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Inequality and voting in fragile countries

Evidence from Mozambique

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Abstract: The political consequences of economic inequality have been debated in academic and policy circles for centuries. The nature of this relationship seems highly dependent on specific contexts, with empirical studies showing mixed evidence on how economic inequality affects voting and other forms of political participation. This evidence is largely driven by advanced democracies. We have to date limited knowledge on how economic inequality affects how individuals and groups vote in developing and weaker states even though such evidence is central to understanding how democracy might be consolidated in such settings. This paper addresses this question in the case of Mozambique, one of the poorest countries in the world. Contrary to initial theoretical predictions, we find evidence for a positive association between voter turnout and inequality in rural areas, in particular across the poorest localities and in localities where both wealth and inequality increased. While tempting to see this result as a political response of the poorest to inequality, reflections on the Mozambique context point towards elite capture as the most likely explanation for this result. We find no effect of inequality on political competition. In line with prior theoretical expectations, we find a negative association between inequality and voting for the incumbent party, in localities where wealth and inequality simultaneously increased and in the centre region.

Key words: economic inequality, voting, elections, developing countries, Mozambique

JEL classification: D31, D72, O55

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1 Introduction

Historically, economic inequality has shaped important political transformations, ranging from wars and revolutions (Gurr 1970; North et al. 2009), to the consolidation of democracy (Boix 2003; Acemoglu and Robinson 2005). Despite this long-standing interest in the political consequences of economic inequality, the exact nature of the relationship remains open. So far, empirical evidence has revealed mixed effects of inequality on key factors that shape political change, such as voting and other forms of political participation (Della Porta 2015; Oliver 1999; Dubrow et al. 2008; Solt 2008, 2015; Hacker and Pierson 2010; Gilens 2012; Iacoella et al. 2020; Justino and Martorano 2019; Iacoella et al. 2021). The existing literature has also largely focused on advanced democracies in the USA and Western Europe,[1] and evidence on how individuals and groups vote in developing and weaker states remains much less explored. Yet, state fragility affects almost two billion people across the world (World Bank 2020), with enormous consequences for global stability. Thus, identifying the conditions under which citizens in low-income, fragile countries participate in their political systems in face of large poverty, inequality and weak institutions is crucial to understanding how democracy might be consolidated in such settings.

This paper revisits the age-old question of the effects of income inequality on political participation in settings of imperfect democracy and weak governance. The analysis is based on the case of Mozambique, one of the poorest countries in the world with a history of state weakness and violent conflict. Mozambique experienced a brutal civil war between 1975 and 1992 that killed over one million people, displaced another five million and destroyed an already fragile economy. Since 1992, Mozambique has established a democratic system and reduced levels of poverty. However, economic and social inequalities have increased, especially between regions and between urban and rural areas, and poverty remains high in global comparisons (Gradín and Tarp 2019). Democracy also remains limited with Mozambique being effectively under a one-party rule regime, although relatively free elections do take place regularly and voters are able to choose between political parties.

The paper examines the effect of changes in inequality on whether and how citizens vote in Mozambique. We focus on how changes in (asset) inequality between 1997 and 2007 have affected voting outcomes in 1999 and 2009, respectively, and consider three voting outcomes: turnout, political competition and votes for the two main parties, the *Frente de Libertação de Moçambique* (FRELIMO) and the *Resistencia Nacional Moçambicana* (RENAMO). We

[1] Solt (2004) analyse the case of Italy. Bartle et al. (2017) focus on the United Kingdom and Schäfer and Schwander (2019) analyse the effect of economic inequality on voter turnout in a cross-section of OECD countries and in Germany. One exception is Justino et al. (2019), who analyse the effect of economic inequality on civic participation (but not voting) in Colombia.

analyse the relationship between inequality and voting at the local level using data at the lowest geographical unit of the central state administration, the *localidade* (locality). The empirical analysis uses two rounds of the Population and Housing Census conducted in 1997 and 2007, which we matched to data on electoral outcomes from two Presidential elections in 1999 and 2009. We account for the within-locality dimension of asset-based inequality, and explore how the relation between inequality and voting behaviour varies across wealth terciles and regions. To the best of our knowledge, this is one of the first attempts at documenting the effects of economic inequality on political participation in a low-income country.

2 Economic inequality and voting outcomes in fragile settings

The nature of the relationship between inequality, citizen participation and democracy is a longstanding question in the social sciences. But while equal participation by citizens in the election of government representatives is often seen as the cornerstone of fully functioning liberal democracies (Moore 1966; Dahl 1971), economic inequality usually goes hand in hand with political inequality (Schlozman et al. 2012). The argument that economic factors, such as income inequality, may affect political participation and voting outcomes has its origins in the pioneering work of Meltzer and Richard (1981), who showed that increases in economic inequality result in greater demand for redistribution in democracies where the median voter determines the outcome of political competition. Rises in economic inequality shift the median voter closer to the bottom of the income distribution, resulting in greater preferences for parties that advance redistributive policies. As a result, rises in economic inequality will stimulate political participation by the median voter.

Models based on median voter preferences illustrate a process of democracy 'from below', whereby citizens respond to rises in inequality by increasing levels of voting and shifting their voting preferences. However, high levels of economic inequality will only result in more voting by the (poorer) median voter if citizens are sufficiently motivated and are able to vote. This largely depends on where the individual is located along the distribution of incomes and wealth (Schlozman et al. 2012), on social norms around inequality aversion (Hirschman and Rothschild 1973) and on preferences for redistribution (Justino and Martorano 2019; Justino et al. 2023). Political participation by the median voter is also shaped by the ability of citizens to vote in an informed and free way. This, in turn, depends on the actions of elites, their interests and competition between different elite groups (Piketty 1996; Houle 2009; Piketty 2013). In some cases, it is possible that elites may want to promote wider political participation. This is likely to happen in contexts when the social and political exclusion of citizens may threaten the status quo of elites (Boix 2003; Acemoglu and Robinson 2005), as was for instance the case of the extension of the franchise in Western societies during the late 19th and early 20th centuries

(Acemoglu and Robinson 2000). However, in contexts of high economic inequality, government policy often "maintains and reinforces the position of those that are better off" (Verba et al. 1978: p. 2), leading to a large 'participation gap' between the rich and the poor (Dalton 2017).

These observations are at the heart of relative power theories (Solt 2008), which argue that inequality will reduce political participation when democratic processes are captured by economic elites (Solt 2008; McCarthy et al. 2006; Hacker and Pierson 2010; Gilens 2012; Acemoglu et al. 2013). Under these circumstances, political decision-making tends to systematically exclude some social groups, either because they are left out of the political process altogether (Gilens 2012) or because their votes are bought out as part of systems of patronage and clientelism (Lijphart 1997). Reluctant to lose power, elites may engage also in actions to suppress voting and other forms of political participation (Bartels 2008; Hacker and Pierson 2010; Piketty 2013; Stiglitz 2013). Such actions may range from gerrymandering (Gilens 2012) to forms of vote buying (Stokes et al. 2013) and voter intimidation (Robinson and Torvik 2009; Dower and Pfutze 2015), including violence (Wilkinson 2006; Collier and Vicente 2012). These actions tend to characterise many developing countries with incipient democracies, where economic crises and adverse economic conditions may erode the legitimacy of governing elites (Carlin et al. 2014), lead to polarisation of political views between the 'haves' and the 'have-nots' (Colantone and Stanig 2018; Algan et al. 2017; Autor et al. 2020) and motivate violent actions against those fighting against the status quo (Norris 1999). The net effect of median voter effects versus effects that result from the relative power of elites is largely an empirical question, though it is likely that the latter effect will dominate in low-income, fragile countries, such as Mozambique, where democracy is unconsolidated. Therefore, our first hypothesis is as follows:

H1: Voting turnout reduces when inequality increases.
H1a: Voting turnout reduces more when inequality increases within the poorest localities (due to either voting repression by the rich or apathy and discontent among the poor).
H1b: Voting turnout remains unchanged or increases when inequality increases within the richest localities.

The median voter and relative power theories discussed above provide theoretical predictions about voter turnout – i.e. whether political participation will increase or decrease. Other bodies of literature have addressed the question of *how* citizens vote in face of inequality and other economic changes. Overall, inequality is predicted to increased polarisation of voting outcomes as the end tails of the income distribution grow further apart. This happens when certain political parties align themselves either with those that lose out or with those that gain from rises in inequality. The former are generally parties that lean towards the left and have strong redistributive agendas. The latter tend to be parties on the right that promote small governments and

cautious fiscal expansion. This shift along the left-right political axis has been documented in studies of political behaviour following economic crises (Alesina and Giuliano 2011; Hacker et al. 2013). Dixit and Weibull (2007) developed a theoretical model to explain shifts in voting preferences towards political extremes as a response to economic shocks and subsequent adjustment of political beliefs. Autor et al. (2020) show empirical evidence for a positive association between subnational differential impacts of trade shocks and political polarization in the USA today, while McCarthy et al. (2006) reveal how rises in inequality in the United States have led to greater polarization of party competition. Although analyses of the effects of inequality on political polarisation outside Europe and the USA are rare, recent evidence on the long-term effect of economic shocks on anti-establishment voting in Brazil (Iacoella et al. 2020) suggests that similar effects may be at play in weaker democracies. Following these results, our second hypothesis states:

H2: An increase in inequality leads to more polarisation (and thus less political competition) in voting outcomes.

There is also evidence that under some circumstances those that lose out from economic downturns may vote against the established status quo and punish incumbents as it has been reported in studies about the rise of populist and far-right government post-2008 financial crisis (Algan et al. 2017; Margalit 2019; Iacoella et al. 2020; Aghajanian et al. 2023) and about the political consequences of other economic shocks (Ahlquist et al. 2020). Voters affected by economic hardship may also punish incumbent governments as an expression of dissatisfaction and anger (Carlin et al. 2014; Fetzer 2019; Iacoella et al. 2021). There is limited evidence on whether voters react the same way to rises in economic inequality as to adverse economic shocks. However, a number of studies has shown strong evidence for a positive effect of cash transfer programmes on political support for incumbent governments in Brazil (Zucco Jr 2013), Honduras (Linos 2013), Mexico (De La O 2013), Pakistan (Ghorpade and Justino 2019) and Uruguay (Manacorda et al. 2011). Given the redistributive nature of these programmes (Justino and Martorano 2018), based on this literature, we would predict a negative association between economic inequality and voting on the incumbent, as follows:

H3: Protest voting (against the incumbent) increases when inequality increases because those that lose out from rises in inequality will punish incumbents.

3 The political landscape in Mozambique

The history of Mozambique is one of prolonged violence, coercion and state weakness. Many regions of the country have experienced conflict, violence and lack of state presence since records started. Mozambique did not exist as a unified polity or integrated unit prior to the

19th century. Despite a long history of Portuguese and other foreign influence in the country since the late 15th century, until the 19th century this was geographically limited to a small number of forts or commercial outposts positioned along the coast, as well as on the navigable part of the lower Zambezi river. Territorial control was only gained after 1930, when a single administrative system was imposed. Even then, the presence and authority of the colonial state were extremely limited in much of the territory. Portugal was one of weakest of the European colonial powers and did not have the human or financial resources to pursue large-scale internal development in terms of public infrastructure or agricultural expansion. Forced labour, first in the form of slavery and then various forms of mandated labour supply requirements, was the usual mode of operation and only formally ended in 1961 (Newitt and Tornimbeni 2008).

