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**Working Paper**

## Regime type, inequality, and redistributive transfers in developing countries

WIDER Working Paper, No. 2017/30

**Provided in Cooperation with:**

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

*Suggested Citation:* Dodlova, Marina; Giolbas, Anna (2017) : Regime type, inequality, and redistributive transfers in developing countries, WIDER Working Paper, No. 2017/30, ISBN 978-92-9256-254-0, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, <https://doi.org/10.35188/UNU-WIDER/2017/254-0>

This Version is available at:

<https://hdl.handle.net/10419/161594>

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WIDER Working Paper 2017/30

## **Regime type, inequality, and redistributive transfers in developing countries**

Marina Dodlova<sup>1</sup> and Anna Giolbas<sup>2</sup>

February 2017

**Abstract:** The debate on whether democracy and inequality increase the level of redistribution is ongoing. We construct a model that predicts higher probability of redistribution in democracies than autocracies through social transfers. Higher inequality leads to more redistribution in democracies but not necessarily in autocracies. Using the new data on Non-Contributory Social Transfer Programmes for 1990–2015, we find democracies are more likely to have a transfer programme. This is consistent with previous conclusions that democracy enhances redistribution measured by tax revenues and government expenditures. We also present less robust evidence that countries with a transfer programme experience higher inequality.

**Keywords:** regime type, redistribution, inequality, social transfers, median voter theorem

**JEL classification:** D72, H53, H75

**Acknowledgements:** The background research is part of a project entitled ‘Enhancing knowledge for renewed policies against poverty’, which was funded by the European Union under the 7th Research Framework Programme (NOPOOR project, Theme SSH.2011.1, Grant Agreement No. 290752). This working paper was supported by UNU-WIDER, under the project on ‘The economics and politics of taxation and social protection’. We gratefully acknowledge the support.

We thank Miguel Niño-Zarazúa for helpful advice and for sharing his harmonized World Income Inequality Database (WIID) data with us. We are also grateful to Marcel Fafchamps, Erich Gundlach, Jann Lay, Viola Lucas, and Daniel Neff, as well as the participants at the Centre for the Study of African Economies (CSAE) Conference 2016 and the UNU-WIDER Symposium on the Political Economy of Social Protection in Developing Countries, and the audience at the German Institute of Global and Area Studies (GIGA) Socio-Economics Seminar and Development Economics Staff Seminar at the University of Göttingen, for their useful comments and suggestions.

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This study has been prepared within the UNU-WIDER project on ‘[The political economy of social protection systems](#)’, which is part of a larger research project on ‘[The economics and politics of taxation and social protection](#)’.

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ISSN 1798-7237 ISBN 978-92-9256-254-0

Typescript prepared by Luke Finley.

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The Institute is funded through income from an endowment fund with additional contributions to its work programme from Denmark, Finland, Sweden, and the United Kingdom.

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## 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. The authors arrive at the conclusion that majority voting increases the level of redistribution and that this effect is stronger when the initial level of inequality is higher. However, the recent political economy literature predicts ambiguous effects of inequality on redistribution. In particular, it has been shown that inequality decreases the rate of redistribution by shifting political influence towards the rich (Acemoglu and Robinson 2006; Acemoglu et al. 2011; Przeworski 2016). Moreover, the rich can use their wealth either to limit or to increase redistribution if faced with a revolutionary threat.

Although the relationship between regime type, inequality, and redistribution has been tested extensively, the results have been inconclusive and the debate is ongoing. Recently, Acemoglu et al. (2014) find that democracy enhances redistribution. Ansell and Samuels (2014), however, find that redistribution decreases in unequal democracies. Remarkably, all previous tests have been conducted using a proxy for redistribution, such as government expenditure, tax revenue, or social spending. However, developing countries are characterized by low tax-to-GDP ratios, high levels of tax evasion and weak state capacity. Instead, poverty-alleviation transfer programmes significantly increase the poor's welfare.

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 (e.g. Browne 2015). 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 progressive 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. 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 by suggesting a probabilistic model of the adoption of a transfer programme 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 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 programme will be adopted is greater than in an autocracy. Further, with rising inequality the probability of a transfer programme increases in democracies, while in autocracies the result is ambiguous, as the elite can use its wealth either to limit redistribution or to increase redistribution to prevent social unrest.

To test our predictions, we use the new Non-Contributory Social Transfer Programmes (NSTP) in Developing Countries Data Set provided by Dodlova et al. (2016). Considering the period of extensive expansion of social transfer policies in developing countries in the period 1990–2015, we find supporting evidence that democracies are more likely to have a social transfer programme. The result is robust when we control for tax redistribution and consider the determinants of the adoption of a transfer programme as opposed to the determinants of the duration of a transfer

programme. Our results concerning inequality and the likelihood of having a transfer scheme are less robust but rather point to a positive correlation.

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 of 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>1</sup> In other words, the extent of redistribution depends on the distance of the median voter's income from 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>2</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 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.

The Meltzer and Richard (1981) model assumes that political power is equally distributed among all citizens. Recent theories explaining why the median voter theorem applied to redistribution may not hold are based on the idea that with rising inequality, political power shifts towards those with above-median income. In particular, Acemoglu and Robinson (2006), Acemoglu et al. (2011), and Przeworski (2016) focus on why democracies may pursue relatively pro-elite policies of lower redistribution. The basic intuition is that if political influence is positively linked to income, decisions on the level of redistribution will be made by the relatively wealthy. Rising income inequality would hence result in lower redistribution. Similarly, Acemoglu et al. (2014) suggest that the elite can capture the de facto decision-making power through lobbying or repression activities even when a democratic system equally distributes the de jure power. Ansell and Samuels (2014) argue that income inequality reflects the strength of elites. Since a democratic regime may offer better property rights, the rich in unequal societies may prefer democracy over autocracy. Consequently, high inequality would have a negative effect on redistribution following democratization. Other scholars also distinguish the importance of inequality as a determinant of regime type choice but focus on the contrary effects. Boix (2003) argues that in countries with high 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.

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<sup>1</sup> See Galasso and Profeta (2002) for a review of studies on voters' motives for supporting positive levels of redistribution.

