static exercises imply that* $\tau_{dem} = \tau(\bar{y}_M, \bar{\bar{y}})$.

Proof.

Since $C''(\tau) > 0$, $C'(\tau)$ is strictly increasing and therefore tax rate that solves equation (3b) is unique.

Consider equation (3b). Applying the implicit function theorem we get:

$\frac{\partial \tau_{dem}}{\partial \bar{y}} = \frac{-(1 - C'(\tau_{dem}))}{-\bar{y}C''(\tau_{dem})}$ which is always positive. Also, $\frac{\partial \tau_{dem}}{\partial y_M} = \frac{1}{-\bar{y}C''(\tau_{dem})}$ which is always negative

Tax rate in a dictatorial regime

Tax rate in a dictatorial regime is summarized by the tax rate (τ_{dic} *) that solves (9). This tax rate* $0 < \tau_{dic} < 1$ *is unique and moreover it the one that maximizes public revenues* $\bar{y}(\tau - C(\tau))$.

Proof.

Since $C''(\tau) > 0$, $C'(\tau)$ is strictly increasing and therefore tax rate that solves equation (9b) is unique

Degree of extraction in a dictatorial regime

The degree of extraction from the public funds for private consumption of the dictator is summarized by the share of extraction (θ) that solves (10). This share $0 < \theta^* < 1$ *is unique and comparative static exercises imply that* $\theta^* = \theta(\bar{z})$.

Proof.

From equation (10) we get $p(\theta, z)(\tau\bar{y} - C(\tau)\bar{y}) = -\frac{\partial p}{\partial \theta}[\theta(\tau\bar{y} - C(\tau)\bar{y}]$. Define the left hand side as $LHS \equiv p(\theta, z)(\tau\bar{y} - C(\tau)\bar{y})$ and the right hand side as $RHS \equiv -\frac{\partial p}{\partial \theta}[\theta(\tau\bar{y} - C(\tau)\bar{y}]$.

Then, $LHS_\theta \equiv \frac{\partial p}{\partial \theta}(\tau \overline{y} - C(\tau)\overline{y}) < 0$ and $RHS_\theta \equiv -\left[\frac{\partial^2 p}{\partial \theta^2}[\theta(\tau \overline{y} - C(\tau)\overline{y}] + \frac{\partial p}{\partial \theta}[(\tau \overline{y} - C(\tau)\overline{y}]\right] > 0$

Thus, assuming existence of a θ that solves equation (10), this $\theta = \theta^*$ is unique.

Consider equation (10). Applying the implicit function theorem we get:

$$\frac{\partial \theta^*}{\partial z} = -\frac{\frac{\partial^2 p}{\partial \theta \partial z}\left[\theta \overline{y}(\tau - C(\tau))\right] + \frac{\partial p}{\partial z}\left[\overline{y}(\tau - C(\tau))\right]}{\frac{\partial^2 p}{\partial \theta^2}\left[\theta \overline{y}(\tau - C(\tau))\right] + 2\frac{\partial p}{\partial \theta}\left[\overline{y}(\tau - C(\tau))\right]}$$ which is always positive.

Proposition 1. *Given that* $\overline{y}(\tau_{dic} - C(\tau_{dic})) > \overline{y}(\tau_{dem} - C(\tau_{dem}))$, *there is a unique threshold level of extraction* $\theta^* = \tilde{\theta}$ *such that government transfers in democracy* (T_{dem}) *equal government transfers in dictatorship* (T_{dic}).

Proof.

We know that $\overline{y}(\tau_{dic} - C(\tau_{dic})) > \overline{y}(\tau_{dem} - C(\tau_{dem}))$.

Moreover from equations (4) and (11) we get that $T_{dem} = \tau_{dem}\overline{y} - C(\tau_{dem})\overline{y}$ and $T_{dic} = (1-\theta^*)[\tau_{dic}\overline{y} - C(\tau_{dic})\overline{y}]$.

Since $\lim_{\theta^* \to 1} T_{dic} = 0$ that is strictly lower than T_{dem} for each τ_{dem} >0, and $\lim_{\theta^* \to 0} T_{dic} = \overline{y}(\tau_{dic} - C(\tau_{dic}))$ that is strictly greater than T_{dem} for each τ_{dem} >0 and τ_{dic} >0, there will always be a threshold level of extraction $\theta^* = \tilde{\theta}$, $0 < \tilde{\theta} < 1$ such that government transfers in democracy (T_{dem}) equal government transfers in dictatorship (T_{dic}).