Mozambique's independence in 1975 occurred rapidly and in a disorganized fashion. Since colonial settlers dominated virtually all skilled and semi-skilled positions in the country, the mass exodus of Portuguese from its colonies at that time left the country without a managerial or administrative class, resulting in political chaos. Independence was followed by a violent conflict between two forces, FRELIMO and RENAMO, which resulted in a devastating war that killed more than a million people (or about 10 percent of the population). FRELIMO, the Mozambican Liberation Front, was founded in Dar-es-Salam in 1962 as a rebel force against the Portuguese colonisers (Carbone 2005). In 1977, FRELIMO transformed itself from a liberation movement into a Marxist-Leninist party "with restricted membership and party primacy over the state"(Carbone 2005: p. 424). RENAMO was founded after the Mozambican independence, as a rebel army against the ruling FRELIMO, with support from Southern Rhodesia and later by the South African apartheid regime (Carbone 2005). Peace was eventually achieved in 1992 and Mozambique faced then a huge task of (re)construction and nation building.

One can argue that neither FRELIMO nor RENAMO are typical ideological parties. FRELIMO only ascribed to a Marxist-Leninist ideology in 1977, fifteen years after it was founded as a liberation movement. The same party spearheaded, with its second president after independence, Joaquim Chissano, the process of privatization and transformation of Mozambique into a "market economy". It then, in practice, abandoned any allegiance to a communist ideology, while not abandoning the de-facto hold of the party over the state (if no longer, fully, the economy). On the other hand, RENAMO, while formalized as a political party in 1992, had its roots in an externally instigated and supported armed rebel force. It would, nevertheless, espouse the defense of traditional rules and leadership, of religious beliefs and of rural communities, especially those of the Central and Northern regions - in other words, placing itself as a political representative of grievances against the, then decades long, ruling party (Carbone 2005).

After the end of the war in 1992, aggregate real economic growth in Mozambique was around 7 percent per year until around 2010, but just over 4 percent in per capita terms (due to high population growth), supported by substantial foreign aid inflows. Today, Mozambique remains

one of the poorest countries in the world and close to the bottom of the UNDP's Human Development Index.

Voting affiliation in Mozambique displays a strong regional dimension. The country can be largely divided into three main regions: South, Centre and North. The Centre region was the focus of initial foreign interest in the country in the 15th century and remains an area of political tension to this day, as does the North region. Comparatively, the South has been more stable and is more developed than other regions. In the 19th century, the South region was largely dominated by the Gaza Empire, which was defeated by the Portuguese in 1895, coinciding with the completion of a railway to Pretoria and the rapid expansion of Maputo. Since Independence in 1975, the South has been a stronghold of the ruling party (FRELIMO), benefiting from the wealth concentrated in and around the capital city, as well as strong economic connections to South Africa. In the first decades after the end of the civil war, the central regions voted consistently against FRELIMO, even despite the fact these were also the regions that suffered most during the war, often at the hands of RENAMO. The top echelons of RENAMO are known to be Ndau speakers (from the Centre region), such that ethnic identity has at times been politicised and cultivated as one alternative to the dominant narrative of FRELIMO. As Florêncio (2002) notes, however, RENAMO has always been keen not to present itself as an exclusively "ethnic" organization. Rather, regional differences have been actively promoted, in which: "... the country is represented in two antagonistic parts: the north and the center, against the south, with the Save River being the dividing line between these two new 'imagined communities'".

One of the conditions of the 1992 peace agreement in Mozambique was the implementation of free, multiparty elections. Presidential and parliamentary elections have taken place in Mozambique in 1994, 1999, 2004, 2009, 2014 and 2019. Preparations are ongoing for new elections in 2024. Until 2004, electoral competition in Mozambique was significantly stable. (Carbone 2005) measures the net percentage of votes that, from one election to the next (namely in 1994, 1999 and 2004), shifted between FRELIMO and RENAMO. The results show electoral volatility in the presidential elections of around 15 percent, much below the African mean of 29.6 percent. This was a result of the historical regional division of political influence between these two parties (Carbone 2005; de Brito 2010), whereby FRELIMO controls Cabo Delgado (in the North) and the South (Maputo Cidade, Maputo Província, Gaza and Inhambane), whereas RENAMO typically retains control of all other provinces (except Niassa).

Much of RENAMO's strength, especially in its heartlands of Sofala and Zambézia, is rooted in historical reasons and strong grievances from regional elites against FRELIMO and the peoples from the country's Southern territories, some stemming from the change of the country's capital from Ilha de Moçambique to then Lourenço Marques, now Maputo (Chichava 2009, 2010). Grievances are also rooted in persistent regional economic inequalities, the percep-

tion that FRELIMO's rule has disfavoured non-southern ethnic groups, and oppressive wartime measures taken by the government (Manning 2010). RENAMO's relative regional control has, however, been shown to both erode and reverse, with RENAMO losing the majority in Tete and Nampula in 2004 (Carbone 2005), and in Zambézia and Manica in 2009 (Nuvunga 2013). An added factor leading to the weakening of RENAMO was the emergence of a new party, MDM (the Democractic Movement of Mozambique), officially founded in March 2009. Originally from cadres of RENAMO that rebelled against the closing of opportunities within it, MDM also captured some minor support from FRELIMO (Chichava 2010; de Brito 2009a). The early profile of MDM voters was, according to Chichava (2010) mostly urban, made of former "renamistas" disappointed with RENAMO's electoral records and performance. The election processes in Mozambique have also been ridden with accusations of voter suppression, and fraud, namely through ballot stuffing, vote destruction and misregistration of polling results, especially in areas previously won by RENAMO (Chaimite and Forquilha 2015; de Brito 2008, 2009b, 2009c; Hanlon and Fox 2006; Manning 2010). These accusations and resentment, mostly from RENAMO, have resulted in skirmishes during and after recent elections (de Brito 2015).

4 Data and main variables

4.1 Data

In order to analyse the relationship between inequality and voting at the sub-national level in Mozambique, we built a new panel dataset, which combines locality-specific measures of asset inequality included in the 1997 and 2007 Census with Presidential election data for 1999 and 2009. The locality, *localidade*, constitutes the lowest unit of the central State administration (admin-4).

The matching of these administrative data allows us to study the relationship between inequality and political participation at a fine-grained level of analysis using the universe of localities in Mozambique. We applied a fuzzy matching technique to merge the information on inequality and voting from the two data sources at the locality level based on locality names and administrative post codes.[2] Administrative posts (*Postos Administrativos*) are third-level administrative subdivisions in Mozambique, one level above the locality. Since the Census data does not con-

[2] The fuzzy merge was carried out using the command *reclink2* in Stata 16. Reclink2 performs a probabilistic record linkage between two datasets that have no joint identifier and generates a new variable that stores the matching scores (scaled 0-1) for the linked observations. We defined a threshold cut-off value of 0.6: localities whose matching score is above the threshold are considered as matched, conditional on matching perfectly in terms of administrative post codes. In addition, we ranked the record linkage score for observations matched more than once and restricted the matching to localities whose matching score was ranked as one. The average matching score for matched localities was 0.977. We then merged localities across Census years using locality

tain locality names in urban areas, in cities we aggregate the respective localities and match the data at a higher administrative level (admin-2, *distrito*, in Maputo City, and admin-3, *posto administrativo*, elsewhere). For this reason, and to account for different dynamics between rural and urban areas, our main analysis is focused on rural areas. Summary statistics and regression tables for urban areas are presented in Appendix C.

Overall, we matched between 66 percent and 77 percent of localities in each dataset (as the number of localities varied over time). After cleaning the data we are left with a balanced panel of 808 locality-year observations.[3] We conduct our main analysis across 739 rural localities per year.

4.2 Inequality

Our measure of inequality differs in two ways from most related studies. First, we measure inequality based on asset wealth of households, instead of using income or consumption data. While consumption data is available for Mozambique, it cannot be disaggregated at the local level, whereas asset wealth is available at this level of analysis. We are aware that asset wealth is a more stable indicator of economic distribution than income or consumption. However, because we rely on change in asset wealth over 10 years, the data shows enough variation to observe relevant changes in economic inequality across time. The summary statistics in Appendix A (Tables A2, A3, A4) confirm substantial changes in wealth and wealth inequality over this period.[4] Second, we measure inequality within a locality instead of investigating regional or national inequality trends. In focusing on inequality at local level, we aim to capture the level of inequality individuals are exposed to in their daily lives and that might influence their perceptions of welfare distribution. Changes in wealth are expected to be more visible than income as the components of the index are related to housing quality and access to public service infrastructure. In making this decision, we draw from a recent literature which considers the role of subjective perceptions and inference problems in determining political economy outcomes (Cruces et al. 2013). Individuals have widely different perceptions of inequality and often there are substantial discrepancies between actual inequality and subjective evaluations (Kuhn 2011; Cruces et al. 2013; Kuhn 2019; Knell and Stix 2020; Gimpelson and Treisman 2018). Psychological research argues that attitudes formation is influenced by comparisons of individuals with peers and other reference groups (Festinger 1954). Using data for Europe, Clark and Senik (2010) show that comparison benchmarks seem to be partly endogenous, as

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codes. Since the number of localities increased over time, where possible we aggregated localities according to 1997 administrative divisions.

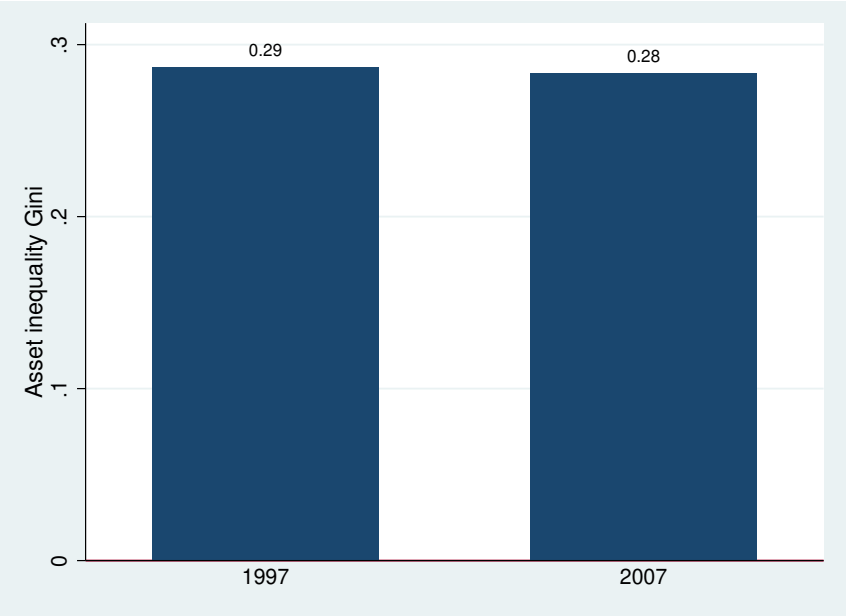
[3] We dropped 13 localities as the change in their wealth index across years presented extreme outliers and 5 localities that in 1997 had 0 registered voters or missing turnout.