<sup>2</sup> 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. (2014) for a review.

Acemoglu and Robinson (2006) arrive at the conclusion that democratization is most likely at intermediate levels of inequality. Houle (2009) suggests that inequality has two opposite effects on democratization and its impact is 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. This logic is also pursued by Mejía and Posada (2007), who suggest that the elite in an autocratic society may use redistribution to appease the poor and prevent a revolution. 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.

The empirical literature that investigates the link between regime type and redistribution is quite large and presents controversial evidence. Among the studies that find majority voting to have a redistribution-enhancing effect are Acemoglu et al. (2014); Aidt et al. (2006); Aidt and Jensen (2008); and Kaufman and Segura-Ubiergo (2001). However, 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. Borge and Rattso 2004; Finseraas 2009; Iversen and Soskice 2009; Kenworthy and Pontusson 2005) 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. However, they do not find any impact of inequality on redistribution in autocracies. 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 programmes 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 factor that renders problematic the use of the difference between pre- and post-tax Gini coefficients as the indicator for redistribution. 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 paper is also related to the political economy issues of social protection. In recent years, increasing attention is paid in the literature to the fact that decisions on social policies might be political (Hickey 2009). The debates conclude that the choice of types of transfer schemes, targeting mechanisms, and other design elements might be a result of the bargaining process between different groups of interest, or simply government populist policies or preferences (Browne 2015; Barrientos 2013). For example, McCord (2012) argues that the expansion of public works programmes in Sub-Saharan Africa is a political decision of governments that prefer to reduce the

dependency of the poor who are able to work on unconditional transfers. Another example is the change of targeting of cash transfers to children in Mongolia from means-tested to universal benefits on the basis of the new government's socialist values (Farrington and Slater 2006). In addition, a growing literature addresses clientelism and vote buying in social policy, where social benefits and public goods are strategically used to increase popularity among the masses and gain or reward voters (De La O 2013; Manacorda et al. 2011; Nupia 2011; Zucco 2015). We contribute to this literature by arguing that political regime type may have an effect on the initiation of social transfer programmes in developing countries.

### 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 programme 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:  $x_i - \epsilon(z, \theta_i)$ , where  $i \in P, M, R$ ,  $z$  is the poverty line and  $\theta_i$  is the preference for redistribution of the rich and middle classes.<sup>3</sup>  $\theta_i$  is a normally distributed random variable  $\theta_i \sim N(\bar{\theta}, \sigma_\theta^2)$ .<sup>4</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 programme only if its  $\theta_i$  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.

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.

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<sup>3</sup> These basic elements are taken from Besley (1997).

<sup>4</sup> Normally, but not necessarily,  $\theta_R > \theta_M$ , which implies that the rich might be more concerned about the level of poverty because of the revolutionary threat.

Table 1: The classes' utilities with and without transfers

	Without transfers ( $u_i   no T$ )	With transfers ( $u_i   T$ )
Poor	$y_P$	$y_P + T$
Middle	$y_M - \theta_M(Y - y_P)$	$(1 - \tau)y_M + T - \theta_M(Y - (y_P + T))$
Rich	$y_R - \theta_R(Y - y_P)$	$(1 - \tau)y_R + T - \theta_R(Y - (y_P + T))$

Source: authors.

In every regime, the ruling class decides whether or not to adopt the transfer programme. 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:

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

And in an autocracy:

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

By assumption  $y_R > y_M$ , thus:

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

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

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

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 programme 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:

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

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

Or, in a detailed form:



$$\begin{aligned}
V_M &= \left(1 - F\left(\frac{y_M}{y_M\beta_M + y_R\beta_R} - 1\right)\right) u_{M|T} + F\left(\frac{y_M}{y_M\beta_M + y_R\beta_R} - 1\right) u_{M|no T} V_R \\
&= \left(1 - F\left(\frac{y_R}{y_M\beta_M + y_R\beta_R} - 1\right)\right) u_{R|T} + F\left(\frac{y_R}{y_M\beta_M + y_R\beta_R} - 1\right) u_{R|no T}
\end{aligned}$$

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  $\tau$  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,

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

and in an autocracy,

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

*Proposition 2: In a democracy, the probability that a transfer programme 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 programme 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 programme 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:

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

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 programme 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 programme 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 1 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 in the model is defined by  $1 - \frac{\pi}{y_M\beta_M+y_R\beta_R}$ .

The propositions can be a ground on which to formulate the predictions for the empirical analysis. The first hypothesis states that in a democracy the probability that a transfer programme will be adopted is higher. The second hypothesis concerns inequality effects. In a democracy, a higher level of inequality is associated with a greater probability of having a transfer programme. However, in an autocracy the probability that a transfer programme will be adopted while inequality increases depends on both the reluctance of the rich to redistribute income to the poor and the need to deal with the increasing revolutionary threat. Hence, whether higher inequality correlates with more or less social transfers in autocracy is ambiguous. In the following sections we present the data, the specification, and the results of our empirical analysis.

#### 4 Data and descriptive statistics

The data consists of a yearly and a five-yearly panel of 143 developing countries for the period 1990–2015. The transfer variable was constructed based on the Non-Contributory Social Transfer Programmes (NSTP) in Developing Countries Data Set of Dodlova et al. (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 programmes in developing countries.<sup>5</sup> This excludes programmes targeted exclusively to certain ethnicities, occupational groups, or regions, as well as programmes with a negligible beneficiary base or transfer level. It includes social pensions, family and child benefits, public works programmes, and (conditional) cash transfers. It can be assumed that the most prominent and important programmes in developing countries are captured. Since Dodlova et al. (2016) focus on non-contributory programmes, the transfer variable reflects progressive redistribution to the poorest.