Appendix B: Definitions, data sources and descriptive statistics

Variable	Description	Obs.	Mean	SD	Min	Max	Source
absolute fiscal redistribution	Difference of Gini coefficients before and after the fiscal redistribution (i.e. before and after transfers and taxes)	1510	6.865	7.060	-11.217	30.394	Solt (2009), *Standardized World Income Inequality Database* (SWIID).
relative fiscal redistribution	Percentage change of Gini coefficients before and after the fiscal redistribution (i.e. before and after transfers and taxes)	1510	15.009	14.852	-23.438	57.903	SWIID
Dictatorship (CGV)	Dummy variable that equals to one whenever a political regime is characterized as dictatorial and 0 otherwise	1504	0.428	0.495	0	1	Cheibub et al. (2010)
Dictatorship (BMR)	Dummy variable that equals to one whenever a political regime is characterized as dictatorial and 0 otherwise	1439	0.440	0.497	0	1	Boix et al. (2013)
Dictatorship (GWF)	Dummy variable that equals to one whenever a political regime is characterized as dictatorial and 0 otherwise	1403	0.458	0.498	0	1	Geddes et al. (2014)
Dictatorship (P&S)	Dummy variable that equals to one whenever a political regime is characterized as dictatorial and 0 otherwise	1478	0.420	0.494	0	1	Papaioannou and Siourounis (2008)
Democracy abroad (P&S)	Measure of democratic diffusion from abroad as defined in section 4.2.5	1507	0.387	0.225	0	0.842	Papaioannou and Siourounis (2008)
age of the regime (CGV)	Age in years of the current regime as classified by *Dictatorship (CGV)*	1507	35.005	33.562	1	139	Cheibub et al. (2010)
age of the regime_2 (CGV)	Age in years in which the same dictatorial regime has been in power, while the ageing of the democratic regime is treated homogenously.	1504	29.559	30.448	1	139	Cheibub et al. (2010)
age of the regime_3 (CGV)	Age in years in which the same dictator has been in power, while the ageing of the democratic regime is treated homogenously	1504	25.702	30.820	1	139	Cheibub et al. (2010)
age of the regime (BMR)	Age in years of the current regime as classified by *Dictatorship Dictatorship (BMR)*	1439	39.942	44.000	1	206	Boix et al. (2013)
age of the regime_3 (GWF)	Age in years in which the same dictatorial regime has been in power, while the ageing of the democratic regime is treated homogenously	1403	30.088	30.962	1	138	Geddes et al. (2014)
GDP per capita	Log of GDP per capita	1422	8.582	1.183	5.151	10.984	Penn World tables 8.0 (PWT)
government consumption	Government Consumption as a share of GDP ***(%)***	1363	15.231	5.722	3.135	43.479	World Banks' World Development Indicators (WDI) (2013)
growth rate	Growth rate of real GDP per capita	1417	2.457	7.667	-59.525	89.916	PWT
age dependency	Share of the population younger than 15 years or older than 64 to the number of people of working age (%)	1494	69.983	19.205	36.341	120.815	World Banks' World Development Indicators (WDI)
population density	Population divided by land area in square kilometers	1437	152.451	491.719	1.185	6913.430	WDI
openness	International trade volume as a share of GDP (%).	1376	72.305	48.257	6.613	460.471	WDI

References

Acemoglu, D., Naidu, S., Restrepo, P., and Robinson, J. (2013). *Democracy, Redistribution and Inequality*. In A. Atkinson and F. Bourguignon (eds), Handbook of Income Distribution.

Acemoglu, D., Naidu, S., Restrepo, P., and Robinson, J. (2014). Democracy does cause growth. NBER working paper, No. 20004.

Acemoglu, D., and Robinson, J. (2006). *Economic Origins of Dictatorship and Democracy*. New York: Cambridge University Press.

Aidt, T., Dutta, J., and Loukoianova, E. (2006). Democracy comes to Europe: Franchise expansion and fiscal outcomes 1830-1938. *European Economic Review*, 50(2), 249-283.

Aidt, T., and Jensen, P. (2009a). The Taxman Tools Up: An Event History Study of the Introduction of the Personal Income Tax in Western Europe, 1815-1941. *Journal of Public Economics*, 93(1-2), 160-175.

Aidt, T., and Jensen, P. (2009b). Tax structure, size of government, and the extension of the voting franchise in Western Europe, 1860–1938. *International Tax and Public Finance*, 16(3), 362-394.

Aidt, T., and Jensen, P. (2013). Democratization and the size of government: evidence from the long 19th century. *Public Choice*, 157(3), 511–542.

Alesina, A. and Wacziarg, R. (1998). Openness, country size and government. *Journal of Public Economics*, 69 (3): 305-321.

Amendola, A., Easaw J., and Savoia, A. (2013). Inequality in developing economies: the role of institutional development, *Public Choice*, 155(1), 43-60.

Angrist, J., and Krueger, A. (1999). Empirical strategies in labor economics. In: Ashenfelter, O., Card, D. (Eds.), Handbook of Labor Economics, Vol. 3A. Elsevier.

Arellano, M., and Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277-297.

Blundell R., and Bond S. (2000). GMM Estimation with persistent panel data: an application to production functions, *Econometric Reviews*, 19(3), 321-340.

Boix, C. (2003). *Democracy and Redistribution*. Cambridge University Press.

Boix, C., Miller, M., and Rosato, M. (2012). A Complete Data Set of Political Regimes, 1800–2007. *Comparative Political Studies* 46(12), 1523 - 1554.

Bueno de Mesquita, Smith, A., Siverson, R., and Morrow, J. (2003) *The Logic of Political Survival*. MIT Press.

Castro-Leal, F., J. Dayton, L. Demery, and K. Mehra. (1999). Public Social Spending in Africa: Do the Poor Benefit? *World Bank Research Observer* 14(1),49–72.

