Democracy in Unequal Times:
How Economic Inequality Influences Democratic Backsliding

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Abstract

A prevalent view holds that prolonged severe economic inequality is a potential cause of democratic backsliding, as the concentration of resources in the hands of a few comes at the expense of the majority, directly challenging the core principles of democracy. Despite this, little work has been done to thoroughly examine how economic inequality influences democratic backsliding. This study delves into the heterogeneous political consequences of different forms of economic inequality. We adopt a multidimensional measure of democracy and employ dynamic models to explore both linear and non-linear relationships. Using five-year panel data from 140 countries over the period 1970-2020, we observe that income inequality has no significant effect on the quality of democracy, whereas worsening wealth inequality undermines it. We also find evidence of high persistence in democracy and that the erosion of democracy by wealth inequality deepens over time. No evidence supporting a non-linear effect for either type of economic inequality. Notably, the adverse effect of wealth inequality is primarily found in democracies. These findings suggest that in the context of democracy in unequal times, there is a close association between wealth inequality and democratic backsliding in democratic countries, whereas income inequality does not.

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1   Introduction

The 1974 "Carnation Revolution" in Portugal marked the beginning of what Huntington called the third wave of democratization (Huntington, 1991). Following this event, the spread of democracy across a wide range of developing and post-socialist countries was impressive. By the turn of the 21st century, 60% of the world had established some kind of functioning democracy-up from just 39 countries in 1974 to over 117 (Diamond, 1996).[1] This global trend toward democracy, integrated with modernization theory, led many to believe that democracy would continue to deepen as the global economy prospers and grows (Lipset, 1959).

However, the number of democracies does not necessarily reflect the quality of democracy (Waldner & Lust, 2018). Over the past decade, global democracy has faced unexpected stress, even though the proportion of democracies has not clearly declined. Irrelevant to economic strength and regime age, even nations once believed as bastions of advanced democracy are experiencing a surge in populism and an erosion of democratic norms (Mukand & Rodrik, 2020). Unlike in the past, when the primary concern was the collapse of nascent democracies into full-blown autocracies, the current issue is the erosion of democracy quality. The decline has been moderate, with most changes occurring within regime types: democracies becoming less liberal and autocracies more repressive (Mechkova et al., 2017). This is also referred to by scholars as democratic backsliding.[2]

The most salient example is the United States. American states, once hailed by the great jurist Louis Brandeis as "laboratories of democracy," are incrementally showing subtle signs of backsliding, as influential actors with vested interests manipulate electoral rules, redraw district boundaries, and even disenfranchise voters to secure electoral victories (Levitsky & Ziblatt, 2019; Grumbach, 2023). This troubling pattern is not isolated across the globe: from the concentration of authority in Turkey, Egypt, Poland, and Hungary; to the upheavals and challenges of democracy in Thailand and Brazil; to the rising support for anti-system parties in France

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[1] Notably, the increase in the democracy count is partly due to the breakup of the Soviet Union, which created many new countries. Data from Freedom House.

[2] Strictly speaking, in democratic regimes, democratic backsliding refers to a decline in the quality of democracy; in autocratic regimes, it refers to a decline in the quality of democratic governance (Waldner & Lust, 2018). For simplicity, we use decline in the quality of democracy to refer to democratic backsliding within any regime.

and Italy, many stable political systems are becoming vulnerable (McCoy et al., 2018; Milner, 2021). The Democracy Report 2024, released by the Varieties of Democracy Project (V-Dem), lends data support to this trend, with global democracy level having fallen back to pre-2000 levels (Mechkova et al., 2017; Nord et al., 2024).

Why is the quality of democracy declining? Among the long list of correlates, economic inequality has increasingly become a serious concern. From Plato and Aristotle to Hobbes, Rousseau, Tocqueville, and Marx, there has long been a traditional view that persistently severe inequality is incompatible with democracy (Ansell & Samuels, 2018). The logic behind this belief is straightforward: the concentration of economic resources in the hands of a few comes at the expense of the majority, directly challenging democracy's principle of formal equality (Dahl, 1971). In recent decades, the world has witnessed growing inequality, coinciding with the trend of democratic backsliding (Piketty, 2014). Given this context, it seems natural to derive the idea that any form of economic inequality could disrupt democracy.

Yet, in recent years, some scholars have questioned this conventional wisdom. Primarily, different forms of economic inequality may be heterogeneous and are likely to have different political consequences (Scheve & Stasavage, 2017; Ansell & Samuels, 2018). Homogenizing economic inequality fails to capture its complexity and may lead to an oversimplified or partial conclusion. Moreover, this study is interested in intra-regime democratic backsliding. Nevertheless, due to its novelty, academic literature has yet to rigorously examine this trend separately within democracies and autocracies. The inequality-democracy nexus obtained by conflating changes within both types of regimes is potentially misleading (Treisman, 2023). In short, efforts to systematically investigate the relationship between inequality and the quality of democracy remain inchoate. There is limited evidence on the extent to which, or even whether, different forms of economic inequality actually harm democracy.

Inspired by these concerns, we plot the cross-country relationships between income inequality and democracy, as well as wealth inequality and democracy, for the year 2000, see Figure 1.[3] Panel (a) includes all countries and demonstrates the likelihood of heterogeneity. Specifically,

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[3] The visualization results are consistent regardless of whether averages are used or not.

we observe that countries with moderate income inequality are likely to have the lowest levels of democracy. Meanwhile, the quadratic fit and locally weighted fit strongly overlap, forming a U-shaped curve, whereas the linear fit shows a poorer alignment with the distribution of scatterplots. Conversely, the relationship between wealth inequality and democracy is closer to a straight line, indicating that societies with more equitable wealth distribution tend to be more democratic. Panels (b) and (c) further demonstrate these relationships within two regime types.[4] In democracies, the association between inequality and democracy exhibits similar features as in Panel (a). While in autocracies, the association diverges markedly.

These compelling discrepancies motivate us to delve deeper into the political consequences of various economic inequalities across different political regimes on a sturdier conceptual and sounder empirical foundation.

Our analysis offers several important new insights. Using five-year panel data from 140 countries over the period 1970-2020, we observe that income inequality has no significant effect on the quality of democracy, whereas worsening wealth inequality undermines it. We also find evidence of high persistence in democracy and that the erosion of democracy by wealth inequality deepens over time. No evidence supporting a non-linear effect for either type of economic inequality. Notably, the adverse effect of wealth inequality is primarily found in democracies. These findings suggest that in the context of democracy in unequal times, there is a close association between wealth inequality and democratic backsliding in democratic countries, whereas income inequality does not.

This study proceeds with a review of previous literature that underpins our research. It primarily addresses the theoretical connections between economic inequality and democracy, as well as recent empirical research developments. Section 3 covers the empirical model setup and estimation strategies. We also discuss the details of our data. Section 4 presents the main empirical results along with extensive robustness checks. Section 5 concludes.

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[4] Regime types are taken from V-Dem database. Democracies include liberal and electoral democracies, and autocracies include electoral and closed autocracies.

Figure 1: Economic Inequality and Democracy, 2000

(a) All countries

(b) Only democracies

(c) Only autocracies

——— Linear Fit   — — — Quadratic Fit   - - - - Locally Weighted Scatterplot Smoothing
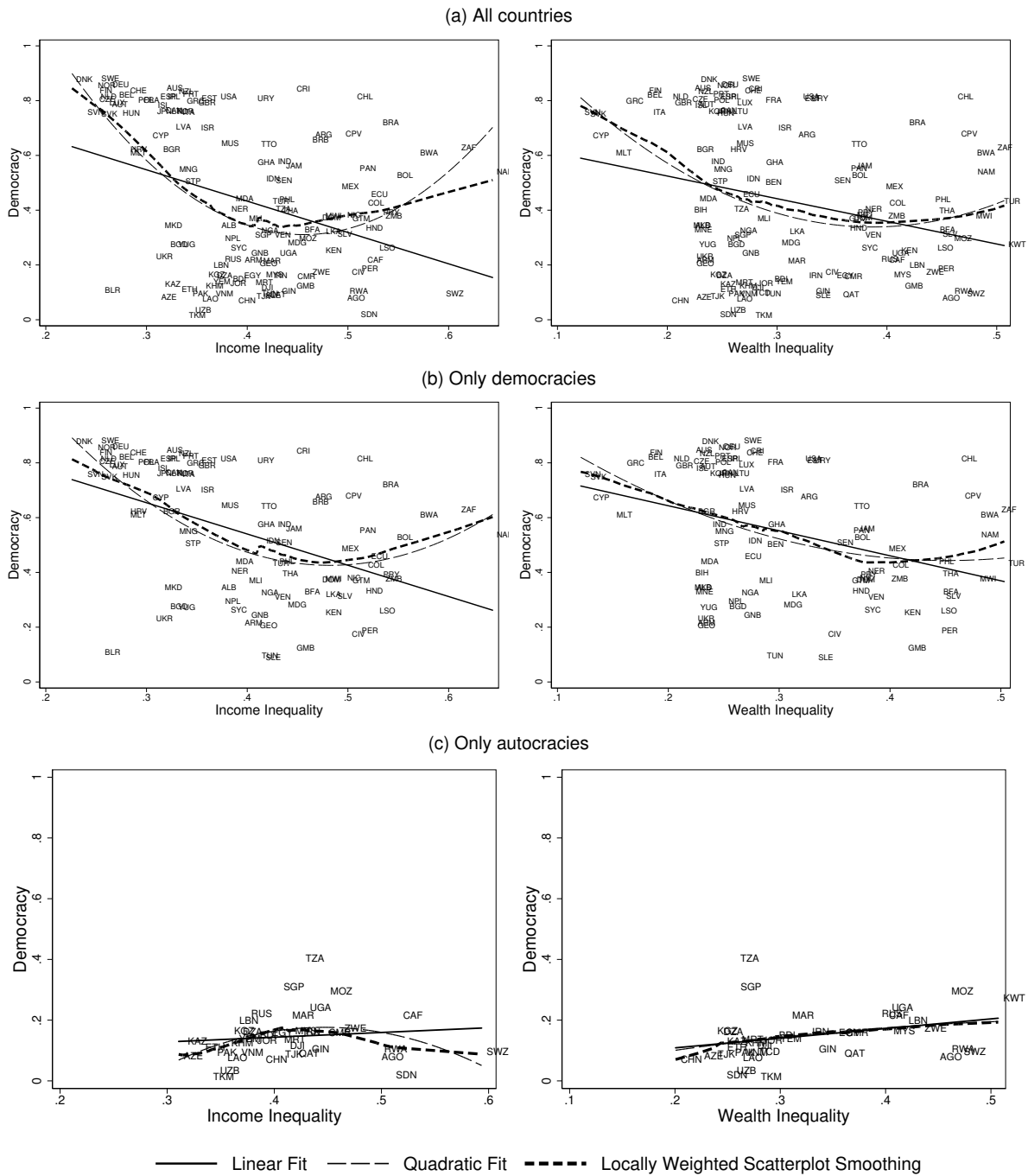
Notes: This figure plots the cross-national correlation between income/wealth inequality and democracy in 2000. Panels (a), (b), (c) represent all countries, democracies only and autocracies only, respectively. In the three plots on the left, x-axis is income inequality (represented by net income Gini). In the three plots on the right, x-axis is wealth inequality (represented by top percentile wealth share). The y-axis for all plots is the liberal democracy score. Section 3 provides a description of the data. In each plot, the solid line represents the linear regression fit, the long dashed line denotes the quadratic regression fit, and the short dashed line represents the fit from the locally weighted scatterplot smoothing method.

2 Literature Review

The analysis of democracy has experienced several stages. Along with the third wave of democratization, researchers concentrated on the prerequisites for democratic transition (Huber et al., 1993; Robinson, 2006; Acemoglu et al., 2008). Then, as more than a few regimes that have established functioning democratic institutions repeatedly experience democratic collapses, scholars have paid increasing attention to why some democracies can only sustain a short period of time (Tilly, 2003; Houle, 2009; Haggard & Kaufman, 2012).[5] More Recently, it has been argued that the dichotomy between democracy and autocracy reflects only a minimalist rather than a multidimensional conception of democracy (Knutsen et al., 2024). Correspondingly, the current research agenda starts conceptualizing democracy more broadly and focusing on explaining changes in the level of democracy within regimes (Freeman & Quinn, 2012; Ansell & Samuels, 2018; Bagchi & Fagerstrom, 2023). However, the explanations are fragmented (Tomini & Wagemann, 2018). Broadly speaking, the connection of socio-economic forces to democracy has been examined most often under democratization or democratic breakdown, and less frequently in the context of recent democratic backsliding.

In this section, we classify related research on economic inequality and democracy into three categories: democratization, democratic collapse, and democratic backsliding. The literature reviewed here underpins our analysis.

2.1 Economic Inequality and Democratization

Early economists who first studied inequality and democratization believed that changes in economic inequality are a determinants of political regime shifts. There are two mainstream views. The first builds on Meltzer and Richard (1981)'s redistribution hypothesis. The representatives are Boix, Acemoglu and Robinson. They assume that regime shift or not depends on the authoritarian ruling elite's evaluation of expected losses from redistribution in a democratic system.[6] Specifically, Boix (2003) suggests that under conditions of high inequality, the elites

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[5] In Latin America, for example, many countries including Argentina, Brazil and Chile underwent one or more democratic reversals during the third wave of democratization.

[6] According to Meltzer and Richard's model, unequal democracies redistribute more.

are less likely to democratize due to the fact that they fear redistribution. While Acemoglu and Robinson (2005) assumes a hump-shaped relationship between economic inequality and the likelihood of democratization.

The second perspective is associated with contractarian political theory. Within this framework, Ansell and Samuels (2014) were one of the first to propose that the effect of economic inequality on democratization varies by its types. They argue that land inequality is the result of land appropriation by governing elites, while income inequality is produced by the expansion of industrial and other growing sectors. The former is owned by autocratic elites, and the latter favors emerging economic groups. As democratization is driven by newly emergent economic elites, land inequality hinders democratization while income inequality can lead to it.

While these perspectives have been well developed in theory, attempts to quantify the relationship between inequality and democratization have yielded unsatisfactory results. Some empirical results confirm that in cross-section, linear or non-linear causality between income inequality and democratic transition is statistically insignificant (Houle, 2009; Haggard & Kaufman, 2012).[7] There is also evidence that income inequality enhances the probability that a country moves towards democratization, while land inequality lowers it (Ansell & Samuels, 2014). One reason for the inconsistent conclusions is the dispute among scholars over the measurement of income inequality.[8] In addition, a common methodology in these studies is dynamic probit estimation, a technique characterized by theoretical and computational complexity and falls short of convincingly addressing the identification problem (Honoré & Kyriazidou, 2000).

2.2 Economic Inequality and Democratic Collapse

Although having different conclusions on how inequality influences the democratization process in autocratic countries, both Boix (2003) and Acemoglu and Robinson (2005) agree inequality hinders the consolidation of democratic regimes, especially newly established ones.

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[7] Houle (2009) is the first empirical study attempting to find a non-linear relationship between inequality and democratization. The coefficient estimates support a U-shaped relationship, but none is statistically significant.

