Democracy, Inequality, and Institutional Quality: Panel Evidence

Rainer Kotschy
University of Munich

Uwe Sunde
University of Munich
IZA, Bonn
CEPR, London

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Abstract

This article provides panel evidence supporting the hypothesis that institutional quality in terms of rule of law not only depends on democracy and inequality, but also on their interaction. Estimation results based on a variety of panel data models document a significant interaction term between democracy and inequality and suggest that excessively high levels of inequality erode institutional quality even in democracies, up to the point that democracies appear not to be able to implement good institutional environments if inequality is too high.

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1 Introduction

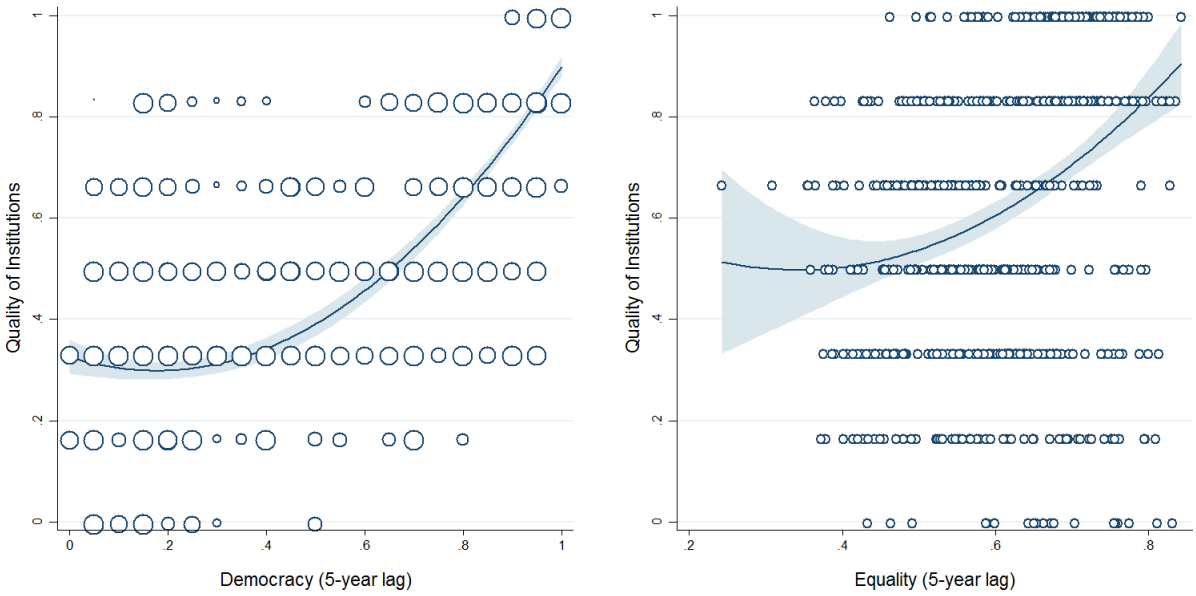
The quality of economic institutions such as rule of law and property rights protection is generally thought to be a crucial factor for long-run development. A recent empirical literature has identified two key determinants of institutional quality. On the one hand, democracy provides constraints on those in power and is often used as proxy for the quality of economic institutions (Acemoglu et al., 2005, Acemoglu and Johnson, 2005, Acemoglu and Robinson, 2006, Acemoglu, 2008). On the other hand, a moderate inequality of incomes and economic resources limits the distributive pressures that might erode rule of law through influence activities and informality (Chong and Calderon, 2000, Chong and Gradstein, 2007a, 2007b).

However, as discussed in more detail below, there is a considerable theoretical literature that suggests that democracy and inequality do not affect the quality of economic institutions independently from each other, but that instead there are important interactions between inequality and political institutions in determining institutional quality. This hypothesis goes back as far as De Tocqueville (1835), who recognized the possible problems associated with democracy in societies characterized by large economic inequality, in particular, the possibility of a deterioration of equality of rights.[1] At the same time, democracies that are characterized by equality of political rights and influence but material and social inequality may experience excessive distributive pressure thereby reducing the incentives for the protection of private property rights by the state. More recently, these warnings have been reiterated in the context of the debate of the increasing inequality in wealth and incomes and their consequences for civil liberties and social peace (Piketty, 2014). Yet, to date there exists little to no evidence on the question whether the beneficial effect of democracy on institutional quality and rule of law is eroded by excessive inequality.

This paper tests whether such an interaction between democracy and inequality exists in shaping the quality of institutions. The starting point for this empirical analysis is the conceptual distinction between political and economic institutions. While political institutions describe the extent to which individuals can engage and participate in the political

[1] For instance, in Book 2, Chapter 3, De Tocqueville writes: "When the conditions of men are very unequal, and inequality itself is the permanent state of society, individual men gradually become so dissimilar that each class assumes the aspect of a distinct race: only one of these classes is ever in view at the same instant; and losing sight of that general tie which binds them all within the vast bosom of mankind, the observation invariably rests not on man, but on certain men. Those who live in this aristocratic state of society never, therefore, conceive very general ideas respecting themselves, and that is enough to imbue them with an habitual distrust of such ideas, and an instinctive aversion of them. He, on the contrary, who inhabits a democratic country, sees around him, on every hand, men differing but little from each other; he cannot turn his mind to any one portion of mankind, without expanding and dilating his thought till it embraces the whole. All the truths which are applicable to himself, appear to him equally and similarly applicable to each of his fellow-citizens and fellow-men."

Figure 1: Correlation between Rule of Law and Democracy or Income Equality



process via elections and referendums, economic institutions comprise aspects of rule of law, bureaucratic efficiency and impartiality of the judiciary, individual freedom of agents, as well as institutional features that directly affect the incentives for entrepreneurial activities and investment. As economic institutions are mostly implemented by laws that have been passed by the government, political institutions can be seen as decisive for economic institutions, but not vice versa. Correspondingly, our empirical framework treats economic institutions as a dependent variable that is determined by the quality of political institutions in terms of political rights.[2] This conceptual distinction is consistent with empirical evidence regarding the variation in political and economic institutions. Contrary to the widespread assumption that democracy and high quality institutions are essentially synonyms, there is substantial variation in institutional quality, even conditional on the same extent of democracy or political rights.

The left panel of Figure 1 illustrates this by plotting the 5-year averages of quality of economic institutions, proxied by Civil Liberties, and the extent of democracy, represented by the Polity4 index in the preceding 5-year window, for the time period 1970 to 2010. All variables are normalized to range between 0 and 1 with higher values indicating a higher institutional quality.[3] The data reveal the expected positive correlation between institutional quality and democratic rights. The correlation is essentially zero

[2]Clearly, there are indirect feedback effects from economic institutions through income growth, unemployment, etc. to political institutions. These effects need time to work and will be accounted for accordingly in the empirical model.

[3]In the left panel, data points are weighted by the number of sample observations, with larger circles implying more country-year data points in the respective cells. The solid line displays a quadratic prediction of Civil Liberties by 5-year lagged Polity4, with the light-shaded area representing the 95% confidence intervals. Variables and data sources are described in more detail in Section 2.

for low levels of democratic quality (Polity4 scores below 0.5) and becomes stronger the higher the democracy index is. The figure also illustrates, however, that there are quite some observations that represent high quality democratic institutions but that exhibit low scores of institutional quality. Likewise, some countries with autocratic regimes (i.e., low democracy scores) score high in terms of the quality of economic institutions. An example for the latter case is Brazil, which achieved a considerably high quality of institutions according to the index under military dictatorship during the 1980's.[4]

Interestingly, during this entire period, Brazil ranked in the lowest quintile regarding equality, as measured by the world-wide distribution of reversed Gini coefficients. The right panel of Figure 1 shows the corresponding relationship between institutional quality and the degree of income equality, proxied by the 5-year lagged reversed Gini coefficient for the time period 1970 to 2010.[5] For high levels of income equality there is a positive correlation with civil liberties. However, for countries with a very unequal distribution of income, the correlation is close to zero or even slightly negative. Similar to the left panel, there is also considerable variation with many observations exhibiting high scores of institutional quality in spite of considerable income inequality, and very low levels of institutional quality for some countries irrespective of a very equal distribution of wealth. The most striking pattern of the two graphs is how closely the effect of democracy and equality on institutional quality correspond to each other. This might be an indication of a close interplay between the two factors, democracy and inequality, in determining institutional quality. In the example of Brazil, or similar in other Latin American countries, there appears not to have been a clear positive correlation between democratic quality and institutional quality, while at the same time, inequality was high. On the opposite end of the spectrum, there are examples or countries with low inequality, where democratization was conducive to the quality of economic institutions, such as several former socialist states in Eastern Europe that have become members of the European Union since 2004.

The main contribution of this paper is the identification of a robust empirical interaction between democracy and equality in shaping the quality of the economic institutions, as proxied by civil liberties that can explain these patterns. The empirical analysis is based on data cross-country panel data ranging over the period 1970 to 2010. The empirical strategy exploits variation in democratic quality and income inequality within countries over time, thereby conditioning on country-specific and time-specific unobserved heterogeneity that might influence institutional quality, and controls for institutional quality in

[4]Similar levels of economic institutions have been achieved only recently during the boom years between 2005 and 2010, fueled by revenues from the state owned oil company. The period after democratization, on the other hand, had been characterized by high corruption, involving bribes of high-ranking politicians through the state owned oil company and large construction companies.

[5]The solid line displays a quadratic prediction of Civil Liberties by the lagged reversed Gini coefficient with the light-shaded area representing the 95% confidence intervals. Variables and data sources are described in more detail in Section 2.

the past. Different estimation methods are employed in order to account for the well-known problems in dynamic panels. Irrespective of the estimation method, the results reveal a significant positive interaction between democracy and equality in shaping the quality of economic institutions. In terms of size, this interaction term is large enough to render the effect of democracy on institutional quality negative for high levels of inequality within the range of what is observed in the data. The results therefore provide evidence for a relevant dimension of heterogeneity in the way income inequality and political institutions affect rule of law.

The results contribute novel evidence that is consistent with predictions from several theoretical studies. The findings are concordant with intuitive arguments suggesting the existence of an interaction between democracy and inequality in shaping institutional quality like those by De Tocqueville (1835) and arguments that excessive inequality might lead to a breakdown of institutional quality in democracies as argued by Piketty (2014). In fact, the results also seem to resemble closely Lipset's view of the prerequisites of a stable and working democracy.[6] The results also confirm the predictions and implications of more formal models. Cervellati, Fortunato, and Sunde (2008) investigate the interactions between political regime (oligarchy versus democracy) and inequality for the emergence of a social contract in terms of rule of law, and derive conditions under which rule of law emerges in equilibrium. Consistent with the empirical results presented below, rule of law can emerge and persist in oligarchies if economic inequality is sufficiently large. Under these conditions, this equilibrium is preferred by all groups of society to an equilibrium involving a democratic regime but wasteful social conflict. A direct implication is that democracy is not sufficient to implement good institutions, and can, in the context of excessive inequality, even lead to worse institutional quality. At the same time, democracy is instrumental for implementing high institutional quality when inequality is low. A similar prediction emerges out of dynamic models of franchise extension that allow for different scenarios of democratization and show that peaceful transitions to democracy are more likely to occur in societies in which resources are distributed more equally as compared to more unequal societies. Peaceful transitions to democracy in turn lead to greater improvements in institutional quality, as well as greater stability of democracy, see, e.g., Cervellati, Fortunato, and Sunde (2012, 2014).

[6] In his famous article, Lipset wrote: "A large middle class plays a mitigating role in moderating conflict. [...] The poorer a country, and the lower the absolute standard of living of the lower classes, the greater the pressure on the upper strata to treat the lower classes as beyond the pale of human society, as vulgar, as innately inferior, as a lower caste. [...] Consequently, the upper strata also tend to regard political rights for the lower strata, particularly the right to share in power, as essentially absurd and immoral. [...] The wealth level will also affect the extent to which given countries can develop 'universalistic' norms among its civil servants and politicians (selection based on competence, performance without favoritism). The poorer the country, the greater the emphasis which is based on nepotism, i.e., support of kin and friends. The weakness of the universalistic norms reduces the opportunity to develop efficient bureaucracy" (Lipset, 1959, p.83-84).

A non-monotonic effect of democracy on institutional quality is also consistent with the predictions of the model by Acemoglu and Robinson (2008) that is based on the distinction between *de jure* political power, reflected in democratic institutions, and the distribution of *de facto* political power as the result of economic power, reflected by inequality of income and wealth. The model illustrates how an elite can use their wealth to influence electoral outcomes. An elite that commands a large fraction of income and resources in the economy can use these to capture the state and enforce institutions that serve their own interests. In contrast, if the wealth is relatively evenly spread among the population, it is difficult to direct sufficient funds and amass enough de facto power to bias institutions towards the elite, eroding the political equality and rule of law. Our findings are also consistent with an alternative mechanism proposed by Acemoglu, Robinson, and Torvik (2013), who consider a political environment where groups of the population can bribe the elected government in order to achieve the desired institutional outcome, provided they overcome a collective action problem. In weakly institutionalized polities where such payments may play a role, voters prefer to allow rents for the government in order to reduce incentives for bribes to be accepted. Consequently, the sovereign will deliberately remove some of the checks and balances so that the elite cannot successfully influence the executive and legislative. This leads to two possible equilibrium constellations. On the one hand, there is a properly working democracy where the elite is not influential enough so that bribes do not play a significant role for political decisions; in this scenario citizens can exert their democratic rights to the full extent. On the other hand, if the elite is influential enough to effectively control the government via bribes and implement policies favoring the elite, the government is either de jure democratic but de facto autocratic, or the people remove some checks and balances to reduce the incentives for corruption, rendering the government de jure autocratic. Hence, "checks and balances are less likely to emerge [...] when inequality and taxes are quite high." (Acemoglu, Robinson and Torvik, 2013, p. 845). In both cases, institutional quality will depend on an interaction of inequality and the constraints imposed on the executive, de facto or de jure, consistent with the empirical finding of a non-monotonic effect of democracy on institutional quality conditional on equality.