Cheibub, J.A.,Gandhi, J., and Vreeland, J. (2010). Democracy and Dictatorship Revisited. *Public Choice*, 143(1-2), 67-101.

De Luca, G., Litina, A., and Sekeris, P. (2014). Growth-friendly dictatorships. *Journal of Comparative Economics*. Forthcoming.

Deolalikar, A. B., (1995). Government Health Spending in Indonesia: Impacts on Children in Different Economic Groups. In *Public Spending and the Poor: Theory and Evidence*, ed. D. van de Walle and K. Nead. Baltimore: Johns Hopkins University Press, pp. 259–90.

Feenstra, R, Inklaar, R., and Timmer, M. (2013). *The Next Generation of the Penn World Table*.

Galasso, V., and Profeta, P. (2004). Lessons for an Aging Society: the Political Sustainability of Social Security Systems. *Economic Policy*, 19(38), 63-115.

Geddes, B, Wright, J., and Frantz E. (2014). Autocratic Regimes and Transitions, *Perspectives on Politics*, 12(2): 313-331.
Holtz-Eakin, D., Whitney, N., and Harvey R. (1988). Estimating Vector Autoregressions With Panel Data, *Econometrica*, 56(6), 1371-1396.
Huntington, S.P. *(*1993*). The Third Wave: Democratization in the Late Twentieth Century,* Oklahoma: University of Oklahoma Press.
Iversen, T., and Soskice, D. (2006). Electoral Institutions and the Politics of Coalitions: Why Some Democracies Redistribute More Than Others. *American Political Science Review*, 100(2), 165-181.
Kiviet, F. (1995). On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. *Journal of Econometrics*, 68(1), 53-78.
Kleibergen, F., and Paap, R. (2006). Generalized reduced rank tests using the singular value decomposition, *Journal of Econometrics*, 133(1), 97-126.
Lindert, Peter H. (1994). The Rise of Social Spending, 1880 - 1930, *Explorations in Economic History*, 31(1), 1-37.
Lindert, Peter H. (2004). *Growing Public: Social Spending and Economic Growth since the Eighteenth Century*. Cambridge University Press.
Li, Hongyi, Lyn Squire and Heng-fu Zou. (1998). Explaining International and Intertemporal Variations in Income Inequality," *Economic Journal* 108, 26-43.
Mani, A., Mukand, S., (2007). Democracy, Visibility and Public Good Provision. *Journal of Development Economics* 83, 506–529.
Maddala G.S. (2001). *Introduction to Econometrics*, West Sussex, John Wiley & Sons Ltd.
Mahdavy, H. (1970). The Patterns and Problems of Economic Development in Rentier States: The Case of Iran. In *Studies in Economic History of the Middle East*, ed. M A Cook. London: Oxford University Press pp. 428-467.
McGuire, M., and Olson, M. (1996). The Economics of Autocracy and Majority Rule: The Invisible Hand and the Use of Force. *Journal of Economic Literature*, 34(1), 72-96.
Milanovic, B. (2000). The median-voter hypothesis, income inequality and income redistribution: an empirical test with the required data. *European Journal of Political Economy*, 16(3), 367-410.
Morrison, K. (2007). Natural Resources, aid, and democratization: a bestcase scenario. *Public Choice*, 131(3-4), 365–386.
Mulligan, C., Gil, R., and Sala-i-Martin, X. (2004). Do democracies have different public policies than nondemocracies? *Journal of Economic Perspectives*, 18(1), 51-74.
Meltzer, A., and Richard, S. (1981). A Rational Theory of the Size of Government. *Journal of Political Economy*, 89(5), 914-927.
Neyman, J., and Scott, L. (1948). Consistent estimation from partially consistent observations. *Econometrica*, 16, 1-32.
Nickell, S. J. (1981). Biases in dynamic models with fixed effects. *Econometrica*, 49(6), 1417-1426.
Olson M. (1993). Dictatorship, Democracy, and Development. *The American Political Science Review*, 87(3), 567-576.
Papaioannou, E. and Siourounis, G. (2008). Democratisation and Growth. *The Economic Journal*, 118, 1520–1551.
Persson T., and Tabellini, G. (2009). Democratic Capital: The Nexus of Political and Economic Change, *American Economic Journal: Macroeconomics*, 1(2), 88-126.