The dependent variable is a dummy that equals 1 if there is at least one social transfer programme in place in a country. Some countries have several transfer schemes in operation in one year. However, a larger number of programmes in operation does not necessarily imply broader coverage or greater spending on social assistance. Hence, we have to resort to using a binary variable indicating whether a country has a transfer programme. Moreover, countries with just one transfer scheme in operation and countries with several are treated the same way; there is only one observation per country and year. Dodlova et al. (2016) document a sharp increase in the total number of redistributive transfer programmes in developing countries since 1990. While there were

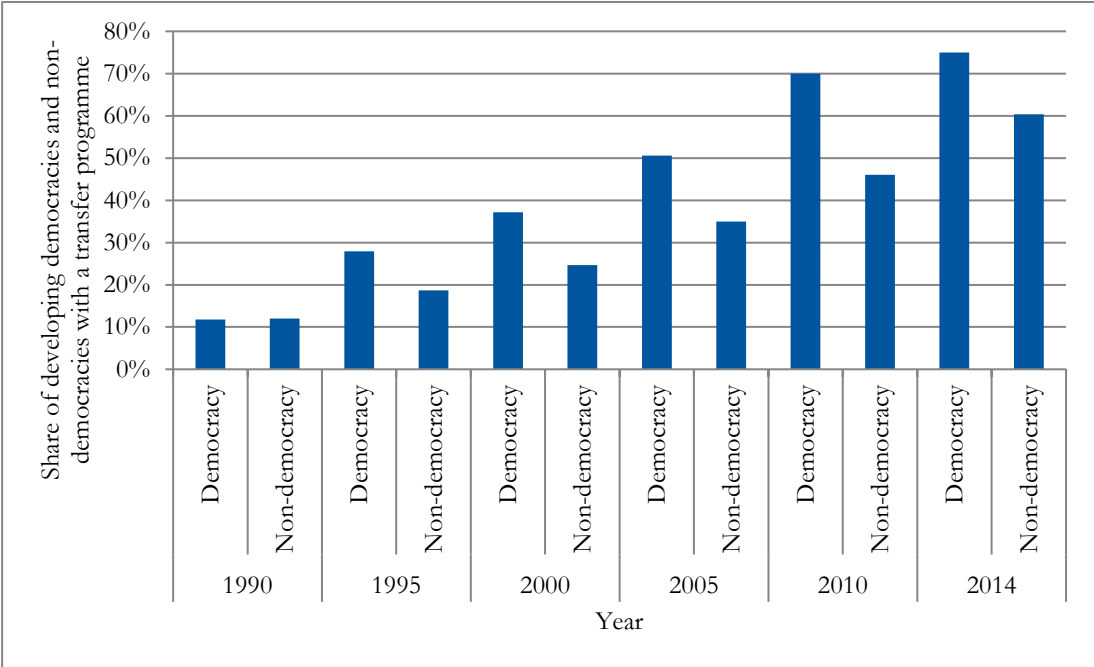
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<sup>5</sup> Please see more details on the selection of pro-poor transfer programmes in Dodlova et al. (2016).

only 19 programmes in 1990, the number climbed to 62 in 2000 and then reached 186 programmes in 2015. Of the 143 developing countries in our sample, 42 (30 per cent) do not have a programme and 101 (70 per cent) have at least one programme.

As the regime type measure, we use the polity variable from the Center for Systemic Peace’s POLITY IV project by Marshall and Jaggers (2015). It extends until 2014 and assesses countries on a scale of –10 for strongly autocratic to +10 for a fully consolidated democracy. Countries are classified as democratic if they have a score above 5. Figure 1 shows the percentage of developing democracies and non-democracies that have at least one transfer programme between 1990 and 2014 in five-year intervals. Of all developing countries in the respective regime type, 12 per cent of democracies and 12 per cent of non-democracies have a transfer programme in 1990. Starting in the mid-1990s, we see that the share of countries with at least one social transfer programme increases steadily in both regime types but significantly more so for democracies. For the year 2014, 80 countries are coded as democracies, of which 60 (75 per cent) have a transfer programme. Of 63 countries coded as non-democratic, only 38 (60 per cent) have a transfer programme.

Figure 1: Share of developing democracies and non-democracies with a transfer programme



Source: Dodlova et al. (2016).

For the inequality measure, we use data from Jorda and Niño-Zarazúa (2016), who provide a harmonized Gini index from the World Income Inequality Database (WIID 3.3; UNU-WIDER 2015). This inequality data is suitable for cross-country comparisons and provides a high level of country coverage, as does Solt (2016), but without relying on multiple imputations. The data combines the inequality measures from both the household survey estimates and national accounts. The adjusting method takes into account different measurement errors and omitted income values, especially at the right-hand tail of the distribution (top incomes). The control variables are taken from the World Bank Development Indicators Database. We control for the income and population size of the country, the share of urban population, the share of dependent people, the volume of foreign aid, the share of agriculture and natural resources in GDP, and education. We also include a measure of food insecurity used by the Food and Agriculture Organization of the United Nations (FAO) that reflects how far the calorie intake of undernourished people falls short of their minimum needs.

Summary statistics by categories of polity are reported in Table 2. A total of 1581 and 1239 observations are coded as non-democratic and democratic, respectively. The mean of the Gini index is 2.4 percentage points higher for democratic countries. Predictably, democratic countries have higher GDP per capita, a higher share of urban population, and higher education rates, and receive slightly more official development aid. They have a lower food deficit, lower age dependency ratios, and lower total population, and generate a lower share of revenues from agriculture and natural resources.

Table 2: Descriptive statistics

	polity	gini	gdpcap	fooddef	agedepen	poptot	popurb	oda	agrivalue	natresources	primary	secondary	
Non-democracies	-2.39	41.24	1531	162.19	75.79	42	42.28	8.65	25.01	16.08	70.68	81.71	mean
	4.66	8.11	1653	133.26	19.31	159	20.03	10.38	14.92	16.90	26.82	18.16	sd
	-10	24.07	69	4	34.49	0.34	5.42	-0.47	1.87	0	13.97	9.11	min
	5	64.3	9153	695	110.45	1360	88.94	94.95	65.86	89.22	130.61	100	max
	1581	1006	1466	1290	1581	1581	1581	1329	1353	1417	865	658	N
Democracies	7.87	43.62	2996	123.56	69.56	32.3	48.55	8.87	16.39	6.05	87.47	89.51	mean
	1.32	9.96	2667	98.58	18.21	125	20.72	14.36	11.20	9.37	20.19	12.69	sd
	6	22.8	114	1	34.55	0.09	8.53	-2.61	0.38	0	14.19	30.17	min
	10	77.1	15592	744	118.78	1300	95.15	242.29	65.97	69.29	193.26	100	max
	1239	1166	1846	1380	1994	1872	1969	1635	1744	1806	1018	731	N
Overall	2.12	42.52	2347	142.22	72.43	36.4	45.76	8.77	20.16	10.46	79.76	85.81	mean
	6.24	9.22	2388	118.20	18.98	141	20.65	12.73	13.64	14.12	24.91	16.00	sd
	-10	22.8	69	1	34.49	0.09	5.42	-2.61	0.38	0	13.97	9.11	min
	10	77.1	15592	744	118.78	1360	95.15	242.29	65.97	89.22	193.26	100	max
	2820	2172	3312	2670	3426	3575	3550	2964	3097	3223	1883	1389	N