All these theoretical models have in common that inequality is a proxy for the de facto power of the elite. If inequality is low, a democracy that provides efficient institutions in terms of rule of law can be implemented, but if inequality is high, the elite either has the means to control the government indirectly via de facto power, or it can directly take over because the poor majority accepts a social contract with limited franchise in exchange for more efficient economic institutions. The non-monotonicity immanent in each of these theories implies a significant interaction of equality and political institutions, consistent with the empirical results.

This paper also contributes to a small empirical literature that has tried to identify the role of democracy and inequality for institutional quality. Chong and Gradstein (2007b) provide evidence for a two-way causality between the quality of institutions and a more equal distribution of income. In related work, Chong and Gradstein (2007a) show that greater inequality can erode institutional quality through fostering inequality. However, both papers do not investigate potential interaction effects between inequality and democracy in affecting institutional quality. The empirical contribution closest to the present investigation is by Sunde, Cervellati, and Fortunato (2008). They provide evidence for an interaction effect, but based on cross-country variation. The present study shows that the finding of an interaction effect also emerges in a panel setting, and is robust to eliminating unobserved cross-country heterogeneity and applying state-of-the-art panel data estimation methods.

The remainder of the paper is structured as follows. Section 2 describes the data and their sources. Section 3 presents the empirical model and identification strategy. Section 4 presents the main empirical results as well as the results of extensive robustness checks. Section 5 concludes.

2 Data

In order to empirically assess the effects of equality and democracy on rule of law an unbalanced panel of 112 countries over the period 1970 to 2010 is constructed. In light of the fact that institutions and equality exhibit limited variation over time, the data are used in five-year periods, similar to Acemoglu et al. (2008). In the following, the construction and coding of the main variables is described in detail.

2.1 Economic Institutions

The Freedom House (2014) Civil Liberties indicator and the Economic Freedom of the World Index provided by Gwartney and Lawson (2013) are used as measures for the quality of economic institutions. The ratings underlying the Civil Liberties variable are based on the evaluation of 15 questions with respect to four subcategories: freedom of expression and belief; associational and organizational rights; rule of law; and personal autonomy and individual rights. To facilitate the interpretation, the variable has been scaled to range between 0 and 1, where larger values represent a higher degree of institutional quality.[7] For 775 available observations, the variable has the mean 0.62 with a standard deviation of 0.296. About 53% of the observations exhibit high scores for civil liberties

[7] In the raw data, each country is assigned a rating from 1 to 7 with 1 representing the highest and 7 the lowest level of institutional quality.

(values larger than 0.80), while approximately 26% of the sample exhibit only very low levels of institutional quality (below or equal to 0.33).

The Economic Freedom index, which serves as an alternative measure, is also normalized to take values between 0 and 1, where higher scores represent greater institutional quality in terms of economic freedom.[8] The index is composed of 42 distinct variables in five general categories: size of government and taxation; private property and the rule of law; soundness of money; trade regulation and tariffs; regulation of business, labor and capital markets. The index has a mean of 0.626 for the available 671 observations in the sample and a standard deviation of 0.125. Unlike civil liberties, no country is assigned either the minimum or maximum scores of 0 and 1. In fact, the highest economic freedom score in the sample is 0.888, achieved by Singapore in 1995.

2.2 Democracy

As measure of democracy, the two of the most widely used indicators of political institutions in the literature are applied. As main variable of interest, the composite polity index from the Polity4 dataset by Marshall, Jaggers, and Gurr (2013) is used. This index is constructed by combining the Polity IV project's democracy and autocracy indicators, which are based on the weighted evaluation of the following subcategories: competitiveness of executive recruitment; openness of executive recruitment; constraints on the chief executive; competitiveness of political participation; and regulation of participation. The democracy index takes values between 0 and 10 and the autocracy index ranges from -10 to 0. Larger realizations of the variable represent a higher degree of democratic quality or a lower extent of autocracy, respectively. The composite polity score resulting from both indexes ranges from -10 to 10. For reasons of comparability, the indicator is rescaled to values between 0 and 1. Following the initial definition of the Center of Systemic Peace, also a binary indicator is constructed which codes a country as autocratic for values below 0.5 and, respectively, as democratic for scores greater or equal to 0.5. The composite polity score is referred to as Polity4 throughout this study. Within the sample, the Polity4 has a mean of 0.693 and standard deviation of 0.338.

The political rights index from Freedom House serves as an alternative measure. Similarly to Civil Liberties, this index ranks countries on a scale from 1 to 7 with 1 being a working democracy. Scores are assigned to the evaluation of the individuals' ability in each country to vote freely in legitimate elections; participate freely in the political process; have representatives that are accountable to them; exercise freedoms of expression and belief; be able to freely assemble and associate; have excess to an established and

[8] In the raw data, the Economic Freedom index is continuous measure between 0 and 10 with higher values being assigned to countries with more efficient institutional environments.

equitable system of rule of law; enjoy social and economic freedoms, including equal access to economic opportunities and the right to hold private property. Since the last two subcategories partly encompass concepts that relate to economic institutions as described above, the Polity4 measure is preferred as providing a clearer distinction between economic and political dimensions which are at the core of this paper. For comparability, the index is rescaled to range from 0 to 1 with higher numbers reflecting better institutions.

Moreover, an artificial democracy indicator is constructed based on a factor decomposition of the two indicators. This index is motivated by the way both indexes are designed. The Polity4 index represents an index of political institutions that only includes categories that closely describe the electoral process within a country, while Freedom House's Political Rights index also incorporates broader categories that overlap with the quality of economic institutions (e.g. rule of law). By decomposing the correlation between the two variables, it is possible to isolate the common factor that constitutes the political process net of other influences and use this as measure of democracy in the empirical analysis. This procedure provides an alternative way to obtain a more purified democracy variable to test the robustness of the results. The resulting indicator is normalized to range from 0 to 1 for reasons of comparability. For robustness tests, also an artificial indicator for economic institutions is constructed from Civil Liberties and Economic Freedom following the same procedure.

2.3 (In-)Equality

The prevalence of equality within a country is measured using a reversed net income Gini coefficient based on data from the Standardized World Income Inequality Database (SWIID) constructed by Solt (2009). The data set applies Gini coefficients for 173 countries on a yearly basis from 1960 onwards.[9] The variable ranges from 0 to 100 where the scale has been reversed to facilitate the interpretation. That is, larger values indicate a higher degree of income equality. Furthermore, the indicator is normalized to take values from 0 to 1. In the estimation sample, the indicator has a mean of 0.61 and a standard deviation of 0.108. In order to limit the amount of gaps in the data set, the SWIID uses multiple imputation procedures to recover missing values. For this reason, the data set provides 100 values of (in-)equality for each country-year cell, which can be used for the correction of standard errors to account for multiple imputation. The empirical analysis in this study uses the simple mean of the reversed Gini as it has been the standard in the literature. In the robustness section we reinvestigate the results using an adjustment of standard errors to account for the multiple imputation affects the results.

[9]The distinctive feature of this data set compared to other inequality data is that the standardization of Gini coefficients across countries allows for cross-country comparisons. Strictly speaking, this is not possible for non-standardized indicators although it is still often done in practice.

Table 1: Descriptive Statistics

	Mean	Std. Dev.	Min.	Max.	Obs.
Economic Institutions					
Civil Liberties	0.621	0.296	0	1	775
Economic Freedom	0.626	0.125	0.247	0.888	671
Composite Index	0.561	0.230	0	1	849
Political Institutions					
Polity4	0.693	0.338	0	1	775
Political Rights	0.635	0.345	0	1	775
Composite Index	0.576	0.361	0	1	1053
(In-)Equality Measures					
Reversed Net Gini	0.614	0.108	0.243	0.842	775
Reversed Human Capital Gini	0.817	0.211	0.129	1	700
Redistribution	-0.052	0.070	-0.432	0.439	775
Relative Political Extraction	1.025	0.408	0.077	3.578	1034
Controls					
Log GDP	8.623	1.266	5.888	11.233	762
Log Population	9.162	1.514	5.714	13.849	700
Years of Schooling	7.294	2.851	0.900	13.090	700
Ethnic Polarization	0.501	0.246	0.017	0.982	649
Colonial History	0.752	0.432	0	1	775
Inflation	0.710	0.454	0	1	775
Deflation	0.050	0.219	0	1	775
Socialist	0.153	0.361	0	1	775
Oil Producer	0.068	0.252	0	1	678

Economic inequality is also reflected by the distribution of skills and human capital that are available for production. Consequently, the distribution of skills and education across countries is another potential indicator of (in-)equality. Following Castelló and Doménech (2002), a human capital Gini coefficient is constructed based on average years of schooling for primary, secondary and tertiary education using the Barro and Lee (2013) dataset.[10] The resulting human capital Gini index is reversed and normalized to range from 0 to 1, where 1 corresponds to a perfectly equal distribution of education across the population.

2.4 Controls

In order to explore problems of omitted variables and reduce the systematic variation captured in the country-fixed effect, the analysis is also conducted with specifications of

[10]The human capital Gini coefficient is computed as

$$G^h = \frac{1}{2\bar{H}} \sum_{i=0}^{3} \sum_{j=0}^{3} |\hat{x}_i - \hat{x}_j| n_i n_j$$

where $\bar{H}$ are average years of schooling of the entire population aged 15 and older, x_i and x_j are the cumulative average years of schooling associated with four different educational levels (no formal, primary, secondary and tertiary education, correspondingly) with their respective population shares n_i and n_j.

the empirical model with additional controls for log GDP per capita from Penn World Tables (v.7.1) by Heston, Summers, and Aten (2012); average years of schooling; log population size from Barro and Lee (2013); ethnic polarization from Reynal-Querol and Montalvo (2005); colonial history from the CEPII data set by Mayer and Zignago (2011); as well as the inflation rate of World Development Indicators from World Bank (2014).

The benchmark data set used for the empirical analysis comprises an unbalanced panel of 112 countries over the period 1970-2010.[11] Descriptive statistics for all variables can be found in Table 1.

3 Empirical Approach

This section introduces the empirical model and various static and dynamic linear panel procedures in order to identify robust correlation patterns.

3.1 Model

The empirical analysis is based on a standard dynamic linear panel model:[12]

$$\begin{aligned} inst_{it} = \alpha\, inst_{it-1} + \beta_d\, demo_{it-1} + \beta_e\, eq_{it-1} + \gamma\, demo * eq_{it-1} \\ + \mathbf{z'_{it-1}}\boldsymbol{\delta} + \eta_i + \eta_t + \epsilon_{it}, \end{aligned} \tag{1}$$

where $inst_{it}$ measures economic institutions and rule of law for country i in period t; $demo_{it-1}$ is the lagged democracy index; eq_{it-1} the indicator for economic equality; $\mathbf{z'_{it-1}}\boldsymbol{\delta}$ is a vector of lagged control variables; η_i and η_t denote a country-specific fixed and time effect; and ϵ_{it} is an idiosyncratic error term. The novel element is the inclusion of the lagged interaction of democracy and equality $demo * eq_{it-1}$. Time periods are five-year intervals from 1970 to 2010. Since the evolution of economic institutions and rule of law is strongly persistent, the specification also includes a lagged value of the dependent variable.[13] Moreover, political participation and equality also vary slowly over time. Therefore, using first lags instead of a model with contemporaneous variables seems appropriate. General time trends as well as country-specific features that are constant over

[11] For earlier dates in the observation window the developed countries of Europe and North America are oversampled. This sort of selection is less severe for the data starting at 1970. Another possibility to circumvent this problem would be to impute the dataset and work with a balanced panel. However, this would require additional (strong) assumptions on the missing data points. Alternatively, simple imputation procedures based on bivariate regressions could be used to extrapolate the the data set based on correlations obtained on the observed sample, but we abstain from this possibility due to the strong assumptions and conceptual problems underlying this methodology.

[12] Similar specifications are used in Acemoglu et al. (2008, 2015) and Murtin and Wacziarg (2014).

