

# Regime Type, Inequality, and Redistributive Transfers in Developing Countries

Marina Dodlova and Anna Giolbas

## Abstract

The debate on whether democracy and inequality increase the level of redistribution in a country is still ongoing. We construct a model that predicts a higher probability of redistribution in democracies than in autocracies through universal transfers. Further, with higher initial inequality, there should be more redistribution in democracies but not necessarily in autocracies. We test these predictions using a new dataset on non-contributory transfer programs in developing countries for the period 1960–2014. We confirm that democracy increases redistribution. However, the effect of rising inequality on redistribution does not give any robust result. Hence, on the basis of a direct measure of redistribution, we present evidence that confirms the median voter theorem.

Keywords: regime type, inequality, redistribution, median voter theorem

JEL codes: D72, H53, H75

## 1 Introduction

Do the poor benefit from majority voting? And how does inequality influence redistribution in democracies and autocracies? Studies exploring these issues are mostly based on the influential work by Meltzer and Richard (1981), who applied the median voter theorem to redistribution.<sup>1</sup> The two authors arrived at the conclusion that majority voting will increase the level of redistribution and that this effect is stronger when the initial level of inequality is higher. For autocracies, where the median voter does not decide on policy, the political economy literature predicts ambiguous effects of inequality on redistribution. The rich can use their wealth either to limit redistribution or to increase redistribution if faced with a revolutionary threat.

Although Meltzer and Richard's (1981) theory has been tested extensively, the results have been inconclusive and the debate is ongoing. Recently, Acemoglu et al. (2015) have found that democracy enhances redistribution. Ansell and Samuels (2014), however, do not find an effect of democracy on redistribution, nor of inequality on redistribution in either regime type. Remarkably, all previous tests have been conducted using a proxy for redistribution, such as government expenditure, tax revenue, or social spending. Transfers to the poor compete with many other line items in the allocation of public budgets. Moreover, the share of social transfers within government expenditures, tax revenues, or social spending cannot be assumed to be comparable across countries or across time. Therefore, the proxies that have been used cannot accurately reflect the level of redistribution of income from the rich to the poor.

Our contribution is twofold. First, we focus on transfers to the poor as a way to redistribute income. To the best of our knowledge, this is the first study that examines the relationship between regime type, inequality, and redistribution using a direct measure of social transfers. Our measure comprises conditional and unconditional transfers that have been shown to have a substantial impact on the income of the poor. We therefore overcome the limitations of the proxies for redistribution used in earlier studies. Second, we suggest a theory of direct transfers for the purpose of complete redistribution in different regime types. Thus, we enrich Meltzer and Richard's (1981) finding, but consider a probabilistic model of the adoption of a transfer program in a democracy versus in an autocracy.

We have designed a simple model whereby the ruling class takes a decision on a redistributive transfer under different regimes. We follow Niskanen's (2003) approach and assume that democracies and autocracies differ because of the respective ruling group's

---

1 This research is a part of a project entitled "Enhancing Knowledge for Renewed Policies against Poverty," which is funded by the European Union under the 7th Research Framework Programme (NOPOOR project, Theme SSH.2011.1, Grant Agreement No. 290752). We gratefully acknowledge this financial support. We also thank Jann Lay, Erich Gundlach, Daniel Neff, Viola Lucas, and the GIGA Socio-Economics Seminar participants for their useful comments and suggestions.

objectives. In a democracy, the median voter decides on policy, whereas in an autocracy the elite or the autocratic leader maximizes utility. We predict that in a democracy the probability that a transfer program will be adopted is greater than in an autocracy. Further, with rising inequality the probability of a transfer program increases in democracies, while in autocracies the result is ambiguous.

Using data on social transfers in developing countries for the period 1960–2014, we find supporting evidence for our theory that there is more redistribution in democracies. The result is robust when we consider the determinants of the adoption of a transfer program as opposed to the determinants of the duration of a transfer program. However, we do not get robust results concerning the link between redistribution and inequality. Moreover, our results are not robust to employing nonstationary panel estimators with heterogeneous effects of the regime type across countries.

The paper is structured as follows. Section 2 reviews the literature. Section 3 presents the theoretical framework and the simple model, and Section 4 goes on to describe the data. Section 5 translates the model into an equation that can be estimated econometrically. Section 6 discusses the results, and Section 7 concludes the paper and outlines some possibilities for future research.

## 2 Related Literature

In the study of public policy choices in democracies, the median voter theorem by Downs (1957) has been most influential. It states that two competing parties will converge on the policy preferred by the median voter. Meltzer and Richard (1981) applied the median voter theorem to redistribution. According to their model, majority voting determines the tax rate in the country. Taxes are used to redistribute income, so the scale of redistribution will be decided by the voter with the median income in the country.<sup>2</sup>In other words, the extent of redistribution depends on the distance of the median voter's income to the mean income in society. If the median income is lower than the mean, redistribution rates will be positive. Assuming the probability density function of income in a country has a longer upper tail, the mean income will be higher than the median income. Since this generally holds, the theory predicts more redistribution in democracies than in autocracies, where the tax rate is not determined by majority voting.<sup>3</sup>Alesina and Rodrik (1994) have extended Meltzer and Richard's (1981) model to take into account the effect of inequality on redistribution. According to the extended model, as the distance of the median voter from the mean

---

2 See Galasso and Profeta (2002) for a review of studies on voters' motives to support positive levels of redistribution.

3 Consequently, through the effect of redistribution on inequality, the latter should also be lower in democracies than in autocracies. The empirical literature is not conclusive on the impact of democracy on inequality; see Acemoglu et al. (2015) for a review.

increases (which is the case in more unequal countries), redistribution should also increase. Thus, there should be a positive relationship between inequality and redistribution in democracies.

In autocracies, where majority voting does not take place, the (rich) elite decides on policy. The literature agrees that the elite in an autocracy will be reluctant to redistribute income from itself to the poor, unless redistribution helps it to stay in power. Mejía and Posada (2007) suggest that the elite in an autocratic society may use redistribution to appease the poor and prevent a revolution that could result in democratization. In their model, redistribution increases with greater initial inequality, since the incentive for the autocratic leader to prevent democratization is greater when inequality is high. Similarly, according to Knutsen and Rasmussen (2014), redistribution is a useful tool for the political survival of autocrats because it is a long-term commitment to distribution to their supporters and because it can be targeted towards specific groups. Leon (2014) argues that redistribution might be a strategic tool to reduce the future political power of specific groups by limiting their wealth. He refers to this strategic form of redistribution as populism.

Other scholars have analyzed the importance of inequality as a determinant of regime-type choice. Hence, the question of endogeneity – that is, whether a high level of inequality produces less democratic systems or whether democracy leads to less inequality – is still open. Boix (2003) argues that in countries with a high level of inequality, it is in the elite's interest to prevent democratization and hinder the poor's ability to vote for redistribution. Therefore, the probability of democratization decreases with rising inequality. Acemoglu and Robinson (2006) arrive at the conclusion that democratization is most likely at intermediate levels of inequality. Democratization happens when the poor feel a sufficient need to revolt and the rich regard repression of the poor under autocracy as more costly than redistribution under democracy. Houle (2009) suggests that inequality has two opposite effects on democratization and that its impact is therefore ambiguous. On the one hand, inequality makes a democratic regime less attractive to elites, who fear redistribution. On the other hand, it increases the pressure for democratization from the poor.

There is an extensive empirical literature that investigates the impact of regime type on redistribution. Among the studies that find majority voting to have a redistribution-enhancing effect are Acemoglu et al. (2015), Aidt et al. (2006), Aidt and Jensen (2008), and Kaufman and Segura-Ubiergo (2001). Studies by Ansell and Samuels (2014), Mulligan et al. (2004), and Scheve and Stasavage (2010, 2012) find no effect of democracy on redistribution. Regarding the effect of inequality on redistribution, there is a body of literature that focuses on wealthy and democratic countries. Some of those studies confirm a positive effect of inequality on redistribution (e.g., Iversen and Soskice (2009), Kenworthy and Pontusson (2005), Finseraas (2009), Borge and Rattso (2004)) while others do not (e.g., Kenworthy and McCall (2008), Lübker (2007), Lupu and Pontusson (2011)). Ansell and Samuels (2014) even claim that the interaction of democracy and inequality negatively affects redistribution. The only study that

focuses on the impact of inequality on redistribution in autocracies is that by Ansell and Samuels (2014), who find no effect. Thus, the complex triple relationship between democracy, inequality, and redistribution requires further research.