[4] Similar decisions have been made in other studies. For instance, at country level, Deininger and Olinto (2000) found that asset inequality substantially affects growth and through different channels than income inequality.

people mostly compare to the groups with whom they interact more frequently. In addition, Cruces et al. (2013) show that the systematic biases in perceptions of own income rank are significantly correlated with the respondents' relative positions within the local income distribution. In a recent study, Sands and de Kadt (2020a) provide experimental evidence that local exposure to inequality affects preferences for redistribution among South Africans with a low socioeconomic status. The authors conclude that inequality seems to affect preferences through local exposure. As a complement to these results, Sands and de Kadt (2020b) show in an experiment conducted in South Africa that poorer people are less likely to sign a petition if there is no visible inequality. They are, however, more likely to participate if confronted with local inequality. Together, these studies suggest that, as individuals experience inequality in local settings, local-level inequality measures, such as those we use in this paper, may be better at capturing the effects of inequality on perceptions, preferences and voting behaviour than measures estimated at more aggregate levels of analysis.

Data from the 1997 and 2007 Mozambique Population and Housing Census (*II, III Recenseamento Geral da População e Habitação*) contain information on the geographic location of the household, family size and composition, demographic and other socio-economic characteristics, as well as characteristics of the dwelling. We built an asset index at the household level using principal component analysis (PCA) based on harmonized information on quality of housing (walls, roof and floor), number of rooms, access to water, sanitation, electricity and possession of a radio. We will refer to this index interchangeably as asset or wealth index.

Figure 1: Asset Gini coefficient, 1997 and 2007



Source: authors' calculation based on the II and III Mozambique Population and Housing Census.

We measure within-locality inequality using the Gini coefficient of the asset index at the locality level.[5] Average asset inequality within a locality was 0.29 and 0.28 in 1997 and 2007 respectively (Figure 1). While these values are not very high, the standard deviation of 0.076 and 0.064 points at variation of inequality across localities. While we focus on within-locality inequality, we also construct later in the paper measures of between-locality inequality to compare results with the wider literature.[6]

The resulting wealth index documents an overall improvement of living standards between 1997 and 2007 as illustrated in Figure 2. This shift is comparable to improving consumption levels over the same period as documented in Direcção de Estudos Económicos e Financeiros do Ministério de Economia e Finanças de Moçambique (2016) and Gradín and Tarp (2019). Gradín and Tarp (2019) document that consumption inequality barely changed over our study period, which we confirm for asset inequality in our data.

Figure 2: Asset index based on Census data, 1997 and 2007

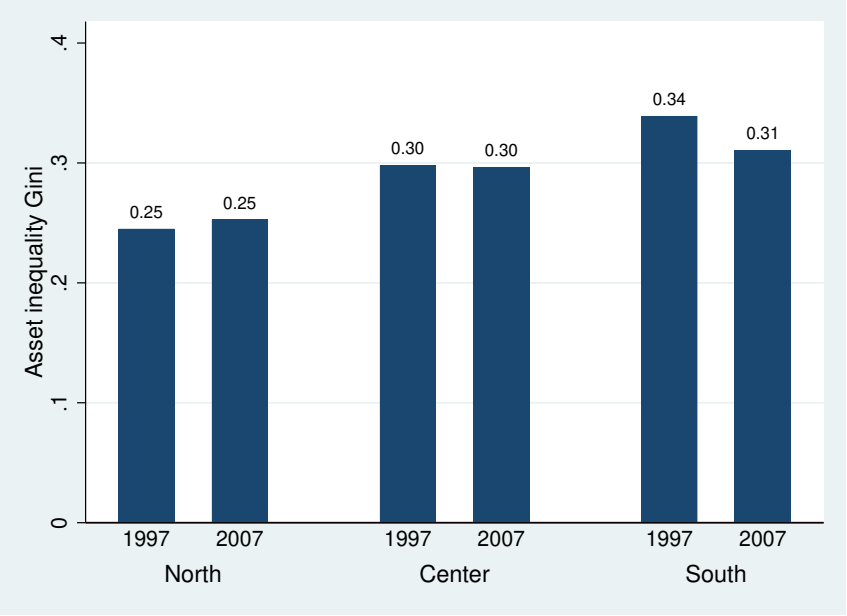
Source: authors' calculation based on the II and III Mozambique Population and Housing Census.

However, regional differences are large. Figure 3 illustrates that asset inequality remained stable in the North and Center, but fell by 0.03 points in the South.

[5] The Gini coefficient ranges from 0 to 1 with 0 indicating equal distribution of asset wealth, 1 implying that one household owns everything and others nothing.

[6] To conduct this exercise, we measure the gap of mean wealth of a given locality to the national, provincial or capital mean wealth. This captures the relative position of a locality along the country's wealth distribution.

Figure 3: Asset Gini coefficient by region, 1997 and 2007



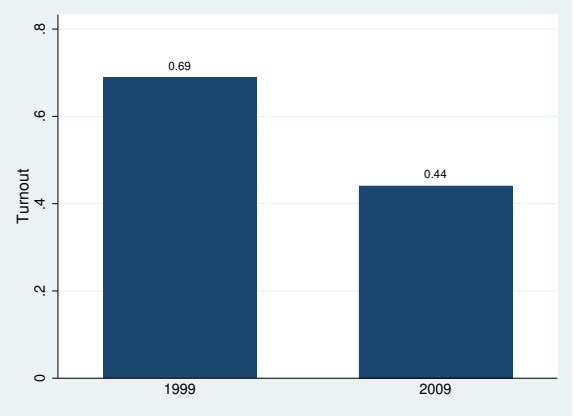
Source: authors' calculation based on the II and III Mozambique Population and Housing Census.

This observation is in contrast with increases in consumption inequality observed in the South. One explanation is that some components of the asset index are related to public service provision, such as electricity, water and sanitation. Access to these has steadily improved in the South region since 1997, as documented by the multidimensional poverty analysis in the national assessment on poverty and well-being (Direcção de Estudos Económicos e Financeiros do Ministério de Economia e Finanças de Moçambique 2016).

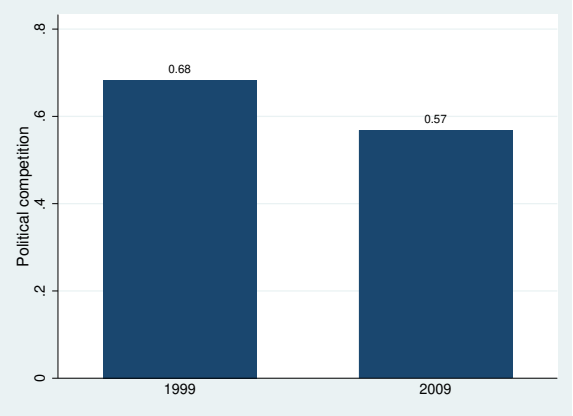
4.3 Voting

The 1999 and 2009 Presidential elections outcomes data are provided by the Institute of Economic and Social Studies (*Instituto de Estudos Sociais e Económicos, IESE*). The data correspond to the official results and provide information on registered voters, votes for each candidate, blank ballots, and null votes per polling station. We aggregate the data at the locality-level and focus on three voting outcomes: turnout, political competition, and the vote share for candidates of the main parties (FRELIMO and RENAMO in 1999; FRELIMO, RENAMO, and MDM in 2009). Definitions and summary statistics for all voting variables used in this paper are included in Appendix A (Tables A1, A2, A3, A4).

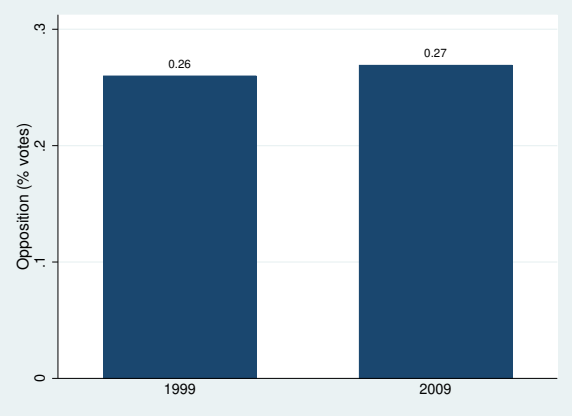
Figure 4: Voting outcomes, 1999 and 2009



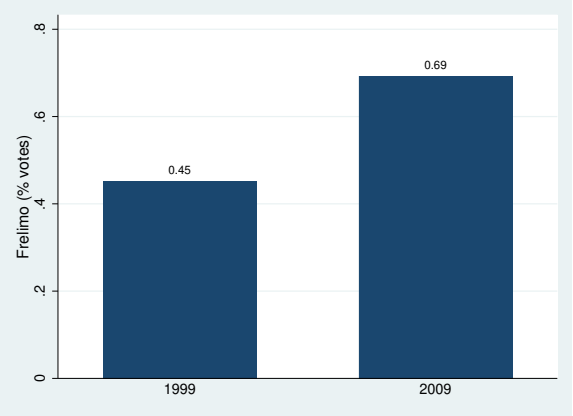
(a) Turnout



(b) Political competition



(c) Opposition (% votes)



(d) Frelimo (% votes)

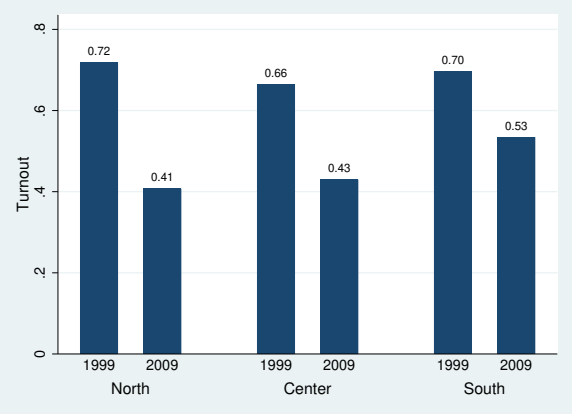
Source: authors' calculation based on official Presidential election data provided by the Institute of Economic and Social Studies (IESE).

Turnout. Turnout is measured as the ratio between the total number of votes and the number of registered voters in a locality. Figure 4 shows that there was a sharp reduction in turnout at the national level from 69 percent in 1999 to 44 percent in 2009. The reduction was particularly pronounced in the North region, where turnout decreased from 72 percent in 1999 to 41 percent in 2009 (Figure 5). There was, however, almost no variation in turnout across wealth index terciles (Figure 6). We also note that in 6 localities (1 in 1999 Presidential elections and 5 in 2009 Presidential elections) turnout is larger than 1, pointing at inconsistencies in voter registration and ballots associated, for example, with ballot stuffing. Excluding these localities from analysis does not yield different results.