[13] This specification measures the short-run effect of democracy on institutional quality, conditional on the degree of economic equality. The long-run effect can be computed imposing a steady-state condition and solving for $inst$.

time like culture or ethnic and linguistic fractionalization are contained in the period and country effects. In addition, dummy variables for oil production and former socialist countries are included for models that use level equations in order to reduce the risk of omitted variables and to diminish the variance explained by the country fixed effect and thus the risk that instruments are weak in some of the specifications (explained in more detail below). Finally, this approach also accounts for country- and period-specific variation in the measurement of the institutional indicators used in the analysis, such as changes in the questionnaires underlying the indices or discrete shifts in the judgment of institutional quality over time (e.g. corruption). This point is of particular importance since institutional indicators are by their design subjective to the assessments and expectations of experts and thus potentially endogenous. The panel estimation therefore drastically restricts the problem of measurement error.

The main interest of the empirical analysis lies in the interaction of political institutions (democracy) with economic equality, and the corresponding heterogeneity or even non-monotonicity of the effect of democracy and equality on the quality of economic institutions. Correspondingly, the total effect of democracy can be computed from the values of β_d and γ, conditional on the level of equality. In general, the specification allows for the possibility that the effect of democracy is positive for some country-period observations (e.g. those with a very equal income distribution) and negative for others (those with high inequality).

3.2 Estimation and Identification

General Idea. Due to the lack of quasi-experimental variation in democracy and equality, five different dynamic panel estimators are applied in order to estimate the coefficients of interest: fixed effects (FE), random effects (RE), bias corrected fixed effects (CFE), differences GMM (DGMM) and system GMM (SGMM). Each of these estimators relies on a set of identification assumptions and therefore has advantages and disadvantages. The main idea of identification in this paper is based on a comparison of the coefficient estimates obtained from these different estimation methods. Even if each specification by itself may suffer from biases due to mechanical endogeneity, too strong exogeneity or inappropriate stationarity assumptions, the overall pattern of estimates is informative with respect to the bounds of the true coefficient and the potential relevance of problems regarding the identification assumptions. In particular, finding a robust significant interaction effect between democracy and equality on rule of law throughout all models would provide qualitative evidence for the existence of such an interaction. Moreover, the pattern of estimates can be informative regarding the quantitative relevance of the effect in light of the appropriateness of different sets of identification assumptions. Appendix A

in the supplementary material provides a detailed description and discussion of the identification assumptions of each estimator. Below, a brief summary is given of the pros and cons of each estimator, of the caveats regarding the validity in the present application, and of the interpretation of the estimation results.

Fixed and Random Effects Models. Dynamic fixed and random effects panel estimates are biased in short panels because of mechanical correlation between the lagged dependent variable and the error term. This bias vanishes as the number of observations over time increases (Nickell, 1981).

Another problem is the requirement of strong exogeneity of the error terms, that is, all instruments, including lagged and future realizations of the instrumental variables, must be uncorrelated with current-period error terms. This assumption is substantially stronger as the weak exogeneity condition needed in panel GMM models, which, as is discussed below, only requires lagged instruments to be uncorrelated with the current-period error terms. For the random effects model, the regressors also have to be uncorrelated with the unobserved individual fixed effect. This represents a restrictive assumption whose failure leads to biased estimates. In the fixed effects model, this problem is dealt with mechanically as the unobserved fixed effect is eliminated by the within-transformation. Correspondingly, a potential omitted variable must be correlated with the demeaned regressors. In the presence of time effects, omitted variables have thus to be both time- and country-varying, which restricts the set of potential confounds considerably. Estimates obtained with these estimators can be informative regarding the existence of a non-monotonic effect in a differences or level model, respectively.

One way to deal with the inherent endogeneity problem that is introduced by the lagged dependent variable is to perform a bias correction. For instance, Bun and Kiviet (2003) propose a bias-corrected fixed effects estimator for balanced panels that has been generalized to the unbalanced case by Bruno (2005). The resulting estimator approximates and eliminates the bias that results from the fixed panel length. Therefore, the corrected estimator yields more credible results than the standard OLS based dynamic panel models. An important characteristic is that it does not require as restrictive additional assumptions as more sophisticated models like differences and system GMM.[14]

Differences and System GMM. The most frequently used solution to the endogeneity problem in dynamic panel models with lagged dependent variables is the application of dynamic panel estimators based on generalized methods of moments (GMM). The difference model (DGMM) identifies the coefficients of interest from changes in the explanatory variables (Arellano and Bond, 1991). For identification, the estimation exploits the lagged

[14]See also Bun and Carree (2005) and Bun and Kiviet (2006).

values of the explanatory variables as instruments for the endogenous regressors. The system GMM (SGMM) estimator also includes levels as additional instruments (Blundell and Bond, 1998). Under a stationarity assumption regarding the dependent variable, SGMM is preferable to DGMM because it is more efficient and provides more stable results for highly persistent variables, i.e. for estimates of α close to unity.

A typical and well known problem that may arise from using lagged values as instruments is that these may only be weakly correlated after the country fixed effects are removed. This problem is more severe in more persistent time series. In the case of weak instruments, the estimates for the autoregressive parameter are biased towards the fixed effects estimator. Since α is overestimated in a standard dynamic fixed effects model, the resulting coefficient can be seen as a lower bound for the true parameter. In addition, the bias-corrected fixed effects estimator serves as a rough guidance regarding what the true parameters should approximately look like. In order to further reduce the danger of weak instruments in the SGMM specification, also time-invariant variables are included in the level regressions in order to reduce the relative variance of the country fixed effects to the idiosyncratic error term.[15] One first indication whether instruments are weak is a comparison of results of differences and system GMM. The parameter estimate of SGMM is a weighted sum of the difference and level equation with more weight being put on the differenced model if identification is strong. Therefore, quantitatively similar estimates of both models are an indication for instrument relevance.

In addition to the identifying assumptions of DGMM, system GMM also demands a stationarity assumption that requires changes in the dependent variable be uncorrelated with the country fixed effect. This condition cannot be tested directly and likely holds only approximately in the present application as there are cases where democratic transitions lead to a change in the long-run steady state. This is not too problematic if countries are sufficiently close to their long-run steady state at the end of the panel period. Including time effects may also be helpful in increasing the probability for the stationarity assumption to be fulfilled. As a heuristic approach to test whether stationarity may be violated, SGMM is run on a subsample of the data where one after another the first two, the last two and the first as well as the last sample periods are removed to see whether the resulting regression coefficients are substantially affected by restricting the analysis to particular subsamples. The results reveal that the coefficient estimates do respond to these sample changes, with the largest effects emerging when the first two periods are removed. This indicates that the stationarity assumption required by the SGMM is not necessarily satisfied. Therefore, DGMM is expected to provide more re-

[15] Bun and Windmeijer (2010) point out that if the variance of the unobserved individual fixed effect is high compared to the variance of the idiosyncratic error term, there may be severe downward bias in the autoregressive parameter for the SGMM estimator. Adding level controls that absorb some of the variation that is explained by the country fixed effect may help to alleviate this problem.

liable estimates than SGMM. Nevertheless, results for both estimators are reported for completeness. Moreover, this condition is probably not crucially violated if the estimates of DGMM and SGMM are reasonably close to each other since the differences model does not rely on the stationarity assumption.

Furthermore, the employed number of instruments is relevant for both empirical models. First, consistency of the estimated parameters is not affected but efficiency increases with the number of moments available for estimation. Increasing the number of instruments can also lead to biases in the Hansen J-test whether instruments are statistically different from each other in the case of overidentification, however. Moreover, using lags that have little explanatory power for contemporaneous variables can weaken the instrument set. Hence, there is a trade-off between the efficiency of results and the strength of instruments as well as the validity of the test statistics for the validation of consistency assumptions. According to Roodman (2009), as a rule, the number of instruments should not exceed the amount of cross-sectional units (here: countries) in the sample.[16]

We conducted Granger (1969, 1980) tests of different lag specifications in combination with the Akaike and Bayesian Information Criteria to determine which lags are most informative and prima facie causal. For the dependent variable, the first two five-year lags have a jointly significant impact on the variable of interest. The first lag has to be instrumented since the lagged dependent variable is mechanically correlated with the error term in short panels. Hence, the difference $(y_{t-2}-y_{t-3})$ as well as the level of second lag are chosen as instruments for panel GMM. For DGMM, the difference between $(y_{t-3}-y_{t-4})$ is added to improve efficiency if the instrument count allows for this. For the explanatory variables, the once and twice lagged differences $(x_{t-1}-x_{t-2})$ and $(x_{t-2}-x_{t-3})$ as well the first and second level lag turn out to be informative. For DGMM both differences are used for estimation with the three times lagged difference being added for reasons of efficiency if possible. The level equations of SGMM use the once lagged difference as well as the first and second level lag so that the same amount of time periods is exploited in the system of differenced and level equations. Alternatively, there is also the possibility to *collapse* the instrument set in order to limit the amount of lags. This procedure uses the distance in the values of different time periods instead of the lags itself. However, this approach has the disadvantage that lags that are not particularly informative are also used for estimation, thus weakening the instrument set.

Finally, Arellano and Bover (1995) note that the choice of the transformation matrix that removes the unobserved individual fixed effects does not matter if the complete instrument set is used. However, as it is necessary to limit the amount of lags, the choice of the transformation matrix may be of importance. For the baseline specifications, the

[16] Note that this rule of thumb is not conservative so that instrument counts close to the respective threshold are no guarantee that test statistics are not biased.

forward orthogonalized deviations method is used because it eliminates less data than *first differences*.[17] Section 4.2 provides robustness with respect to the choice of the transformation matrix to eliminate the country fixed effects. Moreover, different lag specifications are tested and the instrument set is collapsed.

In sum, all estimators have their strengths and caveats. Given the implicit assumptions we view the bias corrected fixed effects estimator as the preferred since most conservative and reliable estimator in the context of the current application.

4 Empirical Results

4.1 Baseline Results

This section provides the main results of the empirical analysis. Table 2 presents the findings for civil liberties as the dependent variable. Columns (1) and (2) report results from fixed effects, (3) and (4) random effects using feasible GLS, (5) and (6) bias-corrected fixed effects, (7) and (8) DGMM, and (9) and (10) SGMM. Besides country and time effects, the empirical specifications include log per capita income and human capital in terms of average years of schooling as additional controls. The level equations of random effects and system GMM additionally include dummies for former socialism and oil production. For every specification, the count of observations, countries, instruments as well as the p-values of the AR(2) and the Hansen J-test for the GMM models are reported below the coefficient estimates of interest.

The estimation results reveal that the autoregressive parameter exhibits moderately to strong persistence, with $\alpha \in [0.43, 0.72]$ across all specifications and at the significance level of 1%. This suggests that institutional quality is only slowly changing and strongly predetermined. The comparably low parameter estimates obtained with the fixed effects estimator are likely affected by the Nickell bias and can be seen as a lower bound of the estimate.

The effect of economic equality, measured by the normalized reversed net Gini coefficient, β_e is not significantly different from zero in specifications without interaction term so that equality does not seem to have a significant direct effect β_e on institutional quality. The FE, CFE and DGMM estimators, which obtain identification only on the differences of the explanatory variables, yield a negative sign for the point estimate, while SGMM and RE, which use partly or completely level equations, deliver a positive sign.[18]

[17] See Hayakawa (2009) for a comparison of different transformation techniques.

[18] This finding differs from previous findings by Chong and Gradstein (2007b) for the years 1960-2000. Possible explanations for the difference are the composition of the dataset as well as problems with the cross-country comparability of other inequality indicators due to the lack of comparability of early inequality indicators such as the one by Deininger and Squire (1996), as was pointed out in section 2.

Table 2: Effect of Democracy and Inequality on Institutional Quality (Civil Liberties)

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.460***	0.436***	0.719***	0.692***	0.702***	0.669***	0.535***	0.483***	0.589***	0.542***
	(0.053)	(0.053)	(0.034)	(0.036)	(0.058)	(0.058)	(0.081)	(0.082)	(0.063)	(0.074)
L.Equality	-0.076	-0.341**	0.070	-0.218*	-0.068	-0.294*	-0.072	-0.358**	0.060	-0.264
	(0.105)	(0.162)	(0.053)	(0.125)	(0.119)	(0.158)	(0.157)	(0.175)	(0.110)	(0.188)
L.Democracy	0.069	-0.229*	0.058**	-0.168**	0.008	-0.246**	-0.017	-0.335***	0.066	-0.245*
	(0.042)	(0.116)	(0.027)	(0.081)	(0.043)	(0.125)	(0.051)	(0.126)	(0.055)	(0.141)
L.Eq×Demo		0.532***		0.420***		0.461**		0.583***		0.583**
		(0.200)		(0.142)		(0.219)		(0.203)		(0.266)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.970	0.920	0.939	0.905
Hansen J-test							0.080	0.137	0.244	0.209
Instruments							85	85	95	95
Groups	112	112	97	97	112	112	112	112	97	97
Observations	620	620	571	571	620	620	508	508	571	571

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

The estimated effect of the democracy indicator β_d for the models without interaction term is positive and significant at the 5% level for random effects model in (3) but insignificant for all other models. These findings support the hypothesis that democracy alleviates the creation of high quality economic institutions. Overall, the direct effect seems to be small and not robust, however.

Once an interaction between equality and political participation is introduced, the estimated coefficients of the equality index and of the democracy indicator become significant. Both, equality and political institutions have a negative direct effect which is quantitatively similar across all specifications with an interaction term. This result, which seemingly contradicts the conventional wisdom and the previous results in the literature, can be explained by the finding of a significant positive interaction term γ. Note that the point estimate of the interaction term, which varies between 0.42 and 0.58, is quantitatively very similar throughout the different specifications. The finding of this significant interaction constitutes the main contribution of this study and suggests that democracy and equality complement each other in the ability of a country to establish high quality economic institutions.