In this paper we revisit the approach to redistribution in democracies and autocracies by focusing on redistributive transfers to the poor. Most of the abovementioned studies, except for those that focus exclusively on wealthy democracies, proxy redistribution with measures such as tax revenues, government expenditures, or health and education spending. However, Chu et al. (2000) find that the redistributive effect of precisely these measures is inadequate in developing countries, where tax systems are characterized by low tax-to-GDP ratios, high levels of tax evasion, and weak governance and administration. We argue that the insufficiency of tax systems for redistribution in developing countries is reflected in the fact that pre- and post-tax inequality measures tend to be very close. In order to actually redistribute income from the rich to the poor, the government revenues would have to be used to finance efficient pro-poor policies. Indeed, in developing countries poverty-alleviation transfer programs provide a large part of the poor's income. They should thus be taken into consideration when studying the relationship between democracy, inequality, and redistribution. Data availability for inequality measures is another problem that renders using the difference between pre- and post-tax Gini coefficients as the indicator for redistribution problematic. Therefore, this paper has two strengths relative to the existing literature. First, we account for the fact that in developing countries wealth is mainly reapportioned to the poor through redistributive transfers. We thus take a more complex approach to the redistribution problem in developing countries. Second, our focus on transfers allows us to control for all groups' incentives to redistribute, thereby incorporating median-voter preferences and the elite's fear of being overthrown. Furthermore, we take initial pre-tax inequality as the reference point for addressing the inequality-redistribution link to make our approach more comprehensive.

Our measure of redistribution comprises conditional and unconditional direct transfers to the poor. Conditional transfers include programs that give cash conditional on household investments in education and/or health as well as food/cash-for-work programs. Some programs require compliance with conditions that are individually set by the household in collaboration with a social worker. Unconditional transfers do not require households to comply with any behavior; they are predominantly pensions.<sup>4</sup> There has indeed been a remarkable increase in the number of such programs during the last decades. Dodlova and Giolbas (2016) provide a compendium of the literature investigating the targets and impact of social transfer schemes in developing countries. According to this compendium, many studies find that the transfer programs have a substantial impact on the poor's income. For the Mexican transfer program Prospera (launched as Progresa in 1997, renamed Oportunidades in 2002), Dodlova and Giolbas (2016) list a 22 percent increase in total family

---

4 See Barrientos (2013) for a typology of social assistance programs in developing countries.

consumption for rural areas and 16 percent for urban areas among the impacts. The program reaches approximately 19 percent of Mexican households. Although Prospera is surely one of the programs that stands out in terms of the population it reaches and transfer volume, all the social transfer programs in our database directly target the poor. In the absence of redistribution through extensive public goods provision, as is the case in industrialized countries, we believe social transfers to be an adequate indicator for redistribution in developing countries. Hence, we exclude industrialized countries from the analysis in order not to compare social transfers in developing countries with the policies of comprehensive welfare states.

Furthermore, we extend the literature by demonstrating theoretically that inequality has ambiguous effects on redistribution. Our model confirms that in democracies, the probability that transfer programs will be adopted is greater than in autocracies. It also confirms that in democracies, greater initial inequality increases the probability that transfer programs will be adopted. As inequality increases in autocracies, however, the elite can use its wealth to limit redistribution or to increase redistribution to prevent social unrest.

### 3 Model

Let us consider a simple decision-making model that takes into account regime differences. We assume that the society comprises  $N$  citizens and that the rich ( $R$ ), middle ( $M$ ), and poor ( $P$ ) classes are of the following sizes, respectively:  $n_R, n_M, n_P$ . The middle class makes up the majority of the population. Any transfer program is financed by a tax on the income of the rich and middle classes. The poor class gets the utility of  $x_p$ , where  $x_p$  is its real consumption level. The preferences of the middle class and the rich class are described as follows:  $x_i - \xi(z, \lambda_i)$ , where  $i \in M, R$ ,  $z$  is the poverty line and  $\lambda_i$  is the preference for redistribution of the rich and middle classes.<sup>5</sup>  $\lambda_i$  is a normally distributed random variable  $\lambda_i \sim N(\bar{\lambda}, \sigma_\lambda^2)$ .<sup>6</sup> We also assume that the exogenously defined poverty line is higher than the income of the poor  $z > y_p$ .

The ruling class – that is, the middle class in a democracy and the rich in an autocracy – maximizes its utility and chooses its optimal policy. It follows that in any regime the ruling class accepts the transfer program only if its  $\lambda_i$  is large enough to be intolerant of poverty. The middle class and the rich care about their consumption and experience disutility as a result of poverty. The disutility stems not only from pure altruism but also from the possibility that the poor, in an autocracy, could revolt against the current regime. The rich thus try to avoid revolution in any case because then they will lose their income.

---

5 These basic elements are taken from Besley (1997).

6 Normally, but not necessarily,  $\lambda_R > \lambda_M$  which implies that the rich might be more concerned about the level of poverty because of the revolutionary threat.

The ruling class determines the redistribution policy. Redistribution takes the form of direct transfers to the poor that increase their consumption level up to the poverty line  $z$ . In such a universal scheme, the amount of transfers is  $TN = \tau(y_M n_M + y_R n_R)$ , where  $y_P, y_M, y_R$  is the income of the poor, middle, and rich classes, respectively. Therefore,  $T = z - y_P = \tau (y_M \beta_M + y_R \beta_R)$  is the difference between the actual income of the poor and the poverty line. We assume that transfers to all classes are equal – that is, we consider complete redistribution. Let  $Y$  be the total income of the poor, middle and rich classes. The utilities for every class in cases with and without transfers may then be written as outlined in Table 1.

**Table 1: The Classes' Utilities with and without Transfers**

	Without transfers $u_i _{no\ tr}$	With transfers $u_i _{tr}$
<b>Poor</b>	$y_P$	$y_P + T$
<b>Middle</b>	$y_M - \lambda_M (Y - y_P)$	$(1 - \tau) y_M + T - \lambda_M (Y - (y_P + T))$
<b>Rich</b>	$y_R - \lambda_R (Y - y_P)$	$(1 - \tau) y_R + T - \lambda_R (Y - (y_P + T))$

In every regime, the ruling class decides whether or not to adopt the transfer program. We follow the standard probabilistic approach, whereby the ruling class will only choose redistribution if this increases its utility over the case without redistribution.

Therefore, in a democracy:

$$P(u_{M|tr} \geq u_{M|no\ tr}) = P(\lambda_M \geq \frac{\tau y_M - T}{T}) = 1 - F(\frac{\tau y_M - T}{T}) = 1 - F(\frac{y_M}{y_M \beta_M + y_R \beta_R} - 1)$$

And in an autocracy:

$$P(u_{R|tr} \geq u_{R|no\ tr}) = P(\lambda_R \geq \frac{\tau y_R - T}{T}) = 1 - F(\frac{\tau y_R - T}{T}) = 1 - F(\frac{y_R}{y_M \beta_M + y_R \beta_R} - 1)$$

By assumption  $y_R > y_M$ , thus:

$$F(\frac{y_M}{y_M \beta_M + y_R \beta_R} - 1) < F(\frac{y_R}{y_M \beta_M + y_R \beta_R} - 1)$$

And the probability that a transfer program will be adopted is greater in a democracy:

$$1 - F(\frac{y_M}{y_M \beta_M + y_R \beta_R} - 1) > 1 - F(\frac{y_R}{y_M \beta_M + y_R \beta_R} - 1)$$

This result simply follows from the fact that the rich have a higher level of income and that in an autocracy the rich constitute the ruling class. In a democracy, the median voter decides on the level of redistribution.

*Proposition 1: The probability that a transfer program will be adopted is greater in a democracy than in an autocracy.*

Tax rate  $\tau$  and level of transfers  $T$  are defined from the maximization of utility functions in every regime. The utility functions maximized in a democracy and an autocracy are the sum of utilities in the case of transfers and without them:

$$V_M = P(tr) u_{M|tr} + P(no\ tr) u_{M|no\ tr}$$

$$V_R = P(tr) u_{R|tr} + P(no\ tr) u_{R|no\ tr}$$

Or, in a detailed form:

$$V_M = (1 - F(\frac{y_M}{y_M\beta_M + y_R\beta_R} - 1)) u_{M|tr} + F(\frac{y_M}{y_M\beta_M + y_R\beta_R} - 1) u_{M|no\ tr}$$

$$V_R = (1 - F(\frac{y_R}{y_M\beta_M + y_R\beta_R} - 1)) u_{R|tr} + F(\frac{y_R}{y_M\beta_M + y_R\beta_R} - 1) u_{R|no\ tr}$$

Both functions are linear by  $\tau$ , and the probability that a transfer scheme will be adopted does not depend on the tax rate; therefore, in order to maximize the whole utility functions  $V_M$  and  $V_R$  we should maximize only the utilities from redistribution for the respective ruling class.