Source: Authors' compilation based on Dodlova et al. (2016), FAO (2016), Jorda and Niño-Zarazúa (2016), Marshall and Jagers (2015), and the World Development Indicators Database.

## 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 clearly in autocracies. We test this model using the following specification and applying panel estimation techniques:

$$T_{it} = \beta_0 + \beta_1 \text{polity}_{it-1} + \beta_2 \text{gini}_{it-1} + \beta_3 X_{it-1} + v_i + \delta_t + \varepsilon_{it}, \quad (1)$$

where  $T_{it}$  is a binary variable that indicates whether a country has a transfer programme. The main independent variables are the polity score and market Gini index. We expect a positive  $\beta_1$ , meaning that more-democratic countries are more likely to have a redistributive transfer programme. The sign of  $\beta_2$  is not clear as it can depend on the regime type. A positive coefficient on the Gini index would imply that more-unequal countries are more likely to have a transfer programme regardless of the regime type. Our main estimation models are pooled OLS and fixed effects with year dummies.

The error term that captures all omitted variables and random errors is  $\varepsilon_{it}$ , the country fixed effects refer to  $v_i$ , time effects are denoted by  $\delta_t$ , and the vector of control variables is  $X_{it-1}$ . The level of GDP per capita is included as a control variable to capture the fact 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. As an additional measure of poverty, we include the depth of food deprivation from the FAO's food security indicators. In order to control for any bias in the sampling of data on social transfer programmes towards countries that co-operate 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. Three standard demographic controls are used: age dependency ratio, total population, and the share of urban population. A rising age dependency ratio means that fewer people are in the labour force and, consequently, that fewer people pay taxes and finance redistributive policies. Total population captures the size of a country while the share of urban population reflects the level of industrialization. The share of revenue generated from agriculture shows how much of GDP is accumulated in rural areas where the majority of poor people live. The rent from natural resources reflects the level of non-tax revenues available to the political leaders that they can also use for welfare policies. In addition, as Lake and Huckfeldt (1998: 567) state, "the positive relationship between education and political participation is one of the most reliable results in empirical social science". 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 school completion rate and progression to secondary schooling. We use the logarithm of all control variables. Finally, a full set of year dummies is included to take account of time trends.

The econometric approach to estimating 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.

We also apply another approach to reduce the endogeneity and serial correlation problems. Once a transfer programme is in place, it is presumably difficult to obtain the political support to end it. Moreover, a transfer programme can affect the level of democracy and inequality only after it has been in place for a certain time. We analyse more specifically the determinants of the adoption of a transfer programme as opposed to the determinants of the duration of a transfer programme. For this, a binary variable that equals 1 in the year of adoption of a transfer programme and 0 otherwise serves as the independent variable in the same set of regressions as before. All years after the adoption of a programme are coded as missing. For all countries with several transfer programmes, the one that started earliest is considered. All countries that never adopted a transfer programme within the observed time range are coded as 0, while countries that had a transfer programme throughout the observed time range are coded as missing.<sup>6</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>7</sup>

## 6 Results

This section presents the econometric results. It tests whether higher levels of democracy and inequality are positively associated with the likelihood that a country will have a transfer scheme. To capture the effect of all forms of redistribution, we control for social expenditures as a share of government revenues. We take account of the fact that more-established regimes may have a higher likelihood of adopting a transfer programme by controlling for regime duration. Further, we analyse the determinants of the adoption of a transfer scheme as opposed to the determinants of the duration of a transfer scheme. The last subsection discusses the robustness of our results.

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<sup>6</sup> This approach is also used in the literature on the outbreak versus the duration of civil war. See, for example, Collier et al. (2009).

<sup>7</sup> For a correct statistical inference, a model with a binary dependent variable should be estimated using a logit or probit approach. However, such a functionality specificity limits the application of a fixed effects model. We estimate logit and probit models as a robustness check. The results can be obtained upon request.

Table 3: Determinants of a social transfer programme

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
L.polity	0.013*** (0.002)	0.007*** (0.002)	0.005** (0.002)	0.014*** (0.003)	0.004 (0.003)	0.010** (0.004)
L.gini	0.005*** (0.001)	-0.002 (0.002)	0.008*** (0.002)	-0.002 (0.002)	0.011*** (0.003)	-0.000 (0.004)
L.lngdpcap			-0.161*** (0.035)	0.443*** (0.073)	-0.204*** (0.053)	0.452*** (0.132)
L.lnfooddef			-0.137*** (0.016)	0.031 (0.028)	-0.181*** (0.024)	0.002 (0.047)
L.lnagedepen			-0.463*** (0.081)	0.394*** (0.141)	-0.311** (0.127)	1.162*** (0.237)
L.lnpoptot			0.029*** (0.010)	-0.708*** (0.173)	0.006 (0.016)	-1.672*** (0.324)
L.lnpopurb			-0.106*** (0.034)	-0.163 (0.102)	-0.208*** (0.055)	-0.613*** (0.227)
L.lnoda			0.037*** (0.012)	0.043*** (0.013)	0.036* (0.019)	-0.012 (0.023)
L.lnagrivalue			-0.230*** (0.029)	-0.122*** (0.046)	-0.226*** (0.045)	-0.122 (0.081)
L.lnatresources			-0.018** (0.009)	-0.050*** (0.019)	-0.047*** (0.014)	-0.036 (0.030)
L.lnprimary					0.091 (0.058)	-0.041 (0.099)
L.lnsecondary					0.078 (0.088)	0.210* (0.124)
Observations	1971	1971	1459	1459	647	647
R <sup>2</sup>	0.363	0.364	0.450	0.422	0.486	0.480
F	34.559	39.011	30.547	29.714	14.311	14.161