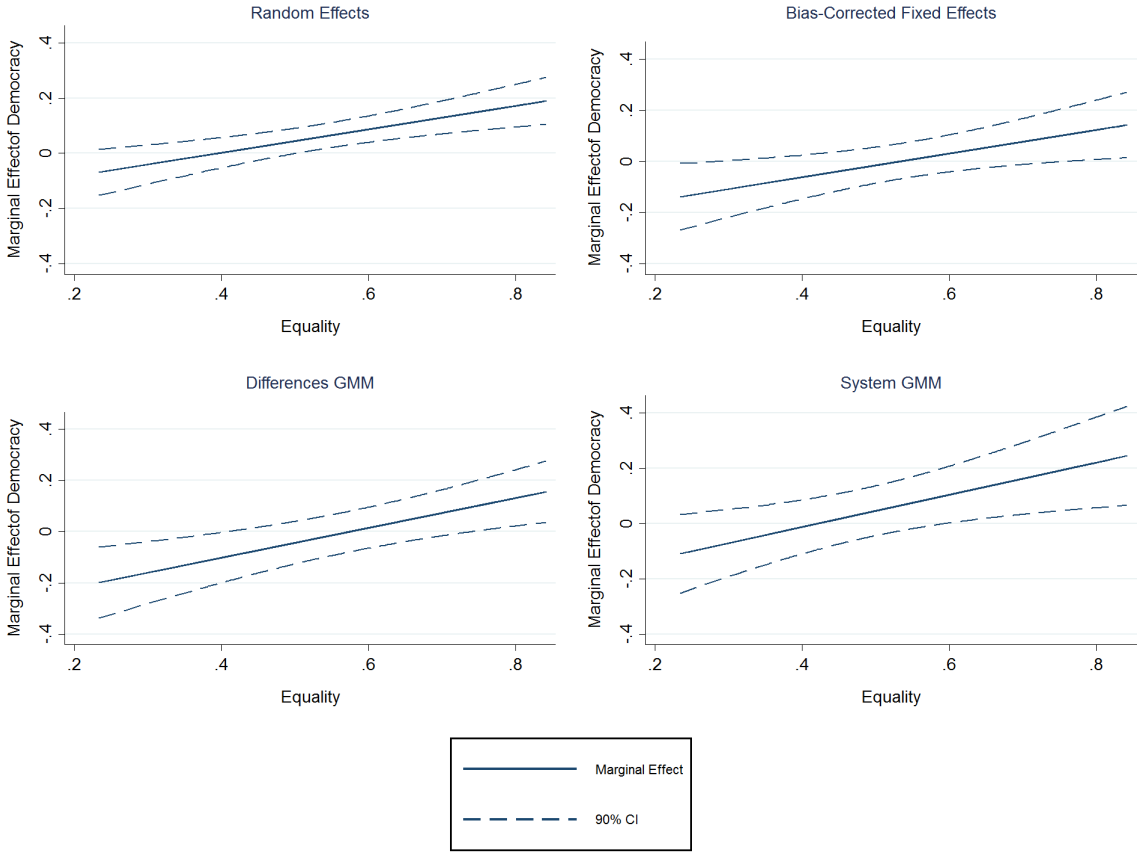
In fact, the results suggest that political institutions in the form of democracy can have a non-monotonic effect on institutional quality, depending on the degree of economic (in-)equality. For countries with an equal distribution of incomes, the overall effect of a marginal increase in democratic quality on institutional quality is positive, while for highly unequal societies the total effect is negative. Likewise, an increase in equality appears to have a detrimental effect on institutional quality in non-democratic countries, whereas the opposite is true in democracies. Given the estimates for political participation, income equality and the interaction term, the marginal effects (ME) of democracy can be computed as

$$ME_{demo} = \beta_d + \gamma * eq_{t-1}. \tag{2}$$

Using this expression, one can obtain a threshold of equality that indicates whether a marginal change in democracy has a positive or negative effect on economic institutions. Taking the estimated parameters from bias-corrected fixed effects and differences GMM in columns (6) and (8), the corresponding threshold values are roughly 0.53 and 0.58. That is, if the reversed Gini coefficient is higher than the respective threshold, i.e. for sufficiently high equality, the effect of a marginal change in the democracy score is positive. This is the case for about 74%, and 61% of the observations in the sample. On the other hand, the effect of a marginal change in democracy on institutional quality is negative for about 26% to 39% of the observations in the sample. Taking the average of the reversed Gini coefficient over time - so that there is only one observation per country - a marginal

The more recent equality data employed in this study are in this aspect more adequate.

Figure 2: Marginal Effect of Democracy on Institutional Quality



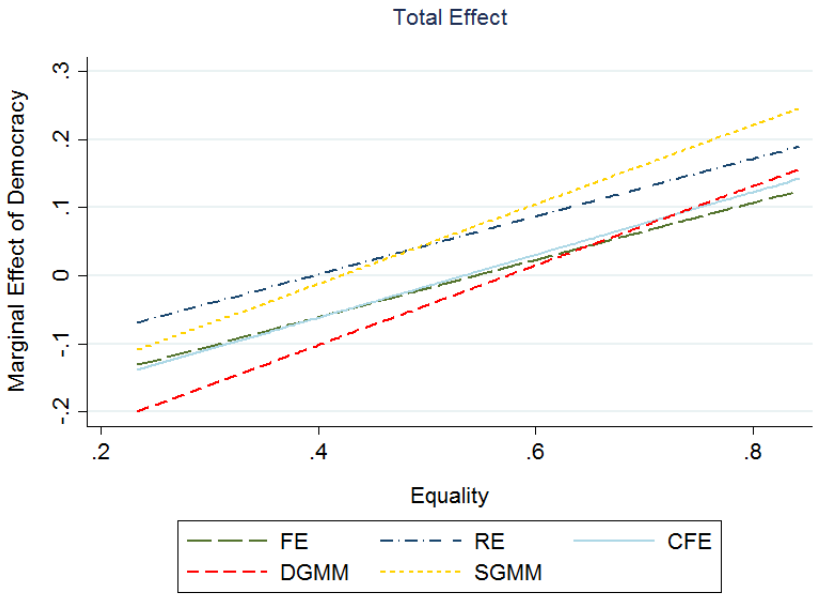
variation in democracy has a positive effect for 71% and 61% of the countries in the sample for CFE and DGMM. The total effect of political institutions is negative for the remaining 29% and 39%, respectively.

The marginal effect of democracy conditional on the level of equality is plotted in Figure 2 for the estimates of RE, for which the effect is quantitatively weakest, the preferred CFE as well as the panel GMM estimates reported in Table 2. The solid lines depict the marginal effect of democracy on institutional quality given by equation 2. The dashed lines represent the lower and upper boundaries of the 90% confidence intervals of the composite effect.[19] The graph shows that democracy has a heterogeneous and non-monotonic effect, which strongly depends on the level of equality prevalent in the economy. The effect is largest in absolute value for extreme degrees of (in-)equality and zero for intermediate levels.

Finally, Figure 3 illustrates the composite effect of democracy and equality on institutional quality for the five specifications with interaction terms presented in Table 2. The

[19]For a large sample, the confidence interval of the composite effect is given by $ME_{demo} \pm z_{1-\tau/2} \times SE$ with $SE = \sqrt{[Var(\beta_d) + eq_{t-1}^2 \times Var(\gamma) + 2 \times eq_{t-1} \times Cov(\beta_d, \gamma)]}$ and $z_{1-\tau/2}$ being the critical value of a two-sided t-test of size τ.

Figure 3: Marginal Effects of Democracy on Institutional Quality



effect of democracy is heterogeneous and non-monotonic throughout all regressions. In addition, all estimators yield a comparable slope for the total effect, with the two models that use level equations delivering a somewhat lower cutoff than the specifications that solely identify on the differenced equation. Hence, the finding of a significant interaction between democracy and equality, which implies non-monotonic effects of political institutions on institutional quality, appears not to be driven by the specific identification assumptions for a particular estimator. Moreover, the finding that the total effect is quantitatively similar across specifications provides additional support for the hypothesis that there is substantial heterogeneity and even non-monotonicity in the effect of democracy on institutional quality.

One potential concern with the results could be that that multicollinearity plays a role if the quality of political institutions is strongly correlated with the extent of income equality. In addition, this problem might be more severe the less the variables vary over time. Simple diagnostic tools such as the variance inflation factor suggest, however, that the problem of multicollinearity does not pose a threat to the findings. In the data, which are measured in 5-year intervals, the pairwise correlation of the Polity4 index and the reversed Gini coefficient is about 0.2, both unconditionally as well as conditionally on time and country fixed effects.

4.2 Robustness Checks

This section presents the results of extensive robustness checks in order to test whether the results are sensitive to different sets of control variables, to the use of alternative indicators of institutional quality, or different measures of democracy or equality. Moreover, results are presented for standard errors that are corrected for multiple imputation of the reversed Gini coefficients, as well as for different lag specifications and transformations in the context of the GMM estimators. Finally, the baseline interaction of democracy and equality is tested against additional interactions with income per capita or years of schooling. The respective Tables are reported in the Appendix B.

Different Sets of Controls. Table 3 displays parameter estimates for the baseline regression for different specifications in terms of the included control variables. Panel A shows estimated coefficients of specifications without any further controls except country fixed and time effects. Panel B includes the same controls as the specifications in Table 2 (log income per capita, average years of schooling as well as oil producer and former socialism in the level equations) and adds log population size; a colonial history dummy which is unity if the country was a former colony and else zero as well as ethnic polarization in the level regressions; an inflation dummy that takes value 1 for price changes larger than 4% and 0 otherwise; and a dummy for deflation which is equal to unity whenever the inflation rate is negative and zero otherwise.[20] These specifications provide robustness checks in two dimensions. The parsimonious specifications in Panel A are likely to be most affected by potential bias from relevant omitted variables. At the same time, these specifications suffer least from problems of endogeneity induced by control variables ("bad controls"). The reverse holds for the extensive specifications in Panel B.

The findings reveal very similar estimates to those of the baseline table, with a negative point estimate for the democracy and equality indicators, and a positive interaction between them. Most importantly, the interaction between democracy and equality is consistently positive and significant in all estimation frameworks and specifications, except for SGMM in the specifications with the full set of control variables, where the point estimate is positive and quantitatively not very different from the one obtained in the baseline specification, but not significant. Therefore, the finding of an interaction between democracy and equality does not hinge on a particular set of controls variables.

[20] The reason for using binary measures is the huge variation as some countries in the sample experienced periods of extremely high inflation (e.g. hyper-inflation in the case of Argentina), while most of the countries had a moderate development of prices. Alternatively to the dummies for inflation and deflation, specifications were also estimated including the untransformed inflation rate as a control variable. In light of the debate about replicating results with the income series of different waves of the Penn World Tables than version 7.1, Table 4 in the Appendix shows the baseline results also for the GDP data from version 8.0.

The finding that coefficient estimates and standard errors are virtually unaffected by the specification provides additional evidence that multicollinearity is unlikely to affect the results.

Given the emphasis on the distributive conflict in motivating the potential role of economic equality (and its interaction with democracy), redistribution might be another potential omitted factor that drives the estimation results. In order account for this possibility, a redistribution variable is constructed as the difference of the respective reversed net and market Gini coefficient in a country and period. This simple metric has several advantages over other proxy variables. First, it can easily be constructed for the sample without loosing any country-year observations through data from different sources. This is of importance since most available time series for taxes and redistribution have limited information for developing countries, and thus exhibit smaller sample sizes N. Second, this metric represents a minimum measure of redistribution that is based solely on the impact on the income distribution. This point is particularly relevant because the capacity of the state to collect tax revenues for the provision of public goods or distributive purposes represents an institutional feature that is close to economic institutions, thus potentially comprising the institutional dimensions that constitute the dependent variable. Table 5 reports the corresponding regressions with redistribution as additional explanatory variable in the baseline specification. The results indicate that redistribution has no statistically significant effect. In the differences models, the coefficient estimate is consistently negative and only positive for the level-based estimators. Importantly, however, the interaction between democracy and equality is again positive, significant and quantitatively almost unchanged throughout the different estimation models. Thus, adding redistribution as control in the empirical specification does not affect the main results.

Alternative Measures of Political Institutions. In order to gauge the importance of the particular democracy indicator used in the estimation, the different models were also estimated using an artificial composite democracy indicator constructed from the Polity4 and Political Rights variables. This variable, which is labeled Composite Index in Table 1, is generated as the principal component of the Polity4 and Freedom House's Political Rights indicator. The corresponding estimation results are shown in Table 6. Consistent with the baseline results, the findings for the specifications with interactions between political institutions and economic equality reveal that the point estimate for democracy is again negative and significant while the interaction term is positive and significantly different from zero throughout all models. Quantitatively, the parameter estimates are somewhat larger while the standard errors are roughly the same compared to Table 2. This implies that the finding of non-monotonic effects is not sensitive to

the particular democracy indicator that is used in the estimation. It also indicates that the composite measure, by combining two democracy indices, contains less measurement error. For completeness, all estimations were also conducted using the Political Rights variable. The results also reveal a significant interaction effect of democracy and equality on rule of law. The results are reported in Table 7 in the Appendix.