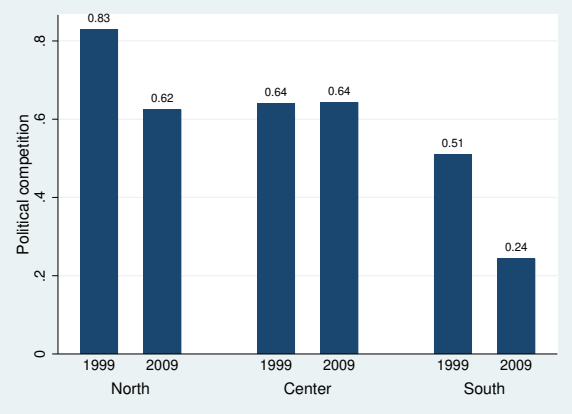
Political competition. The political competition variable is constructed as 1 minus the normalized Herfindahl–Hirschman Index (HHI) of concentration, based on the sum of squares of each party's vote share in a locality. Figure 4 shows an overall reduction in political competition from 68 percent in 1997 to 57 percent in 2007. This reflects the increase in support for the dominant party, FRELIMO, the weakening of the main opposition party, RENAMO, and

the emergence of a third party, MDM. The decline in political competition was particularly marked in the North (from 83 percent to 62 percent, Figure 5), in the South (from 51 percent to 24 percent), and in localities in the top wealth tercile (from 60 percent to 38 percent) (Figure 6).

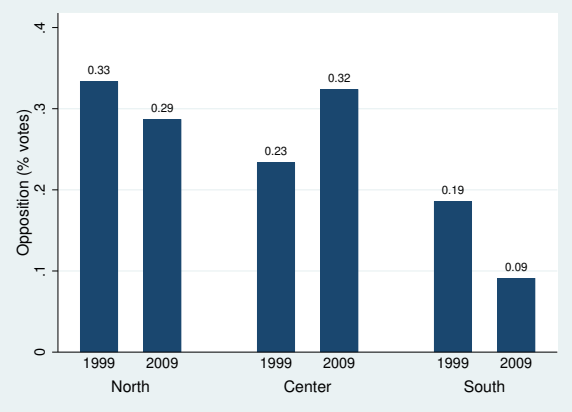
Figure 5: Voting outcomes by region, 1999 and 2009



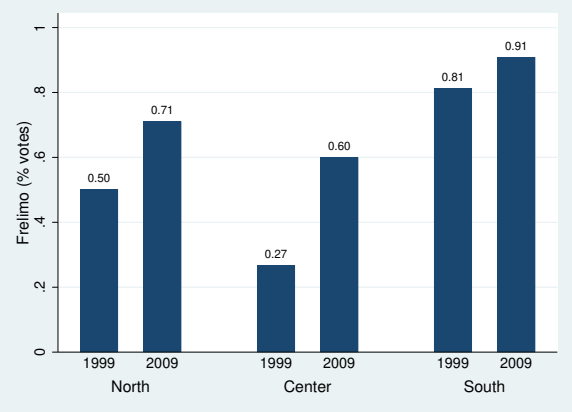
(a) Turnout



(b) Political competition



(c) Opposition (% votes)



(d) Frelimo (% votes)

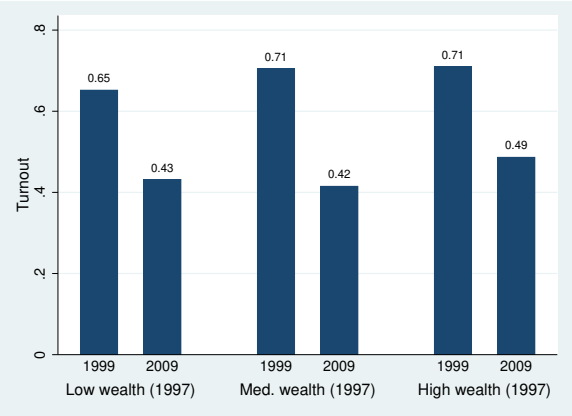
Source: authors' calculation based on official Presidential election data provided by the Institute of Economic and Social Studies (IESE).

Opposition votes. Opposition voting is the vote share for non-winning candidates in a locality. This variable is constructed as the difference between the total vote share and the share of the candidate that got the most votes, at the locality level. Figure 4 shows that opposition voting only increased by one percentage point overall between 1999 and 2009 (from 26 percent in 1999 to 27 percent in 2009). This estimate hides large variation across regions and wealth. The vote for opposition parties decreased in the South region (from 19 percent in 1999 to 9 percent in 2009) and in the North region (from 33 percent in 1999 to 29 percent in 2009), but it increased in the Centre region from 23 percent in 1999 to 32 percent in 2009 (Figure 5). The opposition vote share increased in localities in the bottom and middle wealth terciles but

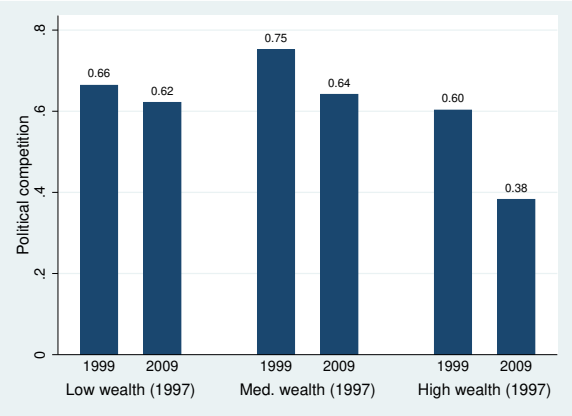
reduced among the top wealth tercile (Figure 6). Opposition votes therefore seem to be driven by the poorest regions.

FRELIMO votes. In addition to estimating the share of opposition votes, we calculate also the vote share for FRELIMO (the incumbent in all elections). This is constructed as the ratio of total votes for the party's candidate in relation to total valid votes in a locality. There was a large increase in the share of votes for FRELIMO, the dominant government party, between 1999 (45 percent) and 2009 (69 percent) (Figure 4). The support for FRELIMO remained high in the South (with an increase from 81 to 91 percent), and increased considerably elsewhere, particularly in the Centre region, where it increased from 27 percent in 1999 to 60 percent in 2009 (Figure 5), despite this region being a RENAMO stronghold during and since the civil war. The increase in support for FRELIMO was particularly strong among the bottom wealth tercile (Figure 6).

Figure 6: Voting outcomes by wealth, 1999 and 2009



(a) Turnout



(b) Political competition

(c) Opposition (% votes)

(d) Frelimo (% votes)

Source: authors' calculation based on official Presidential election data provided by the Institute of Economic and Social Studies (IESE).

4.4 Additional variables

We constructed additional variables at the locality level using the Census data. These include the average wealth index, average years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, average dependency ratio, average number of adults per household, average household size, share of self-employed and unemployed adults per household. We create also an index of ethno-linguistic diversity in a locality based on the information on mother-tongue spoken. This measure aims to capture social heterogeneity in a locality. The index is given by 1 minus the sum of the proportion of speakers of each language to the locality's population squared (Greenberg 1956). Using the election datasets, we constructed additional variables measuring the share of null votes, share of blank votes, and the ratio of registered voters to eligible voters. Definitions and summary statistics for all these variables are provided in Table A1 and Tables A2, A3, and A4, respectively (Appendix A).

5 Empirical strategy and main results

To test our hypotheses, we estimate the following regression:

$$Y_{i,t} = \alpha_i + \beta_1 Ineq_{i,t} + \beta_2 Wealth_{i,t} + \beta_3 Wealth \times Ineq_{i,t} + \gamma X_{i,t} + \lambda_t + \upsilon_{i,t} \quad (1)$$

where $Y_{i,t}$ is the election variable of interest (voter turnout, political competition, share of votes for the non-winning parties (opposition), and share of votes for FRELIMO) in locality i and in year t (1999 or 2009). α_i are locality fixed effects capturing any time-invariant idiosyncratic characteristics, such as local institutional legacies from the war period that established support for a certain party. λ_t are time-specific fixed effects (either year or province and year) to account for overall trends in the outcome over time, allowing to vary by province. $Ineq_{i,t}$ is the asset-based inequality measure for locality i. $Wealth_{i,t}$ is the average asset wealth in a locality to control for local trends in economic welfare. We also include an interaction term of inequality and wealth, $Wealth * Ineq_{i,t}$ to allow us to control for economic heterogeneity. $X_{i,t}$ is a set of controls at locality level two years prior to the election, which include: population characteristics (years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household); electoral controls (share of null votes, share of blank votes, and registered voters to eligible voters ratio); and an index of ethno-linguistic diversity as a proxy for ethnic and social heterogeneity. The inclusion of this control allows us to interpret the interaction of inequality and wealth as economic heterogeneity.

This specification raises two concerns about potential biases. First, voting outcomes might influence directly inequality due to political decisions, leading to a possible reverse causality bias. To avoid this, we measure inequality and population characteristics two years prior to the election outcomes, in 1997 and 2007 respectively, and include locality and year fixed-effects that capture time-invariant characteristics in each locality. In some specifications, we include also year by province fixed effects to control for intra-province variation, with results remaining largely unaffected. Second, despite a large set of relevant control variables, there might be unobservable factors that simultaneously affect inequality and election outcomes leading to an omitted variable bias. We address this concern with the approach proposed by Oster (2019) in Section 6.

To test our first hypothesis, we look at how changes in local inequality influence political participation in terms of voter turnout. These results are shown in Table 1. Column 1 does not include any fixed effects or controls and shows a positive and significant coefficient of inequality on turnout. Column 2 includes locality and year fixed effects. Column 3 includes year by province fixed effects in addition to locality fixed effects. Column 4 adds controls. We do not find a significant relationship between inequality and turnout in these three specifications. In column 5, the wealth index is included as a control variable and interacted with inequality to allow for differential effects along the wealth distribution. The effect of inequality on turnout now becomes significant and positive. Contrary to theoretical predictions, localities that experienced an increase in asset inequality between 1997 and 2007 observed an increase in voter turnout. Moreover, the effect of inequality is moderated by the level of wealth in a locality. That is, while localities that became richer between 1997 and 2007 observed a reduction in voter turnout on average, localities where at the same time inequality increased saw an even larger increase in turnout. Essentially, political participation increased in localities where economic heterogeneity increased, since we control for ethnic group heterogeneity and education.