[8] For instance, Houle (2009) argues that available Gini coefficients come from incoherent data sources and are not cross-country comparable. The indicator he uses, the capital share of value added in the industrial sector, has been criticized by Freeman and Quinn (2012) for lacking statistical adjustment.

They argue that in significantly unequal democracies, elites are more likely to overthrow the regime, as they need to bear the costs of redistribution, which jeopardizes their own interests. In the meantime, severe inequality exacerbate class polarization, leading to irreconcilable conflicts between the affluent and the lower classes in political participation and social issues.

Muller also highlights that under economic inequality, subordinate classes who resent the inequality will seek to participate in politics and redistribute property and income. In turn, the dominant elite class might convert more of their economic resources into political power to prevent change. Tensions between two classes over redistribution policies may escalate into civil wars, revolutions, or coups. Therefore, economic inequality is incompatible with the durable and stable existence of a democratic regime (Muller, 1995).

Briefly, scholars reach a consensus that the redistributive nature of democracies can exacerbate the risk of democratic collapse (Acemoglu & Robinson, 2005).

2.3   Economic Inequality and Democratic Backsliding

Democratic backsliding is a growing topic in the literature. However, no readily complete theory has been developed to explain this phenomenon. We now proceed to identify some possible explanations for the relationship between economic inequality and democratic backsliding from the existing literature.

Scholars who argue that economic inequality undermines democracy attribute it to increased political inequality. The relevant literature is divided into de facto political power theory and relative power theory, with some overlap.

De facto political power theory The seminal work by Acemoglu and Robinson (2005) introduces the concepts of de jure and de facto political power. The former is determined by the political system, while the latter stems from the actual possession of economic resources. To further extract benefits and maximize utility, economic elites exercise de facto political power through various means, which are usually incompatible with the spirit of democracy. The growing use of political contributions by the wealthy to influence elections and economic policies

is a clear example (Kotschy & Sunde, 2017). Meanwhile, extremely unequal societies tend to foster political capitalism and captured democracy, which inevitably weakens democracy.

Relative power theory This theory emphasizes that economic inequality severely suppresses political engagement among low-income groups. The wealthy amplify their voices on certain issues by leveraging their economic power, leaving the impoverished at a constant disadvantage in political representation (Solt, 2008). Research indicates that the higher the income inequality, the lower the political interest, frequency of political discussion, and voter turnout among the middle- and low-income classes (Solt, 2008; Bonica, 2013). The core of democracy lies in equal rights and opportunities for political participation, but in the presence of high economic inequality, this principle becomes difficult to realize, leading to democratic backsliding.

Dissenting scholars believe that economic inequality does not corrode the quality of democracy. There are also two reasons.

Instrumentalist theory Compared to autocracy, democracy offers better protection of elites' interests, such as property rights, and promotes the development of capitalism. This symbiotic relationship reduces the incentives for elites to undermine the political system (Ansell & Samuels, 2018). Specifically, regardless of the initial level of inequality, during regime transitions, democratic institutions are often designed by economic elites to serve their own economic interests. As a result, the democratic process itself tends to benefit the affluent class, giving them almost no reason to destabilize existing democratic institutions.

Conflict theory This theory presents an opposing stance on political participation. As inequality intensifies, redistribution policies should become more attractive to the poor (Meltzer & Richard, 1981). However, greater inequality implies that redistribution incurs larger costs for the wealthy, leading them to strongly oppose such policies. Growing divergence in preferences between rich and impoverished citizens results in increased political conflict, leading to higher levels of political engagement (Solt, 2008).

Scholarly debates on economic inequality and democracy reveal contrasting perspectives. So far, theoretical discussions have tended to treat inequality homogeneously. Scholars have not

paid sufficient attention to the characteristics of different economic inequalities, which may not result in identical political consequences. Building on the foregoing general discussions, we next consider the potential distinct impacts of income inequality and wealth inequality.

Comparing income inequality and wealth inequality, we prefer to say that wealth inequality would have a more pronounced negative impact on democracy. Firstly, due to the concentration, persistence and snowballing property of wealth, wealth distribution almost invariably exhibits greater disparities than income distribution (Scheve & Stasavage, 2017; Saez & Zucman, 2020).[9] Secondly, wealth and income have asymmetric political power. The wealthy can influence the political process through political contributions, lobbying and media control. Whereas the mobility and volatility of income make it relatively less conducive to translating into political influence. Thirdly, in contrast to income, once accumulated, wealth is difficult to redistribute through taxation and other means and is more likely to intensify inter-group conflicts. Consequently, the argument that inequality causes democratic backsliding should apply more forcefully to wealth.

Finally, limited attention has been devoted to empirically investigating how inequality impacts democracy quality. Freeman and Quinn (2012) find that in financially open autocracies, income inequality is positively correlated with PolityIV scores. In contrast, in financially closed economies, the relationship is hump-shaped. Ansell and Samuels (2018) show that there is no empirical support for a significant relationship between democracy and inequality, regardless of whether income, land, or wealth inequality is used. Abdel-Latif and El-Gamal (2020)'s study highlights a simple conclusion: income inequality causes democratic backsliding. Bagchi and Fagerstrom (2023) demonstrate that politically connected wealth inequality is detrimental to democracy, but overall wealth inequality or inherited wealth inequality is not.

The above studies provide no compelling and explicit evidence that inequality corrodes global democracy. We acknowledge that these empirical studies offer valuable insights but could benefit from further refinement.

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[9] Wealth can generate its own income regarding rent, capital gain, interest, dividend, and can be handed down from one generation to the next. Consequently, most wealth accumulation causes a high concentration of capital (Piketty, 2014; Zucman, 2019).

To begin with, how inequality influences democracy depends greatly on the way we conceptualize and measure the latter (Munck & Verkuilen, 2002). All four studies above use the PolityIV score as the baseline measure of democracy, but this indicator has been questioned due to its conceptualization and aggregation technique (Gründler & Krieger, 2022). The latter three studies also add the V-Dem Electoral Democracy Index. However, this index may not capture the decline of de facto democracy.[10] In the next section, we provide our motivation for adopting liberal democracy in the analysis of economic outcomes, instead of electoral democracy.

In addition, Ansell and Samuels (2018) and Bagchi and Fagerstrom (2023) employ static models as opposed to dynamic models. Since the current level of democracy is highly likely to be influenced by its past level, omitting this dynamic feature in the model could result in bias.

Furthermore, only Freeman and Quinn (2012) consider potential non-linear relationships. The drawback is that this study does not perform a more in-depth test, but relies solely on the sign and significance of the quadratic term to identify nonlinearity. And no turning points are reported. Another common feature of these empirical studies is the lack of a detailed discussion within democratic and autocratic regimes.[11]

In summary, theoretical debates on economic inequality and democracy reveal contrasting perspectives. And empirical research on this topic, while making some progress, still has shortcomings. Existing studies provide a preliminary exploration for us to develop our research on a more solid conceptual and empirical foundation. It is important to recognize that empirical conclusions may vary depending on different data spans and time windows. However, ensuring rigor in the empirical process will enhance our confidence in the results.

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[10] According to the Democracy Report 2024, the democratic backsliding in some liberal democracies primarily results from a weakening of their liberal democratic characteristics (Nord et al., 2024).

[11] Reassessing the relationship between inequality and democracy in democratic and autocratic regimes is necessary. On the one hand, Figure 1 illustrates that this relationship may manifest differently across various types of regimes. On the other hand, a key perspective to explain this relationship is political participation. Solt (2008) argues that political engagement is a distinctly different phenomenon in democratic versus autocratic regimes. Therefore, further discussion is warranted.

3 Empirical Approach and Data

3.1 Empirical Framework

Our baseline empirical analysis is conducted based on the following dynamic linear model:

$$Demo_{it} = \rho Demo_{it-1} + \gamma Inequality_{it-1} + x'_{it-1}\beta + \mu_t + \psi_i + u_{it}, \qquad (1)$$

where is our dependent variable: the democracy level of country i in year t. The lagged democracy level on the right-hand side $Demo_{it-1}$ is used to capture the persistence of democracy and potentially slow-moving mean-reverting dynamics (Acemoglu et al., 2008; Kotschy & Sunde, 2017).[12] Our explanatory variable of interest is $Inequality_{it-1}$, lagged value of economic inequality indicators. Here we employ two forms of economic inequality, income inequality and wealth inequality. The parameter γ therefore measures the association between economic inequality and democracy. We do not use the current period's inequality level because its impact is not expected to be immediate. x_{it-1} represents a set of covariates. Similarly, we utilize the lagged values of these variables to alleviate endogeneity. Additionally, μ_t reflects a set of time effects that capture factors that impact global democracy; ψ_i reflects a set of country effects that capture time-invariant country characteristics that influence democracy; u_{it} is the error term.

Our sample period is 1970 to 2020, and we use a 5-year panel instead of an annual panel. To generate our 5-year panel, following the approach of Acemoglu et al. (2015), we take an observation every 5 years. Acemoglu et al. (2015) explains the bias of taking 5-year averages compared to this approach, as it causes serial correlation problems and makes consistency estimation more challenging. The 5-year panel is widely used in relevant empirical studies because the political consequences of economic inequality usually take time to develop. The occurrence and transmission of these effects may not be instantaneously apparent, or even within a year or two. This consideration aligns with several studies, which support that the association between economic factors and political indicators is statistically more significant in medium term, but may not be as evident in short term (Krieger & Meierrieks, 2016; Kotschy & Sunde, 2017;

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[12] Mean reversion dynamics refers to the tendency that a country's democracy level may return to some equilibrium after experiencing fluctuations.

Treisman, 2020).

In dynamic model, parameter γ measures only the short-run but not the long-run impact of economic inequality on democracy. By setting $Demo_{it} = Demo_{it-1}$, democracy would converge to a new "steady state" (Acemoglu et al., 2008). We can then calculate the long-term impact of economic inequality as

$$\frac{\gamma}{1-\rho}. \tag{2}$$

Given that the fitted curves for the cross-national data indicate the possibility of a non-linear relationship between economic inequality and democracy, we test this further in our empirical analysis. Technically, incorporating the squared term of economic inequality into the right-hand side of Equation (1) could capture the alternative equilibrium relationships between low-inequality and high-inequality countries. We expand our benchmark model to:

$$Demo_{it} = \rho Demo_{it-1} + \gamma Inequality_{it-1} + \delta Inequality_{it-1}^2 + x_{it-1}'\beta + \mu_t + \psi_i + u_{it}. \tag{3}$$

It's important to note that Acemoglu et al. (2015) demonstrate that democratic transformation of political systems does not exert a significant effect on inequality level. Consequently, concerns regarding joint endogeneity are less pressing.

3.2 Estimation and Identification

In the absence of quasi-experiments on inequality and democracy, we employ various dynamic panel estimation methods to address endogeneity and ensure credibility: fixed effects estimation, bias-corrected fixed effects estimation, and system GMM estimation. [13]

The simplest way to estimate Equation (1) is by using ordinary least squares (OLS) and imposing $\rho = 0$, which is a estimation method heavily used in early empirical literature (Muller, 1995; Solt, 2008). However, if $\rho > 0$, this specification fails to capture the dynamic evolution

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[13] Since each estimation method is based on certain assumptions, results may be inherently biased. However, if we can find a significant impact of economic inequality on democracy across all methods, we can quantitatively prove the existence of such an effect (Kotschy & Sunde, 2017).

of democracy and may lead to biased estimates. An alternative approach is to estimate through dynamic fixed effects estimation, which can account for the persistence of democracy. But the mechanical correlation between the lagged dependent variable and the error term makes this estimator inconsistent in short panels (Nickell, 1981).[14]

We conduct a bias correction to address this inherent endogeneity, as suggested by Bruno (2005). The estimates obtained from bias-corrected fixed effects estimator eliminate the bias introduced by panel length, thereby providing more reliable results without having to meet additional, potentially more limiting assumptions (Kotschy & Sunde, 2017).

Furthermore, the generalized method of moments (GMM) estimator is another widely used strategy for dealing with endogeneity issues in dynamic panel models (Acemoglu et al., 2008; Freeman & Quinn, 2012; Krieger & Meierrieks, 2016; Kotschy & Sunde, 2017). We apply the system GMM estimation as the third approach.[15] In the base system GMM specification, we eliminate country-fixed effects by differencing the data in the first order. Regarding the instruments employed in the estimation, the differenced equation uses the first two lags of the lagged dependent variable and the lags of the explanatory variable.[16] In the level equation, the lagged difference of the regressors is used. An alternative specification collapses the instrument set to alleviate the potential weak identification problem caused by excessive instruments. On this basis, our third system GMM specification removes country-fixed effects by applying forward orthogonal differences. For each specification, we report the p-values of the Hansen test for instrument validity and the AR(2) test for serial correlation. In addition, we always report the number of instruments to ensure the rational use of instruments.

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[14] Specifically, this causes the estimate of ρ to be shifted downward.

[15] We do not apply the difference GMM because this method is known to be severely biased when the data are persistent. Although this problem is somewhat bypassed here by using quintennial data points, we would still assume that inequality is persistent and slow-moving. More importantly, for highly persistent dependent variables, the system GMM estimator enhances estimation efficiency and yields more reliable results by incorporating levels as additional instruments (Blundell & Bond, 1998).

[16] Income inequality uses the second to fourth lags, and wealth inequality uses the second lag. In order to satisfy the identification assumptions, additional instruments are used with income inequality as the explanatory variable. The results obtained using wealth inequality as the explanatory variable remain consistent when the same lags are used. To improve the validity of the test statistics, estimates using fewer instruments are reported.

3.3 Data and Variables

Before empirical analysis, we build an unbalanced five-year panel of 140 countries over the period 1970-2020. This section defines our variables and clarifies their sources.

3.3.1 Dependent Variable

Democracy is a complex, multidimensional concept. As mentioned above, this dissertation focuses on the gradual and subtle changes in the quality of democracy within regimes, instead of transitions across regime types. Hence, we choose to use a continuous measurement of democracy level, instead of using dichotomous polity regimes. Our democracy data comes from the Varieties of Democracy Project (V-Dem) (Coppedge et al., 2024). This democracy database has been increasingly used in research due to its advancements in conceptualization, comprehensiveness, and transparency (Mechkova et al., 2017). Additionally, its aggregation methodology captures the conceptual logic of democracy, rather than uncritically averaging all indicators (Munck & Verkuilen, 2002). This makes it more accurate than other potential databases.

For the specific indicator, we choose the Liberal Democracy Index, which maximizes the scope of democracy concept. This index incorporates the principles of electoral democracy as well as three additional liberal components that together reflect the core normative qualities of democracy (Waldner & Lust, 2018).[17] Compared to a narrow definition that focuses merely on the electoral mechanisms, a broadly defined measure of democracy is less likely to encounter unexpected backsliding. Furthermore, the framework developed by Mukand and Rodrik (2020) highlights that while both electoral democracy and liberal democracy capture the economic divisions between the propertied elite and the poor, liberal democracy places additional emphasis on the identity cleavage between majority and minority groups. Deepening economic inequality may further exacerbate this identity cleavage, as evidenced by the recent upsurge of populism (Rodrik, 2017). Our adoption of the concept of liberal democracy in the analysis of the inequality-democracy nexus is therefore well-motivated.