In related studies, some scholars use a discrete democratic transition variable which takes value 1 if a country democratizes and 0 otherwise instead of a continuous measure (see e.g. Persson and Tabellini, 2006, and Papaioannou and Siourounis, 2008). A drawback of such a measure is that identification is based only on substantial changes in political institutions that occur during the observation period, while many such changes and transitions to democracy have already taken place before the time institutional indicators are available. Moreover, constructing an appropriate reference group is non-trivial as pointed out by Freund and Jaud (2014). Table 8 Panel A in the Appendix shows that the non-monotonic effect described in Section 4.1 is nonetheless also found for a binary democracy measure. Panel B of 8 reports results for the baseline specification if, in addition, equality is coded as binary variable.

Alternative Measures of Institutional Quality. Table 9 reports the results of the baseline regressions for the Economic Freedom index as alternative measure for the quality of institutional quality. The results show that democracy has a positive and significant effect on economic freedom in the specifications without an interaction term. The sign turns negative as soon as the model allows for heterogeneity by including an interaction term. The coefficient of the interacted effect of democracy and equality is positive and significant for all models except random effects. Overall, the results for economic freedom suggest a pattern of heterogeneity of the effect of political participation on institutional quality. The lower income inequality, the stronger the effect of democracy on economic institutions. However, very high inequality is needed for the marginal effect of democracy to turn negative: the respective threshold value for bias-corrected fixed effects is 0.36 of the reversed Gini coefficient. Hence, democracy is conducive to economic institutions only for sufficiently equal distributions of income and wealth and has a zero effect otherwise.

In addition, we also constructed a composite indicator for institutional quality from the Civil Liberties and the Economic Freedom indices using the principal component and normalized it to values between 0 and 1 (see Table 1). As for democracy, this composite index combines the institutional qualities comprised in both of the aforementioned variables. The resulting estimates, reported in Table 10, confirm the finding of a non-monotonic effect of democracy and equality on the quality of economic institutions.

Adjusting the Inequality Measure for Multiple Imputation. The SWIID dataset by Solt (2009) uses multiple imputation techniques in order to reduce the amount of missing values in the data set. Treating imputations as regular data points disregards the uncertainty regarding the imputed value, which is itself a random variable. Adjusting for this fact usually results in larger standard errors and less significant findings. To account for this issue, we conduct robustness checks that accommodate for imputation procedures. To enable corrections for multiple imputation, from version 4.0 onwards the SWIID data set provides 100 values for the Gini coefficient for every country-year cell, instead of just a single value. These multiple observations for each country-year cell can be used to estimate the coefficients up to 100 times, for every single Gini realization respectively. The final estimates for coefficients and standard errors are then obtained by taking the average over all estimated coefficients. This procedure adequately reflects the underlying uncertainty in the equality measure that has been introduced by the imputation procedure. For the problem at hand, all available 100 Gini realizations are used, even though a smaller number is typically already sufficient. Intuitively, the baseline regressions used the mean over all 100 realizations and estimated the respective model, while this procedure estimates each model 100 times and takes the mean over the estimated parameters thereafter.[21]

Table 11 reports the results of the baseline regressions using the multiply imputed reversed Gini data. Note that although the imputation procedure mainly affects standard errors, the parameter estimates can vary compared to the baseline because the estimated coefficient for the average reversed Gini need not be identical to the mean over all 100 Gini data points. The estimated autoregressive coefficients are very similar to the baseline estimates from Table 2. The estimated parameters for the reversed Gini coefficients are somewhat closer to zero than in the main specifications and become insignificant. In particular, negative estimates are greater while positive parameters are smaller. As expected, standard errors are larger than in the baseline regressions for all specifications, although the absolute change is minimal. The regression coefficients are similar for the estimated effect for democracy and for the interaction term, with point estimates being quantitatively very similar to the baseline regressions and standard errors being minimally larger. This confirms that the main finding of non-monotonicity is not driven by neglecting the variation in the equality time series due to multiple imputation. However, the baseline results for the effect of equality are only marginally significant and may in fact be somewhat less reliable in light of the uncertainty associated with the process of imputation.[22]

[21] In practice, this is done in STATA using the "mi estimate" prefix before running the desired regression type. For a more technical discussion see Rubin (1996).

[22] This finding potentially explains the discrepancy to the strong negative effects of inequality on institutional quality reported in the previous literature that had no access to the (in-)equality series constructed by Solt (2009) which are comparable across countries and allow for addressing the imputation of the time

Summarizing, the finding of an interaction between democracy and equality is confirmed with threshold levels of a positive effect corresponding to an equality index of roughly 0.53 for CFE and 0.60 for DGMM. These values are quantitatively almost identical to the cutoffs that were found for the specification that used the average Gini coefficient (0.53 and 0.58). This is to be expected as long as the imputation procedure (given correct specification) does not affect consistency of the point estimates, but only the standard errors. Taken together, the results from this analysis indicate that the estimated interaction effect does not hinge on standard error corrections for the Gini time series.

Alternative Measures of Equality. Economic inequality is also reflected by the distribution of skills that are available for production. Therefore, the reversed human capital Gini coefficient described in section 2.3 is used as alternative measure for equality. Table 12 shows the corresponding results. The effect of equality and democracy is negative once the model allows for heterogeneous effects through an interaction term. The interaction between democracy and equality is positive throughout all specifications and significant at the 5% level for FE, CFE and DGMM. The estimated parameters for the direct effects of democracy, equality and the interaction are quantitatively somewhat smaller than in the baseline but reasonably similar to the results of the baseline in Table 2.

Alternatively, we estimated the empirical model separately on subsamples that were split by the level of equality (into the lowest quintile, the three intermediate quintiles, and the highest quintile) without an interaction term. Table 13 presents the results. Consistent with the earlier findings, the effect of democracy on institutional quality is negative (although not significant) in the subsample in which equality is lowest, whereas the effect is positive in the other two subsamples. The positive effect is largest and significant in the subsample that exhibits the highest level of equality, providing additional evidence for the heterogeneous effect of democracy.

Finally, Table 14 presents results results when using the (reversed) top 10% income share from Piketty (2014) as measure for inequality. Again, the interaction between democracy and equality is positive throughout, but not always significant, probably partly due to the small number of countries for which this information is available. Taken together, the results deliver a coherent pattern of heterogeneity in the effect of democracy on institutional quality that is related to equality.

series. To the knowledge of the authors only few existing papers account for multiple imputation or interpolation of inequality data. To the extent that the effect for many variables might be overstated without accounting for the imputation noise, the analysis in this study also provides a contribution in this respect by applying more extensive corrections for standard errors than what is standard in the literature. At the same time, the analysis abstracts from the problem of sample selection that also arises from imputation procedures if the pattern of missing observations is not random and not adequately modeled in the imputation procedure, see Cameron and Trivedi (2005).

Robustness of GMM Results. A potential concern with the results from the GMM estimators is that the findings might be driven by the choice of the transformation that removes the country fixed effect, or by the choice of the instrument set. Results of robustness checks in this direction are reported in Table 15. Panel A reports different specifications for DGMM, Panel B for SGMM. Columns (1) and (2) provide baseline results; Columns (3) and (4) add one additional lag dimension compared to the baseline; Columns (5) and (6) use one lag dimension less, respectively; and the instrument set is collapsed in Columns (7) and (8). The respective two columns of each block present results for forward orthogonalized deviations (FOD) and first differences (FD) as choices of the transformation matrix to remove the unobserved fixed effect. The estimates vary in a reasonable range for the autoregressive parameter, the democracy index as well as the interaction term. Consistent with the baseline results, there is a significant interaction effect throughout all DGMM specifications which is also quantitatively in line with baseline findings of Table 2, while the SGMM estimates are somewhat less robust for fewer lags and the collapsed instrument set. Moreover, the point estimates are reasonably close to each other when applying FD instead of FOD. The AR(2) and Hansen J-test statistics indicate that endogeneity of instruments is not a threat for the consistency of the estimates except for the collapsed instrument set. This last finding may indicate that very far lags have little explanatory power and thus render the instrument set weak or that the estimated variance-covariance matrix becomes somewhat unstable due to the inclusion of many similar and strongly correlated (but potentially uninformative) right-hand side variables.

Overidentification – Adding Interactions between Democracy and other Variables. Finally, Table 16 compares the results obtained with the baseline specification to findings for specifications that include alternative interactions of democracy with income as well as with human capital in addition to the interaction with equality. The purpose of this exercise is twofold. First, these estimates provide a sort of overidentification test to examine whether the interaction effects found so far potentially takes up heterogeneous effects of democracy in some other dimension than inequality. Second, the specifications conduct a horse race between different channels that affect institutional quality. This horse race is motivated by the arguments forwarded by Lipset (1959), who suggested that a multitude of factors might be relevant for institutions to work successfully. The estimates also account for other factors that have been identified in the previous literature. For example, Acemoglu et al. (2008, 2009) investigate the importance of income for political institutions, while Murtin and Wacziarg (2014) and Fortunato and Panizza (2014) identify human capital as a central determinant of institutional quality. Up to this point, in the literature, these channels have been investigated in isolation, but have not been

compared to each other in terms of their relevance in the same estimation framework.

The results are reported for bias-corrected fixed effects in Columns (1)-(4), DGMM estimators in Columns (5)-(8), and SGMM estimators in Columns (9)-(12) of Table 16. The first column of each block replicates the baseline results. Subsequently, an interaction with income or human capital is added, respectively, and in the last column of each block, all three interactions are estimated jointly.[23] The results indicate that including additional sources of heterogeneity does not quantitatively affect the point estimates for autoregressive parameters, (in-) equality, democracy as well as the interaction term between both (Eq.×Demo). Moreover, standard errors remain almost unaffected when the additional interactions are added. The results indicate no evidence for a heterogeneous effect of income and democracy, as the respective interaction (GDP×Demo) is insignificant throughout all regressions and does not affect the interaction of democracy and equality quantitatively except for one SGMM model. Similarly, the heterogeneous effect for average years of schooling and democracy (HC×Demo) is not significantly different from zero for bias-corrected fixed effects and DGMM. For SGMM, the interaction is negative and significant at the 5% level, but quantitatively small. The interaction between democracy and inequality remains significant and quantitatively almost unchanged throughout all specifications except for SGMM in Column (10), indicating that the earlier results do not merely reflect variation from other channels or interaction terms. The finding that democracy has a heterogeneous effect on institutional quality conditional on the degree of economic equality is robust to accounting for alternative sources of heterogeneity.

Additional Results – Effects on Redistribution and Stability of Democracy. According to several of the theories motivating the empirical analysis mentioned in the Introduction, the findings might be interpreted as the consequence of an influential rich elite inducing lower institutional quality in democracy in order to protect itself from excessive distributive pressure. If this is correct, one would expect the (seemingly counterintuitive) result that tax revenues and redistribution is lower in democracies in which inequality is high. In other words, in an estimation framework with redistribution as dependent variable, one would expect a positive interaction effect between democracy and equality. Table 17 in the Appendix presents the estimation results regarding this conjecture, using the Relative Political Extraction indicator for industrial countries by Hendrix (2010) and Arbetman-Rabinowitz et al. (2013) as measure for taxation and redistribution. The results indeed reveal a positive interaction effect, but the coefficient is estimated with insufficient precision to deliver statistically significant results.

A second set of additional results addresses the question of stability of democracy.

[23] For the sake of brevity, results for fixed and random effects are not reported. The findings are similar to those reported in Table 16 and are available upon request.

Ultimately, the arguments mentioned in the Introduction also imply that democracies might become unstable if inequality becomes too large, referring to a hypothesis that goes back to Lipset and that has been expressed in modified form more recently by Piketty (2014).[24] To investigate the role of inequality for the stability of democracy, we re-estimate the empirical framework with an interaction between democracy and equality, but with the level of political institutions as dependent variable. Based on the baseline sample 1970-2010 in five-year intervals, Table 18 in the Appendix reveals that democratic institutions are self-reinforcing, but that this effect is stronger the greater the level of equality in society, as indicated by the positive interaction term between democracy and equality. However, the effect is not significant, except for the corrected fixed effects estimator. In an attempt to gain statistical power, we estimate the same model for an extended sample over the time period 1870-2010 in ten-year intervals. The results, presented in Table 19, show that the interaction effect is positive and (marginally) significant in all model with one exception. We view this as evidence that is suggestive, or at least not inconsistent, with the theories underlying the main hypothesis of this paper.

5 Conclusion

This study has investigated the role of economic equality in moderating the effect of democracy on institutional quality. Based on the arguments and predictions from an entire strand of the literature, the hypothesis motivating the analysis was that the quality of institutions in terms of civil liberties and economic freedom are affected by an interaction between political institutions and equality. Based on a panel of 112 countries over the period 1970-2010, dynamic panel estimates delivered evidence for a non-monotonic effect of democracy on institutional quality that is moderated by inequality. The results are robust and quantitatively similar across different dynamic panel specifications so that findings are not driven by endogeneity issues that are specific to certain models. The results are also robust to different model specifications, choices of explanatory variables, controls, the dependent variable and standard error corrections for multiply imputed data. Furthermore, the interaction of equality and political institutions that measures the degree of heterogeneity is positive and significant also in the presence of interactions between democracy and income, as well as between democracy and human capital.