We can easily show that because of the linearity, the tax rate in the case of transfers is equal to 1. Only this rate maximizes the utility function of the respective ruling class (corner solution). Hence, in the case of the adoption of transfers in our model, we have complete redistribution. The second theoretical result regards the effect of inequality on redistribution in democracies. Higher inequality implies the shift of  $y_M$  to the left. As we know, in a democracy,

$$P(u_{M|tr} \geq u_{M|no\ tr}) = 1 - F(\frac{y_M}{y_M\beta_M + y_R\beta_R} - 1),$$

and in an autocracy,

$$P(u_{R|tr} \geq u_{R|no\ tr}) = 1 - F(\frac{y_R}{y_M\beta_M + y_R\beta_R} - 1).$$

*Proposition 2: In a democracy, the probability that a transfer program will be adopted increases with a higher level of inequality.*

Indeed, inequality increases when  $y_M$  decreases. Hence, the ratio  $\frac{y_M}{y_M\beta_M + y_R\beta_R}$  decreases and the probability that a transfer program will be adopted increases. Redistribution is more likely in unequal democracies. Further, in the case of transfer the poverty line equals  $z = y_P + T = y_P + y_M\beta_M + y_R\beta_R$ . Thus with higher inequality, the poverty line also decreases as  $y_M$  decreases.

In autocracies we can observe a twofold effect. With higher inequality  $y_M$  decreases, and the ratio  $\frac{y_R}{y_M\beta_M + y_R\beta_R}$  is an increasing function with respect to the income of the middle class. This leads to the decreased probability that a transfer program will be adopted in an autocracy. However, in the presence of a revolutionary threat, greater inequality increases the probability of revolution and this might offset the decrease in the probability that a transfer will be adopted.

Indeed, in an autocracy the poor do not rebel if their average income with and without transfers is no less than their income after a revolution:

$$(1 - F(\frac{y_R}{y_M\beta_M + y_R\beta_R} - 1)) [y_P + T] + F(\frac{y_R}{y_M\beta_M + y_R\beta_R} - 1) y_P \geq y_P + (y_M\beta_M + y_R\beta_R) - \pi,$$

where  $\pi$  is the cost of collective actions. We assume that if a revolution occurs, the transfers are compulsorily introduced – that is, the middle and rich classes are forced to pay to the poor.



In simplifying we get  $F\left(\frac{y_R}{y_M\beta_M+y_R\beta_R} - 1\right) \leq \frac{\pi}{y_M\beta_M+y_R\beta_R}$ . At equilibrium the lowest probability of adopting a transfer program equals  $1 - F\left(\frac{y_R}{y_M\beta_M+y_R\beta_R} - 1\right) = 1 - \frac{\pi}{y_M\beta_M+y_R\beta_R}$ . It might be higher if this maximizes the utility of the rich because of their higher disutility from poverty.

The revolutionary threat in an autocracy requires that the probability of not adopting a transfer program should not be greater than the costs of revolutionary action weighted by the average income of the middle and rich classes. It actually equals the marginal value of revolution. Therefore, in order to avoid revolution the rich should provide redistribution in a society with a probability of no more than one minus the marginal value of revolution. If inequality increases –that is, if  $y_M$  decreases – then  $1 - F\left(\frac{y_R}{y_M\beta_M+y_R\beta_R} - 1\right)$  decreases, but the real probability reduces only until the level at which the poor are indifferent to rebellion. This threshold is defined by  $1 - \frac{\pi}{y_M\beta_M+y_R\beta_R}$ .

These propositions can be stated as the predictions for the empirical analysis. First, a higher degree of democracy increases the probability that a transfer program will be adopted. Second, in a democracy, a higher level of inequality leads to a greater probability that a transfer program will be adopted. In the following sections we present the data, the specification, and the empirical results from our test of our theoretical predictions.

#### 4 Data and Descriptive Statistics

The data consists of a yearly and a five-year panel of 143 developing countries for the period 1960–2014. The transfer variable was constructed based on the social transfer programs in developing democracies and autocracies database by Dodlova and Giolbas (2016). This database significantly extends and updates information from Barrientos et al. (2010). It provides a comprehensive list of large-scale, national level and pro-poor social transfer programs in developing countries<sup>7</sup>. This excludes programs targeted exclusively to certain ethnicities, occupational groups or regions as well as programs with a negligible beneficiary base or transfer level. It includes social pensions, universal child benefits, public works programs and (conditional) cash transfers. It can be assumed that the most prominent and important programs in developing countries are captured. Since Dodlova and Giolbas (2016) focus on non-contributory programs, the transfer variable captures progressive redistribution to the poorest. The information on social transfers extends to 2014.

The dependent variable is a dummy that equals 1 if there is at least one social transfer program in place in a country. Some countries have had several transfer schemes in operation in one year. Due to data availability, the programs in the database cannot be compared with regard to transfer volume or the share of the population they reach within a country or across countries. Hence, we have to resort to using a binary variable indicating whether a country has a transfer program. Moreover, countries with just one and countries

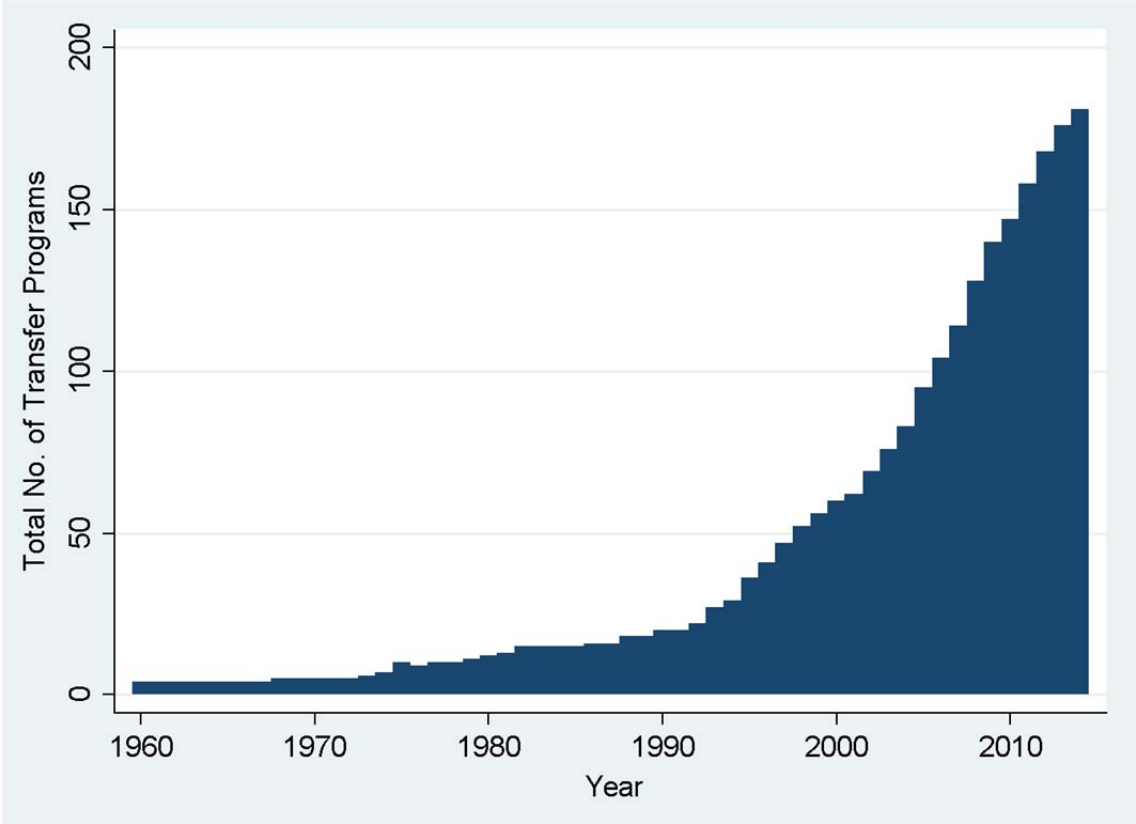
---

<sup>7</sup> Please see more details on the selection of pro-poo transfer programs in Dodlova and Giolbas (2016).

with several transfer schemes in operation are treated the same way; there is only one observation per country and year. Figure 1 shows the total number of redistributive transfer programs in developing countries over the period 1960–2014. While there were only three programs in 1960, the number rose to 19 programs in 1990 and then climbed to 183 programs in 2014. Of the 143 countries, 48 (34 percent) do not have a program and 95 (66 percent) have at least one program.

The polity variable is taken from the Center for Systemic Peace’s POLITY IV project by Marshall and Jaggers (2015). It assesses countries on a scale of -10 for strongly autocratic to +10 for a fully consolidated democracy. Countries are classified as autocracies if their polity score is below -5, as anocracies<sup>8</sup> if their polity score is between -5 and 5, and as democracies if they have a score above 5. For the year 2014, 80 countries are coded as democracies, 49 are coded as anocracies, and 14 as autocracies. Of the countries coded as democracies, 60 (75 percent) have a transfer program. For anocracies and autocracies the number amounts to 29 (59 percent) and 6 (43 percent), respectively. For the inequality measure, we use the Gini index of income inequality before taxes from Solt (2014). The inequality data by Solt (2014) offer the broadest coverage and maximize cross-country comparability. The control variables are taken from the World Bank Development Indicators Database.