Table 1: Within-locality inequality and voter turnout in Mozambique

	(1)	(2)	(3)	(4)	(5)
Gini (assets)	0.27**	-0.26	0.23	0.23	0.57*
	(0.09)	(0.19)	(0.19)	(0.19)	(0.29)
Wealth index					-0.46**
					(0.17)
Gini (assets) × Wealth index					1.04**
					(0.46)
Obs.	1,478	1,478	1,478	1,478	1,478
R2	0.01	0.62	0.72	0.75	0.75
RMSE	0.18	0.11	0.10	0.09	0.09
Control variables	No	No	No	Yes	Yes
Location effects	No	Yes	Yes	Yes	Yes
Period effects	No	Yr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. Column 1 does not include any fixed effects or controls; column 2 includes fixed effects at the locality level and year fixed effects; column 3 includes locality fixed effects and province by year fixed effects; column 4 includes locality fixed effects, province by year fixed effects and the set of controls; column 5 includes locality fixed effects, province by year fixed effects, the set of controls, the average asset wealth in a locality, and an interaction term of inequality and wealth. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Considering the interaction, the effect of wealth on turnout is only -0.15 in a locality with average inequality, but -0.46 if inequality was 0. Thus, at average inequality levels, an increase in the wealth index by one standard deviation from 1997 levels leads to a decline in voter turnout of 15 percentage points. In turn, when we focus on the effect of inequality, we observe that at average wealth levels, an increase in the Gini by 0.01 leads to an increase in turnout by 18 percentage points. The average reduction of local inequality over the study period by 0.01 points can thus explain two thirds of the decline in average voter turnout of 25 percentage points from 1999 to 2009. These are substantial effects. These results seem to contradict the hypothesis that people avoid the ballots as inequality rises, especially where overall more wealth becomes available. We return to this result in the discussion section.

However, when considering between-locality inequality instead of within-locality inequality, hypothesis 1 is confirmed. These results are presented in Appendix B, Table B1. An increase in the wealth gap between localities and the national, provincial, and particularly the Capital average is associated with lower turnout as predicted by the literature. Thus, how inequality is measured matters for electoral outcomes and it appears that locally perceived inequality (as measured in this paper) triggers very different voting behavior than in aggregate settings previously discussed in the literature. We note, in addition, that the turnout measure might be prone to measurement issues such as ballot stuffing and other forms of electoral fraud resulting in noisy and imprecise estimations. In our data, we have six observations with a turnout greater

than one. Removing these observations does not affect our main results. However, we cannot exclude forms of electoral fraud being a potential concern in our analysis. In the next estimates, we include turnout as control variable in order to partially account for this.

The second hypothesis postulated that rising inequality leads to a reduction in political competition (due to increased political polarisation). Although we find a negative and significant effect of inequality on political competition in Column 1, the effect disappears when including fixed effects and controls (Table 2). We observe a negative and significant effect of turnout on competition. In localities where participation increased between the two elections, relatively more votes went to one party.

Table 2: Within-locality inequality and political competition in Mozambique

	(1)	(2)	(3)	(4)	(5)	(6)
Gini (assets)	-1.11***	0.22	0.18	-0.08	-0.23	-0.08
	(0.15)	(0.53)	(0.44)	(0.35)	(0.47)	(0.46)
Wealth index					0.45*	0.33
					(0.26)	(0.25)
Gini (assets) × Wealth index					-0.77	-0.48
					(0.71)	(0.69)
Turnout						-0.28**
						(0.12)
Obs.	1,478	1,478	1,478	1,478	1,478	1,478
R2	0.07	0.33	0.60	0.70	0.70	0.71
RMSE	0.27	0.23	0.18	0.15	0.15	0.15
Control variables	No	No	No	Yes	Yes	Yes
Location effects	No	Yes	Yes	Yes	Yes	Yes
Period effects	No	Yr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

The third hypothesis postulated that rising inequality leads to more opposition voting to punish the incumbent (Table 3). We test this hypothesis using two outcomes. First, we measure opposition voting using the vote share won by the losing candidates at the locality level. Results show that this variable is not affected by inequality, wealth or their interaction. We observe that an increase in voter turnout is associated with less competition and less opposition voting. Second, we test whether a rise in inequality is associated with changes in the FRELIMO's vote share. FRELIMO is the winning party in both elections and an increase in its vote share would represent support for the incumbent. Results can be found in Columns 3 and 4 of Table 3. While changes in inequality and in the level of wealth separately do not affect incumbent voting, the interaction effect is negative, indicating that FRELIMO lost support in areas where wealth and inequality jointly increased.

Table 3: Within-locality inequality and opposition or incumbent voting in Mozambique

	Opposition voting		FRELIMO's share	
Gini (assets)	-0.14	-0.05	-0.38	-0.39
	(0.30)	(0.30)	(0.25)	(0.25)
Wealth index	0.23	0.16	0.10	0.11
	(0.15)	(0.16)	(0.15)	(0.15)
Gini (assets) $\times$ Wealth index	-0.50	-0.34	-0.66*	-0.67*
	(0.46)	(0.46)	(0.35)	(0.35)
Turnout		-0.16**		0.01
		(0.08)		(0.07)
Obs.	1,478	1,478	1,478	1,478
R2	0.58	0.59	0.89	0.89
RMSE	0.10	0.10	0.09	0.09
Control variables	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes
Period effects	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

5.1 Heterogeneity analysis

Mozambique's history and the descriptive statistics we discussed earlier in the paper point towards the existence of important heterogeneity across two main dimensions: regional and across poorer and richer areas. In this section, we present results of sub-sample regressions for each outcome, first focusing on the differences between the three greater regions (North, Center and South), and then across three wealth terciles.

Regional dimension

Mozambique's three greater regions show distinct patterns of socio-economic development and, at the same time, are historically associated with support for specific parties. As laid out in Section 3, the ruling FRELIMO party dominates the South and some areas of the North, while the Center has been in RENAMO's control for most of the post-independence decades. Socio-economic development levels are consistently higher in the South than the other two regions (Direcção de Estudos Económicos e Financeiros do Ministério de Economia e Finanças de Moçambique 2016). In this context, we investigate whether inequality affects election outcomes differently across regions.

Contrary to the full sample results, we do not find any effect of inequality, either by itself or interacted with the wealth index, on voter turnout. In the South, changes in the level of wealth

affect voter turnout, with less citizens going to the polls in localities whose average wealth increased between 1997 and 2007.

Table 4: Within-locality inequality and voter turnout by region in Mozambique

	North	Centre	South
Gini (assets)	0.98	0.65	-0.04
	(0.76)	(0.46)	(0.58)
Wealth index	-0.21	-0.43	-0.63**
	(0.36)	(0.29)	(0.29)
Gini (assets) × Wealth index	1.39	0.90	0.96
	(1.17)	(0.83)	(0.64)
Obs.	452	662	364
R2	0.80	0.76	0.64
RMSE	0.09	0.09	0.10
Control variables	Yes	Yes	Yes
Locations Effects	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Like in the full sample, estimating the effect of inequality on political competition in regional sub-samples does not yield significant results (Table 5). Turnout affects negatively competition in the North and Center regional samples.

Table 5: Within-locality inequality and political competition by region in Mozambique

	North		Centre		South	
Gini (assets)	-0.20	0.06	-0.15	0.10	-0.51	-0.52
	(1.29)	(1.23)	(0.81)	(0.79)	(0.50)	(0.49)
Wealth index	-0.11	-0.16	0.62	0.45	0.15	0.08
	(0.70)	(0.67)	(0.47)	(0.43)	(0.27)	(0.29)
Gini (assets) $\times$ Wealth index	0.15	0.51	-0.81	-0.46	-0.58	-0.46
	(2.12)	(1.99)	(1.30)	(1.23)	(0.67)	(0.71)
Turnout		-0.26*		-0.39*		-0.12
		(0.15)		(0.23)		(0.14)
Obs.	452	452	662	662	364	364
R2	0.71	0.72	0.50	0.52	0.90	0.90
RMSE	0.12	0.12	0.18	0.17	0.09	0.09
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Locations Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Lastly, we focus on measures of incumbent support. Table 6 shows no effects of inequality on opposition voting by region. When looking at the effect of inequality on FRELIMO's vote share as a measure of incumbent support (Table 7), we find a negative association between inequality and support for FRELIMO in the Center region, but not in the North and the South. In the Centre, the effect is amplified if both average wealth and inequality in a locality increased. In Figure 5, we document FRELIMO's vote share by region and election year. FRELIMO support drastically improved in the Center between the two election years. The combination of this result to those in the table below suggests that reductions in inequality combined with wealth improvements over the study period in the Center can explain a significant part of the rising support for FRELIMO in this region.

Table 6: Within-locality inequality and opposition voting by region in Mozambique

	North		Centre		South	
Gini (assets)	-0.53	-0.36	-0.12	0.02	-0.12	-0.12
	(0.86)	(0.83)	(0.51)	(0.52)	(0.28)	(0.28)
Wealth index	0.00	-0.03	0.38	0.29	0.04	0.03
	(0.46)	(0.44)	(0.28)	(0.27)	(0.14)	(0.16)
Gini (assets) $\times$ Wealth index	-0.36	-0.12	-0.69	-0.50	-0.26	-0.25
	(1.41)	(1.36)	(0.83)	(0.80)	(0.37)	(0.39)
Turnout		-0.17		-0.22		-0.02
		(0.10)		(0.14)		(0.07)
Obs.	452	452	662	662	364	364
R2	0.51	0.53	0.44	0.46	0.85	0.85
RMSE	0.09	0.09	0.11	0.11	0.05	0.05
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Location Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Table 7: Within-locality inequality and FRELIMO's vote share by region in Mozambique

	North		Centre		South	
Gini (assets)	-0.40	-0.43	-0.60	-0.62*	0.12	0.12
	(0.94)	(0.97)	(0.37)	(0.37)	(0.28)	(0.28)
Wealth index	-0.24	-0.23	0.18	0.19	-0.02	0.00
	(0.40)	(0.40)	(0.24)	(0.25)	(0.14)	(0.15)
Gini (assets) $\times$ Wealth index	-0.41	-0.45	-1.09*	-1.12*	0.30	0.26
	(1.38)	(1.42)	(0.56)	(0.58)	(0.39)	(0.40)
Turnout		0.03		0.03		0.03
		(0.13)		(0.10)		(0.07)
Obs.	452	452	662	662	364	364
R2	0.78	0.78	0.89	0.88	0.84	0.84
RMSE	0.09	0.09	0.09	0.09	0.05	0.05
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Location Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Wealth distribution

So far, we controlled for changes in the level of wealth and its interaction with inequality, but we did not allow for the fact that inequality in initially poorer or richer regions might display different effects on election outcomes. We thus split the sample into terciles of the wealth distribution of 1997.

We hypothesised in section 2 that voting turnout reduces more when inequality increases within the poorest localities (due to either voting repression by the rich or apathy and discontent among the poor) and that turnout remains unchanged or increases when inequality increases within the richest localities. Table 8 presents the empirical results of this analysis. The second part of our hypothesis is confirmed: inequality has no effect on turnout in localities in the medium and high wealth tercile. However, in the poorest localities, rising inequality significantly increases voter turnout and even more so if wealth increases at the same time. Wealth increases by themselves lead to lower turnout. These results show that past theories of voting repression by the rich or apathy among the poor do not hold in the poorest areas of Mozambique. To the contrary, rising inequality appears to fuel voter turnout in the poorest localities, especially if overall wealth increases at the same time.

Table 8: Within-locality inequality and voter turnout by 1997 wealth terciles in Mozambique

	Low wealth	Med wealth	High wealth
Gini (assets)	1.96**	-0.54	0.28
	(0.93)	(0.79)	(0.54)
Wealth index	-1.52***	0.29	-0.60**
	(0.43)	(0.49)	(0.26)
Gini (assets) × Wealth index	3.42***	-1.40	1.39
	(1.26)	(1.66)	(0.90)
Obs.	530	536	408
R2	0.78	0.79	0.71
RMSE	0.09	0.09	0.09
Control variables	Yes	Yes	Yes
Locations Effects	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

As in the main results, political competition is not affected by rising inequality, but is positively affected by rising wealth levels in the poorest localities.