Plümper, T., and Martin, C. (2003). Democracy, government spending, and economic growth: A political-economic explanation of the Barro-effect. *Public Choice*, 117(1-2), 27-50.
Profeta, P., Puglisi, R., and Scabrosetti, S. (2013). Does democracy affect taxation and government spending? Evidence from developing countries. *Journal of Comparative Economics*, 41(3), 684-718.
Przeworski, A., Alvarez, E., Cheibub, J.A. and Limongi, F. *(*2000). *Democracy and Development*, Cambridge: Cambridge University Press.
Reinikka, R., Svensson, J., (2004). Local Capture: Evidence from a Central Government Transfer Program in Uganda. *Quarterly Journal of Economics* 119(2) 679–705.
Robinson, J. A., Torvik, R., (2005). White Elephants. *Journal of Public Economics* 89(2-3), 197–210.
Roberts, Kevin W.S. (1977). Voting over Income Tax Schedules, *Journal of Public Economics*, 8(3), 329-340.
Romer, T. (1975). Individual Welfare, Majority Voting and the properties of a linear income tax. *Journal of Public Economics*, 4(2), 163-185.
Roodman, D. (2009): A Note on the Theme of Too Many Instruments, *Oxford Bulletin of Economics and Statistics*, 71(1), 135-158.
Ross M. (1999). The Political Economy of the Resource Curse, *World Politics*, 51(2), 297-322.
Ross, M. (2004). Does Taxation Lead to Representation? *British Journal of Political Science* 34, 229–249.
Ross, (2006). Is Democracy Good for the Poor? American *Journal of Political Science* 50(4), 860-874.
Rodrik, D. (1997). *Has globalization gone too far?* Washington D.C.: Institute for International Economics.
Rodrik, D. (1998). Do more open economies have bigger governments ? *The Journal of Political Economy*, 106(5): 997-1032.
Scheve, K., and Stasavage, D. (2009). Institutions, Partisanship, and Inequality in the Long Run. *World Politics* 61(2), 215-253.
Smith, B. (2004). Oil Wealth and Regime Survival in the Developing World, 1960-99. *American Journal of Political Science*, 48(2), 232–246.
Solt, F. (2009). Standardizing the world income inequality database. *Social Science Quarterly*, 90(2), 231-242.
Staiger, D. and Stock, H. (1997). Instrumental variables regression with weak instruments, *Econometrica*, 65(3), 557-586.
Stock, H., and Yogo, M. (2005). Testing for weak instruments in linear IV regression. In D.W.K. Andrews and J.H. Stock (Eds.), Identification and Inference for Econometric Models, Essays in Honor of Thomas Rothenberg, 80-108. New York: Cambridge University Press.
von Weizsäcker R. (1996). Distributive implications of an aging society, *European Economic Review*, 40 (3-5), 729-746.
Wintrobe, R. (1998). *The Political Economy of Dictatorship*. Cambridge University Press.
Wooldridge, J. (2002). *Econometric Analysis of Cross Section and Panel Data*, Cambridge: MIT Press.

Table 1A. Regime and fiscal redistribution: Baseline Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
Dictatorship	1.573**	1.780**	1.083*	1.242**	1.500**	1.811***	1.700**	1.783**
	(0.716)	(0.693)	(0.622)	(0.598)	(0.610)	(0.582)	(0.756)	(0.742)
GDP per capita	2.423***	2.194***	2.549***	2.319***	2.479***	2.225**	2.372***	2.138***
	(0.820)	(0.804)	(0.857)	(0.843)	(0.880)	(0.852)	(0.803)	(0.790)
government consumption	-	0.173***	-	0.170***	-	0.203***	-	0.173***
		(0.059)		(0.060)		(0.062)		(0.058)
R^2	0.785	0.789	0.780	0.784	0.785	0.790	0.792	0.796
Observations	1320	1320	1258	1258	1233	1233	1312	1312
Number of countries	133	133	132	132	122	122	132	132

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 3.1.1). Robust standard errors, clustered by country are reported in parentheses. All regressions include a full set of country and year fixed effects. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 1B. Regime and fiscal redistribution: Dynamic specification

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	GMM	GMM	GMM	GMM
Dichotomous measure:	**CGV**	**BMR**	**GWF**	**P&S**	**CGV**	**BMR**	**GWF**	**P&S**
***absolute fiscal redistribution*$_{t-1}$**	0.621***	0.608***	0.615***	0.620***	0.458***	0.469***	0.419***	0.416***
	(0.039)	(0.041)	(0.042)	(0.042)	(0.120)	(0.120)	(0.120)	(0.109)
Dictatorship	0.971**	0.586*	0.628*	0.471	1.984***	1.700***	2.036***	0.922
	(0.421)	(0.357)	(0.343)	(0.355)	(0.738)	(0.649)	(0.721)	(0.835)
GDP per capita	0.720*	0.806*	0.650	0.682	-0.153	-0.064	-0.460	-0.085
	(0.406)	(0.425)	(0.432)	(0.421)	(0.556)	(0.598)	(0.566)	(0.546)
government consumption	0.077**	0.076**	0.085**	0.069**	0.021	0.024	0.056	0.024
	(0.035)	(0.036)	(0.036)	(0.034)	(0.036)	(0.036)	(0.038)	(0.036)
R^2	0.896	0.889	0.894	0.895	-	-	-	-
Observations	1188	1126	1116	1182	1039	978	979	1035
Number of countries	132	131	121	131	132	131	121	130
Number of instruments	-	-	-	-	118	126	123	122
Hansen (p-value)	-	-	-	-	0.268	0.395	0.554	0.298
AR(2) (p-value)	-	-	-	-	0.762	0.627	0.759	0.630