Taken together, the findings suggest that equality is a pivotal factor that determines whether democratic institutions have a positive and lasting effect on institutional quality.

[24] In Lipset's words, "From Aristotle down to the present, men have argued that only in a wealthy society in which relatively few citizens lived in real poverty could a situation exist in which the mass of the population could intelligently participate in politics and could develop the self-restraint necessary to avoid succumbing to the appeals of irresponsible demagogues. A society divided between a large impoverished mass and a small favored elite would result either in oligarchy (..) or in tyranny." (Lipset, 1959, p.75).

In fact, the results are consistent with a negative effect of democracy on institutional quality in very unequal societies, providing supportive evidence for the existence of two equilibria with efficient institutions, one characterized by a very equal distribution of resources and democracy, and another characterized by high inequality and autocracy. These findings support arguments by Lipset (1959) who argued that democracies only work and provide good institutions under specific preconditions. Likewise, the findings support arguments that raise concerns about the consequences of increasing inequality (see, e.g., Piketty, 2014).

The interpretation of the results raises additional implications for future research. Although high institutional quality can be achieved both under democracy and autocracy, the highest scores for civil liberties are observed for countries with the highest democracy scores. Consequently, the equilibrium with democratic rights and low economic inequality appears preferable to the autocratic regime in terms of institutional quality. Moreover, even though efficient institutions and good rule of law are feasible in regimes with autocratic political institutions and high inequality, this does not imply that autocratic regimes are able or even willing to produce those outcomes. In fact, many autocracies perform very poorly in terms of institutional quality, i.e., the lowest scores of civil rights and rule of law are realized in pure autocratic countries. Hence, the results indicate that, while democracies appear neither necessary nor sufficient for high institutional quality, the corresponding corollary for states with limited franchise implies that autocratic regimes are neither necessary nor sufficient for low institutional quality. More research is needed on uncovering the precise channels underlying the empirical findings presented in this paper.

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A Technical Appendix for Supplementary Material

In order to estimate this model, five different dynamic panel models are proposed, fixed effects (FE), random effects (RE), bias corrected fixed effects (CFE), differences GMM (DGMM) and system GMM (SGMM), each having advantages and disadvantages. The material in this section draws on Cameron and Trivedi (2005) and Bruno (2005).

A.1 Fixed Effects

First, the fixed effects or within estimator is obtained by subtracting the time-averaged model from the original model

$$y_{it} - \bar{y}_i = \alpha\,(y_{it-1} - \bar{y}_i) + (\mathbf{x_{it-1}} - \bar{\mathbf{x}}_\mathbf{i})'\boldsymbol{\theta} + (\epsilon_{it} - \bar{\epsilon}_i),$$

where time-average variables are indicated by upper bars. For notational convenience, explanatory variables, time effects and controls are now summarized by the vector $\mathbf{x}_{it-1}$. Throughout this paper, vectors and matrices are indicated by bold characters.

Consistency of the fixed effects estimator requires either the number of countries $N \to \infty$ or the count of observation periods $T \to \infty$ and differences of error terms from their time average to be uncorrelated with the respective differences of the right hand side variables, or formally

$$E[(\epsilon_{it} - \bar{\epsilon}_i)|(\mathbf{x_{it-1}} - \bar{\mathbf{x}}_\mathbf{i})] = 0 \quad and \quad E[(\epsilon_{it} - \bar{\epsilon}_i)|(y_{it-1} - \bar{y}_i)] = 0. \tag{3}$$

In a static model, a sufficient condition for equation (3) to hold would be strict exogeneity of the regressors. However, including a lagged dependent variable automatically introduces bias because $\bar{y}_i$ and $\bar{\epsilon}_i$ are by definition correlated through the averaged model. Consequently, the second part of condition (3) is necessarily violated. For fixed effects to be nonetheless consistent $\bar{\epsilon}_i$ has to become very small relative to ϵ_{it} which is the case for $T \to \infty$. This is clearly not the case for the short panel at hand. Correspondingly, the autoregressive parameter α will be downward biased while the bias for the effect of democracy and equality is ambiguous due to the inclusion of an interaction term.[25]

A.2 Random Effects / GLS

Second, the random effects model that can be written as

$$y_{it} = \alpha\, y_{it-1} + \mathbf{x'}_{it-1}\boldsymbol{\theta} + \eta_i + \epsilon_{it}.$$

[25] For further information see Nickell (1981).

For a static version of the model (i.e. without the lagged dependent variable), consistency requires regressors be uncorrelated with individual-specific effects,

$$E[\mathbf{x}_{it-1}(\eta_i + \epsilon_{it})] = 0.$$

Under these assumptions, feasible GLS which is more efficient than pooled OLS yields consistent estimates.

If a lagged dependent variable is added to the regression equation, $E[y_{it-1}(\eta_i+\epsilon_{it})] \neq 0$ because by definition $E[y_{it-1}, \eta_i] \neq 0$. For $\alpha > 0$ the autoregressive parameter will then be overstated. In contrast, explanatory variables with $\beta_j > 0$ will exhibit downward bias. As in the fixed effects case, the direction of bias in explanatory variables is ambiguous since the inclusion of an interaction term allows for non-monotonous overall effect.

A.3 Bias-Corrected Fixed Effects

Third, consider the standard dynamic model from above

$$y_{it} = \alpha\, y_{it-1} + \mathbf{x_{it}}'\boldsymbol{\theta} + \epsilon_{it},$$

Stacking observations across countries and over time yields

$$\mathbf{y} = \mathbf{D}\boldsymbol{\eta} + \mathbf{W}\boldsymbol{\delta} + \boldsymbol{\epsilon},$$

where $W = (\mathbf{y_{-1}} \vdots \mathbf{X})$ is a $(NT \times k)$ matrix of stacked observations; $\mathbf{D} = \mathbf{I_N} \otimes \boldsymbol{\iota_T}$ is a $(NT \times N)$ matrix of individual dummies (where $\boldsymbol{\iota_T}$ is a vector of unity elements); $\boldsymbol{\delta} = (\alpha \vdots \theta')'$ denotes the $(k \times 1)$ vector of coefficients; and $\mathbf{y}$ as well as $\boldsymbol{\eta}$ are stacked vectors of the dependent variable and the unobserved country fixed effects.[26]

Define a selection rule s_{it} that only selects those observations that are usable for the dynamic panel, i.e. those with observations for the current as well as the lagged period. Stacking the selection indicator into a matrix of dimension $(NT \times NT)$, the dynamic model can be written as

$$\mathbf{Sy} = \mathbf{SD}\boldsymbol{\eta} + \mathbf{SW}\boldsymbol{\delta} + \mathbf{S}\boldsymbol{\epsilon}.$$

The fixed effect estimator for this unbalanced panel is then given by

$$\boldsymbol{\delta} = (\mathbf{W}'\mathbf{M}_s\mathbf{W})^{-1}\mathbf{W}'\mathbf{M}_s\mathbf{y}$$

[26] Note that the corresponding elements of the vector $\boldsymbol{\theta}$ are 0 for $\mathbf{x_{it}}$ since contemporaneous effects are excluded from the model. This notation is chosen to follow Bruno (2005) as closely as possible.

with

$$\mathbf{M}_s = \mathbf{S}\big[\mathbf{I} - \mathbf{D}(\mathbf{D}'\mathbf{S}\mathbf{D})^{-1}\mathbf{D}'\big]\mathbf{S}$$

being the symmetric and idempotent $(NT \times NT)$ transformation matrix that removes the unobserved country-specific fixed effects.

The bias of the fixed effects estimator can then be approximated by

$$\mathbf{c}_1(\bar{T}^{-1}) = \sigma_\epsilon^2 tr(\mathbf{\Pi})\mathbf{q_1}$$

$$\mathbf{c}_2(N^{-1}\bar{T}^{-1}) = -\sigma_\epsilon^2 \big[\mathbf{Q}\bar{\mathbf{W}}'\mathbf{\Pi}\mathbf{M}_s\mathbf{W} + tr(\mathbf{Q}\bar{\mathbf{W}}'\mathbf{\Pi}\mathbf{M} - s\bar{\mathbf{W}})\mathbf{I}_{k+1} + 2\sigma_\epsilon^2 q_{11} tr(\mathbf{\Pi}'\mathbf{\Pi}\mathbf{\Pi})\mathbf{I}_{k+1}\big]\mathbf{q_1}$$

$$\mathbf{c}_3(N^{-1}\bar{T}^{-2}) = \sigma_\epsilon^4 tr(\mathbf{\Pi})\Big[2q_{11}\mathbf{Q}\bar{\mathbf{W}}'\mathbf{\Pi}\mathbf{\Pi}'\bar{\mathbf{W}}\mathbf{q_1} + \big[(\mathbf{q_1}'\bar{\mathbf{W}}'\mathbf{\Pi}\mathbf{\Pi}'\bar{\mathbf{W}}\mathbf{q_1}) + q_{11}tr(\mathbf{Q}\bar{\mathbf{W}}'\mathbf{\Pi}\mathbf{\Pi}'\bar{\mathbf{W}}) + 2tr(\mathbf{\Pi}'\mathbf{\Pi}\mathbf{\Pi}'\mathbf{\Pi})q_{11}^2\big]\mathbf{q_1}\Big]$$

where $\mathbf{Q} = \big[E(\mathbf{W}'\mathbf{M}_s\mathbf{W})\big]^{-1} = \big[\bar{\mathbf{W}}'\mathbf{M}_s\bar{\mathbf{W}} + \sigma_\epsilon^2 tr(\mathbf{\Pi}'\mathbf{\Pi})\mathbf{e_1}\mathbf{e_1}'\big]^{-1}$; $\bar{\mathbf{W}} = E(\mathbf{W})$; $\mathbf{e}_1 = (1, 0, \ldots, 0)'$ is the $(k \times 1)$ unit vector; $\mathbf{q_1} = \mathbf{Q}\mathbf{e}_1$; $q_{11} = \mathbf{e}_1'$; $\mathbf{L_T}$ is a $(T \times T)$ matrix for which the first lower sub-diagonal is unity and all other entries take value zero; $\mathbf{L} = \mathbf{I}_N \otimes \mathbf{L}_T$; $\mathbf{A}_T = (\mathbf{I}_T - \alpha\mathbf{L}_T)^{-1}$; $\mathbf{A} = \mathbf{I}_N \otimes \mathbf{A}_T$; $\mathbf{\Pi} = \mathbf{M}_s\mathbf{L}\mathbf{A}$; and r is an indicator whether the observation is non-missing.

This leads to bias approximations with increasing accuracy of:

$$\mathbf{B}_1 = \mathbf{c}_1(\bar{T}^{-1});\ \mathbf{B}_2 = \mathbf{B}_1 + \mathbf{c}_2(N^{-1}\bar{T}^{-1});\ \mathbf{B}_3 = \mathbf{B}_2 + \mathbf{c}_3(N^{-1}\bar{T}^{-2}).$$

Using a consistent estimate for σ_ϵ^2 and α, one can estimate the approximate bias $\hat{\mathbf{B}}_i$ and obtain the bias-corrected fixed effects estimator

$$\boldsymbol{\delta}_i = \boldsymbol{\delta}_{FE} - \hat{\mathbf{B}}_i,\ i = 1,\ 2,\ 3.$$

Estimates for α can be obtained using either the Anderson and Hsiao (1981), the Arellano and Bond (1991) or the Blundell and Bond (1998) estimator. For the model at hand, the Arellano-Bond estimator is used with the computed variance

$$\hat{\sigma}_{AB}^2 = \frac{(\mathbf{y} - \mathbf{W}\boldsymbol{\delta}_{AB})'\mathbf{M}_s(\mathbf{y} - \mathbf{W}\boldsymbol{\delta}_{AB})}{(N - k - T)}.$$

In this study, the variance-covariance matrix is estimated using bootstrap procedures with 100 repetitions.

A.4 Differences GMM

Fourth, the inconsistency problem of standard panel regressors can be solved by applying an IV-variant of a first differences OLS estimator. Taking the first difference of the model presented in equation (1) yields

$$y_{it} - y_{it-1} = \alpha\,(y_{it-1} - y_{it-2}) + (\mathbf{x}_{it-1} - \mathbf{x}_{it-2})'\boldsymbol{\theta} + (\epsilon_{it} - \epsilon_{it-1}), \qquad t = 3, ..., T.$$

Instrumenting $(y_{it-1} - y_{it-2})$ by its own lag $(y_{it-2} - y_{it-3})$ removes the mechanical bias between the difference of the lagged dependent variable and the error term.[27] The first differenced own lag is a good instrument because it is correlated through the level variable y_{it-2} and unrelated to the differenced error term. The count of available instruments increases with the time period t so that the model is overidentified.