Figure 1: Number of Redistributive Transfer Programs in Developing Countries



8 The term anocracy refers to mixed-authority regimes that are neither fully democratic nor fully autocratic (Marshall and Jaggers, 2015).

Summary statistics by categories of polity are reported in Table 2. A total of 2,321 observations are coded as autocracies, 1,718 as anocracies, and 1,748 as democracies. The Gini index increases slightly with the level of democratization. Inequality is lower in autocracies than in democracies by 4 percentage points. There is no clear trend discernible in GDP growth. However, it is, predictably, the highest in democracies and, surprisingly, the lowest in anocracies. The share of official development aid received is somewhat lower for democracies. GDP per capita as well as the rates of primary school completion and progression to secondary education are lowest in autocracies and highest in democracies, while the age-dependency ratio and population growth are lowest in democracies.

**Table 2: Descriptive Statistics by Categories of Polity**

Polity	polity	gini	gdp_cap	gdp_gro	age_depen	pop_gro	oda	primary	secondary	
Autocracy	-7.57	45.05	1302.14	1.86	83.12	2.28	7.56	61.04	70.79	mean
	-7	43.56	740.76	2.06	87.35	2.43	3.98	60.80	76.56	median
	1.15	11.38	1462.70	6.83	16.90	1.23	10.31	29.03	23.97	sd
	-10	18.63	83.33	-65.00	34.49	-6.34	-0.14	5.42	8.67	min
	-6	90	13556.42	53.93	113.06	11.03	94.95	130.61	100	max
	2321	673	1763	1787	2321	2321	1656	1009	762	N
Anocracy	0.16	47.36	1488.18	1.34	83.27	2.23	7.62	65.04	77.37	mean
	0	46.49	819.31	1.99	86.90	2.47	5.16	67.68	82.02	median
	3.36	8.78	1597.91	7.51	16.83	1.13	8.94	26.91	20.60	sd
	-5	25.35	68.57	-62.21	38.80	-3.79	-0.75	6.79	9.82	min
	5	90	8280.57	104.66	118.78	11.18	78.71	111.00	100	max
	1718	854	1588	1571	1718	1717	1452	744	516	N
Democracy	7.90	49.44	2826.87	2.18	70.70	1.66	5.72	82.42	86.97	mean
	8	49.14	2207.43	2.41	70.19	1.71	1.76	89.32	92.41	median
	1.32	8.57	2491.65	4.38	17.54	1.10	10.53	19.53	14.33	sd
	6	21.43	140.82	-40.75	34.55	-2.39	-0.69	14.19	27.56	min
	10	90	14968.49	22.27	112.68	4.94	181.19	125.33	100	max
	1748	1176	1650	1685	1742	1747	1554	969	700	N
Overall	-0.60	47.69	1864.28	1.81	79.42	2.08	6.97	69.75	78.23	mean
	-2	47.27	994.42	2.17	83.70	2.25	3.46	75.08	84.50	median
	6.77	9.57	2018.41	6.37	18.01	1.19	10.02	27.15	21.28	sd
	-10	18.63	68.57	-65.00	34.49	-6.34	-0.75	5.42	8.67	min
	10	90	14968.49	104.66	118.78	11.18	181.19	130.61	100	max
	5787	2703	5001	5043	5781	5785	4662	2722	1978	N

Further summary statistics are reported in the appendix. Table A5 shows the countries that have had a transfer program according to income group<sup>9</sup> in the year 2014. Table A6 presents the countries that have had a transfer program according to polity type at the start

<sup>9</sup> The World Bank classification of income groups is used for this.

date of the transfer. Table A7 lists countries that did not have a transfer program throughout the observed period according to polity type, which is reported as the polity type they had in 2014. Table A8 shows those countries that have had a transfer program according to inequality at the start date of the transfer.

## 5 Specification

According to the model proposed in Section 3, redistribution will be higher in democracies than in autocracies. Further, redistribution should increase with a higher level of initial inequality in democracies but not in autocracies. We test this model using first standard panel estimation techniques such as pooled OLS and fixed effects and second applying a panel time series approach that allows for heterogeneous slope coefficients across countries. Using standard techniques, the model can be tested empirically with the following specification:

$$y_{it} = \beta_0 + \beta_1 \text{polity}_{it-1} + \beta_2 \text{ineq}_{it-1} + \beta_3 X_{it-1} + v_i + \varepsilon_{it} \quad (1)$$

where  $y_{it}$  is a binary variable that indicates whether a country has a transfer program. The main variables on the right-hand side are the polity score, which increases if a country is more democratic, and the inequality measure, which increases if a country's income distribution is more unequal. A positive coefficient on the polity score means that more-democratic countries are more likely to have a redistributive transfer program. A positive coefficient on the inequality variable implies that more-unequal countries are more likely to have a transfer program.

The error term that captures all omitted variables and random errors is  $\varepsilon_{it}$ , the region or country fixed effects refer to  $v_i$  and the vector of control variables is  $X_{it-1}$ . Lake and Huckfeldt (1998) state that "the positive relationship between education and political participation is one of the most reliable results in empirical social science" (p. 567). Following this statement, in a setting with low levels of education among the poor, the median voter will shift to the right of the distribution of income if it is only the educated who vote. Higher levels of education should thus increase redistribution. Education is controlled for with two variables: primary completion rate and progression to secondary schooling. The level of GDP per capita is included as a control variable to capture that richer countries redistribute more. On the other hand, redistribution is more necessary as a means to protect people from acute poverty in low-income countries. In order to control for any bias in the sampling of data on social transfer programs towards countries that cooperate more with international organizations such as the ILO and the World Bank, a variable for net official development aid received as a percentage of GNI is included. Two standard demographic controls are used: age-dependency ratio and population growth. A rising age-dependency ratio means that fewer people are in the labor force and, consequently, that fewer people pay taxes and finance redistributive policies. A high level of population growth can imply that people are

relying on their children to provide for them in their old age as opposed to relying on formal redistribution (Bental, 1989). Finally, a full set of regional dummies is included in the pooled OLS regressions, whereas fixed effects specification include country fixed effects.

The econometric approach to estimate the model as specified above has to deal with three problems – namely, endogeneity, serial correlation and unobserved heterogeneity. Endogeneity might arise in the following. According to the theoretical literature, as summarized in Section 2, the regime type is a determinant of the level of redistribution. As the level of redistribution rises, inequality should decrease. But inequality again determines regime type and thereby the level of redistribution (reverse causality and third variable effect). We try to reduce the endogeneity problem by lagging values of the right-hand-side variables. We thus take into account the fact that current redistribution is determined by earlier levels of the independent variables. Further, to minimize serial correlation, we construct a five-year panel which takes an observation every five years. According to Acemoglu et al. (2015) this approach is more appropriate than taking averages over a five-year period since averages could keep serial correlation and render estimates inconsistent.

We also apply another approach to reduce the endogeneity and serial correlation problems. Once a transfer program is in place, it is presumably difficult to obtain the political support to end it. Moreover, a transfer program can affect the level of democracy and inequality only after it has been in place for a certain time. We analyze more specifically the determinants of the adoption of a transfer program as opposed to the determinants of the duration of a transfer program. For this, a binary variable that equals 1 in the year of adoption of a transfer program and 0 otherwise serves as the independent variable in the same set of regressions as before. All years after the adoption of a program are coded as missing. For all countries with several transfer programs, the one that started earliest is considered. All countries that never adopted a transfer program within the observed time range are coded as 0, while countries that had a transfer program throughout the observed time range are coded as missing.<sup>10</sup>

Finally, redistributive choices across countries are influenced by unobservable factors such as historically and culturally shaped attitudes towards fairness and personal responsibility. In order to deal with the problem of unobserved heterogeneity, we use fixed-effects estimation.<sup>11</sup>

---

10 This approach is also used in the literature on the outbreak versus the duration of civil war. See, for example, Collier et al. (2009).

11 For a correct statistical inference, a model with a binary dependent variable should be estimated using a logit or probit approach. However, a logit regression using fixed effects on a binary dependent variable will eliminate all observations for which  $y_{it}$  is always 0 or always 1. In this case, it would only take into account countries that adopted a transfer program within the observed time range and eliminate all countries that never had a transfer program or that had a transfer program in all the years observed. Thus, logit and probit are not used in the main specification but are included as a robustness check in table A3 of the Annex. To correct for heteroscedasticity, robust standard errors are used in all estimations.