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 3.1.1). OLS regressions include a full set of country and year fixed effects. Arellano and Bond's (1991) GMM estimates include time fixed effects (country fixed effects eliminated by first-differencing). The *absolute fiscal redistribution*$_{t-1}$ and *Dictatorship* are instrumented with first-order to fourth-order lags, while *GDP per capita* and *government consumption* are considered as exogenous. The Hansen statistic is a test of overidentifying restrictions, under the null that overidentifying restrictions are valid. The AR(2) is a test for second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. Robust standard errors, clustered by country, in parentheses. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 2. Regime and fiscal redistribution: Alternative Dependent variable

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	GMM	OLS	GMM	OLS	GMM	OLS	GMM
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
relative fiscal redistribution ratio $_{t-1}$	-	0.489***	-	0.493***	-	0.430***	-	0.431***
		(0.114)		(0.116)		(0.111)		(0.096)
Dictatorship	2.840**	3.260**	2.062**	2.568**	3.109***	3.363***	2.855**	1.170
	(1.165)	(1.286)	(0.985)	(1.184)	(0.982)	(1.288)	(1.230)	(1.473)
GDP per capita	3.762***	-0.596	3.984***	-0.444	3.743***	-1.239	3.652***	-0.498
	(1.328)	(1.051)	(1.390)	(1.144)	(1.398)	(1.073)	(1.307)	(1.071)
government consumption	0.297***	0.032	0.295***	0.035	0.349***	0.104	0.297***	0.042
	(0.092)	(0.069)	(0.095)	(0.069)	(0.098)	(0.072)	(0.091)	(0.068)
R^2	0.866	-	0.863	-	0.868	-	0.870	-
Observations	1320	1039	1258	978	1233	979	1312	1035
Number of countries	133	132	132	131	122	121	132	130
Number of instruments	-	118	-	126	-	123	-	122
Hansen (p-value)	-	0.488	-	0.250	-	0.478	-	0.341
AR(2) (p-value)	-	0.373	-	0.419	-	0.497	-	0.365

Notes: Dependent variable: *relative fiscal redistribution* (as defined in section 4.2.1). OLS regressions include a full set of country and year fixed effects. Arellano and Bond's (1991) GMM estimates include time fixed effects (country fixed effects eliminated by first-differencing). The *relative fiscal redistribution*$_{t-1}$ and *Dictatorship* are instrumented with first-order to fourth-order lags, while *GDP per capita* and *government consumption* are considered as exogenous. The Hansen statistic is a test of overidentifying restrictions, under the null that overidentifying restrictions are valid. The AR(2) is a test for second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. Robust standard errors, clustered by country, in parentheses. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 3. Regime and fiscal redistribution: Alternative Specification.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	GMM	OLS	GMM	OLS	GMM	OLS	GMM
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
absolute fiscal redistributionn $_{t-1}$	-	0.320***	-	0.334***	-	0.304***	-	0.370***
		(0.107)		(0.111)		(0.111)		(0.098)
Dictatorship	2.086***	2.786***	1.579**	1.767**	1.897***	1.845**	1.696**	0.648
	(0.740)	(0.916)	(0.625)	(0.817)	(0.589)	(0.914)	(0.703)	(0.873)
GDP per capita	2.293***	-0.226	2.500***	-0.002	2.189**	-0.231	2.197**	-0.107
	(0.858)	(0.651)	(0.884)	(0.665)	(0.912)	(0.690)	(0.848)	(0.666)
government consumption	0.128**	0.008	0.125*	0.016	0.151**	0.029	0.130**	0.024
	(0.064)	(0.039)	(0.065)	(0.039)	(0.067)	(0.046)	(0.064)	(0.039)
R^2	0.803	-	0.797	-	0.801	-	0.807	-
Observations	1197	914	1159	877	1121	862	1192	912
Number of countries	133	128	132	128	122	118	132	127
Number of instruments	-	121	-	115	-	117	-	113
Hansen (p-value)	-	0.575	-	0.528	-	0.525	-	0.453
AR(2) (p-value)	-	0.452	-	0.456	-	0.451	-	0.519