Using all potential instruments gives the differences GMM (DGMM) or Arellano-Bond estimator that yields consistent estimates under the moment conditions

$$E[y_{is}(\epsilon_{it} - \epsilon_{it-1})] = 0 \quad with \quad s \leq t - 2.$$

A known weakness of this estimator however is that instruments might be weak because either because α moves towards unity or as the relative variance of the fixed effects η_i increases.[28] A good indication whether relevance is a problem or not can be obtained by comparing the autoregressive coefficient of the DGMM and the FE model. Weak instruments bias the persistence parameter α towards the downward biased estimate of the dynamic fixed effects model.[29]

A.5 System GMM

Fifth, more efficient results can be achieved if one uses the additional moment conditions

$$E[(\eta_i + \epsilon_{it})(y_{is} - y_{is-1})] = 0 \quad with \quad s \leq t - 1.$$

For these additional conditions to be satisfied, a simple stationarity condition is required: deviations from the initial steady state must be uncorrelated with the level itself. Under these assumptions, not only the lagged first differences but also the level lags can be used as instruments which may result in substantial efficiency gains. Furthermore, the estimator can better accommodate for moderately high values of the autoregressive parameter and relatively low counts of time periods T. The estimator is referred to as Blundell-Bond

[27] For more information see Anderson and Hsiao (1981) and Arellano and Bond (1991).
[28] For further information see Blundell and Bond (1998).
[29] See for example Hauk and Wacziarg (2009).

(1998) or system GMM (SGMM).

As pointed out by Bun and Windmeijer (2010), weak instruments can also play an important role in system GMM models if the variance of individual effects is higher or equal that of the idiosyncratic error. In order to deal with this issue, constant regressors are also included in the level regression to reduce the amount of variation explained by the country-fixed effect. Broadly speaking, this leads to larger and more credible estimates of the autoregressive parameter in the model.

B Additional Tables for Supplementary Material

Table 3: Robustness: Different Specifications of Controls

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
					Panel A: Without Controls					
L.Inst. Quality	0.418***	0.394***	0.780***	0.744***	0.678***	0.647***	0.491***	0.441***	0.684***	0.601***
	(0.056)	(0.056)	(0.028)	(0.032)	(0.059)	(0.058)	(0.083)	(0.083)	(0.062)	(0.077)
L.Equality	-0.091	-0.348**	0.175***	-0.076	-0.059	-0.279	-0.058	-0.360**	0.199**	-0.240
	(0.105)	(0.163)	(0.046)	(0.115)	(0.106)	(0.183)	(0.150)	(0.181)	(0.083)	(0.171)
L.Democracy	0.070*	-0.240**	0.080***	-0.139*	-0.001	-0.265	-0.027	-0.355***	0.053	-0.356***
	(0.039)	(0.119)	(0.025)	(0.079)	(0.040)	(0.163)	(0.045)	(0.119)	(0.061)	(0.133)
L.Eq×Demo		0.555***		0.396***		0.481*		0.605***		0.766***
		(0.210)		(0.139)		(0.284)		(0.195)		(0.268)
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.779	0.877	0.671	0.717
Hansen J-test							0.070	0.099	0.194	0.126
Instruments							83	83	91	91
Groups	131	131	131	131	131	131	130	130	131	131
Observations	687	687	687	687	687	687	556	556	687	687
					Panel B: Full Controls					
L.Inst. Quality	0.454***	0.436***	0.711***	0.689***	0.690***	0.658***	0.576***	0.531***	0.500***	0.473***
	(0.052)	(0.053)	(0.036)	(0.036)	(0.059)	(0.058)	0.075	(0.078)	(0.084)	(0.093)
L.Equality	-0.063	-0.341**	0.069	-0.199	-0.062	-0.309*	0.018	-0.336*	0.306*	0.093
	(0.105)	(0.166)	(0.057)	(0.138)	(0.121)	(0.169)	(0.149)	(0.175)	(0.163)	(0.239)
L.Democracy	0.075	-0.229*	0.054*	-0.164*	0.015	-0.254*	-0.022	-0.393***	0.067	-0.143
	(0.046)	(0.118)	(0.030)	(0.088)	(0.046)	(0.136)	(0.049)	(0.141)	(0.070)	(0.170)
L.Eq×Demo		0.531***		0.403***		0.480**		0.663***		0.396
		(0.196)		(0.154)		(0.234)		(0.216)		(0.332)
Full Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
Colonial Hist			x	x					x	x
Ethnic Pol.			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.920	0.894	0.919	0.902
Hansen J-test							0.071	0.073	0.124	0.106
Instruments							82	82	76	76
Groups	112	112	90	90	112	112	112	112	90	90
Observations	620	620	544	544	620	620	508	508	544	544

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c., average years of schooling, log population size, an inflation dummy that takes value 1 if the rate exceeds a threshold of 4 percentage points, a deflation dummy that takes value 1 if the inflation rate takes negative values. Level equations additionally employ dummies for existing oil reserves, former socialist countries, colonial history as well as ethnic polarization. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. In Panel A, the differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. In Panel B, the differenced and level equation of SGMM use the first lag for the lagged dependent variable and the first lag of the explanatory variables. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 4: Robustness: Baseline Specification using PWT v8.0

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.476***	0.450***	0.744***	0.708***	0.739***	0.704***	0.558***	0.511***	0.593***	0.523***
	(0.052)	(0.052)	(0.035)	(0.036)	(0.057)	(0.056)	(0.077)	(0.076)	(0.066)	(0.079)
L.Equality	-0.091	-0.339**	0.097*	-0.224*	-0.075	-0.270	-0.089	-0.348*	0.055	-0.337*
	(0.104)	(0.161)	(0.052)	(0.127)	(0.117)	(0.181)	(0.141)	(0.183)	(0.101)	(0.185)
L.Democracy	0.057	-0.234**	0.056**	-0.192**	-0.015	-0.243	-0.038	-0.357***	0.061	-0.293**
	(0.041)	(0.115)	(0.027)	(0.082)	(0.036)	(0.155)	(0.050)	(0.124)	(0.054)	(0.136)
L.Eq×Demo		0.523***		0.460***		0.423		0.583***		0.669**
		(0.199)		(0.142)		(0.269)		(0.202)		(0.263)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.969	0.906	0.958	0.917
Hansen J-test							0.055	0.084	0.333	0.266
Instruments							85	85	95	95
Groups	108	108	93	93	108	108	108	108	93	93
Observations	607	607	558	558	607	607	499	499	558	558

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. from Penn World Tables version 8.0 and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 5: Robustness: Accounting for Redistribution

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.460***	0.435***	0.714***	0.689***	0.704***	0.671***	0.540***	0.492***	0.575***	0.539***
	(0.053)	(0.053)	(0.035)	(0.037)	(0.057)	(0.057)	(0.078)	(0.079)	(0.065)	(0.073)
L.Equality	-0.072	-0.338**	0.043	-0.221*	-0.060	-0.287*	-0.064	-0.358**	0.008	-0.278
	(0.105)	(0.162)	(0.056)	(0.125)	(0.119)	(0.159)	(0.152)	(0.175)	(0.121)	(0.195)
L.Democracy	0.069	-0.230*	0.058**	-0.155*	0.006	-0.250**	-0.017	-0.343***	0.068	-0.210
	(0.042)	(0.116)	(0.027)	(0.081)	(0.043)	(0.126)	(0.049)	(0.131)	(0.055)	(0.142)
L.Redistribution	-3.383	-4.029	12.874	9.940	-6.401	-7.300	-3.190	-1.711	13.847	11.233
	(9.855)	(9.142)	(8.407)	(7.629)	(13.191)	(13.022)	(11.032)	(10.448)	(10.540)	(9.711)
L.Eq×Demo		0.534***		0.395***		0.466**		0.592***		0.518*
		(0.200)		(0.142)		(0.220)		(0.209)		(0.266)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.989	0.929	0.851	0.834
Hansen J-test							0.075	0.090	0.257	0.215
Instruments							86	86	96	96
Groups	112	112	97	97	112	112	112	112	97	97
Observations	620	620	571	571	620	620	508	508	571	571

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Redistribution is constructed as the difference between the reversed net and market Gini coefficients from of the Solt (2009) dataset. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 6: Robustness: Alternative Democracy Measure (Composite Index)

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.420***	0.394***	0.670***	0.641***	0.667***	0.632***	0.506***	0.449***	0.575***	0.481***
	(0.057)	(0.061)	(0.039)	(0.042)	(0.061)	(0.061)	(0.085)	(0.090)	(0.061)	(0.080)
L.Equality	-0.076	-0.347**	0.074	-0.207*	-0.069	-0.305*	-0.077	-0.380**	0.107	-0.348*
	(0.104)	(0.164)	(0.053)	(0.123)	(0.121)	(0.162)	(0.135)	(0.182)	(0.110)	(0.189)
L.Democracy	0.105**	-0.218*	0.101***	-0.130	0.029	-0.252*	-0.025	-0.384***	0.085*	-0.324**
	(0.049)	(0.119)	(0.033)	(0.088)	(0.044)	(0.138)	(0.058)	(0.133)	(0.052)	(0.147)
L.Eq×Demo		0.572***		0.428***		0.506**		0.664***		0.794***
		(0.209)		(0.150)		(0.236)		(0.224)		(0.268)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.988	0.896	0.901	0.824
Hansen J-test							0.055	0.103	0.331	0.319
Instruments							85	85	95	95
Groups	112	112	97	97	112	112	112	112	97	97
Observations	620	620	571	571	620	620	508	508	571	571

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Equality is proxied by the reversed net Gini coefficient. The democracy indicator is constructed using Principal Component Analysis on the correlation between Political Rights and Polity4. It is normalized to range between 0 and 1 where higher values indicate more democratic rights. All regressions include country-fixed and time effects. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 7: Robustness: Alternative Democracy Index (Political Rights Index)

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.407***	0.383***	0.646***	0.621***	0.651***	0.618***	0.490***	0.430***	0.585***	0.514***
	(0.055)	(0.057)	(0.040)	(0.042)	(0.064)	(0.063)	(0.089)	(0.109)	(0.054)	(0.074)
L.Equality	-0.080	-0.348**	0.072	-0.187	-0.074	-0.305*	-0.056	-0.383**	0.122	-0.344*
	(0.104)	(0.174)	(0.051)	(0.126)	(0.114)	(0.183)	(0.123)	(0.187)	(0.112)	(0.193)
L.Democracy	0.104**	-0.215*	0.122***	-0.097	0.033	-0.240	-0.010	-0.429***	0.077	-0.361**
	(0.043)	(0.126)	(0.034)	(0.095)	(0.041)	(0.166)	(0.063)	(0.149)	(0.053)	(0.176)
L.Eq×Demo		0.564**		0.400**		0.489*		0.752***		0.820***
		(0.228)		(0.160)		(0.280)		(0.266)		(0.307)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.834	0.951	0.862	0.782
Hansen J-test							0.106	0.127	0.223	0.210
Instruments							85	85	95	95
Groups	116	116	100	100	116	116	116	116	100	100
Observations	636	636	581	581	636	636	520	520	581	581

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Political Rights indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 8: Robustness: Binary Indicators

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
					Panel A: Democracy Binary					
L.Inst. Quality	0.475***	0.457***	0.736***	0.715***	0.714***	0.685***	0.587***	0.552***	0.595***	0.588***
	(0.051)	(0.047)	(0.032)	(0.033)	(0.061)	(0.059)	(0.060)	(0.062)	(0.070)	(0.074)
L.Equality	-0.076	-0.243*	0.084	-0.107	-0.071	-0.211	-0.013	-0.194	0.149	0.144
	(0.106)	(0.144)	(0.054)	(0.104)	(0.110)	(0.139)	(0.134)	(0.155)	(0.146)	(0.204)
L.Democracy	0.033	-0.168*	0.031*	-0.124**	0.001	-0.172	-0.037	-0.279***	0.033	0.002
	(0.023)	(0.095)	(0.018)	(0.062)	(0.026)	(0.105)	(0.025)	(0.096)	(0.044)	(0.140)
L.Eq×Demo		0.354**		0.283**		0.310*		0.424***		0.051
		(0.164)		(0.110)		(0.176)		(0.155)		(0.241)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.849	0.963	0.915	0.886
Hansen J-test							0.143	0.108	0.169	0.264
Instruments							82	82	86	86
Groups	116	116	100	100	116	116	116	116	100	100
Observations	636	636	581	581	636	636	520	520	581	581
					Panel B: Democracy and Equality Binary					
L.Inst. Quality	0.479***	0.473***	0.738***	0.723***	0.716***	0.701***	0.550***	0.542***	0.568***	0.555***
	(0.051)	(0.049)	(0.032)	(0.033)	(0.062)	(0.061)	(0.060)	(0.061)	(0.074)	(0.074)
L.Equality	-0.019	-0.041	0.014	-0.024	-0.025	-0.044	-0.032	-0.054**	0.029	0.012
	(0.019)	(0.025)	(0.012)	(0.019)	(0.023)	(0.027)	(0.024)	(0.027)	(0.024)	(0.039)
L.Democracy	0.031	0.012	0.030*	0.015	-0.002	-0.016	-0.024	-0.049*	0.045	0.039
	(0.024)	(0.025)	(0.018)	(0.018)	(0.027)	(0.031)	(0.025)	(0.028)	(0.038)	(0.039)
L.Eq×Demo		0.053*		0.065***		0.048		0.069*		0.032
		(0.032)		(0.022)		(0.040)		(0.036)		(0.044)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.913	0.890	0.990	0.979
Hansen J-test							0.317	0.228	0.141	0.127
Instruments							79	79	82	82
Groups	116	116	100	100	116	116	116	116	100	100
Observations	636	636	581	581	636	636	520	520	581	581