Figure 2 shows the evolution of liberal democracy in our sample between 1970 and 2020. All

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[17] Three additional liberal components are the rule of law ensuring respect for civil liberties, judicial constraints on the executive branch, and legislative checks and oversight of the executive (Mechkova et al., 2017).

metrics show a decline in the quality of democracy. The weighted averages of liberal democracy declined more significantly than the simple average over the past two decades.

Figure 2: Average Liberal Democracy Level Worldwide, 1970-2020
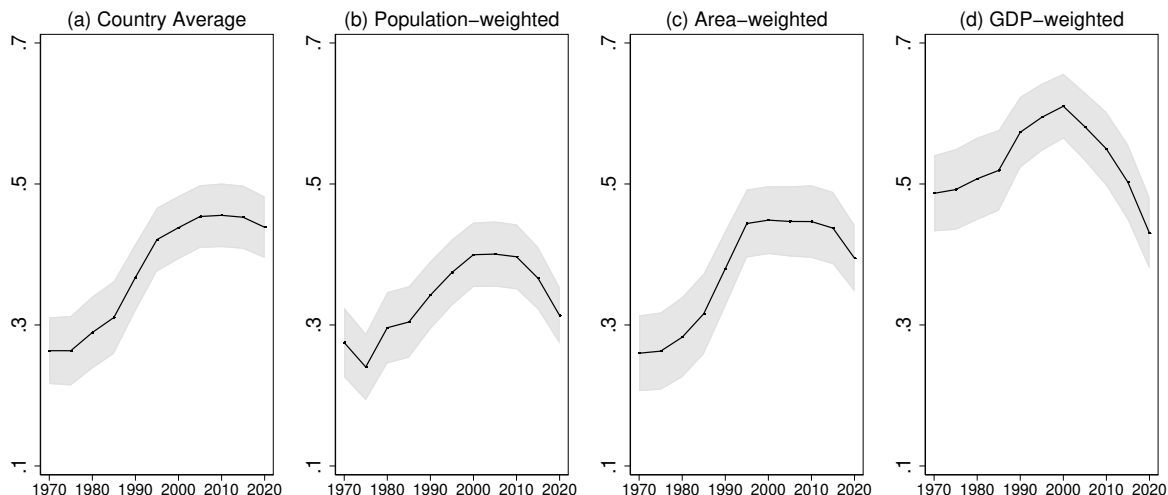
Notes: This figure plots liberal democracy trends worldwide since 1970. The black lines represent global liberal democracy and the grey areas represent the confidence intervals. Panel (a) is based on the country averages. Panels (b), (c), and (d) show levels of democracy weighted by population, area, and GDP.

While we focus on the capacity of economic inequality to erode democracy, rather than the capacity to actually force a regime change. We still need regime types to observe the possible heterogeneity of our benchmark results across democratic and autocratic regimes. Considering electoral mechanisms as well as liberal principles, V-Dem classifies the political regime into four types: liberal democracy, electoral democracy, electoral autocracy, and closed autocracy (Coppedge et al., 2024). To facilitate our analysis, we collectively refer to liberal democracy and electoral democracy as democratic regimes, and to electoral autocracy and closed autocracy as autocratic regimes.

3.3.2 Independent Variable

As suggested above, we mainly employ two forms of economic inequality in the empirical analysis: income inequality and wealth inequality.

Income Inequality We choose net income Gini to measure income inequality. Compared to gross income, which is distributed directly by market forces, net income more comprehensively

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reflects the final distribution of economic resources and the role of government redistributive policies. This difference makes net income inequality a better representation of de facto political power. As well, net income Gini is commonly used as a baseline in the empirical literature analyzing political consequences (Solt, 2008; Kotschy & Sunde, 2017).

Data are taken from the Standardized World Inequality Indicators Database (SWIID) (Solt, 2020). One distinctive advantage of SWIID is the standardization of sources and measures. As a result, in comparison to other non-standardized inequality datasets, SWIID has a greater coverage and comparability across countries, allowing for more comprehensive and consistent cross-national research (Solt, 2020). To address dataset gaps, multiple imputation procedures are used to reduce missing values in SWIID. Given the potential uncertainties that could be introduced, the dataset provides 100 values of Gini coefficient for each country-year unit that can be used to correct the standard errors. Following the approach of Kotschy and Sunde (2017), our baseline analysis uses the simple mean of net income Gini, normalized to 0 to 1.[18]

Wealth Inequality For wealth inequality we use top percentile wealth shares from the World Inequality Database (WID) (Chancel et al., 2022).[19] Data on wealth inequality are generally more difficult to obtain than data on income inequality. Meanwhile, the methodology used to construct wealth inequality indicators varies considerably across countries. In some countries, data are based on wealth taxes, where the wealth holding unit is the household, while in others, data come from inheritance taxes, where the wealth holding unit is the individual (Roine & Waldenström, 2015). These differences undermine the cross-country comparability of many wealth inequality databases (Scheve & Stasavage, 2017). The WID integrates data from various sources: national accounts, survey data, fiscal data, and wealth rankings. In this way, the evolution of all levels of wealth can be tracked more precisely. In addition, the WID makes systematic use of these data, enabling comparisons across different countries and time periods.

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[18] The original net income Gini ranges from 0 to 100. To maintain scale consistency with democracy and wealth inequality, we normalize it. In addition, we consider underlying uncertainties in the inequality measure introduced by the multiple imputation procedures in the robustness check.

[19] In this study, land inequality has not been taken to characterize wealth inequality as it is more appropriate to represent the wealth distribution in low-income, agrarian economies than in wealthier, industrialized countries.

Figure 3 displays the evolution of democracy and economic inequality from 1970 to 2020 across four political regimes: liberal democracy, electoral democracy, electoral autocracy, and closed autocracy, represented by the United States, India, Singapore, and Morocco, respectively.[20] Although the levels of democracy differ across polities, both income inequality and wealth inequality show an overall upward trend. The interaction between economic inequality and democracy is not obvious and requires rigorous empirical methods rather than descriptive analysis to draw precise conclusions.

Figure 3: Time Trends of Democracy and Economic Inequality in Four Political Regimes
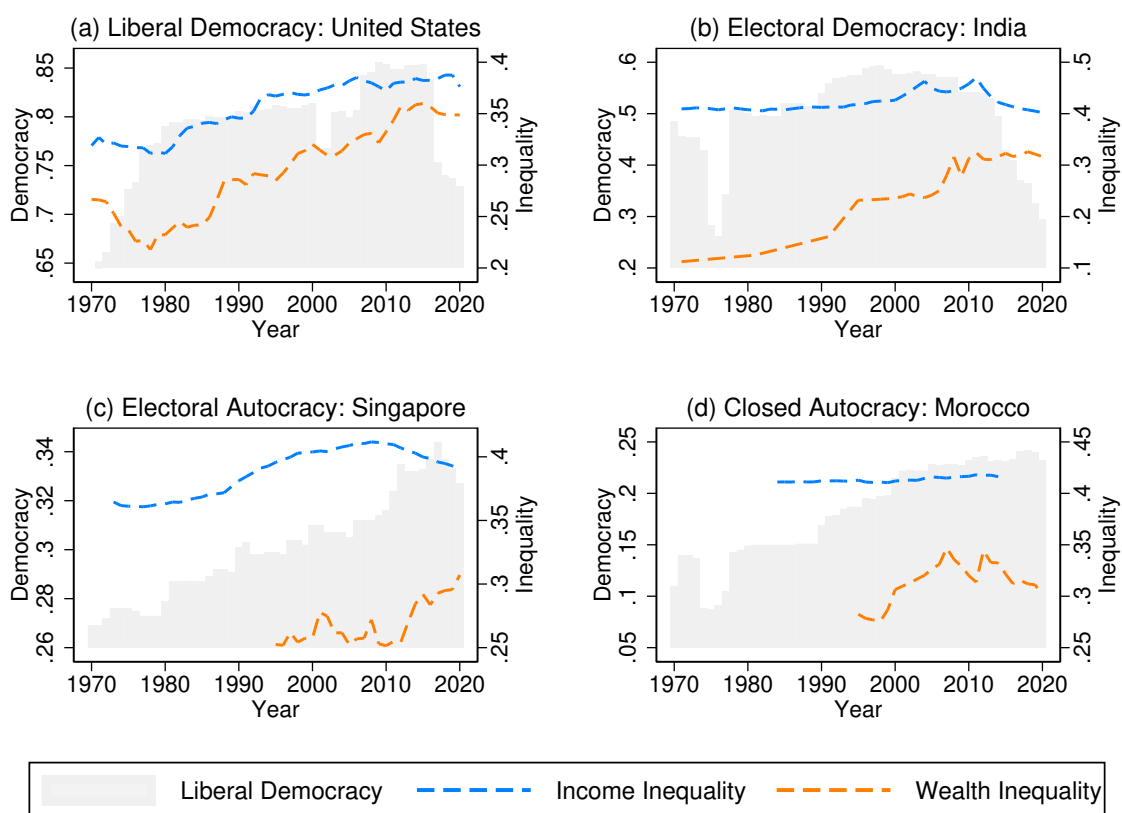
Notes: This figure plots the evolution of democracy and economic inequality from 1970 to 2020 across four political regimes: liberal democracy, electoral democracy, electoral autocracy, and closed autocracy, represented by the United States, India, Singapore, and Morocco, respectively.

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[20] In the literature review we mentioned that wealth inequality is more severe than income inequality, but Figure 3 seems to show the opposite. This is because wealth inequality is represented here by the top percentile wealth share rather than the Gini coefficient. If use Gini coefficients, the range of disposable income inequality is about 0.3-0.5, whereas wealth inequality typically fall in 0.6-0.8 (Davies et al., 2006).

3.3.3 Controls

Our empirical analysis includes lagged log GDP per capita as a necessary control variable. The core philosophy of the modernization theory is that a country's democracy level is positively correlated with its economic development. According to this theory, existing empirical evidence suggests a postive interplay between economic growth and democracy (Boix, 2011; Treisman, 2015; Acemoglu et al., 2019). Changes in GDP per capita also influence inequality (Muller, 1995). Hence, including GDP per capita helps to remove the confounding effects of economic growth. Data comes from the Maddison Database (Bolt & Van Zanden, 2020).

Additional controls include:

Economic structure. In natural resource-rich countries, the vast wealth generated from exports is typically controlled by the government and elites, contributing to high inequality and a curse on democratic governance (Ross, 2001; Tsui, 2011). This is largely because, by holding substantial economic resources, rulers could avoid negotiating with citizens over taxes while also providing the financial means to maintain authoritarianism. We use a dummy variable for oil exporters, with data from World Development Indicators.[21]

Education. Education's causal effect on democracy is another philosophy of the modernization theory. Lipset (1959) acknowledges that the development of education brings about the spread of democracy. Empirically, Barro (1999) notes that education is an important predictor of democracy. Universal access to education also contributes to reducing inequality. Education is measured by average years of schooling, data from Clio Infra.

Trade openness. A core argument presented by Boix (2003) is that if economic elites can transfer assets with low cost domestically and internationally, they gain a strategic advantage in bargaining over taxes. Increased openness empowers economic elites, thereby fostering and consolidating democracy. To measure trade openness, we use the ratio of the sum of imports and exports to GDP, with data sourced from the World Development Indicators.

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[21] This dummy variable takes 1 if the share of fuel exports in total exports is greater than 50 percent, and 0 otherwise.

Religious belief. Philpott (2007) argues that religion pursues two political objectives: supporting democratization and political violence, which implies that religious beliefs may have a dual impact on democracy. Islam is often considered detrimental to democracy, while Protestantism is viewed as a promoter (Woodberry, 2012). Religious belief may also influence the public's tolerance for inequality. We obtain the population shares of Muslims, Catholics and Protestants from the World Religion Project Database (Maoz & Henderson, 2013).

Population: In conditions of limited resources, the larger the population, the harder it is to allocate them equitably. Also, a larger population leads to a more competitive labor market, which is likely to lower the wages of low-skilled workers and exacerbate inequality. There are also indications that larger countries are more likely to be democratic, though the debate is ongoing. Maddison Database provides each country's population size (Bolt & Van Zanden, 2020).

Summary statistics for all variables are presented in Appendix II.

4 Dynamic Panel Estimates

4.1 Baseline Results

Table 1 features the results based on Equation (1). Column 1 shows the fixed effects estimates, Column 2 presents bias-corrected fixed effects estimates, and Columns 3-5 system GMM estimates. Subsequently, we impose different values for ρ in Equation (1), spanning from 0 to 1, and conduct the regressions (See Columns 6 through 10). The table also reports the long-run effect of economic inequality at the bottom.

In Panel A, the explanatory variable is income inequality. The most crucial and direct information in Panel A is that we cannot establish that income inequality has a significant linear effect on democracy regardless of estimate approaches. Most of our specifications yield a negative sign for the coefficient of income inequality, but these estimates have large standard errors and are therefore statistically insignificant. In line with some empirical research, these estimates do not support the conventional wisdom that income inequality weakens democracy (Freeman & Quinn, 2012; Ansell & Samuels, 2018). Another key finding is that the coefficients for the lagged democracy exhibit durability, as shown by $\hat{\rho}$ being highly significant and positive across all specifications. Fixed effects estimation produces the lowest coefficient estimates of the lagged democracy, which might stem from the Nickell bias in the short panel discussed above (Kotschy & Sunde, 2017).

Panel B of Table 1 reports the corresponding results for wealth inequality as the explanatory variable. The dependent variable exhibits similar high persistence here. The difference, however, is that we observe a significant relationship between wealth inequality and democracy. Irrespective of the specification, the estimated coefficients on wealth inequality are consistently negative at less than the 10% confidence level. In Column 2, the estimated effect of wealth inequality is -0.148 and the corresponding standard error is 0.068. The cumulative effect of wealth inequality is -0.525, which is greater in absolute value than the short-term effect and still statistically significant. Besides, the estimates are economically significant. In the short run, increasing wealth inequality by one standard deviation (here 0.09) would decrease 4.8

percent of a standard deviation of democracy, ceteris paribus. In the long run, a one-standard-deviation increase in wealth inequality is associated with a 0.17-standard-deviation decrease in the quality of democracy. As expected, the short-term and long-term effects are not identical, since the intergenerational transmission and snowballing nature of wealth deepens the erosion of democracy by wealth inequality over time.