Table 9: Within-locality inequality and political competition by 1997 wealth terciles in Mozambique

	Low wealth		Med wealth		High wealth	
Gini (assets)	-2.50	-1.96	-0.29	-0.42	0.51	0.57
	(1.58)	(1.65)	(1.52)	(1.51)	(0.67)	(0.67)
Wealth index	1.87**	1.45*	0.74	0.81	0.49*	0.35
	(0.83)	(0.85)	(1.17)	(1.14)	(0.29)	(0.31)
Gini (assets) × Wealth index	-4.14*	-3.19	-1.19	-1.52	-1.76*	-1.44
	(2.21)	(2.31)	(3.61)	(3.56)	(1.05)	(1.05)
Turnout		-0.28		-0.23		-0.23
		(0.20)		(0.19)		(0.18)
Obs.	530	530	536	536	408	408
R2	0.64	0.65	0.65	0.66	0.88	0.88
RMSE	0.15	0.15	0.14	0.14	0.11	0.11
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Location Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Lastly, we investigate the effect of inequality on opposition voting and incumbent support (Tables 10 and 11). We observe no wealth distributional effects on opposition voting. However, an increase in average wealth in the poorest localities is associated with a rise in the share of votes for the non-winning parties. In the full sample, we found a negative association between simultaneous increases in wealth and inequality and support for FRELIMO. Table 11 shows that this seem to be driven by localities in the lowest and in middle terciles of the wealth distribution. However, none of the coefficients is statistically significant. It should be noted that in 1997 just after the end of the war, wealth was overall very low so that the middle tercile still represents relatively low levels of asset wealth. The negative association between inequality and incumbent support is amplified in both terciles by simultaneous increases in inequality and wealth.

Table 10: Within-locality inequality and opposition voting by 1997 wealth terciles in Mozambique

	Low wealth		Med wealth		High wealth	
Gini (assets)	-1.64	-1.35	-0.27	-0.34	0.34	0.38
	(1.00)	(1.04)	(0.87)	(0.86)	(0.40)	(0.41)
Wealth index	1.18**	0.95*	0.48	0.52	0.29*	0.21
	(0.54)	(0.55)	(0.67)	(0.65)	(0.17)	(0.19)
Gini (assets) × Wealth index	-2.76*	-2.25	-1.08	-1.27	-1.04	-0.84
	(1.41)	(1.47)	(2.16)	(2.11)	(0.64)	(0.66)
Turnout		-0.15		-0.14		-0.14
		(0.11)		(0.12)		(0.13)
Obs.	530	530	536	536	408	408
R2	0.58	0.59	0.49	0.49	0.79	0.80
RMSE	0.09	0.09	0.10	0.10	0.07	0.07
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Location Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Table 11: Within-locality inequality and FRELIMO's vote share by 1997 wealth terciles in Mozambique

	Low wealth		Med wealth		High wealth	
Gini (assets)	-1.08	-1.28	-0.73	-0.69	0.08	0.08
	(0.93)	(0.96)	(0.73)	(0.74)	(0.31)	(0.31)
Wealth index	0.22	0.37	0.33	0.31	0.12	0.11
	(0.42)	(0.47)	(0.46)	(0.46)	(0.19)	(0.21)
Gini (assets) × Wealth index	-1.30	-1.64	-1.69	-1.58	0.13	0.15
	(1.20)	(1.28)	(1.49)	(1.51)	(0.60)	(0.63)
Turnout		0.10		0.08		-0.01
		(0.14)		(0.11)		(0.09)
Obs.	530	530	536	536	408	408
R2	0.88	0.88	0.86	0.86	0.92	0.92
RMSE	0.09	0.09	0.09	0.09	0.06	0.06
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Location Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period Effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

6 Robustness tests

In this section, we test the validity of the main results by assessing the potential of omitted variable biases affecting the results and whether the results are affected by the method we used to construct the wealth index.

6.1 Omitted variable bias

One main concern in the analysis above is that of omitted variable bias. We partially addressed this concern by including a rich array of controls alongside province by year fixed effects. To test further the extent to which unobservable omitted variables may threaten the validity of the results, we follow the approach proposed by Oster (2019) and Gonzalez and Miguel (2015), based on Altonji et al. (2005). Altonji et al. (2005) developed a method for evaluating the robustness of results under the assumption that the relationship between treatment and unobservables can be recovered from the relationship between treatment and observables. Building on this, Oster (2019) proposes an approach to estimating bias-adjusted treatment effects considering both coefficient stability and R-squared movements. The author shows that, if observables and unobservables have the same explanatory power in Y, a consistent estimator of the treatment effect can be recovered through the following function[7]:

$$\bar{\beta} = \beta^* - (\beta - \beta^*) * \frac{Rmax - R^*}{R^* - R} \tag{2}$$

where β* and $R*$ are the coefficient estimate and $R2$ from the regression including all observable covariates, and $\beta$and R are the coefficient and $R2$ resulting from the uncontrolled regression (Gonzalez and Miguel 2015). $Rmax$ is the value of $R2$ in a regression that controls for all observable and unobservable factors. This value is unknown but bound between the R-squared in the regression with controls and 1. Table 12 reports the results of these tests for the key coefficient on inequality, for each of the outcome variables. Columns 1 and 2 present results from the uncontrolled and the controlled regressions, respectively. Column 3 to 5 report the bias-adjusted value of the coefficient, estimated under different, and increasingly conservative, assumptions on $Rmax$. In Column 3 we follow the approach used by Bellows and Miguel (2009) and based on the assumption that unobservable controls explain as much of the outcome as the observable controls. Column 4 is based on the robustness cut-off value calculated by Oster (2019) using a sample of randomised articles published in top journals. Column 5 presents the most conservative case, under the assumption that $Rmax = 1$. The estimated effect of inequality on voter turnout in the first row is 0.232, with an $R2$ of 0.724. In the regression with

[7] This simple formulation holds under a restrictive set of assumptions. However, it constitutes a close approximation to the consistent estimator (Oster 2019)

controls, the coefficient on inequality is 0.565 and the $R2$ is 0.754. This finding shows a small movement in the $R2$ value, while the inclusion of controls moves the coefficient away from zero. The-adjusted values of the coefficients in Columns 4 and 5 are quite larger in magnitude than the coefficient in the controlled regression, and none of the estimated sets include zero. The results on political competition, opposition voting, and FRELIMO's vote share in Panels B, C, and D of Table 12 point to an upward bias of the omitted variables, as all the coefficients reduce after the inclusion of controls. However, all of the coefficient sets in Columns 3 to 5 exclude 0.

Table 12: Testing for omitted variable bias

	Regression without controls	Regression with controls	Rmax=2$\tilde{R}$ - R	Rmax=1.3$\tilde{R}$	Rmax=1
Panel A: Turnout					
Gini (assets)	0,232686	0.565*	[0.565,0.893]	[0.565,3.021]	[0.565,3.227]
Sd. Err	(0,185316)	(0,292888)			
R-Sq.	0,724171	0,754779			
Rmax			0,785	0,981	1
Panel B: Political competition					
Gini (assets)	0,178347	-0.075	[-0.328,-0.075]	[-0.556,-0.075]	[-0.725,-0.075]
Sd. Err	(0,438674)	(0,457711)			
R-Sq.	0,599198	0,711594			
Rmax			0,824	0,925	1
Panel C: Opposition voting					
Gini (assets)	0,168160	-0.055	[-0.278,-0.055]	[-0.382,-0.055]	[-0.810,-0.055]
Sd. Err	(0,277789)	(0,299444)			
R-Sq.	0,470082	0,590999			
Rmax			0,712	0,768	1
Panel D: FRELIMO's vote share					
Gini (assets)	0,002281	-0.386	[-0.768,-0.386]	[-7.989,-0.386]	[-3.469,-0.386]
Sd. Err	(0,220772)	(0,246225)			
R-Sq.	0,877893	0,891551			
Rmax			0,905	1,159	1

6.2 Sensitivity of results to wealth index construction

We construct the wealth index applying Principle Component Analysis (PCA) to a subset of eight indicators: wall, roof and floor material, number of rooms of the home, access to drinking water, electricity, sanitation and ownership of a radio. While we confirmed that the resulting weights correspond to better or worse conditions, it might still be possible that one or few of these indicators strongly determine variation in the index. This in turn could influence our results.

To test this, we individually exclude each indicator from the construction of the wealth index and run the main analysis with this new wealth index and the Gini index. Tables C1, C2, C3, and C4 in Appendix C present the results. Although confirming our main results, we note

some sensitivity to the exclusion of individual indicators from the wealth index. Especially for turnout and FRELIMO's share, coefficients' magnitude and significance level vary across specifications, but the direction of the relationship is always confirmed.

7 Discussion and final remarks

The analysis we conduct in the paper yielded in three key results. First, and in contrast with a-priori theoretical expectations, we find a positive and statistically significant effect of inequality on voter turnout in Mozambique, in particular among the poorest localities in the country. We also find an overall increase in voter turnout in localities that become simultaneously economically better-off and more unequal. Second, we find no effect of inequality on political competition. Third we find a negative association between inequality and support for the incumbent party (FRELIMO) in localities where economic heterogeneity increased, especially in the Center region.

The first result is surprising as all indications from unconsolidated, low-income democracies would indicate these to be more prone to the dominance of relative power of elites theories. As we discussed in Section 2, a positive association between inequality and turnout can be indicative of median voter effects or capture of votes by elites when this capture may benefit them. In the case of Mozambique, it may be possible we are observing median voter effects in emerging young democracy, whereby the poor exercise their right to vote. For instance, other studies have observed voter turnout being higher among the poorer in African countries (Kuenzi and Lambright 2011). It is also possible that these effects are due to our focus on within-locality inequality. Local observed levels of inequality may well fuel much stronger reactions of the population if they observe wealth in their locality increase but at the expense of a large share of the locality population.

However, it is important to note that we do not observe whether the rich or the poorer turned out to vote and who they vote for. We only observe average voting and wealth outcomes in each locality. The literature on voter turnout suggests that poorer people tend to withdraw their political participation (Brady et al. 1995; Lijphart 1997). We observe an overall increase in wealth and a decline in turnout in Mozambique, but we cannot observe whether the wealthier or poorer people reduced their turnout. We also cannot rule out the fact that inequality may lead to more ballot stuffing or vote buying in localities where inequality increased due to "fear" of the political elite. Kasara and Suryanarayan (2015) document that "the rich" will turn out to vote and/or suppress turnout by the poor if they fear redistributive policies will threaten their wealth. Similarly, Keefer (2007) shows that politicians or parties in young democracies (such as Mozambique) struggle to make credible promises leading to more corrupt and clientilist outcomes so that opposition support becomes costly. For instance, Thachil (2014) documents a

strategy of electoral division of labor in India whereby elite parties "outsource" voter recruitment for poor voters to community affiliates who are responsible to provide basic services. Meanwhile, the elite party can focus on its elite core clients. The author further suggests that such structures work best in a setting with strong religious or cultural social ties, which is the case in Mozambique where FRELIMO has built a strong organizational capacity at the community level, especially around election campaigns. These reflections point thus towards our results being more indicative of elite capture of poorest localities where voting for the elite itself is encouraged, rather than a median voter model being in play in Mozambique. If true, this interpretation has implications for the future of democracy in Mozambique and questions the feasibility of opposition parties winning future elections.