Pooled OLS and fixed effects techniques assume that the cointegrating relationship between the dependent variable and main independent variable is identical across all countries in the sample. However, it is more reasonable to allow for heterogeneous slope coefficients across countries. This approach is used for macro panels with a moderate sample size and substantial time dimension and referred to as non-stationary panel estimation techniques. So far it has been extensively applied in the empirical growth literature in order to account for heterogeneous technology over countries and time (see for example Eberhardt and Teal, 2014). We test our hypotheses using the Mean Group estimator (MG) developed by Pesaran and Smith (1995), the Pesaran (2006) Common Correlated Effects Mean Group estimator (CCEMG or CMG), and the Augmented Mean Group estimator (AMG) introduced by Eberhardt and Teal (2010) and Bond and Eberhardt (2009) with the following specification:

$$\begin{aligned}
 y_{it} &= \beta'_i x_{it} + u_{it} & (2) \\
 u_{it} &= \alpha_i + \lambda' f_{it} + \varepsilon_{it} \\
 x_{mit} &= \pi_{mi} + \mu' m_{f_{mt}} + \delta' m_{g_{mt}} + v_{mit}
 \end{aligned}$$

As in specification (1), the binary variable indicating whether a country has a transfer program is regressed on the polity score and the Gini index.  $\beta_i$  are country specific slopes on the observables and  $u_{it}$  contains the unobservables and error term  $\varepsilon_{it}$ .  $m$  represents the number of determinants (factors), polity and gini in our case. However, as the coefficients are allowed to differ for each country, further control variables do not need to be included.

While all three estimators run country-specific regressions and average the estimated coefficients across countries, the latter two also control for cross-sectional dependence. The CMG estimator includes cross-section averages of the dependent and independent variables to account for unobserved common factors which can range from local spillover effects to global shocks. The AMG estimator is very similar to CMG but it includes a cross-group average of the year dummies estimated by first difference OLS and refers to this as the common dynamic process. The CMG and AMG approaches overcome serial correlation and cross-sectional dependence.

## 6 Results

This section presents the econometric results. It tests whether higher levels of democracy and inequality increase the likelihood that a country will have a transfer scheme. Further, it analyzes the determinants of the adoption of a transfer scheme as opposed to the determinants of the duration of a transfer scheme.

Table 3 shows the regression results of specification (1) on the annual panel with a dummy that equals 1 if a country has a redistributive transfer program and 0 if it has none as the dependent variable. Columns 1, 3 and 5 are estimated by OLS on the pooled data; columns

2, 4 and 6 are estimated by fixed effects models. The first two specifications are estimated without control variables, the second two specifications include GDP per capita, the age-dependency ratio, population growth and official development aid as controls. The last two specifications include two additional controls on education and are estimated separately because including education variables substantially reduces the number of observations from 2375 to 988. The models estimated without any control variables include 2703 observations..

**Table 3: Polity variable, annual panel**

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
polity	0.022*** (0.001)	0.027*** (0.004)	0.014*** (0.002)	0.013*** (0.005)	0.015*** (0.003)	0.018*** (0.007)
gini	0.003*** (0.001)	-0.006 (0.004)	0.001 (0.001)	-0.006* (0.003)	0.001 (0.002)	-0.010* (0.005)
gdp_cap			0.026* (0.015)	0.516*** (0.084)	-0.059** (0.024)	0.401*** (0.146)
age_depen			-0.012*** (0.001)	-0.009*** (0.003)	-0.009*** (0.001)	-0.009* (0.005)
pop_growth			0.038*** (0.011)	0.013 (0.017)	0.052*** (0.014)	0.032 (0.024)
oda			0.003* (0.001)	-0.000 (0.003)	0.004 (0.002)	0.001 (0.008)
primary					0.006*** (0.001)	0.002 (0.003)
secondary					0.004*** (0.001)	0.004* (0.002)
Observations	2703	2703	2375	2375	988	988
R <sup>2</sup>	0.135	0.102	0.228	0.409	0.299	0.413
F	73.377	22.248	83.429	31.484	53.185	13.655

Standard errors in parentheses

OLS regressions include a full set of regional dummies

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The coefficient on the lagged polity score is positive and strongly significant in all specifications. This confirms that more democratic countries have a higher probability of having a transfer program. The coefficient in the FE specification is a bit higher than in the pooled OLS, and the effect of the regime type ranges between 1.5 and 2 percentage points. The

coefficient on the lagged Gini variable is positive and significant in the pooled OLS without control variables (Column 1) and negative and significant in the fixed effects specification with and without education controls (Columns 4 and 6). Hence, we do not get robust results for the effect of inequality on the likelihood of having a transfer program. If we take into account that fixed effects discards the between-country variation and the Gini index of a country tends to vary little over time, this is not surprising. At least for the between-country variation, there is some evidence that countries with higher inequality are more likely to have a transfer program. The coefficients on GDP per capita are positive and significant in all models and reflect that richer countries are more likely to have a transfer program. An exception is the OLS regression with education controls (Column 5) where the coefficient on GDP per capita is negative and significant. A reason for this reversed sign might be that country specific effects are not controlled for and in between-country variation the poor countries more often and earlier launch the transfer programs. The coefficients on the lagged age-dependency ratio are negative and significant throughout. A higher age-dependency ratio implies that fewer people are in the work force and pay taxes and hence, as expected, is associated with a lower likelihood of a country having a transfer program. The coefficients on population growth are positive throughout and significant in the pooled OLS regressions. This is counter to our intuition that in countries with a higher population growth, people rely more on informal means of insurance and consequently, are less likely to have a transfer program. The coefficient on official development aid is mostly insignificant and confirms that the sampling of data on social transfer programs was not biased towards countries that cooperate more with international organizations such as the ILO and the World Bank. The coefficients on the control variables for education are mostly positive and significant. We can expect that higher levels of education are in line with an increase in redistribution through the positive impact of education on political participation. We assume that i) an increase in primary and secondary education will mainly accrue to the poor and ii) more educated citizens are more likely to vote. As a consequence of an increase in the level of education, the median voter may shift to the left of the distribution of income and thus increase the support for redistribution policies.

The R-squared<sup>12</sup> ranges from 0.10 in Column 2 to 0.41 in Column 6. The F-test rejects the null hypothesis of no joint significance of the explanatory variables in all specifications. The Breusch-Pagan LM test for the existence of random effects and the Wald test for the existence of fixed effects both reject the null hypothesis of no effects. A test of overidentifying restrictions (Hansen's J statistic)<sup>13</sup> rejects the null hypothesis that the overidentification restrictions are valid. Therefore, according to the Hansen test, fixed effects is the preferred

---

12 In the case of fixed-effects models, the within R-squared is reported.

13 A test of overidentifying restrictions is also a test of fixed versus random effects. This test is employed with robust standard errors when the Hausman test cannot be used.



specification over a random effects model<sup>14</sup>. The F-test statistics over 10 indicate the good fit of the models.

For the fixed effects specification with education controls, an increase in the polity score by 1 leads to an increase of 1.8 percentage points in the probability of a transfer scheme, *ceteris paribus* and on average. A regime change from autocracy to democracy implies an increase of 10 to 20 points on the polity scale,<sup>15</sup> and this happens in 1 percent of all observations. Such a regime change implies a large increase in the probability of having a transfer scheme, from 18 to 36 percentage points.

**Table 4: Adoption of a Transfer Program**

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
polity	0.003*** (0.001)	0.006*** (0.001)	0.003*** (0.001)	0.005*** (0.001)	0.001 (0.001)	0.009** (0.004)
gini	-0.000 (0.000)	-0.002** (0.001)	-0.001 (0.001)	-0.002** (0.001)	0.001 (0.001)	-0.006* (0.003)
gdp_cap			-0.011 (0.009)	0.021 (0.024)	-0.017 (0.019)	0.074 (0.078)
age_depen			-0.001** (0.001)	-0.003*** (0.001)	-0.002** (0.001)	-0.003 (0.002)
pop_growth			-0.001 (0.005)	0.004 (0.007)	-0.006 (0.009)	0.003 (0.014)
oda			0.000 (0.001)	-0.000 (0.001)	0.002 (0.002)	0.007** (0.003)
primary					0.001** (0.000)	0.001 (0.002)
secondary					0.001 (0.001)	0.002 (0.001)
Observations	1773	1773	1522	1522	602	602
R <sup>2</sup>	0.016	0.022	0.022	0.052	0.050	0.093
F	3.286	21.170	2.329	9.385	2.091	3.885

Standard errors in parentheses

OLS regressions include a full set of regional dummies

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

<sup>14</sup> Random effects specifications are not reported.

<sup>15</sup> A regime change from autocracy to democracy implies a change in the polity score of at least -5 to 5 and at most -10 to 10.