Table 1: Effects of Economic Inequality on Democracy

	Fixed Effects	Bias-corrected Fixed Effects	System GMM			Assuming AR(1) coefficient				
						$\rho=0$	$\rho=0.25$	$\rho=0.5$	$\rho=0.75$	$\rho=1$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Income inequality										
L.Democracy	0.593***	0.814***	0.906***	0.939***	0.901***					
	(0.051)	(0.039)	(0.047)	(0.052)	(0.053)					
L.Income Inequality	-0.191	-0.161	0.256	-0.003	-0.072	-0.148	-0.170	-0.185	-0.201	-0.216
	(0.161)	(0.127)	(0.163)	(0.207)	(0.223)	(0.287)	(0.223)	(0.174)	(0.153)	(0.172)
L.GDP per capita	-0.005	-0.006	0.023**	0.007	0.010	0.007	0.002	-0.003	-0.008	-0.013
	(0.019)	(0.015)	(0.011)	(0.013)	(0.013)	(0.037)	(0.029)	(0.022)	(0.016)	(0.014)
Number of instruments			70	34	34					
Hansen p-value			0.30	0.39	0.14					
AR2 p-value			0.73	0.72	0.73					
Observations	964	964	964	964	964	970	964	964	964	964
Countries in sample	140	140	140	140	140	140	140	140	140	140
Long-run effect	-0.470	-0.862	2.719	-0.042	-0.727	-0.148	-0.226	-0.370	-0.803	-
of inequality	(0.381)	(0.704)	(2.254)	(3.423)	(2.282)	(0.287)	(0.298)	(0.347)	(0.611)	-
Panel B: Wealth Inequality										
L.Democracy	0.419***	0.718***	0.869***	0.877***	0.875***					
	(0.070)	(0.048)	(0.057)	(0.059)	(0.054)					
L.Wealth Inequality	-0.187*	-0.148**	-0.353**	-0.413**	-0.322**	-0.243**	-0.209**	-0.177*	-0.144	-0.111
	(0.096)	(0.068)	(0.153)	(0.177)	(0.160)	(0.108)	(0.098)	(0.096)	(0.103)	(0.117)
L.GDP per capita	-0.008	-0.015	0.009	0.007	0.009	0.002	-0.004	-0.009	-0.014	-0.019
	(0.013)	(0.016)	(0.009)	(0.009)	(0.008)	(0.015)	(0.013)	(0.013)	(0.014)	(0.016)
Number of instruments			54	32	32					
Hansen p-value			0.96	0.72	0.63					
AR2 p-value			0.66	0.65	0.66					
Observations	710	710	710	710	710	711	710	710	710	710
Countries in sample	138	138	138	138	138	138	138	138	138	138
Long-run effect	-0.322*	-0.525**	-2.687*	-3.349*	-2.564*	-0.243**	-0.279**	-0.353*	-0.574	-
of inequality	(0.167)	(0.253)	(1.408)	(1.780)	(1.461)	(0.108)	(0.130)	(0.192)	(0.413)	-

Notes: The core explanatory variable is Income Inequality in Panel A and Wealth Inequality in Panel B. Column 1 shows the fixed effects estimates, Column 2 presents bias-corrected fixed effects estimates (using bootstrap procedures with 100 repetitions), and Columns 3-5 system GMM estimates. For system GMM, the differenced equation uses the first two lags of the lagged dependent variable and the lags of the explanatory variable. (Income inequality uses the second to fourth lags, and wealth inequality uses the second lag) In the level equation, the lagged difference of the regressors is used as instruments. Columns 3-4 eliminate country fixed effects by differencing the data in the first order, and Column 5 uses forward orthogonal differences. Columns 4 and 5 further collapse the instrument set. We impose different values for the autocorrelation coefficient of democracy (Column 6 through 10). Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Column 3 reports the system GMM estimation results using the full set of instruments. Estimates of ρ and γ increase marginally, resulting in a substantial increase in the magnitude of the long-term impact, from -0.5 to about -2.7. Columns 4 and 5 present alternative GMM estimations with collapsed instruments and forward-differencing. Similarly, the point estimates of

both ρ and γ are more negative than those in Column 2, implying a significant increase in the magnitude of the long-term negative effects, with values of -3.3 and -2.6, respectively.

As noted above, the fixed effects estimate of ρ is biased in short panels. Thus, if the selected value of ρ is correct, the fixed effects estimate would be consistent (Acemoglu et al., 2015). We attempt to assign values to ρ and get the following results. When ρ is assumed to be 0, 0.25, or 0.5, wealth inequality has a statistically significant effect on democracy. However, the significant effect vanish when ρ takes on larger values. Additionally, smaller values of ρ result in smaller long-term negative effects.[22]

4.2   Robustness Checks

We turn to examine if our baseline results are solid by reporting several robustness tests.

A first set of robustness tests is conducted by removing or adding various controls to the model, see Table 2 and Table 3. In both tables, estimates in the odd-numbered columns are obtained using bias-corrected fixed effects estimation, while estimates in the even-numbered columns are derived from system GMM estimation. We remove the control for GDP per capita in the first two columns. Using income inequality as the explanatory variable, the coefficients of interest remain statistically insignificant. Reassuringly, however, when wealth inequality serves as the explanatory variable, its effect remains negative and significant. Columns 3-12 contain additional various controls, which again exert little influence on the sign and significance of the coefficient estimates.

A second set of robustness tests includes income inequality and wealth inequality together in regression, as presented in Table 4. This treatment is in line with Ansell and Samuels (2018) and enables us to determine the impact of wealth inequality on the level of democracy when income inequality is held constant (and vice versa). The empirical estimates derived using two types of economic inequality as explanatory variables also demonstrate null relationship between income inequality and democracy. On the other hand, the negative impact of wealth inequality on democracy is consistently evident in all columns.

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[22] When we impose $\rho = 1$, the long-run impact is undefined.

A third set of robustness tests addresses the potential influence of multiple imputation on the income inequality-democracy nexus. This technique is used in the SWIID dataset to reduce missing values but introduces underlying uncertainties. Following Kotschy and Sunde (2017)'s approach, we use 100 realizations of net income Gini for each country-year unit to estimate the coefficients multiple times. The final reported coefficients and their standard errors are the averages obtained from multiple estimations. The results, presented in Table 5, prove the coefficients of income inequality are qualitatively similar to the results in Table 2. Therefore, our method of treating income inequality is reliable.

4.3   Non-linear Relationship Test

Our baseline analysis considers only the linear association between economic inequality and democracy. The results show that income inequality does not affect democracy, while worsening wealth inequality decreases a country's democratic performance. However, it remains unclear whether a nonlinear connection exists between income inequality and democratic backsliding. Furthermore, it is uncertain if our finding on the wealth inequality-democracy nexus still holds when adding a potential nonlinear component. Therefore, we proceed further by estimating Equation (3) to explore the existence of a nonlinear relationship between different types of economic inequality and democracy.

In most empirical studies seeking to identify nonlinearity, a U-shaped or a hump-shaped relationship is typically inferred based on having opposite and statistically significant signs on the coefficients of the explanatory variable and its squared term. However, Lind and Mehlum (2010) argue that relying solely on this criterion is not rigorous and can sometimes be misleading. Without combining the economic interpretation and the range of the explanatory variable, the observed relationship may merely represent either the left or right side of a U-shaped curve, indicating a still monotonic relationship with only changing marginal effects. Subsequently, Lind and Mehlum (2010) derive a more rigid framework for testing non-monotonic relationships in regression models: beyond the significance and correct signs of the coefficients, the turning point should lie around the central of the data range, and the slopes at both ends of the sample distribution need to be sufficiently steep. We follow this framework for testing.

Table 2: Robustness: Adding Other Controls, Income Inequality

| | Ex GDP per capita | | Adding other controls | | | | | | | | | | | |
	Bias-corr. (1)	Sys-GMM (2)	Bias-corr. (3)	Sys-GMM (4)	Bias-corr. (5)	Sys-GMM (6)	Bias-corr. (7)	Sys-GMM (8)	Bias-corr. (9)	Sys-GMM (10)	Bias-corr. (11)	Sys-GMM (12)	Bias-corr. (13)	Sys-GMM (14)
L.Democracy	0.814***	0.946***	0.814***	0.925***	0.818***	0.995***	0.804***	0.944***	0.795***	0.933***	0.805***	0.939***	0.803***	0.962***
	(0.039)	(0.053)	(0.039)	(0.057)	(0.038)	(0.056)	(0.038)	(0.054)	(0.035)	(0.057)	(0.038)	(0.052)	(0.037)	(0.067)
L.Income Inequality	-0.160	-0.069	-0.148	-0.029	-0.018	0.012	-0.100	0.189	-0.186	0.011	-0.117	0.028	0.019	0.545*
	(0.127)	(0.143)	(0.129)	(0.197)	(0.156)	(0.250)	(0.141)	(0.222)	(0.141)	(0.220)	(0.129)	(0.204)	(0.163)	(0.300)
L.GDP per capita			-0.007	0.009	-0.025	-0.005	0.004	0.016	-0.012	0.005	-0.007	0.008	-0.023	0.009
			(0.015)	(0.014)	(0.017)	(0.011)	(0.012)	(0.014)	(0.014)	(0.013)	(0.015)	(0.013)	(0.017)	(0.014)
Oil Exporter			-0.012	-0.027*									-0.010	-0.032*
			(0.021)	(0.016)									(0.022)	(0.019)
L.Education					0.018**	0.001							0.022**	0.010*
					(0.009)	(0.005)							(0.009)	(0.006)
L.Trade Openness							-0.050***	-0.012					-0.048***	-0.029**
							(0.014)	(0.008)					(0.018)	(0.012)
Muslim									-0.147	-0.012			-0.056	0.037
									(0.138)	(0.012)			(0.229)	(0.025)
Catholics									0.123*	0.031*			0.132	-0.007
									(0.074)	(0.018)			(0.086)	(0.020)
Protestant									0.030	0.018			0.054	-0.000
									(0.095)	(0.019)			(0.088)	(0.027)
L.Population											0.049*	-0.002*	-0.018	-0.006
											(0.026)	(0.001)	(0.029)	(0.004)
Number of instruments		33		35		35		35		37		35		41
Hansen p-value		0.37		0.38		0.21		0.23		0.31		0.37		0.48
AR2 p-value		0.72		0.75		0.81		0.67		0.71		0.72		0.82
Observations	964	964	964	964	832	832	887	887	962	962	964	964	771	771
Countries in sample	140	140	140	140	116	116	136	136	140	140	140	140	113	113

Notes: The core explanatory variable is Income Inequality. Estimates in the odd-numbered columns are obtained using bias-corrected fixed effects estimation, while estimates in the even-numbered columns are derived from system GMM estimation. Here, we use the same system GMM specifications as Column 4 in Table 1. We remove the control for GDP per capita in the first two columns. Columns 3–12 include various controls (economic structure, education, trade openness, religious belief, and population). Columns 13 and 14 include all eight of these variables together. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

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Table 3: Robustness: Adding Other Controls, Wealth Inequality

	Ex GDP per capita		Adding other controls											
	Bias-corr.	Sys-GMM	Bias-corr.	Sys-GMM	Bias-corr.	Sys-GMM	Bias-corr.	Sys-GMM	Bias-corr.	Sys-GMM	Bias-corr.	Sys-GMM	Bias-corr.	Sys-GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
L.Democracy	0.712***	0.843***	0.721***	0.864***	0.942***	0.960***	0.714***	0.881***	0.690***	0.875***	0.747***	0.868***	0.963***	0.941***
	(0.048)	(0.063)	(0.049)	(0.064)	(0.062)	(0.068)	(0.047)	(0.064)	(0.047)	(0.067)	(0.049)	(0.060)	(0.066)	(0.082)
L.Wealth Inequality	-0.155**	-0.390*	-0.149**	-0.422**	-0.254***	-0.467**	-0.151*	-0.432**	-0.152**	-0.410**	-0.143**	-0.421**	-0.265***	-0.398*
	(0.068)	(0.153)	(0.068)	(0.178)	(0.083)	(0.189)	(0.084)	(0.206)	(0.075)	(0.183)	(0.068)	(0.175)	(0.090)	(0.216)
L.GDP per capita			-0.015	0.009	-0.018	-0.001	-0.017	0.008	-0.014	0.003	-0.016	0.008	-0.028	0.002
			(0.016)	(0.010)	(0.020)	(0.011)	(0.015)	(0.010)	(0.015)	(0.008)	(0.016)	(0.009)	(0.021)	(0.012)
Oil Exporter			0.003	-0.033*										-0.023
			(0.019)	(0.020)										(0.021)
L.Education					0.002	-0.003							0.012	-0.002
					(0.013)	(0.003)							(0.012)	(0.003)
L.Trade Openness							-0.036***	-0.013					-0.039**	-0.017
							(0.013)	(0.008)					(0.016)	(0.012)
Muslim									-0.051	-0.009			0.215	-0.003
									(0.184)	(0.017)			(0.301)	(0.018)
Catholics									0.154	0.039*			0.051	0.021
									(0.106)	(0.023)			(0.114)	(0.023)
Protestant									-0.032	0.064**			-0.184	0.020
									(0.101)	(0.031)			(0.129)	(0.028)
L.Population											0.022	-0.004*	-0.047	-0.008**
											(0.027)	(0.002)	(0.032)	(0.003)
Number of instruments		31		33		33		33		35		33		39
Hansen p-value		0.84		0.69		0.81		0.37		0.62		0.80		0.48
AR2 p-value		0.65		0.71		0.44		0.55		0.65		0.65		0.38
Observations	710	710	710	710	585	585	674	674	709	709	710	710	562	562
Countries in sample	138	138	138	138	114	114	134	134	138	138	138	138	111	111

Notes: The core explanatory variable is Wealth Inequality. Estimates in the odd-numbered columns are obtained using bias-corrected fixed effects estimation, while estimates in the even-numbered columns are derived from system GMM estimation. Here, we use the same system GMM specifications as Column 4 in Table 1. We remove the control for GDP per capita in the first two columns. Columns 3–12 include various controls (economic structure, education, trade openness, religious belief, and population). Columns 13 and 14 include all eight of these variables together. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 4: Robustness: Including Both Income and Wealth Inequality in Regressions

	Base sample					Adding other controls				
	FE	Bias-corr.	System GMM			FE	Bias-corr.	System GMM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.412***	0.725***	0.913***	0.891***	0.877***	0.515***	0.965***	0.893***	0.885***	0.907***
	(0.073)	(0.052)	(0.056)	(0.063)	(0.062)	(0.066)	(0.057)	(0.091)	(0.094)	(0.076)
L.Income Inequality	-0.044	-0.135	0.447*	0.527	0.426	0.019	0.006	0.567*	0.666	0.557
	(0.206)	(0.197)	(0.231)	(0.362)	(0.358)	(0.192)	(0.216)	(0.310)	(0.419)	(0.372)
L.Wealth Inequality	-0.194*	-0.132*	-0.281*	-0.324*	-0.302*	-0.287**	-0.250**	-0.467**	-0.518**	-0.414*
	(0.102)	(0.077)	(0.158)	(0.190)	(0.183)	(0.125)	(0.108)	(0.217)	(0.245)	(0.212)
L.GDP per capita	-0.018	-0.025	0.019	0.025	0.024	-0.035	-0.040*	0.017	0.020	0.016
	(0.015)	(0.019)	(0.012)	(0.016)	(0.016)	(0.021)	(0.021)	(0.017)	(0.018)	(0.016)
Oil Exporter						0.003	-0.009	-0.036	-0.038	-0.037*
						(0.015)	(0.021)	(0.025)	(0.025)	(0.022)
L.Education						0.023	0.016	0.005	0.005	0.005
						(0.016)	(0.016)	(0.005)	(0.006)	(0.005)
L.Trade Openness						-0.059***	-0.047**	-0.021*	-0.022*	-0.024**
						(0.017)	(0.020)	(0.013)	(0.012)	(0.011)
Muslim						0.005	0.218	0.021	0.024	0.023
						(0.210)	(0.343)	(0.022)	(0.027)	(0.024)
Catholics						0.085	0.049	0.004	0.003	-0.001
						(0.074)	(0.110)	(0.019)	(0.022)	(0.017)
Protestant						-0.102	-0.183	0.031	0.035	0.023
						(0.069)	(0.130)	(0.028)	(0.030)	(0.026)
L.Population						-0.054	-0.057	-0.008***	-0.008**	-0.009***
						(0.039)	(0.040)	(0.003)	(0.003)	(0.003)
Number of instruments			64	42	42			60	40	40
Hansen p-value			0.94	0.96	0.94			0.88	0.76	0.84
AR2 p-value			0.38	0.38	0.39			0.30	0.31	0.32
Observations	664	664	664	664	664	537	537	537	537	537
Countries in sample	138	138	138	138	138	111	111	111	111	111