Notes: Standard errors in parentheses, \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Dependent variable is a dummy that equals 1 if a country has a transfer programme, from Dodlova et al. (2016). Main explanatory variables are the one-year lag of the polity score from Marshall and Jagers (2015) and a one-year lag of the Gini index from Jorda and Niño-Zarazúa (2016). Other explanatory variables (all in logs and one-year lags): GDP per capita, food deficit, age dependency ratio, total population, share of urban population, official development aid received, agricultural value in total revenues, natural resource rents in total revenues, completion rate of primary education, progression to secondary education from FAO (2016) and the World Development Indicators Database. All regressions include a full set of year dummies. OLS regressions include regional fixed effects. Regressions are run on an annual panel from 1990 to 2015.

## 6.1 Determinants of a Social Transfer Programme

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 programme and 0 if it has none as the dependent variable. Columns 1, 3, and 5 report the estimates of OLS on the pooled data; columns 2, 4, and 6 report the estimates of fixed effects models. The first two specifications are estimated without control variables; the second two specifications include GDP per capita, food insecurity, the age dependency ratio, total population, share of urban population, official development aid, and value added to GDP by agriculture and natural resources 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.

The coefficient on the lagged polity score is positive and significant in all specifications, except in the pooled OLS specification with education controls (column 5), where it is positive but insignificant. This confirms that more-democratic countries have a higher probability of having a transfer programme. One additional point on the polity scale is associated with an increase in the probability of 0.5–1.4 percentage points. The coefficient on the lagged Gini variable is positive and significant in the pooled OLS models, which cautiously suggests that countries with a higher level of inequality have a higher likelihood of adopting a transfer programme. The coefficients on GDP per capita are negative and significant in the OLS regressions but positive and significant in the fixed effects regressions. This may suggest that poorer countries are more likely to have a transfer programme while, within countries, transfer programmes are more likely to be adopted in times of economic growth. The depth of food deficit is negative and significant in the OLS models, which may imply that social transfer programmes are not a priority in times of severe food crises. The coefficients on the age dependency ratio are negative and significant in the pooled OLS regressions, and positive and significant in the fixed effects regressions. A higher age dependency ratio implies that fewer people are in the workforce and paying taxes, and hence, as expected, is associated with a lower likelihood of a country having a transfer programme. The coefficients on total population are positive in the pooled OLS regressions but negative in the fixed effects regressions. This reflects the fact that large countries are more likely to have a transfer programme while, within countries, the effect of economy of scale matters. The share of population residing in urban areas is negatively associated with the probability of having a transfer programme, suggesting that social transfer programmes target rural areas, where there are traditionally more poor people. The impact of official development aid is positive and significant. This confirms the role of pressure applied by international organizations on the adoption of development projects and schemes. A higher value added of agricultural revenues implies that rural areas are more developed, and hence that levels of rural poverty are lower. Therefore, countries with higher agricultural revenues can be expected to have fewer pro-poor transfers. The natural resource rents may be negatively associated with the likelihood of having a transfer programme, as higher non-tax revenues give more opportunities for rent seeking at the top, leading more often to repressions and other ways of pleasing the population than progressive redistribution. Higher levels of education might be in line with an increase in redistribution through the positive impact of education on political participation. We expect that better-educated people are more likely to vote for and support redistribution policies. However, only secondary education demonstrates a significant effect, which may be consistent with the view that political participation matters more for adolescents.

For the fixed effects specification with education controls, an increase in the polity score by 1 leads to a 1-percentage point increase in the probability of a transfer scheme, *ceteris paribus* and on average. A regime change from autocracy to democracy implies an increase of about 10 points on the polity scale.<sup>8</sup> Such a regime change implies a large increase in the probability of having a transfer scheme of about 10 percentage points.

Although we argue that social transfer programmes are a measure of pro-poor redistribution in developing countries superior to other proxies, they admittedly do not capture all forms of redistribution, including provision of public goods, public health care and education, or social insurance. In order to address this concern, we include social expenditures as a share of

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<sup>8</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  $10$ .

government revenues as an additional control variable in Table 4. This greatly reduces the number of observations; however, the results remain largely unchanged. We can confirm that, controlling for social expenditures, there are more social transfer programmes in democracies, and countries with higher inequality are associated with a higher likelihood of having at least one social transfer programme, although the last result is not strongly robust. Social expenditures as a share of government revenues are mostly insignificant. This may imply that, as we mentioned, tax redistribution in developing countries is not as effective as in developed countries because of weak state capacity and high rates of tax evasion. Thus, pro-poor transfer programmes are operated in parallel with contributory systems. In addition, the data on social expenditures are quite limited (the sample is reduced by more than half) and measurement errors are possible.

Another concern is that regime duration may drive our results such that in more established regimes the likelihood of having a social transfer programme is higher. We therefore include a measure of the durability of the regime's authority pattern in Table 5. This variable captures the number of years since the last important change in authority characteristics. It is provided by the POLITY IV project and defined as a change in the polity score of at least 3 points. While it is confirmed that regime durability has a rather positive effect on the likelihood of having a transfer programme, our main results remain robust.