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Appendix

A Variables definitions and descriptive statistics

Table A1: Variables definitions

Variable	**Description**
Turnout	Turnout in the locality. Constructed as the ratio between the total number of votes and the number of registered voters in the locality.
Political competition	Political competition at the locality level. Constructed as 1 minus the normalized Herfindahl–Hirschman of each party's vote share in the locality.
Opposition voting	Vote share of the non-winning party in a locality (FRELIMO, RENAMO or MDM). Constructed as the difference between the total vote share and the winning party share.
FRELIMO vote share	FRELIMO vote share in the locality. Constructed as the ratio of total votes for FRELIMO in relation to total valid votes in the locality.
RENAMO vote share	RENAMO vote share in the locality. Constructed as the ratio of total votes for RENAMO in relation to total valid votes in the locality.
Null votes	Share of null votes in the locality. Constructed as the ratio of null votes in relation to total votes in the locality.
Blank votes	Share of blank votes in the locality. Constructed as the ratio of blank votes in relation to total votes in the locality.
Eligible	Total number of adults in the locality.
Registered to eligible voters ratio	Registered voters to eligible voters ratio. Constructed as the ratio of registered voters at the locality level in relation to the total number of adults in the locality.
Gini coefficient (wealth)	Gini index of the wealth index at the locality level.
Wealth index	Average wealth index at the locality level. Constructed at the household level using a principal component analysis (PCA) based on harmonised information on quality of housing (walls, roof and floor), number of rooms, access to water, sanitation, electricity and possession of a radio.
Households	Total number of households in the locality.
Linguistic diversity index	Index of linguistic diversity in the locality. It gives the probability that two households selected at random from the locality's population have different main languages. Constructed following Greenberg's monolingual non-weighted method (1956), as 1 minus the sum of the proportion of speakers of each language to the locality's population squared.
Years of education per adult	Average number of years of education per adult per household at the locality level. Constructed at the household level by assigning years to levels of education reported by household members (for instance, three years for primary education).

Variable	Description
Share of children of primary age enrolled in school	Share of children of primary school age enrolled at school in the locality. Constructed as the ratio between the number of children of primary school age enrolled in primary school and total number of children of primary school age in the locality.
Share of children of secondary age enrolled in school	Share of children of secondary age enrolled in school in the locality. Constructed as the ratio between the number of children of secondary school age enrolled in secondary school and the total number of children of secondary school age in the locality.
Share of female headed households	Share of female headed households in the locality.
Dependency ratio	Number of dependents aged zero to 5 and over the age of 65, in relation to the total population aged 18 to 64 in the locality.
Adults per household	Average number of adults per household in the locality.
Average household size	Average household size in the locality.
Share of self-employed adults per household	Share of self-employed adults per household in the locality. Constructed as the ratio between the average number of self-employed individuals and individuals employed in private sector in each household and the average number of adults in the household.
Share of unemployed adults per household	Share of unemployed adults per household in the locality. Constructed as the ratio between the average number of unemployed adults in each household and the average number of adults in the household.

Table A2: Summary statistics pooled sample

	Mean	**SD**	**Min**	**Max**
Turnout	0.601	0.191	0.109	1.509
Political competition	0.556	0.309	0.000	1.000
Opposition votes	0.232	0.156	0.000	0.615
FRELIMO vote share	0.627	0.284	0.020	1.000
RENAMO vote share	0.347	0.293	0.000	0.980
Blank votes (%)	0.074	0.041	0.000	0.232
Null votes (%)	0.047	0.033	0.002	0.299
Eligible voters	6657.022	5639.701	164	50063
Registered voters to eligible voters ratio	1.112	0.939	0.071	20.880
Gini (assets)	0.295	0.070	0.147	0.547
Wealth index	-0.371	0.320	-0.906	1.694
Households in the locality	3345.747	2967.870	58	27616
Linguistic diversity index	0.270	0.231	0.016	1.000
Years of education per adult	1.440	0.655	0.092	4.510
Share of children of primary age enrolled in school	0.449	0.220	0.000	0.909
Share of children of secondary age enrolled in school	0.398	0.187	0.000	0.825
Share of female headed households	0.328	0.104	0.071	0.663
Dependency ratio	0.606	0.095	0.171	0.941
Adults per household	2.078	0.292	1.567	3.839
Average household size	4.363	0.661	2.611	8.175
Share of self-employed adults per household	0.603	0.170	0.014	0.916
Share of unemployed adults per household	0.091	0.057	0.005	0.627
Observations		1478		

Source: authors' calculations based on the II and III Mozambique Population and Housing Census, and on 1999 and 2009 Presidential elections data (IESE).

Table A3: Average growth rates of the main dependent and independent variables

	Mean	**SD**	**Min**	**Max**
Turnout (g)	-0.268	0.310	-0.724	1.798
Political competition (g)	0.000	1.104	-1.000	9.055
Opposition votes (g)	0.576	2.305	-1.000	22.079
FRELIMO vote share (g)	1.573	3.201	-0.213	30.761
RENAMO vote share (g)	-0.637	0.252	-1.000	0.410
Blank votes (g)	0.113	0.734	-1.000	4.815
Null votes (g)	0.525	1.469	-0.971	12.091
Eligible voters (g)	0.306	0.539	-0.946	4.397
Registered voters to eligible voters ratio (g)	0.331	1.135	-0.937	12.473
Gini (assets) (g)	-0.007	0.166	-0.468	0.885
Wealth index (g)	0.314	6.544	-16.123	100.659
Linguistic diversity index (g)	0.457	1.572	-0.897	16.079
Observations		739		

Source: authors' calculations based on the II and III Mozambique Population and Housing Census, and on 1999 and 2009 Presidential elections data (IESE).

Table A4: Summary statistics by year

	1997/99				2007/09			
	Mean	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
Turnout	0.704	0.138	0.109	1.509	0.499	0.182	0.173	1.014
Political competition	0.633	0.315	0.024	1.000	0.479	0.285	0.000	0.985
Opposition votes	0.237	0.151	0.006	0.500	0.227	0.161	0.000	0.615
FRELIMO vote share	0.506	0.303	0.020	0.994	0.748	0.201	0.181	1.000
RENAMO vote share	0.494	0.303	0.006	0.980	0.200	0.190	0.000	0.787
Blank votes (%)	0.072	0.033	0.000	0.224	0.075	0.048	0.000	0.232
Null votes (%)	0.042	0.024	0.003	0.263	0.051	0.039	0.002	0.299
Eligible voters	6040.840	5086.034	164	33824	7273.203	6085.017	335	50063
Registered voters to eligible voters ratio	1.093	1.036	0.071	20.880	1.132	0.831	0.114	13.705
Gini (assets)	0.299	0.076	0.147	0.547	0.290	0.064	0.160	0.488
Wealth index	-0.475	0.265	-0.906	0.980	-0.266	0.336	-0.777	1.694
Households in the locality	3029.101	2659.179	58	18398	3662.392	3218.138	129	27616
Linguistic diversity index	0.257	0.222	0.024	0.948	0.283	0.240	0.016	1.000
Years of education per adult	1.075	0.473	0.092	3.217	1.805	0.606	0.298	4.510
Share of children of primary age enrolled in school	0.296	0.159	0.000	0.771	0.603	0.155	0.100	0.909
Share of children of secondary age enrolled in school	0.257	0.128	0.000	0.638	0.540	0.117	0.107	0.825
Share of female headed households	0.322	0.103	0.074	0.636	0.333	0.105	0.071	0.663
Dependency ratio	0.566	0.080	0.171	0.838	0.646	0.091	0.297	0.941
Adults per household	2.080	0.297	1.611	3.839	2.076	0.287	1.567	3.490
Average household size	4.241	0.633	2.611	8.175	4.484	0.667	3.180	7.849
Share of self-employed adults per household	0.548	0.185	0.014	0.916	0.657	0.134	0.207	0.907
Share of unemployed adults per household	0.107	0.064	0.005	0.627	0.075	0.044	0.005	0.332
Observations	739				739			

Source: authors' calculations based on the II and III Mozambique Population and Housing Census, and on 1999 and 2009 Presidential elections data (IESE).

B Additional results

Table B1: Between-locality inequality and turnout in Mozambique

	(1)	(2)	(3)
Mean gap in wealth index (country)	-1.21**		
	(0.40)		
Wealth index	-1.03***	-0.87***	-2.44***
	(0.28)	(0.20)	(0.63)
Mean gap in wealth index (country) × Wealth index	-0.10		
	(0.14)		
Mean gap in wealth index (province)		-0.82***	
		(0.23)	
Mean gap in wealth index (province) × Wealth index		-0.11	
		(0.15)	
Mean gap in wealth index (Maputo)			-10.11**
			(3.20)
Mean gap in wealth index (Maputo) × Wealth index			-0.41
			(0.36)
Obs.	1,478	1,478	1,478
R2	0.77	0.77	0.77
RMSE	0.09	0.09	0.09
Control variables	Yes	Yes	Yes
Location effects	Yes	Yes	Yes
Period effects	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, the set of controls,the average asset wealth in a locality, an interaction term of inequality and wealth. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

C Sensitivity tests

In the following tables, we present results obtained estimating equation 1 while individually excluding each component of the wealth index. In each of the columns, the Gini index and wealth index are constructed excluding one component of the wealth index: walls material in Column (1); roof material in Column (2); floor material in Column (3); number of rooms in Column (4); source of water in Column (5); sanitation in Column 6; access to electricity in Column (7); possession of radio in Column (8). All columns include locality fixed effects, province by year fixed effects, the set of controls, the average asset wealth in a locality, and an interaction term of inequality and wealth.

Table C1: Within-locality inequality and turnout in Mozambique - sensitivity test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gini 1	0.65**							
	(0.32)							
Wealth index 1	-0.28**							
	(0.10)							
Gini 1 × Wealth index 1	0.66**							
	(0.27)							
Gini 2		0.50						
		(0.34)						
Wealth index 2		-0.28**						
		(0.11)						
Gini 2 × Wealth index 2		0.63*						
		(0.32)						
Gini 3			0.60*					
			(0.35)					
Wealth index 3			-0.25**					
			(0.11)					
Gini 3 × Wealth index 3			0.65**					
			(0.31)					
Gini 4				0.40				
				(0.25)				
Wealth index 4				-0.27**				
				(0.08)				
Gini 4 × Wealth index 4				0.47**				
				(0.19)				
Gini 5					0.70**			
					(0.26)			
Wealth index 5					-0.16			
					(0.11)			
Gini 5 × Wealth index 5					0.19			
					(0.28)			
Gini 6						0.53*		
						(0.32)		
Wealth index 6						-0.29**		
						(0.11)		
Gini 6 × Wealth index 6						0.66**		
						(0.32)		
Gini 7							0.70**	
							(0.27)	
Wealth index 7							-0.25**	
							(0.09)	
Gini 7 × Wealth index 7							0.63**	
							(0.23)	
Gini 8								0.54*
								(0.29)
Wealth index 8								-0.24**
								(0.10)
Gini 8 × Wealth index 8								0.48*
								(0.27)
Obs.	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478
R2	0.76	0.75	0.75	0.76	0.76	0.75	0.76	0.75
RMSE	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$.*RMSE* stands for root-mean-square error. *PrxYr* province by year fixed effects.