Notes: This table includes income inequality and wealth inequality together in regression. Columns 1-5 use base sample, Columns 6-10 use base sample with other controls. The estimation methods include fixed effects estimation, bias-corrected fixed effects estimation and system GMM estimation. Here, we use the same system GMM specifications as Column 3-5 in Table 1. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 5: Robustness: Income Inequality Measure

	Fixed Effects	Bias-corrected Fixed Effects	System GMM			Assuming AR(1) coefficient				
						$\rho = 0$	$\rho = 0.25$	$\rho = 0.5$	$\rho = 0.75$	$\rho = 1$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.593***	0.812***	0.908***	0.938***	0.902***					
	(0.051)	(0.039)	(0.045)	(0.050)	(0.052)					
L.Income Inequality	-0.133	-0.120	0.231	-0.089	-0.155	-0.104	-0.118	-0.129	-0.139	-0.150
	(0.133)	(0.107)	(0.182)	(0.246)	(0.246)	(0.228)	(0.180)	(0.142)	(0.127)	(0.139)
L.GDP per capita	-0.005	-0.007	0.022**	0.004	0.007	0.007	0.002	-0.003	-0.008	-0.013
	(0.019)	(0.015)	(0.011)	(0.014)	(0.013)	(0.037)	(0.029)	(0.022)	(0.016)	(0.014)
Number of instruments			70	34	34					
Hansen p-value			0.145	0.215	0.094					
AR2 p-value			0.725	0.714	0.732					
Observations	970	964	964	823	964	970	964	964	964	964
Countries in sample	140	140	140	140	140	140	140	140	140	140

Notes: The final reported coefficients and their standard errors are the averages obtained from multiple estimations of 100 realizations of net income Gini for each country-year unit. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 6 reports the estimation results of Equation (3) with income inequality as the explanatory variable. We first focus on the significance and signs of $\hat{\gamma}$ and $\hat{\delta}$. Without additional controls, all specifications show that the coefficients of income inequality and its squared term have opposite signs (the former being negative and the latter positive), and both are statistically significant. These results hold when using the system GMM estimates with additional controls. For specifications that satisfy the coefficient criterion, we further compute the turning point. All turning points fall between 0.37 and 0.44, which is in the middle of values taken by the income inequality variable. The current empirical results are partially reflected in Figure 1: as income inequality increases, the level of democracy initially declines, but after reaching a turning point (around 0.4), it begins to rise. But this finding is counterintuitive: from a marginal perspective, a rise in inequality, if it is low, is not putting a country at the peril of democratic backsliding to the same extent as a rise in inequality if it is very high. Since the slopes at both ends of income inequality have not yet been confirmed, we cannot draw any definitive conclusions at this point.

Table 6: Non-linear Effects of Income Inequality on Democracy

	Fixed Effects		Bias-corrected Fixed Effects		System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.594***	0.597***	0.812***	0.800***	0.891***	0.905***	0.870***	0.837***	0.916***	0.890***
	(0.051)	(0.061)	(0.038)	(0.037)	(0.044)	(0.052)	(0.057)	(0.057)	(0.068)	(0.073)
L.Income Inequality	-1.547**	-0.554	-1.728**	-0.448	-1.627*	-2.231*	-2.535*	-2.287**	-3.226**	-3.076*
	(0.703)	(0.803)	(0.718)	(0.718)	(0.968)	(1.306)	(1.342)	(1.116)	(1.624)	(1.692)
L.Income Inequality Sq.	1.764*	0.713	2.042**	0.605	2.167*	2.963*	3.323*	3.025**	4.250**	4.101*
	(0.927)	(1.100)	(0.900)	(0.905)	(1.273)	(1.705)	(1.754)	(1.450)	(2.071)	(2.140)
L.GDP per capita	-0.007	-0.030	-0.009	-0.024	0.014	0.011	0.015	0.019*	0.008	0.010
	(0.019)	(0.020)	(0.015)	(0.017)	(0.009)	(0.009)	(0.010)	(0.011)	(0.012)	(0.011)
Oil Exporter		-0.007		-0.010				-0.045***	-0.033**	-0.042**
		(0.018)		(0.022)				(0.015)	(0.016)	(0.016)
L.Education		0.032***		0.022**				0.004	0.004	0.005
		(0.012)		(0.009)				(0.003)	(0.003)	(0.003)
L.Trade Openness		-0.044**		-0.047***				-0.036***	-0.034***	-0.038***
		(0.018)		(0.018)				(0.010)	(0.012)	(0.011)
Muslim		-0.098		-0.056				0.017	0.032	0.034*
		(0.168)		(0.231)				(0.018)	(0.020)	(0.020)
Catholics		0.121		0.125				0.025	0.018	0.020
		(0.102)		(0.087)				(0.018)	(0.019)	(0.019)
Protestant		0.111		0.051				-0.034	-0.076**	-0.064
		(0.119)		(0.088)				(0.031)	(0.037)	(0.039)
L.Population		-0.030		-0.020				-0.010***	-0.010**	-0.010***
		(0.035)		(0.029)				(0.004)	(0.004)	(0.004)
Turning point	0.438	-	0.423	-	0.375	0.376	0.381	0.378	0.380	0.375
Number of instruments					103	46	46	110	53	53
Hansen p-value					0.16	0.58	0.52	0.48	0.83	0.70
AR2 p-value					0.72	0.70	0.72	0.92	0.89	0.92
Observations	964	771	964	771	964	964	964	771	771	771
Countries in sample	140	113	140	113	140	140	140	113	113	113

Notes: The core explanatory variable is Income Inequality and its squared term. The estimation methods include fixed effects estimation, bias-corrected fixed effects estimation and system GMM estimation. Here, we use the same system GMM specifications as Column 3-5 in Table 1. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

To build on this, Figure 4 illustrates the marginal effects of income inequality on democracy across various estimation methods.[23] In all five graphs, the solid line crosses upward through the zero line, showing a shift from negative to positive marginal effects. Admittedly, the marginal effects are not clear within the 90% confidence intervals.

Figure 4: Marginal Effects of Income Inequality on Democracy
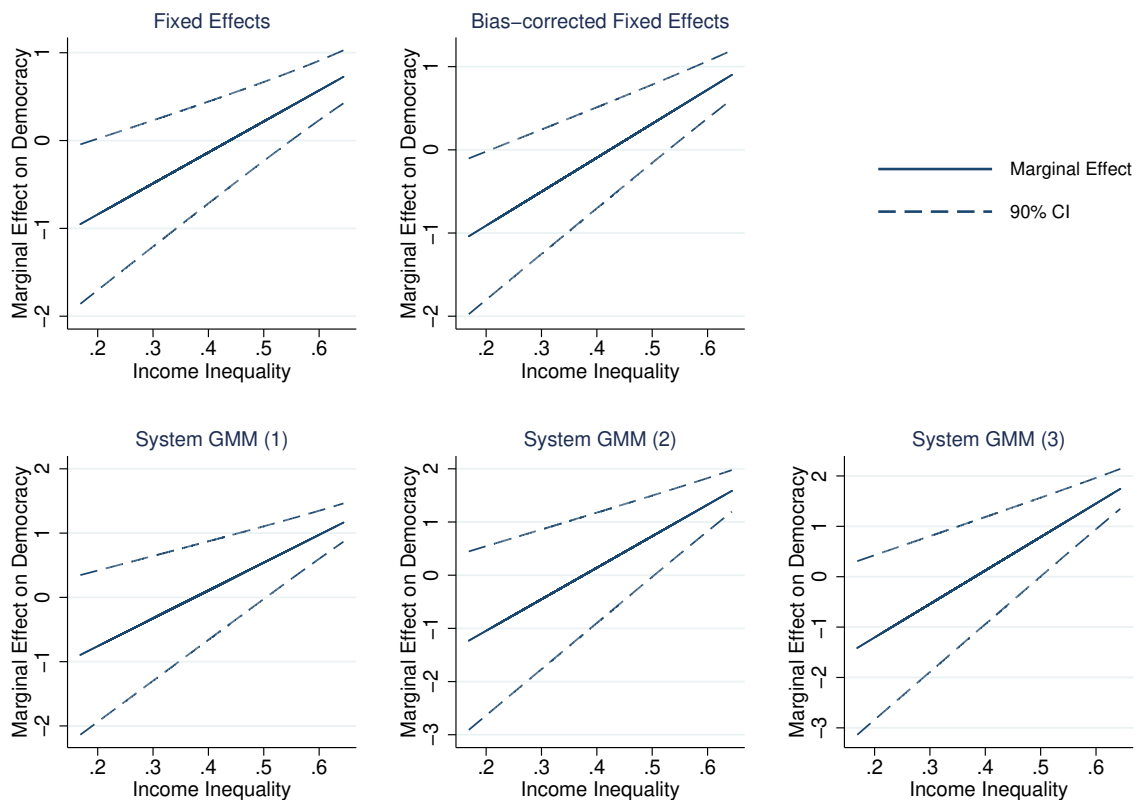
Notes: This figure illustrates the marginal effects of income inequality on democracy across various estimation methods. The solid lines show these effects. The dashed lines represent the 90% confidence intervals.

At the left end of income inequality, the confidence intervals are wide, implying higher uncertainty in the estimates. Additionally, the upper limits of the confidence intervals are very close to or include zero, making it difficult to precisely determine the direction of the marginal effects. As income inequality increases, the confidence intervals progressively narrow, but still include zero. Until the right end of income inequality, the confidence intervals are overall above zero, indicating that the marginal effects of income inequality on democracy are positive. Nevertheless, considering the distribution of income inequality, countries with income inequality

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[23] Given the estimation results, the expression of the marginal effect is: $MEit = \hat{\gamma} + 2\hat{\delta} \times Inequality_{it-1}$.

higher than 0.5 only represents 5% of the total sample. Therefore, this positive marginal effects do not have broad explanatory power and cannot alter the general insignificance of the marginal effects, as the majority of the confidence intervals include zero. In other words, the slopes at the ends of the data are not adequately steep.

In short, within the main distribution range of income inequality, there is considerable uncertainty regarding the direction and strength of its impact on democracy. We do not have sufficient evidence to support a non-linear relationship between the two.

Table 7: Non-linear Effects of Wealth Inequality on Democracy

	Fixed Effects		Bias-corrected Fixed Effects		System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.417***	0.527***	0.708***	0.974***	0.865***	0.870***	0.875***	0.896***	0.911***	0.936***
	(0.069)	(0.063)	(0.047)	(0.062)	(0.048)	(0.049)	(0.046)	(0.065)	(0.067)	(0.050)
L.Wealth Inequality	-0.667*	-0.778*	-0.504	-0.495	0.001	-0.352	-0.155	-0.459	-0.557	-0.149
	(0.344)	(0.409)	(0.386)	(0.462)	(0.335)	(0.466)	(0.437)	(0.444)	(0.488)	(0.377)
L.Wealth Inequality Sq.	0.711	0.718	0.530	0.338	-0.166	0.260	0.029	0.459	0.478	0.054
	(0.503)	(0.597)	(0.553)	(0.648)	(0.508)	(0.684)	(0.654)	(0.578)	(0.658)	(0.549)
L.GDP per capita	-0.008	-0.024	-0.015	-0.029	0.015**	0.012	0.012*	0.009	0.006	0.004
	(0.013)	(0.018)	(0.016)	(0.021)	(0.007)	(0.007)	(0.007)	(0.010)	(0.010)	(0.009)
Oil Exporter		0.005		-0.005				-0.034*	-0.028	-0.028*
		(0.014)		(0.023)				(0.019)	(0.019)	(0.016)
L.Education		0.021		0.012				0.001	0.000	0.002
		(0.014)		(0.012)				(0.003)	(0.003)	(0.002)
L.Trade Openness		-0.046**		-0.038**				-0.021**	-0.019*	-0.021**
		(0.019)		(0.016)				(0.010)	(0.010)	(0.009)
Muslim		0.038		0.239				0.000	-0.000	0.005
		(0.203)		(0.302)				(0.015)	(0.016)	(0.014)
Catholics		0.098		0.060				0.017	0.019	0.009
		(0.066)		(0.115)				(0.017)	(0.019)	(0.015)
Protestant		-0.098		-0.178				0.017	0.019	0.006
		(0.064)		(0.130)				(0.020)	(0.023)	(0.017)
L.Population		-0.058		-0.052				-0.009***	-0.009***	-0.009***
		(0.038)		(0.033)				(0.002)	(0.002)	(0.002)
Number of instruments					64	42	42	65	48	48
Hansen p-value					0.97	0.82	0.67	0.78	0.44	0.46
AR2 p-value					0.70	0.67	0.69	0.41	0.39	0.40
Observations	710	562	710	562	710	710	710	562	562	562
Countries in sample	138	111	138	111	138	138	138	111	111	111

Notes: The core explanatory variable is Wealth Inequality and its squared term. The estimation methods include fixed effects estimation, bias-corrected fixed effects estimation and system GMM estimation. Here, we use the same system GMM specifications as Column 3-5 in Table 1. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 7 reports the estimation results of Equation (3) with wealth inequality as the explanatory variable. Among all specifications, the coefficients of squared wealth inequality are unanimously statistically insignificant. It proved that no non-linear effect of wealth inequality on democracy, and our baseline finding that wealth inequality negatively impacts democracy is solid. Since the first criterion for determining a non-linear relationship is not met, we omit the

marginal effects figure.

To summarize, our benchmark conclusions remain robust after conducting non-linear tests.

4.4 Reassessing the Inequality-Democracy Nexus Within Regimes

Up to now, we have not found a significant impact of income inequality on democracy, while there is evidence that V-Dem liberal democracy scores fall as wealth inequality rises. These findings are based on a full sample of countries, including both democracies and autocracies. In the remainder of this section, we will explore another crucial concern: whether our findings apply uniformly to both democratic and autocratic regimes. According to Figure 1, we expect the same conclusions to be more likely to hold in democracies than in autocratic ones.

Panel A and Panel B of Table 8 present the linear relationship estimates within democratic and autocratic regimes, respectively. [24] Both the baseline and robustness results are provided. From Panel A, the two central conclusions derived from the full sample hold entirely within democratic regimes. In contrast, within autocratic regimes, the estimated coefficients for income inequality are significant under some specifications but clearly lack robustness. The estimates for the impact of wealth inequality diverge considerably from those in the overall sample, being mostly positive. The sign of wealth inequality aligns with the pattern observed in the last graph of Figure 1, where the three fitted curves show a slight positive slope. However, these estimates are also not sufficiently robust and there are substantial differences in the estimated values. Meanwhile, due to the limitations in sample size, the reliability of the regression results is somewhat reduced.