In order to minimize the endogeneity problem that arises if an ongoing transfer program influences the level of democracy and inequality, we analyze the determinants of the adoption of a transfer scheme as opposed to the determinants of the duration of a transfer scheme. Table 4 shows the same set of regressions as before except that only the year of the adoption of a transfer program is taken into consideration. All years after the start of a transfer program are discarded. The explanatory variables are the same as before; however, the GDP per capita variable is replaced by the combined average of GDP per capita for the fifth, fourth, and third year prior to the adoption of a transfer. This is to account for the fact that the level of GDP is likely to influence the adoption of a transfer scheme with a lag of more than one year and over a longer period of time than one year.

The coefficient on the lagged polity variable is positive and significant in all specifications except in the pooled OLS regression with education controls (Columns 5), where it is positive but insignificant. For the fixed-effects regression with education controls (Column 6), an increase in the polity score by 1 increases the probability that a country will adopt a transfer scheme by approximately 0.9 percentage points, *ceteris paribus* and on average. In the event of a regime change from autocracy to democracy, the probability that a country will adopt a transfer scheme increases between 9 percentage points (lower bound) and 18 percentage points (upper bound). The effect is substantially smaller than that in the analysis of the duration of a transfer program. As expected, endogeneity indeed plays an important role in the analysis of the duration of a transfer scheme. Nevertheless, there is robust evidence that more democratic countries are more likely to adopt a transfer program.

The coefficient on the lagged Gini index is negative and significant in all fixed-effects specifications. This result is cautious evidence that greater inequality within a country decreases the probability that a transfer scheme will be adopted. A higher age-dependency ratio is negatively correlated with the likelihood of adoption of a transfer program. None of the other coefficients can be claimed to have a robust effect on the probability that a transfer scheme will be adopted. The number of observations is 1773 for the specifications without any control variables, 1522 in specifications 3 and 4 and 602 when the controls for education are included (Columns 5 and 6). The general fit of the model increases from 0.02 in Column 1 to 0.09 in Column 6. It is interesting that the inclusion of control variables reduces the general fit of the models as the F-test statistics decrease below 10.

As a robustness check, the same regressions as in Table 3 are run on the five-year panel instead of the annual panel. The results are reported in Table A1 of the appendix and confirm the main findings of Table 3. We find a positive and significant effect of a higher polity score on the likelihood of a transfer program. For a second check, the polity variable is replaced with a binary variable that equals 1 for democracies and 0 otherwise. This democratic index is taken from Boix et al. (2013) and regressed on the annual panel. The results are reported in Table A2 of the appendix and again confirm the findings of Table 3. The coefficients on the democracy variable are positive and significant in all specifications. Based on the fixed-effects model with controls for education (Column 6), a regime change from autocracy to

democracy increases the probability that a country will have a transfer program by 19 percentage points, *ceteris paribus* and on average. This estimate equals the one made using the polity score's lower bound of a change from autocracy to democracy. Tables A3 and A4 in the appendix report the same regressions as in Table 3 and Table 4, respectively, but are estimated using logit and probit models. Again, we can confirm our main finding. Overall, using standard panel estimation techniques, we find robust evidence for a positive effect of a higher democracy score on the likelihood of having a transfer program but not for a higher initial level of inequality.

**Table 5: Mean Group Estimators**

	(1) mg	(2) cmg	(3) amg
polity	0.018* (0.010)	-0.003 (0.007)	-0.014 (0.009)
gini	-0.008 (0.005)	-0.002 (0.004)	-0.002 (0.004)
csavg_transfer		0.764*** (0.125)	
csavg_polity		0.010 (0.024)	
csavg_gini		0.012 (0.023)	
cdp			1.007*** (0.115)
constant	0.601*** (0.218)	-0.454 (1.129)	-0.043 (0.173)
Observations	2684	2684	2672

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

We now turn towards the results from estimating specification (2) with non-stationary panel estimators which are shown in Table 5. The Mean Group estimator (Column 1) confirms our hypothesis that more democratic countries are more likely to have a transfer program. The regressions estimated with the Common Mean Group estimator (Column 2) and the Augmented Mean Group estimator (Column 3), however, yield insignificant

coefficients. There might be two explanations for these results. First, it can be connected with cross-sectional dependence in the transfer variable as the programs spread over regions simultaneously. In the case of CMG, the cross-sectional average of the dependent variable is positive and highly significant. Moreover, the coefficient has a much higher magnitude than the explanatory variables. The same holds for the common dynamic process in the case of AMG.

Estimating the same regressions as shown in Table 3 with the cross-sectional dependence consistent estimator introduced by Driscoll and Kraay (1998), confirms the results of Table 3.16. However, the Driscoll-Kraay estimator is only consistent when the cross-sectional dependence is caused by common factors that are uncorrelated with the included regressors while CMG and AMG control for cross-sectional dependence that is correlated with the explanatory variables (see De Hoyos and Sarafidis, 2006). Hence, the results from estimating specification 2 with CMG and AMG point towards a problem of cross-sectional dependence in our data. The existence of spillover effects in the adoption of social transfer programs is plausible and also reflected in the large increase of the number of programs since the mid 1990s by regions (see Figure 1).

Another explanation for insignificance of the regime variable in CMG and AMG models might be connected with the binary type of our dependent variable. These approaches are not perfect for the cases when the dependent variable is a dummy. The coefficients before cross-sectional average and common dynamic process come closely to 1. It means that the correlation between the cross-sectional average of the binary dependent variable in CMG and the common dynamic process in AMG with the dependent variable is so strong that this renders the other explanatory variables insignificant.

## 7 Conclusion

Are redistribution levels higher in democracies? Does inequality lead to more redistribution, depending on regime type? These and other questions about how political institutions influence redistribution and social policies are very important, especially in developing countries, where we often observe high levels of corruption, poor governance, and fragile statehood. In addressing these questions, we have chosen to focus on developing countries, as the literature stresses the shortcomings of standard measures of redistribution such as tax revenues and government spending in these countries. We have suggested that a variety of redistributive transfer programs should be considered, since they seem to be more responsible for redistribution in developing countries, where pre- and post-tax revenues are very similar.

The straightforward and intuitive approach to examining the complex link between democracy, inequality, and redistribution is to consider the incentives of all classes in a society and to study how these classes interact and how the institutional constraints of

---

16 These results are available upon request.

different political regimes change their bargaining power. To this end, we have designed a simple model to demonstrate how the regime type, specifically, the ruling-class type, affects the probability that a transfer program will be adopted. The model is a stylized mechanism that predicts more redistribution to the poor when the middle class chooses policy. Greater inequality intensifies this tendency in a democracy. In contrast, in an autocracy inequality turns out to be a driver of such programs only when there is a strong revolutionary threat. Hence, we confirm Meltzer and Richard's (1981) theory about redistribution, but in this case via social transfers. This model is only a simplified framework of political motives for social policy choices. Undoubtedly, there is a need for many more studies on particular incentive mechanisms through which political institutions influence social policies in democracies and autocracies.

Empirically, we have used a new data set with information on non-contributory social transfer programs to the poor in developing countries. Employing standard panel estimators (pooled OLS and fixed-effects), we have found strong evidence that more democratic countries are more likely to have transfer programs. The effect remains robust when we take only the year in which the transfer program was adopted into account. We have not, however, found robust evidence that a greater level of inequality leads to a greater likelihood that a country has (and will adopt) a transfer program. The persistence of the inequality data and cross-country analysis do not allow for the proper identification of the exact relationship between inequality and redistributive transfers. The limitations of the data also make it difficult to capture the detailed mechanisms and channels behind the adoption of transfer programs. In this sense, within-country evaluation and natural experiments are more promising for revealing the true effects and causality. Despite the fact that we have certainly simplified democratic settings as well as redistributive decisions, we have contributed to a debate that is extensive, inconclusive, and ongoing. The analysis carried out with nonstationary panel estimators highlights the importance of spillover effects in the adoption of social transfer programs.

The fact that regime type and political institutional constraints do play a role in determining social policy choices opens up interesting avenues for further political economy research. Anti-poverty programs might be initiated based on social motives such as efficiency and equity, but they might also be driven by political mechanisms such as vote buying in democracies or the securing of loyalty in autocracies. Further, political constraints may create biases in social policies, not only at the approval stage but also at the implementation stage. For example, high levels of corruption and red tape are also products of a political system and can even undermine the efficiency of good social policy choices. Hence, further research with good identification strategies is needed to highlight specific patterns and channels of influence between political institutions and social choices.