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 4.2.2). OLS regressions include a full set of country and year fixed effects. Arellano and Bond's (1991) GMM estimates include time fixed effects (country fixed effects eliminated by first-differencing). The *absolute fiscal redistribution*$_{t-1}$ and *Dictatorship* are instrumented with first-order to fourth-order lags, while *GDP per capita* and *government consumption* are considered as exogenous. The Hansen statistic is a test of overidentifying restrictions, under the null that overidentifying restrictions are valid. The AR(2) is a test for second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. Robust standard errors, clustered by country, in parentheses. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 4. Regime and fiscal redistribution: Adding covariates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	GMM	OLS	GMM	OLS	GMM	OLS	GMM
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
***absolute fiscal redistributionn*$_{t-1}$**	-	0.471***	-	0.483***	-	0.422***	-	0.437***
		(0.120)		(0.119)		(0.121)		(0.107)
Dictatorship	1.576**	1.787**	1.083*	1.553**	1.502**	1.762**	1.286*	0.911
	(0.716)	(0.722)	(0.624)	(0.653)	(0.609)	(0.723)	(0.667)	(0.865)
GDP per capita	0.150***	0.018	0.144**	0.022	0.175***	0.061	0.151***	0.022
	(0.056)	(0.036)	(0.058)	(0.036)	(0.060)	(0.038)	(0.056)	(0.036)
government consumption	2.313***	-0.409	2.502***	-0.416	2.356***	-0.763	2.243***	-0.437
	(0.834)	(0.510)	(0.875)	(0.555)	(0.896)	(0.525)	(0.817)	(0.515)
growth rate	0.003	0.015	0.001	0.018*	0.005	0.022**	0.005	0.014
	(0.014)	(0.010)	(0.014)	(0.010)	(0.014)	(0.011)	(0.014)	(0.010)
age dependency	0.082**	-0.001	0.084**	0.005	0.075**	-0.018	0.076**	-0.017
	(0.032)	(0.023)	(0.033)	(0.024)	(0.033)	(0.024)	(0.031)	(0.025)
population density	0.002***	0.001*	0.003***	0.001**	0.003***	0.001	0.002***	0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
openness	0.005	0.001	0.005	0.002	-0.002	-0.001	0.001	-0.002
	(0.013)	(0.006)	(0.014)	(0.006)	(0.013)	(0.006)	(0.013)	(0.006)
R^2	0.809	-	0.809	-	0.808	-	0.813	-
Observations	1184	938	1182	937	1105	883	1179	935
Number of countries	133	131	132	130	122	120	132	130
Number of instruments	-	129	-	121	-	127	-	125
Hansen (p-value)	-	0.535	-	0.373	-	0.633	-	0.383
AR(2) (p-value)	-	0.732	-	0.902	-	0/894	-	0.748

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 3.1.1). OLS regressions include a full set of country and year fixed effects. Arellano and Bond's (1991) GMM estimates include time fixed effects (country fixed effects eliminated by first-differencing). The *absolute fiscal redistribution*$_{t-1}$ and *Dictatorship* are instrumented with first-order to fourth-order lags, while *GDP per capita*, *government consumption, growth rate*, *openness, population density*, *age dependency and military personnel* are considered as exogenous. The Hansen statistic is a test of overidentifying restrictions, under the null that overidentifying restrictions are valid. The AR(2) is a test for second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. Robust standard errors, clustered by country, in parentheses. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 5A. Regime and fiscal redistribution: Testing for outliers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	GMM	OLS	GMM	OLS	GMM	OLS	GMM
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
absolute fiscal redistributionn$_{t-1}$	-	0.429***	-	0.454***	-	0.420***	-	0.397***
		(0.129)		(0.128)		(0.128)		(0.119)
Dictatorship	1.436**	1.744**	1.106**	1.370**	1.290***	1.848***	1.328**	0.574
	(0.631)	(0.726)	(0.506)	(0.594)	(0.490)	(0.670)	(0.552)	(0.825)
GDP per capita	0.075**	0.017	0.072**	0.016	0.112***	0.042	0.079**	0.021
	(0.035)	(0.036)	(0.035)	(0.038)	(0.036)	(0.037)	(0.035)	(0.035)
government consumption	1.720**	0.113	1.869**	0.136	1.367**	-0.121	1.669**	0.331
	(0.728)	(0.550)	(0.750)	(0.589)	(0.654)	(0.582)	(0.729)	(0.521)
R^2	0.898	-	0.895	-	0.896	-	0.894	-
Observations	973	938	926	887	930	913	990	934
Number of countries	106	124	105	123	99	116	108	122
Number of instruments	-	125	-	116	-	123	-	121
Hansen (p-value)	-	0.593	-	0.404	-	0.772	-	0.725
AR(2) (p-value)	-	0.972	-	0.744	-	0.962	-	0.925

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 3.1.1). In all estimations we remove countries with standardized residuals above 2.576 or below -2.576. OLS regressions include a full set of country and year fixed effects. Arellano and Bond's (1991) GMM estimates include time fixed effects (country fixed effects eliminated by first-differencing). The *absolute fiscal redistribution*$_{t-1}$ and *Dictatorship* are instrumented with first-order to fourth-order lags, while *GDP per capita* and *government consumption* are considered as exogenous. The Hansen statistic is a test of overidentifying restrictions, under the null that overidentifying restrictions are valid. The AR(2) is a test for second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. Robust standard errors, clustered by country, in parentheses. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 5B. Regime and fiscal redistribution: Excluding ex-Soviet countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	GMM	OLS	GMM	OLS	GMM	OLS	GMM
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
absolute fiscal redistributionn$_{t-1}$	-	0.470***	-	0.481***	-	0.428***	-	0.418***
		(0.121)		(0.120)		(0.122)		(0.110)
Dictatorship	1.811**	2.065***	1.291**	1.865***	1.813***	2.465***	1.820**	1.083
	(0.699)	(0.734)	(0.612)	(0.645)	(0.602)	(0.779)	(0.773)	(0.873)
GDP per capita	0.186***	0.033	0.185***	0.034	0.215***	0.058	0.185***	0.028
	(0.064)	(0.043)	(0.066)	(0.043)	(0.068)	(0.046)	(0.063)	(0.042)
government consumption	2.297***	-0.421	2.386***	-0.308	2.314**	-1.002	2.240***	-0.346
	(0.832)	(0.630)	(0.871)	(0.658)	(0.888)	(0.653)	(0.818)	(0.598)
R^2	0.787	-	0.782	-	0.788	-	0.794	-
Observations	1241	975	1185	920	1154	915	1233	971
Number of countries	118	117	117	116	107	106	117	115
Number of instruments	-	126	-	118	-	123	-	122
Hansen (p-value)	-	0.607	-	0.397	-	0.813	-	0.460
AR(2) (p-value)	-	0.784	-	0.913	-	0.891	-	0.773