Table C2: Within-locality inequality and political competition in Mozambique - sensitivity test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gini 1	-0.00							
	(0.49)							
Wealth index 1	0.16							
	(0.15)							
Gini 1 × Wealth index 1	-0.15							
	(0.38)							
Turnout	-0.28**	-0.28**	-0.28**	-0.28**	-0.29**	-0.28**	-0.28**	-0.28**
	(0.12)	(0.12)	(0.12)	(0.13)	(0.12)	(0.12)	(0.13)	(0.12)
Gini 2		-0.19						
		(0.54)						
Wealth index 2		0.19						
		(0.17)						
Gini 2 × Wealth index 2		-0.33						
		(0.49)						
Gini 3			0.02					
			(0.51)					
Wealth index 3			0.16					
			(0.16)					
Gini 3 × Wealth index 3			-0.19					
			(0.44)					
Gini 4				-0.06				
				(0.39)				
Wealth index 4				0.13				
				(0.13)				
Gini 4 × Wealth index 4				-0.07				
				(0.28)				
Gini 5					-0.05			
					(0.42)			
Wealth index 5					0.28*			
					(0.16)			
Gini 5 × Wealth index 5					-0.48			
					(0.41)			
Gini 6						-0.14		
						(0.51)		
Wealth index 6						0.28*		
						(0.16)		
Gini 6 × Wealth index 6						-0.50		
						(0.50)		
Gini 7							-0.05	
							(0.45)	
Wealth index 7							0.18	
							(0.14)	
Gini 7 × Wealth index 7							-0.27	
							(0.36)	
Gini 8								-0.09
								(0.44)
Wealth index 8								0.17
								(0.15)
Gini 8 × Wealth index 8								-0.24
								(0.43)
Obs.	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478
R2	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
RMSE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. *RMSE* stands for root-mean-square error. *PrxYr* province by year fixed effects.

Table C3: Within-locality inequality and opposition voting in Mozambique - sensitivity test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gini 1	0.02							
	(0.32)							
Wealth index 1	0.08							
	(0.09)							
Gini 1 × Wealth index 1	-0.11							
	(0.25)							
Turnout	-0.16**	-0.16**	-0.16**	-0.16**	-0.17**	-0.16**	-0.16**	-0.16**
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.07)
Gini 2		-0.16						
		(0.35)						
Wealth index 2		0.11						
		(0.11)						
Gini 2 × Wealth index 2		-0.26						
		(0.32)						
Gini 3			-0.03					
			(0.32)					
Wealth index 3			0.08					
			(0.09)					
Gini 3 × Wealth index 3			-0.15					
			(0.29)					
Gini 4				-0.02				
				(0.25)				
Wealth index 4				0.04				
				(0.07)				
Gini 4 × Wealth index 4				-0.04				
				(0.18)				
Gini 5					0.04			
					(0.28)			
Wealth index 5					0.12			
					(0.10)			
Gini 5 × Wealth index 5					-0.28			
					(0.27)			
Gini 6						-0.14		
						(0.33)		
Wealth index 6						0.16		
						(0.10)		
Gini 6 × Wealth index 6						-0.38		
						(0.33)		
Gini 7							-0.04	
							(0.29)	
Wealth index 7							0.09	
							(0.08)	
Gini 7 × Wealth index 7							-0.18	
							(0.24)	
Gini 8								-0.10
								(0.29)
Wealth index 8								0.07
								(0.10)
Gini 8 × Wealth index 8								-0.14
								(0.29)
Obs.	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478
R2	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
RMSE	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; $^{*}\ p < .1$, $^{**}\ p < .05$, $^{***}\ p < .01$. *RMSE* stands for root-mean-square error. *PrxYr* province by year fixed effects.

Table C4: Within-locality inequality and FRELIMO's share in Mozambique - sensitivity test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gini 1	-0.43*							
	(0.26)							
Wealth index 1	0.08							
	(0.09)							
Gini 1 × Wealth index 1	-0.43**							
	(0.20)							
Turnout	0.02	0.01	0.02	0.02	0.02	0.00	0.02	0.01
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Gini 2		-0.46						
		(0.29)						
Wealth index 2		0.10						
		(0.10)						
Gini 2 × Wealth index 2		-0.47*						
		(0.25)						
Gini 3			-0.44					
			(0.28)					
Wealth index 3			0.07					
			(0.09)					
Gini 3 × Wealth index 3			-0.43*					
			(0.22)					
Gini 4				-0.19				
				(0.20)				
Wealth index 4				0.05				
				(0.08)				
Gini 4 × Wealth index 4				-0.24*				
				(0.14)				
Gini 5					-0.46*			
					(0.27)			
Wealth index 5					0.07			
					(0.11)			
Gini 5 × Wealth index 5					-0.39			
					(0.24)			
Gini 6						-0.46*		
						(0.27)		
Wealth index 6						-0.01		
						(0.10)		
Gini 6 × Wealth index 6						-0.31		
						(0.26)		
Gini 7							-0.41	
							(0.25)	
Wealth index 7							0.05	
							(0.08)	
Gini 7 × Wealth index 7							-0.36*	
							(0.19)	
Gini 8								-0.36
								(0.22)
Wealth index 8								0.06
								(0.09)
Gini 8 × Wealth index 8								-0.33
								(0.20)
Obs.	1,478	1,478	1,478	1,478	1,478	1,478	1,478	1,478
R2	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
RMSE	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period effects	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; $^{*}\ p < .1$, $^{**}\ p < .05$, $^{***}\ p < .01$. *RMSE* stands for root-mean-square error. *PrxYr* province by year fixed effects.

D Urban areas: descriptive statistics and main analysis

Table D1: Summary statistics pooled sample in urban areas

	Mean	**SD**	**Min**	**Max**
Turnout	0.569	0.168	0.265	0.922
Political competition	0.635	0.274	0.067	1.000
Opposition votes	0.268	0.145	0.017	0.614
FRELIMO vote share	0.655	0.227	0.129	0.983
RENAMO vote share	0.287	0.244	0.007	0.871
Blank votes (%)	0.047	0.029	0.009	0.145
Null votes (%)	0.032	0.018	0.011	0.168
Eligible voters	29519.986	32079.287	846	162314
Registered voters to eligible voters ratio	1.267	0.903	0.394	7.845
Gini (assets)	0.304	0.071	0.078	0.477
Wealth index	0.605	0.957	-0.691	5.081
Households in the locality	12264.182	12146.518	374	58642
Linguistic diversity index	0.465	0.218	0.101	0.965
Years of education per adult	3.373	1.414	0.893	10.001
Share of children of primary age enrolled in school	0.641	0.184	0.178	0.909
Share of children of secondary age enrolled in school	0.583	0.167	0.163	0.866
Share of female headed households	0.301	0.092	0.156	0.592
Dependency ratio	0.494	0.093	0.196	0.749
Adults per household	2.267	0.269	1.821	3.078
Average household size	4.661	0.478	3.711	5.884
Share of self-employed adults per household	0.378	0.151	0.104	0.815
Share of unemployed adults per household	0.113	0.049	0.032	0.264
Observations		148		

Source: authors' calculations based on the II and III Mozambique Population and Housing Census, and on 1999 and 2009 Presidential elections data (IESE).

Table D2: Within-locality inequality and voter turnout in urban areas in Mozambique

	(1)	(2)	(3)	(4)	(5)
Gini (assets)	-0.07	-0.59	-0.28	-0.62*	-0.60
	(0.18)	(0.46)	(0.41)	(0.33)	(0.40)
Wealth index					0.00
					(0.10)
Gini (assets) × Wealth index					0.14
					(0.25)
Obs.	148	148	146	146	146
R2	-0.01	0.86	0.92	0.94	0.94
RMSE	0.15	0.06	0.04	0.04	0.04
Control variables	No	No	No	Yes	Yes
Location effects	No	Yes	Yes	Yes	Yes
Period effects	No	Yr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. Column 1 does not include any fixed effects or controls; column 2 includes fixed effects at the locality level and year fixed effects; column 3 includes locality fixed effects and province by year fixed effects; column 4 includes locality fixed effects, province by year fixed effects and the set of controls; column 5 includes locality fixed effects, province by year fixed effects, the set of controls, the average asset wealth in a locality, and an interaction term of inequality and wealth. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Table D3: Within-locality inequality and political competition in urban areas in Mozambique

	(1)	(2)	(3)	(4)	(5)	(6)
Gini (assets)	1.29***	-0.48	0.17	0.08	0.35	0.06
	(0.32)	(1.57)	(0.75)	(0.88)	(1.02)	(1.01)
Wealth index					0.11	0.11
					(0.31)	(0.30)
Gini (assets) × Wealth index					0.60	0.67
					(0.77)	(0.78)
Turnout						-0.48
						(0.53)
Obs.	148	148	146	146	146	146
R2	0.22	0.65	0.87	0.86	0.86	0.87
RMSE	0.21	0.14	0.08	0.09	0.09	0.09
Control variables	No	No	No	Yes	Yes	Yes
Location effects	No	Yes	Yes	Yes	Yes	Yes
Period effects	No	Yr	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.

Table D4: Within-locality inequality and opposition or incumbent voting in urban areas in Mozambique

	Opposition voting		FRELIMO's share	
Gini (assets)	0.30	0.16	-0.72	-0.66
	(0.62)	(0.61)	(0.53)	(0.50)
Wealth index	0.08	0.08	-0.16	-0.16
	(0.20)	(0.20)	(0.13)	(0.13)
Gini (assets) $\times$ Wealth index	0.40	0.43	0.15	0.13
	(0.52)	(0.53)	(0.30)	(0.31)
Turnout		-0.24		0.10
		(0.46)		(0.15)
Obs.	146	146	146	146
R2	0.77	0.77	0.97	0.97
RMSE	0.06	0.06	0.04	0.04
Control variables	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes
Period effects	PrxYr	PrxYr	PrxYr	PrxYr

Note: standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < .01$. All columns include locality fixed effects, province by year fixed effects, and the set of controls. Control variables include: years of education per adult, share of children of primary and secondary age enrolled in school, share of female headed households, dependency ratio, number of adults per household, average household size, share of self-employed and unemployed adults per household, share of null votes, share of blank votes, and registered voters to eligible voters ratio, and an index of ethno-linguistic diversity.*RMSE* stands for root-mean-square error. *Yr* are year fixed effects and *PrxYr* province by year fixed effects.