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[24]See Appendix III for full tables of Section 4.4.

Table 8: Effects of Economic Inequality on Democracy Within Regimes

	Bias-corr. (1)	Sys-GMM (2)	Bias-corr. (3)	Sys-GMM (4)	Bias-corr. (5)	Sys-GMM (6)	Bias-corr. (7)	Sys-GMM (8)
Panel A: Democracies Only								
L.Democracy	0.821***	0.859***	0.685***	0.782***	0.686***	0.836***	0.960***	0.830***
	(0.043)	(0.066)	(0.052)	(0.081)	(0.048)	(0.081)	(0.070)	(0.092)
L.Income Inequality	-0.193	-0.204			-0.073	0.366	0.023	0.493
	(0.153)	(0.232)			(0.239)	(0.314)	(0.246)	(0.309)
L.Wealth Inequality			-0.208**	-0.311*	-0.195*	-0.396*	-0.416***	-0.422*
			(0.081)	(0.188)	(0.115)	(0.216)	(0.114)	(0.247)
L.GDP per capita	-0.012	0.008	-0.061**	0.017	-0.060*	0.023	-0.066*	0.013
	(0.019)	(0.013)	(0.026)	(0.012)	(0.032)	(0.016)	(0.037)	(0.017)
Additional Controls							✓	✓
Number of instruments		34		32		42		40
Hansen p-value		0.06		0.53		0.96		0.65
AR2 p-value		0.85		0.67		0.30		0.19
Observations	740	740	515	515	497	497	402	402
Countries in sample	101	101	99	99	99	99	80	80
Panel B: Autocracies Only								
L.Democracy	1.326***	0.833***	3.246***	0.923***	3.967***	0.857***	4.438***	0.768***
	(0.405)	(0.104)	(0.003)	(0.035)	(0.001)	(0.054)	(0.002)	(0.078)
L.Income Inequality	0.180	-0.094			-0.900***	-0.155	-0.768***	-0.407
	(0.796)	(0.138)			(0.210)	(0.137)	(0.229)	(0.341)
L.Wealth Inequality			0.480***	-0.025	0.990***	0.145*	0.980***	0.183
			(0.061)	(0.096)	(0.085)	(0.074)	(0.117)	(0.127)
L.GDP per capita	-0.023	-0.000	-0.045***	0.002	-0.076***	-0.000	-0.042**	0.011
	(0.039)	(0.004)	(0.009)	(0.002)	(0.013)	(0.004)	(0.020)	(0.009)
Additional Controls							✓	✓
Number of instruments		34		18		24		26
Hansen p-value		0.45		0.62		0.40		0.53
AR2 p-value		0.92		0.53		0.28		0.27
Observations	224	224	195	195	167	167	135	135
Countries in sample	39	39	39	39	39	39	31	31

Notes: Only the sample of democracies is included in Panel A and only the sample of autocracies is included in Panel B. The core explanatory variable is Income Inequality in Columns 1-2 and Wealth Inequality in Columns 3-4. Columns 5-8 include income inequality and wealth inequality together in regression. Estimates in the odd-numbered columns are obtained using bias-corrected fixed effects estimation, while estimates in the even-numbered columns are derived from system GMM estimation. Here, we use the same system GMM specifications as Column 4 in Table 1. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 9 examines the non-linear relationship between income inequality and democracy within two regimes. Our results indicate that hypothesis of a non-linear relationship cannot be supported, whether considering only democratic countries or autocratic ones. Regardless of whether the analysis focuses on linear or non-linear relationships, there is no evidence that income inequality is associated with democratic backsliding.

Table 9: Non-linear Effects of Income Inequality on Democracy Within Regimes

	Fixed Effects		Bias-corrected Fixed Effects		System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Democracies Only										
L.Democracy	0.598***	0.569***	0.821***	0.805***	0.785***	0.861***	0.827***	0.792***	0.883***	0.872***
	(0.053)	(0.067)	(0.043)	(0.045)	(0.057)	(0.069)	(0.070)	(0.063)	(0.082)	(0.081)
L.Income Inequality	-1.477*	-0.385	-1.665**	-0.260	-1.397	-2.447	-2.805*	-1.950	-3.083	-2.604
	(0.845)	(0.888)	(0.825)	(0.808)	(0.985)	(1.600)	(1.666)	(1.197)	(2.012)	(1.927)
L.Income Inequality Sq.	1.663	0.650	1.907*	0.515	1.847	3.262	3.679*	2.648*	4.205	3.624
	(1.087)	(1.200)	(1.023)	(1.015)	(1.294)	(2.100)	(2.177)	(1.516)	(2.576)	(2.461)
L.GDP per capita	-0.007	-0.027	-0.014	-0.016	0.030***	0.016	0.019	0.020	0.008	0.007
	(0.030)	(0.027)	(0.019)	(0.028)	(0.011)	(0.012)	(0.012)	(0.015)	(0.018)	(0.015)
Additional Controls		✓		✓				✓	✓	✓
Turning point	-	-	0.437	-	-	-	0.381	-	-	-
Number of instruments					103	46	46	110	53	53
Hansen p-value					0.42	0.36	0.29	0.89	0.73	0.70
AR2 p-value					0.84	0.81	0.83	0.83	0.81	0.82
Observations	740	597	740	597	740	740	740	597	597	597
Countries in sample	101	82	101	82	101	101	101	82	82	82
Panel B: Autocracies Only										
L.Democracy	0.355***	0.292***	1.318***	1.803***	0.930***	0.855***	0.882***	0.901***	0.790***	0.863***
	(0.120)	(0.073)	(0.441)	(0.018)	(0.060)	(0.088)	(0.109)	(0.064)	(0.063)	(0.058)
L.Income Inequality	-0.602	-2.275	-0.676	-3.576*	-0.425	1.091	0.784	-0.653	-0.035	-0.082
	(0.810)	(1.643)	(3.498)	(1.941)	(0.569)	(0.699)	(0.630)	(0.953)	(1.036)	(0.824)
L.Income Inequality Sq.	0.443	2.550	1.084	4.795*	0.438	-1.185	-0.782	0.575	-0.157	0.041
	(1.076)	(2.161)	(4.916)	(2.879)	(0.661)	(0.764)	(0.718)	(1.130)	(1.328)	(1.074)
L.GDP per capita	-0.013	-0.021	-0.024	-0.029	-0.000	0.003	0.003	0.010*	0.012*	0.009
	(0.010)	(0.017)	(0.042)	(0.025)	(0.003)	(0.004)	(0.003)	(0.005)	(0.007)	(0.007)
Additional Controls		✓		✓				✓	✓	✓
Turning point	-	-	-	0.373	-	-	-	-	-	-
Number of instruments					103	46	46	102	53	53
Hansen p-value					1.00	0.83	0.85	1.00	1.00	1.00
AR2 p-value					0.95	0.86	0.88	0.17	0.18	0.17
Observations	224	174	224	174	224	224	224	174	174	174
Countries in sample	39	31	39	31	39	39	39	31	31	31

Notes: Only the sample of democracies is included in Panel A and only the sample of autocracies is included in Panel B. The core explanatory variable is Income Inequality and its squared term. The estimation methods include fixed effects estimation, bias-corrected fixed effects estimation and system GMM estimation. Here, we use the same system GMM specifications as Column 3-5 in Table 1. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 10 replicates the analysis from Table 9, with wealth inequality as the explanatory variable. When focusing solely on democratic countries, the conclusions are in agreement with those from the all countries. However, an interesting pattern emerges when considering only autocratic countries. If we examine the signs of the coefficients for wealth inequality and its squared term, both U-shaped and inverted U-shaped relationships are possible. This could be a biased result due to the smaller sample size, making the findings less convincing. This suggests that economic inequality is not a convincing candidate to explain democratic backsliding within autocracies.

Table 10: Non-linear Effects of Wealth Inequality on Democracy Within Regimes

	Fixed Effects		Bias-corrected Fixed Effects		System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Democracies Only										
L.Democracy	0.428***	0.536***	0.683***	0.961***	0.769***	0.786***	0.793***	0.826***	0.849***	0.900***
	(0.073)	(0.068)	(0.053)	(0.068)	(0.075)	(0.075)	(0.078)	(0.087)	(0.090)	(0.073)
L.Wealth Inequality	-0.701*	-0.925*	-0.536	-0.619	0.185	-0.237	-0.029	-0.646	-0.800	-0.502
	(0.417)	(0.519)	(0.517)	(0.526)	(0.343)	(0.485)	(0.454)	(0.497)	(0.565)	(0.466)
L.Wealth Inequality Sq.	0.687	0.771	0.495	0.290	-0.465	0.046	-0.195	0.726	0.855	0.550
	(0.625)	(0.765)	(0.732)	(0.732)	(0.576)	(0.748)	(0.719)	(0.667)	(0.779)	(0.683)
L.GDP per capita	-0.049*	-0.061	-0.062**	-0.062*	0.025**	0.019*	0.020*	0.004	-0.001	-0.006
	(0.027)	(0.039)	(0.025)	(0.037)	(0.011)	(0.011)	(0.012)	(0.015)	(0.015)	(0.013)
Additional Controls		✓		✓				✓	✓	✓
Number of instruments					64	42	42	65	48	48
Hansen p-value					0.63	0.00	0.56	0.65	0.51	0.54
AR2 p-value					0.74	0.68	0.70	0.35	0.33	0.33
Observations	515	410	515	410	515	515	515	410	410	410
Countries in sample	99	80	99	80	99	99	99	80	80	80
Panel B: Autocracies Only										
L.Democracy	0.466***	0.391***	3.155***	3.565***	0.900***	0.857***	0.905***	0.883***	0.814***	0.842***
	(0.068)	(0.119)	(0.003)	(0.004)	(0.046)	(0.049)	(0.041)	(0.055)	(0.066)	(0.057)
L.Wealth Inequality	-0.413	-0.516*	1.894***	2.697***	-0.337	-0.630	-0.595	-0.636	-1.533*	-1.176*
	(0.248)	(0.258)	(0.376)	(0.508)	(0.354)	(0.469)	(0.441)	(0.560)	(0.794)	(0.604)
L.Wealth Inequality Sq.	0.529	0.654*	-2.015***	-2.994***	0.491	0.857	0.792	0.750	1.880*	1.443*
	(0.346)	(0.350)	(0.541)	(0.719)	(0.487)	(0.621)	(0.573)	(0.744)	(0.971)	(0.739)
L.GDP per capita	0.009	-0.020	-0.046***	-0.045***	0.002	0.002	0.003	0.015***	0.021***	0.018***
	(0.011)	(0.015)	(0.009)	(0.017)	(0.002)	(0.002)	(0.002)	(0.006)	(0.008)	(0.006)
Additional Controls		✓		✓				✓	✓	✓
Turning point	-	0.395	0.470	0.450	-	-	-	-	0.408	0.407
Number of instruments					35	23	23	42	30	30
Hansen p-value					0.55	0.28	0.18	0.94	0.30	0.28
AR2 p-value					0.51	0.52	0.52	0.61	0.62	0.61
Observations	195	152	195	152	195	195	195	152	152	152
Countries in sample	39	31	39	31	39	39	39	31	31	31

Notes: Only the sample of democracies is included in Panel A and only the sample of autocracies is included in Panel B. The core explanatory variable is Wealth Inequality and its squared term. The estimation methods include fixed effects estimation, bias-corrected fixed effects estimation and system GMM estimation. Here, we use the same system GMM specifications as Column 3-5 in Table 1. Robust standard errors adjusted for country clustering are reported in parentheses. ***: significant at 1%; **: significant at 5%; *: significant at 10%.

After reassessing the inequality-democracy nexus within different regimes, we still cannot find a consistent and robust impact of income inequality on democracy within either type of political system. But this part of the research offers an additional insight: the adverse impact of wealth inequality occurs mainly in democratic regimes rather than in autocratic regimes. This does not contradict our analysis in the literature review, as well-functioning electoral systems in democracies are instead facilitate a wealthy minority class to manipulate elections or policies, leading to captured democracy. In autocratic countries, on the other hand, inequality may already be institutionalized and embedded in the social fabric. In such cases, further increases in wealth inequality may be perceived as normal or inevitable, and therefore may not contribute to a serious democratic backsliding.

5 Conclusion

A common view holds that severe economic inequality over the long term is incompatible with democracy, as the concentration of resources in the hands of a few comes at the expense of the majority, directly challenging the core principles of democracy. Over the past decade, economists and political scientists have turned their attention to the emerging trend of global democratic backsliding, identifying economic inequality as a potential cause. Democratic backsliding differs from a complete collapse of democracies into autocracies; it refers to the incremental erosion of democracy quality within a regime. Despite this, little work has been done to thoroughly examine how inequality influences democratic backsliding.

Evidence on whether, and to what extent, different forms of economic inequality undermine democracy remains limited. Theoretically, no readily complete theory has been developed to explain democratic backsliding. Empirically, attempts to quantify the connection between inequality and democracy have yielded only mixed results. Existing empirical studies offer valuable insights but contain certain shortcomings in framework design and methodology, such as overlooking the heterogeneity of different forms of economic inequality and the dynamic feature of the evolution of democracy quality. Yet, these studies provide a preliminary exploration that allows us to build research on a more robust conceptual and empirical foundation.

Our research makes several improvements: (1) it adopts a more suitable multidimensional measure of democracy; (2) it considers the potential heterogeneous political consequences of income inequality and wealth inequality; (3) it develops a dynamic model and employs various estimation techniques to address endogeneity concerns; (4) it further investigates the possibility of non-linear relationships; (5) it reassesses baseline findings within both democratic and autocratic contexts.

Taken together, based on a five-year panel of 140 countries over the period 1970-2020, we observe that income inequality does not affect democracy, while deteriorating wealth inequality diminishes the quality of democracy. The results obtained from various specifications are robust and quantitatively similar. The dependent variable exhibits high persistence, which vali-

dates our adoption of a dynamic model. Furthermore, the cumulative effect of wealth inequality on democracy is more negative than that of the short-term effect, indicating that the erosion of democracy by wealth inequality deepens over time. Introducing squared terms reveals considerable uncertainty regarding the direction and strength of the marginal effect from income inequality on the quality of democracy within its main distribution range, failing to support the possibility of a non-linear association. The non-existence of nonlinearity applies similarly to the relationship between wealth inequality and democracy. After reassessing the inequality-democracy nexus within different regimes, we still find no consistent effect of income inequality on democracy. However, the new insight is that the adverse impact of wealth inequality on democracy occurs mainly in democratic regimes rather than in autocratic regimes. Therefore, in the context of democracy in unequal times, this study suggests that there is a close association between wealth inequality and democratic backsliding in democratic countries, whereas income inequality does not.

We have two future avenues for research. First, further studies are needed to uncover the precise mechanisms behind the empirical findings presented so far. Additionally, we aim to develop theoretical models to convincingly deal with the identification problem.

References

Abdel-Latif, H., & El-Gamal, M. (2020). Rising inequality and de-democratization. *Middle East Development Journal*, *12*(1), 73–83.

Acemoglu, D., Johnson, S., Robinson, J. A., & Yared, P. (2008). Income and democracy. *American economic review*, *98*(3), 808–842.

Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. A. (2015). Democracy, redistribution, and inequality. In *Handbook of income distribution* (Vol. 2, pp. 1885–1966). Elsevier.

Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. A. (2019). Democracy does cause growth. *Journal of political economy*, *127*(1), 47–100.

Acemoglu, D., & Robinson, J. A. (2005). *Economic origins of dictatorship and democracy*. Cambridge university press.

Ansell, B., & Samuels, D. (2014). *Inequality and democratization: An elite-competition approach.* Cambridge university press.

Ansell, B., & Samuels, D. (2018). Why inequality does not undermine democracy. In *American political science association, annual meeting.*

Bagchi, S., & Fagerstrom, M. J. (2023). Wealth inequality and democracy. *Public Choice*, *197*(1), 89–136.

Barro, R. J. (1999). Determinants of democracy. *Journal of Political economy*, *107*(S6), S158–S183.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics*, *87*(1), 115–143.

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

Boix, C. (2011). Democracy, development, and the international system. *American political science review*, *105*(4), 809–828.

Bolt, J., & Van Zanden, J. L. (2020). Maddison-style estimates of the evolution of the world economy: A new 2023 update. *Journal of Economic Surveys*.

Bonica, A. (2013). Ideology and interests in the political marketplace. *American Journal of Political Science*, *57*(2), 294–311.

Bruno, G. S. (2005). Estimation and inference in dynamic unbalanced panel-data models with a small number of individuals. *The Stata Journal*, *5*(4), 473–500.

Chancel, L., Piketty, T., Saez, E., & Zucman, G. (2022). *World inequality report 2022*. Harvard University Press.

Coppedge, M., Gerring, J., Knutsen, C. H., Lindberg, S. I., Teorell, J., Altman, D., . . . Ziblatt, D. (2024). V-dem codebook v14. *Varieties of Democracy (V-Dem) Project*.

Dahl, R. A. (1971). Polyarchy: Participation and opposition. *New Haven and London*.

Davies, J. B., Sandstrom, S., Shorrocks, A., & Wolff, E. N. (2006). *The world distribution of household wealth* (Vol. 5). December.

Diamond, L. J. (1996). Is the third wave over? *Journal of democracy*, *7*(3), 20–37.

Freeman, J. R., & Quinn, D. P. (2012). The economic origins of democracy reconsidered. *American Political Science Review*, *106*(1), 58–80.

Grumbach, J. M. (2023). Laboratories of democratic backsliding. *American Political Science Review*, *117*(3), 967–984.

Gründler, K., & Krieger, T. (2022). Should we care (more) about data aggregation? *European Economic Review*, *142*, 104010.

Haggard, S., & Kaufman, R. R. (2012). Inequality and regime change: Democratic transitions and the stability of democratic rule. *American Political Science Review*, *106*(3), 495–516.

Honoré, B. E., & Kyriazidou, E. (2000). Panel data discrete choice models with lagged dependent variables. *Econometrica*, *68*(4), 839–874.

Houle, C. (2009). Inequality and democracy: Why inequality harms consolidation but does not affect democratization. *World politics*, *61*(4), 589–622.

Huber, E., Rueschemeyer, D., & Stephens, J. D. (1993). The impact of economic development on democracy. *Journal of economic perspectives*, *7*(3), 71–86.

Huntington, S. P. (1991). Democracy's third wave. *Journal of democracy*, *2*(2), 12–34.

Knutsen, C. H., Marquardt, K. L., Seim, B., Coppedge, M., Edgell, A. B., Medzihorsky, J., . . . Lindberg, S. I. (2024). Conceptual and measurement issues in assessing democratic backsliding. *PS: Political Science & Politics*, *57*(2), 162–177.

Kotschy, R., & Sunde, U. (2017). Democracy, inequality, and institutional quality. *European Economic Review*, *91*, 209–228.

Krieger, T., & Meierrieks, D. (2016). Political capitalism: The interaction between income inequality, economic freedom and democracy. *European Journal of Political Economy*, *45*, 115–132.

Levitsky, S., & Ziblatt, D. (2019). *How democracies die*. Crown.

Lind, J. T., & Mehlum, H. (2010). With or without u? the appropriate test for a u-shaped relationship. *Oxford bulletin of economics and statistics*, *72*(1), 109–118.

Lipset, S. M. (1959). Some social requisites of democracy: Economic development and political legitimacy. *American political science review*, *53*(1), 69–105.

Maoz, Z., & Henderson, E. A. (2013). The world religion dataset, 1945–2010: Logic, estimates, and trends. *International interactions*, *39*(3), 265–291.

McCoy, J., Rahman, T., & Somer, M. (2018). Polarization and the global crisis of democracy: Common patterns, dynamics, and pernicious consequences for democratic polities. *American Behavioral Scientist*, *62*(1), 16–42.

Mechkova, V., Lührmann, A., & Lindberg, S. I. (2017). How much democratic backsliding? *Journal of democracy*, *28*(4), 162–169.

Meltzer, A. H., & Richard, S. F. (1981). A rational theory of the size of government. *Journal of political Economy*, *89*(5), 914–927.

Milner, H. V. (2021). Is global capitalism compatible with democracy? inequality, insecurity, and interdependence. *International Studies Quarterly*, *65*(4), 1097–1110.

Mukand, S. W., & Rodrik, D. (2020). The political economy of liberal democracy. *The Economic Journal*, *130*(627), 765–792.

Muller, E. N. (1995). Economic determinants of democracy. *American sociological review*, 966–982.

Munck, G. L., & Verkuilen, J. (2002). Conceptualizing and measuring democracy: Evaluating alternative indices. *Comparative political studies*, *35*(1), 5–34.

Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica: Journal of the econometric society*, 1417–1426.

Nord, M., Lundstedt, M., Altman, D., Angiolillo, F., Borella, C., Fernandes, T., ... Lindberg., S. I. (2024). Democracy report 2024: Democracy winning and losing at the ballot.

Philpott, D. (2007). Explaining the political ambivalence of religion. *American Political Science Review*, *101*(3), 505–525.

Piketty, T. (2014). *Capital in the twenty-first century*. Harvard University Press.

Robinson, J. A. (2006). Economic development and democracy. *Annual Review of Political Science*, *9*(1), 503–527.

Rodrik, D. (2017). *Populism and the economics of globalization* (Tech. Rep.). National Bureau of Economic Research.

Roine, J., & Waldenström, D. (2015). Long-run trends in the distribution of income and wealth. *Handbook of income distribution*, *2*, 469–592.

Ross, M. L. (2001). Does oil hinder democracy? *World politics*, *53*(3), 325–361.

Saez, E., & Zucman, G. (2020). The rise of income and wealth inequality in america: Evidence from distributional macroeconomic accounts. *Journal of Economic Perspectives*, *34*(4), 3–26.

Scheve, K., & Stasavage, D. (2017). Wealth inequality and democracy. *Annual Review of Political Science*, *20*(1), 451–468.

Solt, F. (2008). Economic inequality and democratic political engagement. *American journal of political science*, *52*(1), 48–60.

Solt, F. (2020). Measuring income inequality across countries and over time: The standardized world income inequality database. *Social Science Quarterly*, *101*(3), 1183–1199.

Tilly, C. (2003). Inequality, democratization, and de-democratization. *Sociological theory*, *21*(1), 37–43.

Tomini, L., & Wagemann, C. (2018). Varieties of contemporary democratic breakdown and regression: A comparative analysis. *European Journal of Political Research*, *57*(3), 687–716.

Treisman, D. (2015). Income, democracy, and leader turnover. *American Journal of Political Science*, *59*(4), 927–942.

Treisman, D. (2020). Economic development and democracy: predispositions and triggers. *Annual Review of Political Science*, *23*(1), 241–257.

Treisman, D. (2023). How great is the current danger to democracy? assessing the risk with historical data. *Comparative Political Studies*, *56*(12), 1924–1952.

Tsui, K. K. (2011). More oil, less democracy: Evidence from worldwide crude oil discoveries. *The Economic Journal*, *121*(551), 89–115.

Waldner, D., & Lust, E. (2018). Unwelcome change: Coming to terms with democratic backsliding. *Annual Review of Political Science*, *21*(1), 93–113.

Woodberry, R. D. (2012). The missionary roots of liberal democracy. *American political science review*, *106*(2), 244–274.

Zucman, G. (2019). Global wealth inequality. *Annual Review of Economics*, *11*(1), 109–138.

Appendix

Appendix I: Data

Table 11: Country List

Country	Code	Country	Code	Country	Code
Angola	AGO	Gambia	GMB	Nicaragua	NIC
Albania	ALB	Guinea-Bissau	GNB	Netherlands	NLD
Argentina	ARG	Greece	GRC	Norway	NOR
Armenia	ARM	Guatemala	GTM	Nepal	NPL
Australia	AUS	Honduras	HND	New Zealand	NZL
Austria	AUT	Croatia	HRV	Pakistan	PAK
Azerbaijan	AZE	Hungary	HUN	Panama	PAN
Burundi	BDI	Indonesia	IDN	Peru	PER
Belgium	BEL	India	IND	Philippines	PHL
Benin	BEN	Ireland	IRL	Poland	POL
Burkina Faso	BFA	Iran (Islamic Republic of)	IRN	Portugal	PRT
Bangladesh	BGD	Iceland	ISL	Paraguay	PRY
Bulgaria	BGR	Israel	ISR	Qatar	QAT
Bosnia and Herzegovina	BIH	Italy	ITA	Russian Federation	RUS
Belarus	BLR	Jamaica	JAM	Rwanda	RWA
Bolivia (Plurinational State of)	BOL	Jordan	JOR	Sudan (Former)	SDN
Brazil	BRA	Japan	JPN	Senegal	SEN
Barbados	BRB	Kazakhstan	KAZ	Singapore	SGP
Botswana	BWA	Kenya	KEN	Sierra Leone	SLE
Central African Republic	CAF	Kyrgyzstan	KGZ	El Salvador	SLV
Canada	CAN	Cambodia	KHM	Sao Tome and Principe	STP
Switzerland	CHE	Republic of Korea	KOR	Slovakia	SVK
Chile	CHL	Kuwait	KWT	Slovenia	SVN
China	CHN	Lao People's DR	LAO	Sweden	SWE
Côte d'Ivoire	CIV	Lebanon	LBN	Swaziland	SWZ
Cameroon	CMR	Sri Lanka	LKA	Seychelles	SYC
Colombia	COL	Lesotho	LSO	Chad	TCD
Cabo Verde	CPV	Lithuania	LTU	Thailand	THA
Costa Rica	CRI	Luxembourg	LUX	Tajikistan	TJK
Cyprus	CYP	Latvia	LVA	Turkmenistan	TKM
Czech Republic	CZE	Morocco	MAR	Trinidad and Tobago	TTO
Germany	DEU	Republic of Moldova	MDA	Tunisia	TUN
Djibouti	DJI	Madagascar	MDG	Turkey	TUR
Denmark	DNK	Mexico	MEX	U.R. of Tanzania: Mainland	TZA
Dominican Republic	DOM	TFYR of Macedonia	MKD	Uganda	UGA
Algeria	DZA	Mali	MLI	Ukraine	UKR
Ecuador	ECU	Malta	MLT	Uruguay	URY
Egypt	EGY	Montenegro	MNE	United States	USA
Spain	ESP	Mongolia	MNG	Uzbekistan	UZB
Estonia	EST	Mozambique	MOZ	Venezuela (Bolivarian Republic of)	VEN
Ethiopia	ETH	Mauritania	MRT	Viet Nam	VNM
Finland	FIN	Mauritius	MUS	Yemen	YEM
France	FRA	Malawi	MWI	Former Yugoslavia	YUG
United Kingdom	GBR	Malaysia	MYS	South Africa	ZAF
Georgia	GEO	Namibia	NAM	Zambia	ZMB
Ghana	GHA	Niger	NER	Zimbabwe	ZWE
Guinea	GIN	Nigeria	NGA		

Appendix II: Summary Statistics

Summary statistics are shown in the table below. This table consists of three parts: all-country sample, low-inequality country sample, and high-inequality country sample, divided according to the median net income Gini coefficient. From the descriptive statistics, it can be noticed that low-inequality countries have higher liberal democracy scores. Meanwhile, they have higher GDP per capita, trade openness, and education level.

Table 12: Descriptive Statistics

	(1) *All countries*			(2) *Low-inequality countries*			(3) *High-inequality countries*		
	Mean	Std.Dev.	N	Mean	Std.Dev.	N	Mean	Std.Dev.	N
V-Dem liberal democracy	0.38	0.28	1451	0.49	0.31	694	0.29	0.21	757
Gini coefficient, net income	0.38	0.09	1048	0.31	0.05	534	0.45	0.06	514
Top percentile wealth share	0.30	0.09	849	0.25	0.06	437	0.35	0.08	412
Log GDP per capita in 2011 dollars	8.79	1.15	1509	9.31	1.11	743	8.30	0.97	766
Fuel exporter	0.10	0.31	1540	0.10	0.30	770	0.11	0.32	770
Education	6.90	3.43	1216	9.03	3.16	542	5.19	2.57	674
Log trade openness	4.13	0.59	1277	4.22	0.60	611	4.04	0.56	666
Muslim	0.23	0.34	1421	0.19	0.33	678	0.27	0.35	743
Catholics	0.31	0.34	1421	0.27	0.34	678	0.34	0.35	743
Protestant	0.11	0.19	1421	0.13	0.24	678	0.10	0.12	743
Log population	9.06	1.68	1540	9.03	1.78	770	9.10	1.57	770

Figure 5 displays the distributions of income inequality and wealth inequality using histograms (grey bars) overlaid with kernel density plots (dashed lines). Comparing two graphs, the distribution of income inequality appears to be roughly symmetric, while wealth inequality displays a skewed distribution to the right.