## Bibliography

- Acemoglu, D., and J. A. Robinson (2006). *Economic Origins of Dictatorship and Democracy*. New York: Cambridge University Press.
- Acemoglu, D., J. A. Robinson, S. Naidu, and P. Restrepo (2015). Democracy, Redistribution and Inequality. In: *Handbook of Income Distribution 2B* (21): 1885-1966. Eds.: A. Atkinson and F. Bourguignon.
- Aidt, T., J. Dutta, and E. Loukoianova (2006). Democracy Comes to Europe: Franchise Extension and Fiscal Outcomes 1830–1938. *European Economic Review* 50 (2): 249–283.
- Aidt, T. S., and P. S. Jensen (2008). 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.
- Alesina, A., and D. Rodrik (1994). Distributive Politics and Economic Growth. *The Quarterly Journal of Economics* 109 (2): 465–490.
- Ansell, B., and D. Samuels (2014). *Inequality and Democratization: An Elite-Competition Approach*. New York: Cambridge University Press.
- Barrientos, A. (2013). *Social Assistance in Developing Countries*. New York: Cambridge University Press.
- Barrientos, A., M. Nino-Zarazua, and M. Maitrot (2010). *Social Assistance in Developing Countries Database*. MPRA Paper. 26403.
- Bental, B. (1989). The Old Age Security Hypothesis and Optimal Population Growth. *Journal of Population Economics* 1 (4): 285–301.
- Besley, T. J. (1997). Political Economy of Alleviating Poverty: Theory and Institutions. In: M. Bruno and B. Pleskovic (eds), *Annual World Bank Conference on Development Economics 1996*. Washington, D.C.: World Bank.
- Bond, S. and M. Eberhardt (2009) Cross-Section Dependence in Nonstationary Panel Models: A Novel Estimator. Paper presented at the Nordic Econometrics Conference in Lund.
- Boix, C. (2003). *Democracy and Redistribution*. New York: Cambridge University Press.
- Boix, C., M. Miller, and S. Rosato (2013). A Complete Dataset of Political Regimes, 1800–2007. *Comparative Political Studies* 46 (12): 1523–1554.
- Borge, L.-E., and J. Rattso (2004). Income Distribution and Tax Structure: Empirical Test of the Meltzer-Richard Hypothesis. *European Economic Review* 48 (4): 805–826.
- Chu, K.-Y., H. R. Davoodi, and S. Gupta (2000). *Income Distribution and Tax and Government Social Spending Policies in Developing Countries*. International Monetary Fund.
- Collier, P., A. Hoeffler, and D. Rohner (2009). Beyond Greed and Grievance: Feasibility and Civil War. *Oxford Economic Papers* 61 (1): 1–27.

- Dodlova, M. and A. Giolbas (2016). Social Transfer Programs in Developing Democracies and Autocracies: A New Dataset. Mimeo.
- De Hoyos, R. E., and Sarafidis, V. (2006). Testing for Cross-Sectional Dependence in Panel-Data Models. *Stata Journal* 6(4), 482.
- Downs, A. (1957). An Economic Theory of Political Action in a Democracy. *Journal of Political Economy* 65 (2): 135–150.
- Driscoll, J., and A. C. Kraay (1998). Consistent Covariance Matrix Estimation with Spatially Dependent Data. *Review of Economics and Statistics* 80: 549–560.
- Eberhardt, M. and F. Teal (2010). Productivity Analysis in Global Manufacturing Production. Economics Series Working Papers 515, University of Oxford, Department of Economics.
- Eberhardt, M. and F. Teal (2014). The Magnitude of the Task Ahead: Productivity Analysis with Heterogeneous Technology. Mimeo, School of Economics, University of Nottingham.
- Finseraas, H. (2009). Income Inequality and Demand for Redistribution: A Multilevel Analysis of European Public Opinion. *Scandinavian Political Studies* 32 (1): 94–119.
- Galasso, V., and P. Profeta (2002). The Political Economy of Social Security: A Survey. *European Journal of Political Economy* 18 (1): 1–29.
- Houle, C. (2009). Inequality and Democracy: Why Inequality Harms Consolidation But Does Not Affect Democratization. *World Politics* 61 (04): 589–622.
- ILO (2010). *Global Extension of Social Security: The Social Transfers Impacts Matrix*. Online: <[www.socialsecurityextension.org/](http://www.socialsecurityextension.org/)>.
- Iversen, T., and D. Soskice (2009). Distribution and Redistribution: The Shadow of the Nineteenth Century. *World Politics* 61 (03): 438–486.
- Kaufman, R. R., and A. Segura-Ubierno (2001). Globalization, Domestic Politics, and Social Spending in Latin America: A Time-Series Cross-Section Analysis, 1973–1997. *World Politics* 53 (04): 553–587.
- Kenworthy, L., and L. McCall (2008). Inequality, Public Opinion and Redistribution. *Socio-Economic Review* 6 (1): 35–68.
- Kenworthy, L., and J. Pontusson (2005). Rising Inequality and the Politics of Redistribution in Affluent Countries. *Perspectives on Politics* 3 (03): 449–471.
- Knutsen, C. H., and M. B. Rasmussen (2014). *The Autocratic Welfare State: Resource Distribution, Credible Commitments and Political Survival*. Working Paper. Online at SSRN: <<http://ssrn.com>>.
- Lake, R., and R. Huckfeldt (1998). Social Capital, Social Networks, and Political Participation. *Political Psychology* 19 (3): 567–584.
- Leon, G. (2014). Strategic Redistribution: The Political Economy of Populism in Latin America. *European Journal of Political Economy* 34, 39–51.

- Lübker, M. (2007). Inequality and the Demand for Redistribution: Are the Assumptions of the New Growth Theory Valid? *Socio-Economic Review* 5 (1): 117–148.
- Lupu, N. and J. Pontusson (2011). The Structure of Inequality and the Politics of Redistribution. *American Political Science Review* 105 (02): 316–336.
- Marshall, M. G., and K. Jagers (2015). Polity IV Project: Political Regime Characteristics and Transitions, 1800–2014. Online: <[www.systemicpeace.org/polity/polity4.htm](http://www.systemicpeace.org/polity/polity4.htm)>.
- Mejía, D., and C.-E. Posada (2007). Populist Policies in the Transition to Democracy. *European Journal of Political Economy* 23 (4): 932–953.
- Meltzer, A., and S. Richard (1981). A Rational Theory of the Size of Government. *The Journal of Political Economy* 89 (5): 914–927.
- Mulligan, C. B., R. Gil, and X. Sala-i-Martin (2004). Do Democracies Have Different Public Policies than Non-Democracies? *Journal of Economic Perspectives* 18 (1): 51–74.
- Niskanen, W. A. (2003). *Autocratic, Democratic, and Optimal Government*. Cheltenham, U.K.: Edward Elgar.
- Pesaran, M. H. (2006). Estimation and Inference in Large Heterogeneous Panels with a Multifactor Error Structure. *Econometrica* 74(4): 967-1012.
- Pesaran, M. H. and R. P. Smith (1995). Estimating Long-Run Relationships from Dynamic Heterogeneous Panels. *Journal of Econometrics* Vol. 68(1): 79-113.
- Scheve, K., and D. Stasavage (2010). The Constriction of Wealth: Mass Warfare and the Demand for Progressive Taxation. *International Organization* 64 (04): 529–561.
- Scheve, K., and D. Stasavage (2012). Democracy, War, and Wealth: Lessons from Two Centuries of Inheritance Taxation. *American Political Science Review* 18 (1): 81–102.
- Solt, F. (2014). *The Standardized World Income Inequality Database*. Working Paper. SWIID Version 5.0, October 2014. Online: <<http://myweb.uiowa.edu/fsolt/papers/Solt2014.pdf>>.



## Appendix

**Table A1: Polity Variable, Five-Year Panel**

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
polity	0.026*** (0.003)	0.035*** (0.005)	0.018*** (0.004)	0.020*** (0.007)	0.023*** (0.006)	0.025** (0.012)
gini	0.001 (0.002)	-0.008* (0.004)	0.001 (0.002)	-0.002 (0.004)	0.000 (0.004)	-0.013* (0.007)
gdp_cap			-0.002 (0.035)	0.478*** (0.113)	-0.140*** (0.049)	0.143 (0.227)
age_depen			-0.012*** (0.002)	-0.010*** (0.004)	-0.008** (0.003)	-0.008 (0.005)
pop_growth			0.030 (0.027)	-0.008 (0.027)	0.059 (0.041)	0.061 (0.059)
oda			-0.000 (0.003)	-0.002 (0.002)	-0.002 (0.005)	-0.004 (0.009)
primary					0.010*** (0.002)	0.012*** (0.004)
secondary					0.004* (0.002)	0.004 (0.004)
Observations	535	535	469	469	208	208
R <sup>2</sup>	0.142	0.139	0.216	0.408	0.358	0.488
F	15.118	23.673	18.078	23.890	19.674	13.616

Standard errors in parentheses

OLS regressions include a full set of regional dummies

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A2: Binary Democracy Variable, Annual Panel**