Table 4: Determinants of a social transfer programme, controlling for social expenditures

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
L.polity	0.015*** (0.004)	0.031*** (0.005)	0.012** (0.005)	0.048*** (0.008)	0.012 (0.007)	0.061*** (0.012)
L.gini	-0.000 (0.003)	0.001 (0.003)	0.006** (0.003)	0.009** (0.004)	0.009 (0.007)	0.002 (0.015)
L.Insocialexp	0.028*** (0.011)	-0.019* (0.010)	0.023 (0.014)	-0.020 (0.025)	0.140*** (0.044)	-0.033 (0.076)
L.Ingdpcap			-0.287*** (0.080)	0.579*** (0.164)	-0.589*** (0.120)	-0.032 (0.310)
L.Infooddef			-0.272*** (0.030)	-0.036 (0.057)	-0.363*** (0.042)	-0.067 (0.116)
L.Inagedepen			-0.237 (0.178)	0.094 (0.269)	0.322 (0.285)	-0.059 (0.567)
L.Inpoptot			-0.007 (0.022)	-0.746 (0.600)	-0.061* (0.035)	0.316 (1.040)
L.Inpopurb			0.011 (0.068)	0.247 (0.832)	0.006 (0.126)	-3.448* (2.020)
L.Inoda			0.026 (0.023)	-0.066** (0.030)	0.005 (0.032)	-0.056 (0.048)
L.Inagrivalue			-0.185*** (0.059)	0.006 (0.113)	-0.487*** (0.102)	-0.345* (0.182)
L.Innatresources			-0.027 (0.017)	0.045 (0.037)	-0.035 (0.025)	0.001 (0.058)
L.Inprimary					0.013 (0.187)	0.251 (0.334)
L.Insecondary					-0.169 (0.235)	-0.358 (0.319)
Observations	564	564	376	376	188	188
R <sup>2</sup>	0.398	0.385	0.584	0.496	0.682	0.612
F	11.759	12.093	12.459	8.990	8.127	5.449

Notes: Standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Dependent variable is a dummy that equals 1 if a country has a transfer programme, from Dodlova et al. (2016). Main explanatory variables are the one-year lag of the polity score from Marshall and Jagers (2015) and a one-year lag of the Gini index from Jorda and Niño-Zarazúa (2016). Other explanatory variables (all in logs and one-year lags): social expenditures as a percentage of government revenue, GDP per capita, food deficit, age dependency ratio, total population, share of urban population, official development aid received, agricultural value in total revenues, natural resource rents in total revenues, completion rate of primary education, progression to secondary education from FAO (2016) and the World Development Indicators Database. All regressions include a full set of year dummies. OLS regressions include regional fixed effects. Regressions are run on an annual panel from 1990 to 2015.

Table 5: Determinants of a social transfer programme, controlling for regime duration

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
L.polity	0.014*** (0.002)	0.011*** (0.002)	0.005** (0.002)	0.015*** (0.003)	0.004 (0.003)	0.011** (0.005)
L.durable	0.002*** (0.001)	0.004*** (0.001)	0.001 (0.001)	0.002* (0.001)	0.001 (0.001)	0.001 (0.002)
L.gini	0.005*** (0.001)	-0.002 (0.002)	0.008*** (0.002)	-0.002 (0.002)	0.011*** (0.003)	-0.000 (0.004)
L.lnrdpcap			-0.162*** (0.035)	0.417*** (0.074)	-0.206*** (0.053)	0.442*** (0.132)
L.lnfooddef			-0.136*** (0.016)	0.033 (0.028)	-0.180*** (0.024)	-0.002 (0.047)
L.lnagedepen			-0.439*** (0.085)	0.393*** (0.140)	-0.271** (0.137)	1.163*** (0.237)
L.lnpoptot			0.028*** (0.010)	-0.680*** (0.174)	0.006 (0.016)	-1.651*** (0.326)
L.lnpopurb			-0.103*** (0.034)	-0.142 (0.103)	-0.204*** (0.055)	-0.623*** (0.228)
L.lnoda			0.036*** (0.012)	0.039*** (0.013)	0.036* (0.019)	-0.014 (0.023)
L.lnagrivalue			-0.231*** (0.029)	-0.120*** (0.046)	-0.228*** (0.045)	-0.117 (0.081)
L.lnatresources			-0.017* (0.009)	-0.048** (0.019)	-0.045*** (0.015)	-0.035 (0.030)
L.lnprimary					0.093 (0.058)	-0.038 (0.099)
L.lnsecondary					0.079 (0.088)	0.211* (0.124)
Observations	1971	1971	1459	1459	647	647
R <sup>2</sup>	0.368	0.375	0.450	0.424	0.486	0.480
F	34.176	39.370	29.780	28.962	13.965	13.768

Notes: Standard errors in parentheses, \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Dependent variable is a dummy that equals 1 if a country has a transfer programme, from Dodlova et al. (2016). Main explanatory variables are the one-year lags of the polity score and regime durability from Marshall and Jagers (2015) and a one-year lag of the Gini index from Jorda and Niño-Zarazúa (2016). Other explanatory variables (all in logs and one-year lags): GDP per capita, food deficit, age dependency ratio, total population, share of urban population, official development aid received, agricultural value in total revenues, natural resource rents in total revenues, completion rate of primary education, progression to secondary education from FAO (2016) and the World Development Indicators Database. All regressions include a full set of year dummies. OLS regressions include regional fixed effects. Regressions are run on an annual panel from 1990 to 2015.

## 6.2 Adoption of a social transfer programme

Table 6: Adoption of a social transfer programme

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
L.polity	0.003** (0.001)	0.003 (0.002)	0.001 (0.002)	0.009*** (0.003)	0.002 (0.002)	0.010* (0.005)
L.gini	-0.000 (0.001)	0.001 (0.002)	0.001 (0.001)	-0.002 (0.002)	0.002 (0.002)	-0.002 (0.005)
L.lngdpcap			-0.034 (0.025)	0.127 (0.085)	0.000 (0.042)	0.211 (0.181)
L.lnfooddef			-0.014 (0.013)	-0.014 (0.035)	-0.025 (0.023)	-0.010 (0.062)
L.lnagedepen			-0.093 (0.066)	0.152 (0.169)	-0.186 (0.114)	0.447 (0.289)
L.lnpoptot			0.012 (0.007)	-0.485** (0.227)	0.016 (0.014)	-0.576 (0.507)
L.lnpopurb			-0.027 (0.023)	-0.036 (0.105)	-0.120*** (0.041)	-0.729** (0.286)
L.lnoda			0.004 (0.009)	0.016 (0.015)	0.037** (0.018)	0.040 (0.035)
L.lnagrivalue			-0.055** (0.022)	-0.120** (0.054)	-0.076** (0.037)	-0.312*** (0.108)
L.lnatresources			-0.009 (0.007)	-0.020 (0.024)	-0.008 (0.012)	-0.039 (0.047)
L.lnprimary					0.029 (0.043)	-0.007 (0.122)
L.lnsecondary					0.059 (0.060)	-0.018 (0.148)
Observations	1165	1165	861	861	381	381
R <sup>2</sup>	0.097	0.121	0.147	0.176	0.191	0.243
F	3.811	5.307	3.723	4.868	2.069	2.714