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 3.1.1). In all estimations we remove ex-Soviet union countries. OLS regressions include a full set of country and year fixed effects. Arellano and Bond's (1991) GMM estimates include time fixed effects (country fixed effects eliminated by first-differencing). The *absolute fiscal redistribution*$_{t-1}$ and *Dictatorship* are instrumented with first-order to fourth-order lags, while *GDP per capita* and *government consumption* are considered as exogenous. The Hansen statistic is a test of overidentifying restrictions, under the null that overidentifying restrictions are valid. The AR(2) is a test for second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. Robust standard errors, clustered by country, in parentheses. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 6A. Regime and fiscal redistribution: Instrumental variables approach (IV)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
absolute fiscal redistributionn$_{t-1}$	-	0.556***	-	0.542***	-	0.548***	-	0.582***
		(0.057)		(0.060)		(0.057)		(0.046)
Dictatorship	16.020***	7.388**	16.475***	8.066**	12.863***	5.953**	10.222***	4.399**
	(5.573)	(3.288)	(5.968)	(3.491)	(4.856)	(3.002)	(3.095)	(1.785)
GDP per capita	2.105*	0.917*	2.682**	1.278**	2.379**	0.832	1.502*	0.449
	(1.119)	(0.543)	(1.163)	(0.648)	(0.985)	(0.513)	(0.834)	(0.412)
government consumption	0.304***	0.160**	0.300***	0.160**	0.362***	0.185**	0.206***	0.094**
	(0.110)	(0.067)	(0.110)	(0.068)	(0.121)	(0.077)	(0.079)	(0.046)
			First-stage results					
Dictatorship_hat	0.462***	0.398***	0.533***	0.452***	0.603***	0.500***	0.834***	0.716***
	(0.127)	(0.119)	(0.149)	(0.137)	(0.142)	(0.132)	(0.141)	(0.128)
First stage F-stat	13.26	11.27	12.85	10.89	18.12	14.31	34.25	31.35
Underidentification test: Kleibergen-Paap rk LM statistic (p-value)	0.001	0.002	0.001	0.002	0.001	0.002	0.000	0.005
N	1320	1188	1258	1126	1233	1116	1312	1181

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 3.1.1). 2SLS are estimated using *Dictatorship-hat* as an instrument for *Dictatorship*. *Dictatorship-hat* is obtained from the probit estimation of *Dictatorship* on *Dictatorship abroad*, on the other controls and on time fixed effects. First stage estimates, the first-stage F-statistic of the excluded instrument and the Kleibergen-Paap underidentification test, under the null that the equation is underidentified, are reported in the lower part of the Table. Robust standard errors, clustered by country are reported in parentheses. All regressions include a full set of country and year fixed effects. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 6B. Regime and fiscal redistribution: Alternative specification and IV

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Dichotomous measure:	**CGV**	**CGV**	**BMR**	**BMR**	**GWF**	**GWF**	**P&S**	**P&S**
absolute fiscal redistributionn$_{t-1}$	-	0.473***	-	0.452***	-	0.443***	-	0.496***
		(0.063)		(0.068)		(0.082)		(0.048)
Dictatorship	14.518**	8.736**	17.563**	11.304**	11.123**	7.617*	10.078***	5.667***
	(6.290)	(4.291)	(7.215)	(5.105)	(5.193)	(4.567)	(3.321)	(2.012)
GDP per capita	2.719**	1.172	3.705***	2.001*	2.639***	0.852	1.904**	0.511
	(1.078)	(0.725)	(1.272)	(1.036)	(0.966)	(0.769)	(0.862)	(0.526)
government consumption	0.231**	0.169**	0.212*	0.158*	0.275**	0.208**	0.176**	0.105*
	(0.109)	(0.080)	(0.114)	(0.086)	(0.118)	(0.105)	(0.088)	(0.058)
			First-stage results					
Dictatorship_hat	0.500***	0.473***	0.538***	0.466***	0.639***	0.506***	0.918***	0.823***
	(0.163)	(0.150)	(0.171)	(0.152)	(0.169)	(0.166)	(0.164)	(0.155)
First stage F-stat	9.352	9.884	9.943	9.363	14.228	9.299	31.364	28.182
Underidentification test: Kleibergen-Paap rk LM statistic (p-value)	0.005	0.004	0.004	0.006	0.002	0.007	0.000	0.000
N	1196	1048	1159	1011	1120	985	1154	1008

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 4.2.2). 2SLS are estimated using *Dictatorship-hat* as an instrument for *Dictatorship*. *Dictatorship-hat* is obtained from the probit estimation of *Dictatorship* on *Dictatorship abroad*, on the other controls and on time fixed effects. First stage estimates, the first-stage F-statistic of the excluded instrument and the Kleibergen-Paap underidentification test, under the null that the equation is underidentified, are reported in the lower part of the Table. Robust standard errors, clustered by country are reported in parentheses. All regressions include a full set of country and year fixed effects. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.