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
democracy	0.127*** (0.021)	0.281*** (0.048)	0.055** (0.022)	0.123** (0.056)	0.062* (0.035)	0.194* (0.101)
gini	0.005*** (0.001)	-0.004 (0.004)	0.002* (0.001)	-0.004 (0.003)	0.002 (0.002)	-0.010* (0.006)
gdp_cap			0.044*** (0.015)	0.479*** (0.090)	-0.031 (0.024)	0.354** (0.157)
age_depen			-0.011*** (0.001)	-0.008*** (0.003)	-0.010*** (0.001)	-0.008 (0.005)
pop_growth			0.024** (0.011)	-0.005 (0.017)	0.030** (0.015)	0.017 (0.022)
oda			0.003** (0.001)	0.001 (0.003)	0.007*** (0.002)	-0.001 (0.008)
primary					0.005*** (0.001)	0.002 (0.003)
secondary					0.004*** (0.001)	0.005** (0.002)
Observations	2552	2552	2237	2237	904	904
R <sup>2</sup>	0.070	0.065	0.172	0.347	0.254	0.357
F	28.251	17.676	41.763	21.187	32.878	8.185

Standard errors in parentheses

OLS regressions include a full set of regional dummies

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A3: Polity Variable, Annual Panel, Logit/Probit**

	(1)	(2)	(3)	(4)	(5)	(6)
	logit	probit	logit	probit	logit	probit
polity	0.111*** (0.008)	0.067*** (0.005)	0.081*** (0.009)	0.050*** (0.006)	0.095*** (0.016)	0.055*** (0.009)
gini	0.013** (0.005)	0.008** (0.003)	0.001 (0.007)	-0.001 (0.004)	-0.004 (0.011)	-0.003 (0.006)
gdp_cap			0.064 (0.086)	0.052 (0.050)	-0.416*** (0.135)	-0.235*** (0.079)
age_depen			-0.070*** (0.006)	-0.040*** (0.003)	-0.051*** (0.010)	-0.029*** (0.006)
pop_growth			0.258*** (0.066)	0.151*** (0.039)	0.409*** (0.104)	0.232*** (0.061)
oda			0.014 (0.009)	0.008* (0.005)	0.017 (0.016)	0.009 (0.009)
primary					0.045*** (0.006)	0.027*** (0.004)
secondary					0.022*** (0.006)	0.013*** (0.004)
Observations	2703	2703	2375	2375	988	988
Pseudo R <sup>2</sup>	0.109	0.110	0.193	0.191	0.265	0.265

Standard errors in parentheses

All regressions include a full set of regional dummies

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A4: Adoption of a Transfer Program, Logit/Probit**

	(1)	(2)	(3)	(4)	(5)	(6)
	logit	probit	logit	probit	logit	probit
polity	0.102*** (0.024)	0.046*** (0.011)	0.084*** (0.027)	0.039*** (0.012)	0.028 (0.035)	0.014 (0.016)
gini	-0.017 (0.015)	-0.007 (0.007)	-0.023 (0.020)	-0.011 (0.009)	0.008 (0.028)	0.003 (0.012)
gdp_cap			-0.320 (0.247)	-0.139 (0.112)	-0.425 (0.368)	-0.204 (0.168)
age_depen			-0.035* (0.018)	-0.014* (0.007)	-0.044* (0.025)	-0.021* (0.011)
pop_growth			-0.024 (0.163)	-0.019 (0.072)	-0.139 (0.182)	-0.060 (0.090)
oda			0.005 (0.013)	0.003 (0.007)	0.043 (0.034)	0.019 (0.016)
primary					0.027** (0.013)	0.014** (0.006)
secondary					0.025 (0.021)	0.010 (0.009)
Observations	1773	1773	1522	1522	571	571
Pseudo R <sup>2</sup>	0.048	0.049	0.067	0.066	0.130	0.128

Standard errors in parentheses

All regressions include a full set of regional dummies

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A5: Countries with a Transfer Program by Income Group**

Low income	Lower-middle income	Upper-middle income
Bangladesh	Albania	Argentina
Burkina Faso	Armenia	Botswana
Cambodia	Azerbaijan	Brazil
Cote d'Ivoire	Belize	Bulgaria
Ethiopia	Bolivia	Chile
Ghana	Cape Verde	Colombia
Haiti	China	Costa Rica
Kenya	Congo, Rep.	Dominican Republic
Kyrgyz Republic	Ecuador	Grenada
Lesotho	Egypt, Arab Rep.	Hungary
Liberia	El Salvador	Kazakhstan
Madagascar	Fiji	Malaysia
Malawi	Georgia	Maldives
Mali	Guatemala	Mauritius
Mozambique	Guyana	Mexico
Nepal	Honduras	Montenegro
Niger	India	Namibia
Pakistan	Indonesia	Panama
Rwanda	Iraq	Romania
Senegal	Jordan	Russia
Sierra Leone	Kosovo	Serbia
Sudan	Macedonia, FYR	South Africa
Tajikistan	Moldova	St. Lucia
Tanzania	Mongolia	Suriname
Timor-Leste	Morocco	Turkey
Togo	Nigeria	Uruguay
Uganda	Paraguay	Venezuela, RB
Uzbekistan	Peru	
Vietnam	Philippines	
Yemen, Rep.	Swaziland	
Zambia	Thailand	
Zimbabwe	Tunisia	
	Ukraine	
	West Bank and Gaza	

Note: The World Bank income classification for the year 2014 is used.

**Table A6: Countries with a Transfer Program by Polity Type**

Autocracy	Anocracy	Democracy
Azerbaijan	Albania	Argentina
Bangladesh	Armenia	Bolivia
Chile	Burkina Faso	Botswana
China	Cambodia	Brazil
Jordan	Congo, Rep.	Bulgaria
Kazakhstan	Ethiopia	Cape Verde
Morocco	Fiji	Colombia
Swaziland	Haiti	Costa Rica
Tunisia	Kyrgyz Republic	Dominican Republic
Uzbekistan	Malaysia	Ecuador
Vietnam	Mali	El Salvador
	Mexico	Georgia
	Mozambique	Ghana
	Nepal	Guatemala
	Nigeria	Guyana
	Romania	Honduras
	Russia	India
	Rwanda	Indonesia
	South Africa	Jamaica
	South Sudan	Kenya
	Sudan	Lesotho
	Tajikistan	Liberia
	Tanzania	Macedonia, FYR
	Togo	Madagascar
	Uganda	Malawi
	Venezuela, RB	Moldova
	Yemen, Rep.	Mongolia
	Zambia	Montenegro
	Zimbabwe	Niger
		Pakistan
		Panama
		Paraguay
		Peru
		Philippines
		Senegal
		Sierra Leone
		Thailand
		Timor-Leste
		Trinidad and Tobago
		Turkey
		Ukraine
		Uruguay

Note: Countries are reported according to the year of their first transfer program.

**Table A7: Countries without a Transfer Program by Polity Type**

Autocracy	Anocracy	Democracy
Belarus	Afghanistan	Benin
Cuba	African Republic	Burundi
Eritrea	Algeria	Comoros
Iran, Islamic Rep.	Angola	Guinea-Bissau
Korea, Dem. Rep.	Bhutan	Lebanon
Lao PDR	Cameroon	Nicaragua
Syrian Arab Republic	Chad	Solomon Islands
Turkmenistan	Congo, Dem. Rep.	
	Djibouti	
	Gabon	
	Gambia, The	
	Guinea	
	Libya	
	Mauritania	
	Papua New Guinea	
	Somalia	
	Sri Lanka	

Note: The polity type is reported for the year 2014.

**Table A8: Countries with a Transfer Program by Level of Inequality**

15.70–40.52	40.53–46.89	46.90–52.81	52.82–90.00
Azerbaijan	Argentina	Armenia	Bolivia
Bangladesh	Cambodia	Colombia	Botswana
Bulgaria	China	Costa Rica	Brazil
Ethiopia	El Salvador	Dominican Rep.	Cape Verde
Indonesia	India	Ecuador	Honduras
Jordan	Kyrgyz Republic	Georgia	Jamaica
Kazakhstan	Maldives	Guatemala	Kenya
Macedonia, FYR	Mozambique	Guyana	Malawi
Moldova	Nepal	Malaysia	South Africa
Mongolia	Russia	Mexico	Swaziland
Montenegro	Senegal	Nigeria	Zambia
Pakistan	Sierra Leone	Panama	
Romania	Tunisia	Paraguay	
Serbia	Uganda	Peru	
Tajikistan	Vietnam	Philippines	
Tanzania		Rwanda	
Ukraine		Thailand	
Uzbekistan		Turkey	
Venezuela, RB		Uruguay	
Yemen, Rep.			

Note: Countries are reported according to the year of their first transfer program. Countries in the sample are evenly distributed across quartiles.