Notes: Standard errors in parentheses, \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Dependent variable is a dummy that equals 1 in the year of adoption of a transfer programme and is missing in all following years, from Dodlova et al. (2016). Main explanatory variables are the one-year lag of the polity score from Marshall and Jagers (2015) and a one-year lag of the Gini index from Jorda and Niño-Zarazúa (2016). Other explanatory variables (all in logs and one-year lags): GDP per capita, food deficit, age dependency ratio, total population, share of urban population, official development aid received, agricultural value in total revenues, natural resource rents in total revenues, completion rate of primary education, progression to secondary education from FAO (2016) and the World Development Indicators Database. All regressions include a full set of year dummies. OLS regressions include regional fixed effects. Regressions are run on an annual panel from 1990 to 2015.

In order to minimize the endogeneity problem that arises if an ongoing transfer programme influences the level of democracy and inequality, we analyse the determinants of the adoption of a transfer scheme as opposed to the determinants of the duration of a transfer scheme. Table 6 shows the same set of regressions as Table 3 except that only the year of the adoption of a transfer programme is taken into consideration. All years after the start of a transfer programme are discarded. The dependent variable is a dummy that equals 0 in all years prior to the adoption of a transfer scheme and 1 in the year of adoption.

The coefficient on the lagged polity variable is positive throughout and significant in columns 1, 4, and 6. 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 1 percentage point, *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 by at least 10 percentage points. The effect is equal in magnitude to that in the analysis of the duration of a transfer programme. As expected, we can confirm that more-democratic countries are more likely to adopt a transfer programme. The lagged Gini index is insignificant, so we do not find a positive correlation between inequality and transfer programme adoption. The control variables show similar patterns as in the analysis above. Although the F statistics in models are quite low, the explanatory variables in all specifications are jointly significant.

### 6.3 Robustness checks

We do a number of robustness checks that confirm our main findings. The results of these checks can be obtained from the authors. For a first check, we replace the polity score 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 (for details, see Appendix, Table A1). It captures changes from autocratic to democratic rule and vice versa, and can thus control for changes in the likelihood of having a social transfer programme following a regime change.

As an alternative to the inequality measure from Jorda and Niño-Zarazúa (2016), we estimate the same regressions with the market Gini index from Solt (2014). Our main results remain qualitatively unchanged. We provide another check to control for the other forms of redistribution by including tax revenues as a share of GDP as an additional explanatory variable (Appendix, Table A2). The results also remain robust to using logit and probit models (Appendix, Table A3).

Overall, we find robust evidence for a positive association between a higher democracy score and the likelihood of having a transfer programme, and cautious evidence that a higher initial level of inequality increases the probability of having a transfer programme. Our result regarding democracy and redistribution confirms the theory of Meltzer and Richard (1981) and is in line with the empirical findings of Acemoglu et al. (2014). Concerning the link between inequality and redistribution, our results confirm the theoretical contribution of Alesina and Rodrik (1994) that higher inequality enhances redistribution. Furthermore, our evidence is consistent with the previous empirical conclusions of, for example, Mejía and Posada (2007), who argue higher redistribution with greater initial inequality for autocracies because of political incentives to prevent democratization.

## 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 social transfer programmes should

be considered, since they seem to be more responsible for pro-poor 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 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 programme 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 programmes only when there is a strong revolutionary threat. 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 the new Non-Contributory Social Transfer Programmes (NSTP) in Developing Countries Data Set of Dodlova et al. (2016), which provides comprehensive and comparable information on non-contributory assistance to the poor. Employing standard panel estimators (pooled OLS and fixed effects), we have found strong evidence that more-democratic countries are more likely to have transfer programmes. The effect remains robust when we control for all forms of redistribution, and when we take into account only the year in which the transfer programme was adopted. We have found some evidence that a greater level of inequality leads to an increased likelihood that a country will have a transfer programme. However, 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 programmes. 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 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 programmes 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.

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## Appendix

Table A1: Binary democratic index, annual panel, 1990–2010

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
L.democ	0.164*** (0.023)	0.180*** (0.023)	0.163*** (0.026)	0.216*** (0.028)	0.106*** (0.039)	0.191*** (0.041)
L.gini	0.005*** (0.001)	0.001 (0.001)	0.010*** (0.002)	0.001 (0.002)	0.012*** (0.003)	0.000 (0.004)
L.lngdpcap			-0.123*** (0.036)	0.460*** (0.074)	-0.206*** (0.055)	0.492*** (0.131)
L.lnfooddef			-0.109*** (0.016)	0.089*** (0.029)	-0.171*** (0.025)	0.052 (0.049)
L.lnagedepen			-0.376*** (0.080)	0.387*** (0.143)	-0.285** (0.132)	1.229*** (0.236)
L.lnpoptot			0.043*** (0.010)	-0.585*** (0.178)	0.030* (0.016)	-1.496*** (0.328)
L.lnpopurb			-0.148*** (0.034)	-0.136 (0.102)	-0.211*** (0.056)	-0.580** (0.232)
L.lnoda			0.030** (0.012)	0.042*** (0.013)	0.038* (0.021)	-0.010 (0.023)
L.lnagrivalue			-0.205*** (0.030)	-0.120*** (0.045)	-0.227*** (0.046)	-0.170** (0.081)
L.lnatresources			0.008 (0.009)	-0.050*** (0.019)	-0.036** (0.014)	-0.038 (0.030)
L.lnprimary					0.087 (0.059)	0.014 (0.098)
L.lnsecondary					0.038 (0.091)	0.158 (0.123)
Observations	2009	2009	1460	1460	630	630
R <sup>2</sup>	0.272	0.334	0.401	0.407	0.442	0.476
F	26.387	40.713	27.192	30.662	12.675	14.710

Notes: Standard errors in parentheses, \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Dependent variable is a dummy that equals 1 if a country has a transfer programme, from Dodlova et al. (2016). Main explanatory variables are the one-year lag of the binary democratic index from Boix et al. (2013) and a one-year lag of the Gini index from Jorda and Niño-Zarazúa (2016). Other explanatory variables (all in logs and one-year lags): GDP per capita, food deficit, age dependency ratio, total population, share of urban population, official development aid received, agricultural value in total revenues, natural resource rents in total revenues, completion rate of primary education, progression to secondary education from FAO (2016) and the World Development Indicators Database. All regressions include a full set of year dummies. OLS regressions include regional fixed effects. Regressions are run on an annual panel from 1990 to 2010.