Table 7. The role of regime maturity on fiscal redistribution.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	OLS	OLS	GMM	OLS	OLS	GMM	OLS	OLS	GMM	OLS	OLS	GMM	OLS	OLS	GMM
Dichotomous measure:	**CGV**	**CGV**	**CGV**	**CGV**	**CGV**	**CGV**	**CGV**	**CGV**	**CGV**	**BMR**	**BMR**	**BMR**	**GWF**	**GWF**	**GWF**
absolute fiscal redistribution $_{t-1}$	-	0.611***	0.508***	-	0.611***	0.487***	-	0.609***	0.511***	-	0.595***	0.508***	-	0.594***	0.451***
		(0.040)	(0.105)		(0.040)	(0.112)		(0.040)	(0.108)		(0.042)	(0.107)		(0.043)	(0.104)
Dictatorship	2.102**	0.967*	2.179**	2.619***	1.234**	1.614**	2.087***	1.335***	1.662**	1.865***	0.656*	2.534**	3.023***	1.155**	2.781***
	(0.845)	(0.594)	(0.963)	(0.785)	(0.501)	(0.753)	(0.762)	(0.489)	(0.801)	(0.686)	(0.384)	(1.073)	(0.707)	(0.461)	(0.764)
Dictatorship*age of the regime	-0.143***	-0.049*	-0.096**	-	-	-	-	-	-	-0.142***	-0.057**	-0.102**	-	-	-
	(0.041)	(0.025)	(0.038)							(0.039)	(0.024)	(0.043)			
age of the regime	0.132***	0.049*	0.022	-	-	-	-	-	-	0.131***	0.057**	0.041	-	-	-
	(0.038)	(0.027)	(0.047)							(0.037)	(0.024)	(0.045)			
Dictatorship*age of the regime_2	-	-	-	-0.133***	-0.049**	-0.075*	-	-	-	-	-	-	-0.190***	-0.082***	-0.143***
				(0.039)	(0.024)	(0.042)							(0.042)	(0.025)	(0.043)
age of the regime_2	-	-	-	0.084**	0.034	0.045	-	-	-	-	-	-	0.133***	0.057**	0.032
				(0.039)	(0.023)	(0.042)							(0.038)	(0.025)	(0.043)
Dictatorship*age of the regime_3	-	-	-	-	-	-	-0.165***	-0.086***	-0.105**	-	-	-	-	-	-
							(0.047)	(0.032)	(0.049)						
age of the regime_3	-	-	-	-	-	-	0.136***	0.049*	0.056	-	-	-	-	-	-
							(0.038)	(0.026)	(0.041)						
GDP per capita	0.109*	0.058	0.003	0.128**	0.064*	0.005	0.107*	0.057	0.003	0.106*	0.055	0.008	0.116*	0.053	0.024
	(0.059)	(0.037)	(0.034)	(0.062)	(0.037)	(0.033)	(0.058)	(0.037)	(0.034)	(0.057)	(0.038)	(0.035)	(0.060)	(0.038)	(0.034)
government consumption	1.945**	0.670*	-0.277	2.289***	0.785*	-0.130	1.993**	0.775*	-0.112	1.886**	0.692	-0.148	2.265***	0.730	-0.054
	(0.758)	(0.401)	(0.594)	(0.757)	(0.430)	(0.613)	(0.764)	(0.421)	(0.573)	(0.832)	(0.420)	(0.690)	(0.783)	(0.443)	(0.683)
R^2	0.801	0.897	-	0.800	0.897	-	0.802	0.897	-	0.797	0.890	-	0.807	0.896	-
Observations	1320	1188	1039	1320	1188	1039	1323	1188	1039	1261	1126	978	1233	1116	979
Number of countries	133	132	132	133	132	132	133	132	132	132	131	131	122	121	121
Number of instruments	-	-	128	-	-	128	-	-	128	-	-	120	-	-	125
Hansen (p-value)	-	-	0.498	-	-	0.518	-	-	0.473	-	-	0.399	-	-	0.542
AR(2) (p-value)	-	-	0.668	-	-	0.736	-	-	0.752	-	-	0.812	-	-	0.732

Notes: Dependent variable: *absolute fiscal redistribution* (as defined in section 3.1.1). OLS regressions include a full set of country and year fixed effects. Arellano and Bond's (1991) GMM estimates include time fixed effects (country fixed effects eliminated by first-differencing). The *absolute fiscal redistribution*$_{t-1}$ and *Dictatorship* are instrumented with first-order to fourth-order lags, while *Dictatorship*age of the regime*, *age of the regime*, *GDP per capita*, *government consumption*, are considered as exogenous. The Hansen statistic is a test of overidentifying restrictions, under the null that overidentifying restrictions are valid. The AR(2) is a test for second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. Robust standard errors, clustered by country, in parentheses. *** denotes significance at 1% level, ** denotes significance at 5% level and * denotes significance at 10% level.