Figure 5: Distribution of Income Inequality and Wealth Inequality
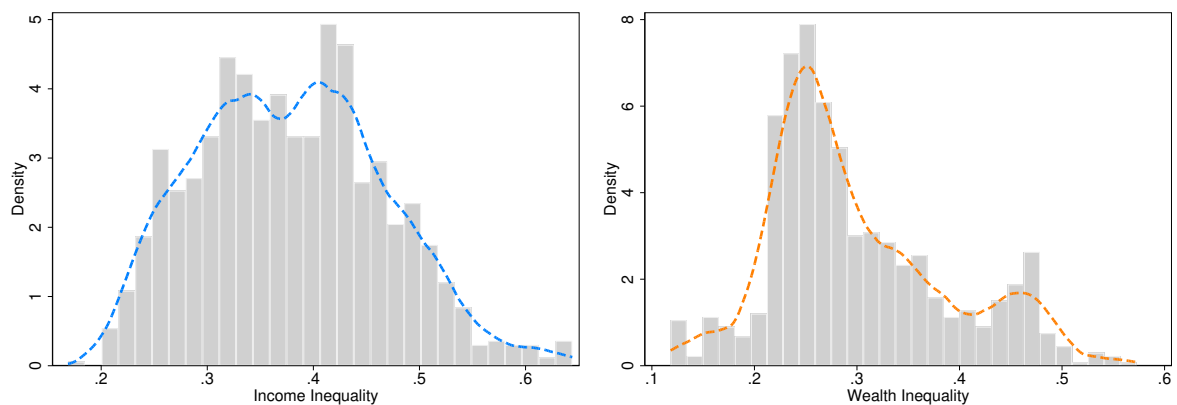
Appendix III: Full Tables of Section 4.4

Table 13: Effects of Economic Inequality on Democracy: Only Democracies

	Bias-corr. (1)	Sys-GMM (2)	Bias-corr. (3)	Sys-GMM (4)	Bias-corr. (5)	Sys-GMM (6)	Bias-corr. (7)	Sys-GMM (8)
L.Democracy	0.821***	0.859***	0.685***	0.782***	0.686***	0.836***	0.960***	0.830***
	(0.043)	(0.066)	(0.052)	(0.081)	(0.048)	(0.081)	(0.070)	(0.092)
L.Income Inequality	-0.193	-0.204			-0.073	0.366	0.023	0.493
	(0.153)	(0.232)			(0.239)	(0.314)	(0.246)	(0.309)
L.Wealth Inequality			-0.208**	-0.311*	-0.195*	-0.396*	-0.416***	-0.422*
			(0.081)	(0.188)	(0.115)	(0.216)	(0.114)	(0.247)
L.GDP per capita	-0.012	0.008	-0.061**	0.017	-0.060*	0.023	-0.066*	0.013
	(0.019)	(0.013)	(0.026)	(0.012)	(0.032)	(0.016)	(0.037)	(0.017)
Oil Exporter							0.007	-0.047
							(0.040)	(0.043)
L.Education							0.012	0.011*
							(0.023)	(0.006)
L.Trade Openness							-0.051**	-0.017
							(0.024)	(0.016)
Muslim							0.786	0.073
							(0.684)	(0.053)
Catholics							0.010	0.018
							(0.150)	(0.021)
Protestant							-0.180	0.047
							(0.190)	(0.029)
L.Population							-0.120**	-0.008**
							(0.061)	(0.004)
Number of instruments		34		32		42		40
Hansen p-value		0.06		0.53		0.96		0.65
AR2 p-value		0.85		0.67		0.30		0.19
Observations	740	740	515	515	497	497	402	402
Countries in sample	101	101	99	99	99	99	80	80

Notes: ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 14: Effects of Economic Inequality on Democracy: Only Autocracies

	Bias-corr. (1)	Sys-GMM (2)	Bias-corr. (3)	Sys-GMM (4)	Bias-corr. (5)	Sys-GMM (6)	Bias-corr. (7)	Sys-GMM (8)
L.Democracy	1.326***	0.833***	3.246***	0.923***	3.967***	0.857***	4.438***	0.768***
	(0.405)	(0.104)	(0.003)	(0.035)	(0.001)	(0.054)	(0.002)	(0.078)
L.Income Inequality	0.180	-0.094			-0.900***	-0.155	-0.768***	-0.407
	(0.796)	(0.138)			(0.210)	(0.137)	(0.229)	(0.341)
L.Wealth Inequality			0.480***	-0.025	0.990***	0.145*	0.980***	0.183
			(0.061)	(0.096)	(0.085)	(0.074)	(0.117)	(0.127)
L.GDP per capita	-0.023	-0.000	-0.045***	0.002	-0.076***	-0.000	-0.042**	0.011
	(0.039)	(0.004)	(0.009)	(0.002)	(0.013)	(0.004)	(0.020)	(0.009)
Oil Exporter							-0.030*	-0.021*
							(0.018)	(0.011)
L.Education							-0.036***	-0.004
							(0.011)	(0.003)
L.Trade Openness							-0.094***	0.003
							(0.014)	(0.010)
Muslim							0.095	0.021*
							(0.223)	(0.012)
Catholics							1.447***	-0.000
							(0.313)	(0.056)
Protestant							0.778***	0.126
							(0.265)	(0.217)
L.Population							-0.226***	-0.003
							(0.045)	(0.004)
Number of instruments		34		18		24		26
Hansen p-value		0.45		0.62		0.40		0.53
AR2 p-value		0.92		0.53		0.28		0.27
Observations	224	224	195	195	167	167	135	135
Countries in sample	39	39	39	39	39	39	31	31

Notes: ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 15: Non-linear Effects of Income Inequality on Democracy: Only Democracies

	Fixed Effects		Bias-corrected Fixed Effects		System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.598***	0.569***	0.821***	0.805***	0.785***	0.861***	0.827***	0.792***	0.883***	0.872***
	(0.053)	(0.067)	(0.043)	(0.045)	(0.057)	(0.069)	(0.070)	(0.063)	(0.082)	(0.081)
L.Income Inequality	-1.477*	-0.385	-1.665**	-0.260	-1.397	-2.447	-2.805*	-1.950	-3.083	-2.604
	(0.845)	(0.888)	(0.825)	(0.808)	(0.985)	(1.600)	(1.666)	(1.197)	(2.012)	(1.927)
L.Income Inequality Sq.	1.663	0.650	1.907*	0.515	1.847	3.262	3.679*	2.648*	4.205	3.624
	(1.087)	(1.200)	(1.023)	(1.015)	(1.294)	(2.100)	(2.177)	(1.516)	(2.576)	(2.461)
L.GDP per capita	-0.007	-0.027	-0.014	-0.016	0.030***	0.016	0.019	0.020	0.008	0.007
	(0.030)	(0.027)	(0.019)	(0.028)	(0.011)	(0.012)	(0.012)	(0.015)	(0.018)	(0.015)
Oil Exporter		-0.022		-0.018				-0.052**	-0.040	-0.050*
		(0.024)		(0.037)				(0.025)	(0.024)	(0.026)
L.Education		0.049***		0.032**				0.008	0.008	0.010*
		(0.016)		(0.013)				(0.005)	(0.006)	(0.005)
L.Trade Openness		-0.067***		-0.069***				-0.042***	-0.043**	-0.047***
		(0.024)		(0.021)				(0.015)	(0.018)	(0.014)
Muslim		-0.111		-0.060				0.046	0.064	0.063
		(0.273)		(0.331)				(0.039)	(0.045)	(0.044)
Catholics		0.159		0.121				0.024	0.020	0.021
		(0.115)		(0.117)				(0.021)	(0.023)	(0.022)
Protestant		0.119		0.026				-0.019	-0.065	-0.048
		(0.142)		(0.122)				(0.033)	(0.042)	(0.040)
L.Population		-0.003		0.012				-0.012***	-0.014***	-0.014***
		(0.046)		(0.039)				(0.004)	(0.005)	(0.004)
Turning point	-	-	0.437	-	-	-	0.381	-	-	-
Number of instruments					103	46	46	110	53	53
Hansen p-value					0.42	0.36	0.29	0.89	0.73	0.70
AR2 p-value					0.84	0.81	0.83	0.83	0.81	0.82
Observations	740	597	740	597	740	740	740	597	597	597
Countries in sample	101	82	101	82	101	101	101	82	82	82

Notes: ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 16: Non-linear Effects of Wealth Inequality on Democracy: Only Democracies

	Fixed Effects		Bias-corrected Fixed Effects		System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.428***	0.536***	0.683***	0.961***	0.769***	0.786***	0.793***	0.826***	0.849***	0.900***
	(0.073)	(0.068)	(0.053)	(0.068)	(0.075)	(0.075)	(0.078)	(0.087)	(0.090)	(0.073)
L.Wealth Inequality	-0.701*	-0.925*	-0.536	-0.619	0.185	-0.237	-0.029	-0.646	-0.800	-0.502
	(0.417)	(0.519)	(0.517)	(0.526)	(0.343)	(0.485)	(0.454)	(0.497)	(0.565)	(0.466)
L.Wealth Inequality Sq.	0.687	0.771	0.495	0.290	-0.465	0.046	-0.195	0.726	0.855	0.550
	(0.625)	(0.765)	(0.732)	(0.732)	(0.576)	(0.748)	(0.719)	(0.667)	(0.779)	(0.683)
L.GDP per capita	-0.049*	-0.061	-0.062**	-0.062*	0.025**	0.019*	0.020*	0.004	-0.001	-0.006
	(0.027)	(0.039)	(0.025)	(0.037)	(0.011)	(0.011)	(0.012)	(0.015)	(0.015)	(0.013)
Oil Exporter		0.014		0.007				-0.043	-0.037	-0.040
		(0.028)		(0.033)				(0.040)	(0.040)	(0.036)
L.Education		0.016		0.009				0.006	0.005	0.006*
		(0.032)		(0.024)				(0.004)	(0.004)	(0.004)
L.Trade Openness		-0.057*		-0.034				-0.026*	-0.025*	-0.027**
		(0.031)		(0.026)				(0.013)	(0.013)	(0.012)
Muslim		0.197		0.864				0.021	0.020	0.023
		(0.528)		(0.698)				(0.028)	(0.028)	(0.028)
Catholics		0.110		0.015				0.024	0.027	0.020
		(0.089)		(0.170)				(0.017)	(0.019)	(0.017)
Protestant		-0.047		-0.183				0.031	0.031	0.018
		(0.079)		(0.179)				(0.024)	(0.025)	(0.021)
L.Population		-0.118**		-0.113**				-0.010***	-0.010***	-0.010***
		(0.051)		(0.053)				(0.003)	(0.003)	(0.003)
Number of instruments					64	42	42	65	48	48
Hansen p-value					0.63	0.00	0.56	0.65	0.51	0.54
AR2 p-value					0.74	0.68	0.70	0.35	0.33	0.33
Observations	515	410	515	410	515	515	515	410	410	410
Countries in sample	99	80	99	80	99	99	99	80	80	80

Notes: ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 17: Non-linear Effects of Income Inequality on Democracy: Only Autocracies

| | Fixed Effects | | Bias-corrected Fixed Effects | | System GMM | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.355***	0.292***	1.318***	1.803***	0.930***	0.855***	0.882***	0.901***	0.790***	0.863***
	(0.120)	(0.073)	(0.441)	(0.018)	(0.060)	(0.088)	(0.109)	(0.064)	(0.063)	(0.058)
L.Income Inequality	-0.602	-2.275	-0.676	-3.576*	-0.425	1.091	0.784	-0.653	-0.035	-0.082
	(0.810)	(1.643)	(3.498)	(1.941)	(0.569)	(0.699)	(0.630)	(0.953)	(1.036)	(0.824)
L.Income Inequality Sq.	0.443	2.550	1.084	4.795*	0.438	-1.185	-0.782	0.575	-0.157	0.041
	(1.076)	(2.161)	(4.916)	(2.879)	(0.661)	(0.764)	(0.718)	(1.130)	(1.328)	(1.074)
L.GDP per capita	-0.013	-0.021	-0.024	-0.029	-0.000	0.003	0.003	0.010*	0.012*	0.009
	(0.010)	(0.017)	(0.042)	(0.025)	(0.003)	(0.004)	(0.003)	(0.005)	(0.007)	(0.007)
Oil Exporter		0.018		0.003				-0.022**	-0.022**	-0.022**
		(0.011)		(0.034)				(0.009)	(0.009)	(0.011)
L.Education		0.012		0.022				-0.002	-0.002	-0.000
		(0.011)		(0.019)				(0.002)	(0.002)	(0.002)
L.Trade Openness		0.009		0.015				-0.000	-0.001	-0.006
		(0.012)		(0.019)				(0.008)	(0.010)	(0.011)
Muslim		-0.220**		-0.244				0.014**	0.010	0.010
		(0.092)		(0.303)				(0.006)	(0.009)	(0.006)
Catholics		0.096		0.084				0.032	0.031	0.041
		(0.221)		(0.404)				(0.037)	(0.049)	(0.038)
Protestant		-0.353*		-0.091				0.029	0.050	-0.020
		(0.186)		(0.295)				(0.083)	(0.124)	(0.110)
L.Population		0.020		-0.092				-0.002	-0.004	-0.003
		(0.038)		(0.066)				(0.003)	(0.005)	(0.004)
Turning point	-	-	-	0.373	-	-	-	-	-	-
Number of instruments					103	46	46	102	53	53
Hansen p-value					1.00	0.83	0.85	1.00	1.00	1.00
AR2 p-value					0.95	0.86	0.88	0.17	0.18	0.17
Observations	224	174	224	174	224	224	224	174	174	174
Countries in sample	39	31	39	31	39	39	39	31	31	31

Notes: ***: significant at 1%; **: significant at 5%; *: significant at 10%.

Table 18: Non-linear Effects of Wealth Inequality on Democracy: Only Autocracies

	Fixed Effects		Bias-corrected Fixed Effects		System GMM					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Democracy	0.466***	0.391***	3.155***	3.565***	0.900***	0.857***	0.905***	0.883***	0.814***	0.842***
	(0.068)	(0.119)	(0.003)	(0.004)	(0.046)	(0.049)	(0.041)	(0.055)	(0.066)	(0.057)
L.Wealth Inequality	-0.413	-0.516*	1.894***	2.697***	-0.337	-0.630	-0.595	-0.636	-1.533*	-1.176*
	(0.248)	(0.258)	(0.376)	(0.508)	(0.354)	(0.469)	(0.441)	(0.560)	(0.794)	(0.604)
L.Wealth Inequality Sq.	0.529	0.654*	-2.015***	-2.994***	0.491	0.857	0.792	0.750	1.880*	1.443*
	(0.346)	(0.350)	(0.541)	(0.719)	(0.487)	(0.621)	(0.573)	(0.744)	(0.971)	(0.739)
L.GDP per capita	0.009	-0.020	-0.046***	-0.045***	0.002	0.002	0.003	0.015***	0.021***	0.018***
	(0.011)	(0.015)	(0.009)	(0.017)	(0.002)	(0.002)	(0.002)	(0.006)	(0.008)	(0.006)
Oil Exporter		0.017**		-0.038***				-0.015**	-0.019**	-0.018**
		(0.007)		(0.014)				(0.008)	(0.009)	(0.009)
L.Education		0.017		-0.035***				-0.003	-0.005**	-0.004**
		(0.012)		(0.010)				(0.002)	(0.002)	(0.002)
L.Trade Openness		-0.019		-0.046***				-0.010	-0.010	-0.008
		(0.015)		(0.013)				(0.009)	(0.010)	(0.008)
Muslim		-0.027		0.086				0.009	0.009	0.010
		(0.157)		(0.225)				(0.008)	(0.012)	(0.009)
Catholics		-0.109		1.012***				0.022	0.036	0.035
		(0.230)		(0.264)				(0.043)	(0.056)	(0.049)
Protestant		-0.260		0.318*				0.011	0.050	0.031
		(0.192)		(0.189)				(0.062)	(0.109)	(0.083)
L.Population		-0.018		-0.152***				-0.006**	-0.006	-0.005
		(0.034)		(0.038)				(0.003)	(0.005)	(0.003)
Turning point	-	0.395	0.470	0.450	-	-	-	-	0.408	0.407
Number of instruments					35	23	23	42	30	30
Hansen p-value					0.55	0.28	0.18	0.94	0.30	0.28
AR2 p-value					0.51	0.52	0.52	0.61	0.62	0.61
Observations	195	152	195	152	195	195	195	152	152	152
Countries in sample	39	31	39	31	39	39	39	31	31	31

Notes: ***: significant at 1%; **: significant at 5%; *: significant at 10%.