Table A2: Determinants of a social transfer programme, controlling for tax revenues

	(1)	(2)	(3)	(4)	(5)	(6)
	POLS	FE	POLS	FE	POLS	FE
L.polity	0.011*** (0.003)	0.012*** (0.003)	-0.003 (0.004)	0.015*** (0.003)	-0.001 (0.006)	0.018*** (0.007)
L.gini	0.002 (0.002)	0.004 (0.003)	0.003 (0.002)	0.004 (0.003)	0.008* (0.005)	-0.008 (0.008)
L.Intaxrev	0.141*** (0.028)	0.221*** (0.050)	0.073* (0.045)	0.166*** (0.064)	0.189** (0.087)	-0.058 (0.125)
L.Ingdpcap			-0.101* (0.061)	0.761*** (0.131)	-0.277*** (0.097)	0.681*** (0.230)
L.Infooddef			-0.138*** (0.025)	0.081* (0.045)	-0.198*** (0.040)	0.072 (0.084)
L.Inagedepen			-0.072 (0.131)	1.139*** (0.194)	-0.048 (0.218)	1.663*** (0.312)
L.Inpoptot			0.041*** (0.016)	0.091 (0.280)	0.011 (0.026)	-1.767*** (0.638)
L.Inpopurb			0.022 (0.052)	0.352** (0.137)	-0.020 (0.083)	1.232*** (0.453)
L.Inoda			-0.000 (0.019)	0.007 (0.020)	-0.009 (0.030)	-0.017 (0.035)
L.Inagrivalue			-0.189*** (0.048)	-0.124* (0.073)	-0.217*** (0.074)	-0.260** (0.126)
L.Innatresources			-0.078*** (0.014)	0.004 (0.027)	-0.096*** (0.022)	-0.006 (0.044)
L.Inprimary					-0.034 (0.118)	0.152 (0.166)
L.Insecondary					0.189 (0.170)	-0.219 (0.254)
Observations	910	910	687	687	308	308
R <sup>2</sup>	0.369	0.343	0.486	0.441	0.547	0.538
F	16.593	16.118	15.677	13.583	7.821	7.047

Note: Standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Dependent variable is a dummy that equals 1 if a country has a transfer programme, from Dodlova et al. (2016). Main explanatory variables are the one-year lag of the polity score from Marshall and Jagers (2015) and a one-year lag of the Gini index from Jorda and Niño-Zarazúa (2016). Other explanatory variables (all in logs and one-year lags): tax revenues as a share of GDP, GDP per capita, food deficit, age dependency ratio, total population, share of urban population, official development aid received, agricultural value in total revenues, natural resource rents in total revenues, completion rate of primary education, progression to secondary education from FAO (2016) and the World Development Indicators Database. All regressions include a full set of year dummies. OLS regressions include regional fixed effects. Regressions are run on an annual panel from 1990 to 2015.

Table A3: Determinants of a social transfer programme, logit/probit

	(1)	(2)	(3)	(4)	(5)	(6)
	logit	probit	logit	probit	logit	probit
L.polity	0.122*** (0.010)	0.055*** (0.007)	0.106*** (0.014)	0.026*** (0.010)	0.101*** (0.022)	0.031* (0.016)
L.gini	-0.016** (0.006)	0.021*** (0.005)	0.057*** (0.011)	0.048*** (0.008)	0.078*** (0.021)	0.057*** (0.014)
L.lngdpcap			-0.952*** (0.242)	-0.821*** (0.161)	-0.959** (0.418)	-1.029*** (0.285)
L.lnfooddef			-0.679*** (0.100)	-0.640*** (0.076)	-0.971*** (0.168)	-0.893*** (0.131)
L.lnagedepen			-4.698*** (0.480)	-1.787*** (0.359)	-2.585*** (0.912)	-1.273** (0.629)
L.lnpoptot			0.263*** (0.067)	0.151*** (0.042)	0.124 (0.108)	0.082 (0.070)
L.lnpopurb			-0.886*** (0.211)	-0.419*** (0.144)	-1.481*** (0.382)	-1.038*** (0.264)
L.lnoda			0.190** (0.085)	0.185*** (0.050)	0.173 (0.136)	0.199** (0.087)
L.lnagrivalue			-1.287*** (0.198)	-1.122*** (0.138)	-1.099*** (0.367)	-1.192*** (0.242)
L.lnatresources			-0.193*** (0.061)	-0.088** (0.039)	-0.340*** (0.100)	-0.207*** (0.066)
L.lnprimary					1.949*** (0.603)	0.356 (0.307)
L.lnsecondary					2.592*** (0.952)	1.018* (0.539)
Observations	1971	1971	1459	1459	646	646
Pseudo R <sup>2</sup>	0.220	0.323	0.351	0.432	0.419	0.477

Notes: Standard errors in parentheses, \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Dependent variable is a dummy that equals 1 if a country has a transfer programme, from Dodlova et al. (2016). Main explanatory variables are the one-year lag of the polity score from Marshall and Jagers (2015) and a one-year lag of the gini index from Jorda and Niño-Zarazúa (2016). Other explanatory variables (all in logs and one-year lags): GDP per capita, food deficit, age dependency ratio, total population, share of urban population, official development aid received, agricultural value in total revenues, natural resource rents in total revenues, completion rate of primary education, progression to secondary education from FAO (2016) and the World Development Indicators Database. All regressions include a full set of year dummies. OLS regressions include regional fixed effects. Regressions are run on an annual panel from 1990 to 2015.