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. In Panel A, Equality is proxied by the reversed net Gini coefficient. For Panel B, the equality indicator is constructed to take value 1 if the time average of the reversed Gini coefficient for a specific country is above the median of the time averaged overall distribution and 0 otherwise. A country has a democracy value of 1 if the Polity4 score is above 0.5 and 0 otherwise. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 9: Robustness: Effect of Democracy and Inequality on Economic Freedom

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.484***	0.479***	0.699***	0.696***	0.775***	0.764***	0.653***	0.644***	0.761***	0.698***
	(0.035)	(0.037)	(0.035)	(0.038)	(0.094)	(0.100)	(0.039)	(0.042)	(0.053)	(0.071)
L.Equality	0.002	-0.139	0.015	-0.050	-0.035	-0.160**	-0.031	-0.176	-0.073	-0.418
	(0.062)	(0.098)	(0.021)	(0.080)	(0.057)	(0.067)	(0.067)	(0.122)	(0.054)	(0.170)
L.Democracy	0.060***	-0.099	0.027**	-0.025	0.055***	-0.092	0.064***	-0.083	0.055***	-0.222*
	(0.016)	(0.070)	(0.014)	(0.056)	(0.016)	(0.059)	(0.017)	(0.082)	(0.019)	(0.127)
L.Eq×Demo		0.277**		0.090		0.257**		0.261*		0.491**
		(0.120)		(0.105)		(0.104)		(0.141)		(0.223)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.712	0.618	0.708	0.499
Hansen J-test							0.441	0.315	0.295	0.192
Instruments							85	85	71	71
Groups	107	107	93	93	107	107	99	99	93	93
Observations	564	564	526	526	564	564	457	457	526	526

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Economic Freedom. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 10: Robustness: Alternative Measure of Institutional Quality (Composite Index)

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
					Panel A: Polity4					
L.Inst. Quality	0.528***	0.516***	0.728***	0.716***	0.811***	0.783***	0.675***	0.649***	0.696***	0.662***
	(0.048)	(0.050)	(0.029)	(0.030)	(0.061)	(0.065)	(0.059)	(0.063)	(0.050)	(0.053)
L.Equality	-0.009	-0.165	0.055	-0.071	-0.042	-0.155	0.005	-0.141	0.070	-0.174
	(0.088)	(0.121)	(0.036)	(0.091)	(0.076)	(0.096)	(0.080)	(0.154)	(0.076)	(0.143)
L.Democracy	0.058***	-0.116	0.045***	-0.054	0.016	-0.115	0.018	-0.157	0.064**	-0.148
	(0.021)	(0.076)	(0.017)	(0.059)	(0.024)	(0.080)	(0.022)	(0.106)	(0.026)	(0.095)
L.Eq×Demo		0.307**		0.179*		0.240*		0.310*		0.385**
		(0.127)		(0.106)		(0.144)		(0.184)		(0.178)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.283	0.222	0.209	0.168
Hansen J-test							0.312	0.269	0.427	0.438
Instruments							85	85	95	95
Groups	107	107	93	93	107	107	99	99	93	93
Observations	564	564	526	526	564	564	457	457	526	526
					Panel B: Composite Democracy Indicator					
L.Inst. Quality	0.508***	0.495***	0.711***	0.697***	0.809***	0.770***	0.619***	0.592***	0.676***	0.646***
	(0.049)	(0.051)	(0.032)	(0.033)	(0.064)	(0.069)	(0.059)	(0.065)	(0.050)	(0.054)
L.Equality	-0.008	-0.211*	0.055	-0.099	-0.042	-0.205**	-0.020	-0.214	0.094	-0.224
	(0.087)	(0.126)	(0.036)	(0.092)	(0.077)	(0.094)	(0.092)	(0.139)	(0.068)	(0.151)
L.Democracy	0.067***	-0.171**	0.054***	-0.073	0.010	-0.182**	0.013	-0.228**	0.064***	-0.214**
	(0.023)	(0.077)	(0.020)	(0.063)	(0.026)	(0.084)	(0.025)	(0.100)	(0.025)	(0.107)
L.Eq×Demo		0.417***		0.228**		0.350**		0.419**		0.491***
		(0.128)		(0.110)		(0.151)		(0.170)		(0.189)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.300	0.248	0.227	0.208
Hansen J-test							0.166	0.127	0.431	0.416
Instruments							85	85	95	95
Groups	107	107	93	93	107	107	99	99	93	93
Observations	564	564	526	526	564	564	457	457	526	526

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. Equality is proxied by the reversed net Gini coefficient. The dependent variable is constructed using Principal Component Analysis on the correlation between Civil Liberties and Economic Freedom. It is normalized to range between 0 and 1 where higher values indicate better institutional quality. Panel A uses Polity4 as indicator for political institutions while for Panel B uses also a composite democracy index. The indicator is constructed using Principal Component Analysis on the correlation between Political Rights and Polity4. It is normalized to range between 0 and 1 where higher values indicate more democratic rights. All regressions include country-fixed and time effects. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 11: Robustness: Correcting for Multiple Imputation of the Equality Data

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.460***	0.439***	0.720***	0.694***	0.702***	0.673***	0.544***	0.501***	0.580***	0.542***
	(0.053)	(0.052)	(0.034)	(0.036)	(0.058)	(0.058)	(0.077)	(0.079)	(0.069)	(0.075)
L.Equality	-0.062	-0.296*	0.064	-0.195	-0.055	-0.257	-0.053	-0.296	0.068	-0.184
	(0.109)	(0.174)	(0.054)	(0.128)	(0.117)	(0.162)	(0.149)	(0.197)	(0.118)	(0.217)
L.Democracy	0.069	-0.200	0.058**	-0.151*	0.007	-0.224*	-0.024	-0.303**	0.073	-0.169
	(0.042)	(0.123)	(0.027)	(0.083)	(0.043)	(0.126)	(0.048)	(0.141)	(0.055)	(0.166)
L.Eq×Demo		0.480**		0.389***		0.421*		0.508**		0.453
		(0.212)		(0.147)		(0.219)		(0.233)		(0.306)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.970	0.920	0.939	0.905
Hansen J-test							0.080	0.137	0.244	0.209
Instruments							85	85	95	95
Groups	112	112	97	97	112	112	112	112	97	97
Observations	620	620	571	571	620	620	508	508	571	571

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005) and multiple imputation. Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 12: Robustness: Human Capital (In-)Equality

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.460***	0.434***	0.720***	0.706***	0.695***	0.669***	0.545***	0.508***	0.638***	0.598***
	(0.053)	(0.049)	(0.034)	(0.034)	(0.060)	(0.059)	(0.077)	(0.070)	(0.088)	(0.105)
L.Equality	-0.011	-0.036	0.006	-0.036	-0.054	-0.078	0.081	0.077	0.158*	0.074
	(0.106)	(0.103)	(0.042)	(0.051)	(0.138)	(0.140)	(0.111)	(0.104)	(0.089)	(0.125)
L.Democracy	0.070	-0.173	0.058**	-0.015	0.013	-0.194*	-0.004	-0.285**	0.063	-0.030
	(0.043)	(0.110)	(0.029)	(0.056)	(0.045)	(0.111)	(0.042)	(0.115)	(0.072)	(0.111)
L.Eq×Demo		0.325**		0.109		0.280**		0.372***		0.164
		(0.137)		(0.077)		(0.130)		(0.139)		(0.180)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.978	0.903	0.956	0.950
Hansen J-test							0.182	0.164	0.064	0.086
Instruments							83	83	87	87
Groups	112	112	97	97	112	112	112	112	97	97
Observations	620	620	571	571	620	620	508	508	571	571

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed human capital Gini coefficient. Control variables are log GDP p.c., average years of schooling and the reversed net Gini coefficient. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 13: Robustness: Sample Split (Gini Segments)

	(1) FE	(2) RE	(3) CFE	(4) DGMM	(5) SGMM
			Panel A: Lowest Quintile		
L.Inst. Quality	0.505***	0.735***	0.914***	0.524***	0.584**
	(0.122)	(0.054)	(0.201)	(0.173)	(0.272)
L.Democracy	-0.124	-0.062	-0.257*	-0.178	-0.073
	(0.095)	(0.047)	(0.144)	(0.104)	(0.178)
Controls	x	x	x	x	x
Oil/Socialist					x
FE & TE	x	x	x	x	x
AR(2) test				0.860	0.834
Hansen J-test				0.225	0.253
Instruments				42	45
Groups	45	45	45	42	45
Observations	149	149	149	132	149
			Panel B: Second to Fourth Quintile		
L.Inst. Quality	0.255***	0.597***	0.489***	0.184*	0.394***
	(0.071)	(0.060)	(0.092)	(0.106)	(0.145)
L.Democracy	0.138**	0.107***	0.079	0.047	0.144
	(0.066)	(0.041)	(0.062)	(0.063)	(0.105)
Controls	x	x	x	x	x
Oil/Socialist					x
FE & TE	x	x	x	x	x
AR(2) test				0.738	0.666
Hansen J-test				0.219	0.108
Instruments				42	46
Groups	93	81	93	90	81
Observations	381	350	381	333	350
			Panel C: Highest Quintile		
L.Inst. Quality	0.341**	0.414***	0.774***	0.401***	0.332**
	(0.141)	(0.116)	(0.269)	(0.127)	(0.131)
L.Democracy	0.459***	0.423***	0.218	0.371**	0.490***
	(0.155)	(0.136)	(0.133)	(0.154)	(0.134)
Controls	x	x	x	x	x
Oil/Socialist					x
FE & TE	x	x	x	x	x
AR(2) test				0.522	0.552
Hansen J-test				0.184	0.827
Instruments				24	28
Groups	29	22	29	28	22
Observations	114	97	114	99	97

Notes: Time periods are five-year intervals. The sample is split with respect to the time averaged distribution of the reversed net Gini coefficient. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). For Panels A and B, instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. In Panel C, instruments are collapsed. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 14: Robustness: Top 10% Income Share as (In-)Equality Measure

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Inst. Quality	0.220	0.179	0.599***	0.598***	0.636**	0.544**	0.259	0.229	1.260***	0.471
	(0.176)	(0.180)	(0.149)	(0.151)	(0.259)	(0.238)	(0.337)	(0.413)	(0.324)	(1.062)
L.Equality	-0.005	-2.104***	-0.009	-0.860***	-0.097	-1.927	-0.019	-0.733	-1.964*	-10.859
	(0.233)	(0.559)	(0.102)	(0.265)	(0.482)	(1.693)	(0.971)	(2.708)	(1.046)	(8.932)
L.Democracy	0.320***	-1.244***	0.286*	-0.306	-0.091	-1.399	0.623	0.063	-0.161	-5.979
	(0.109)	(0.416)	(0.165)	(0.229)	(0.814)	(1.292)	(0.463)	(2.106)	(0.486)	(5.647)
L.Eq×Demo		2.285***		0.856***		1.971		0.772		8.861
		(0.610)		(0.247)		(1.761)		(2.974)		(7.766)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.162	0.262	0.134	0.929
Hansen J-test							0.239	0.132	0.149	0.713
Expl. variance							0.867	0.867	0.865	0.865
Sampling adequacy							0.681	0.681	0.808	0.808
Instruments							16	16	16	16
Groups	19	19	19	19	19	19	19	19	19	19
Observations	117	117	117	117	117	117	98	98	117	117

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed Top 10% income share. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instrument sets are collapsed and Principal Component Analysis is used to choose the instruments that explain the largest share of the variation based on their eigenvalues. *Explained variance* reports the portion of the variation the extracted components explain. *Sampling adequacy* refers to the Kaiser-Meyer-Olkin measure of sampling adequacy. It ranges from 0 to 1 with small values indicating that variables have not enough correlation in common to warrant a PCA analysis. A widely accepted convention in judging sampling adequacy is: 0.00-0.49 unacceptable; 0.50-0.59 miserable; 0.60-0.69 mediocre; 0.70-0.79 middling; 0.80-0.89 meritorious; 0.90-1.00 marvelous. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 15: Robustness: Alternative Specification of GMM Estimators

	Baseline		More Lags		Fewer Lags		Collapsed	
	FOD	FD	FOD	FD	FOD	FD	FOD	FD
				Panel A: Differences GMM				
L.Inst. Quality	0.483***	0.277***	0.500***	0.289***	0.485***	0.192*	0.423***	0.300**
	(0.082)	(0.107)	(0.066)	(0.094)	(0.096)	(0.114)	(0.088)	(0.127)
L.Equality	-0.358**	-0.397**	-0.384**	-0.437**	-0.249	-0.318	-0.274	-0.320
	(0.175)	(0.200)	(0.164)	(0.196)	(0.218)	(0.270)	(0.275)	(0.295)
L.Democracy	-0.335***	-0.367**	-0.353***	-0.415***	-0.339**	-0.312	-0.439**	-0.344*
	(0.126)	(0.152)	(0.127)	(0.133)	(0.151)	(0.194)	(0.211)	(0.184)
L.Eq×Demo	0.583***	0.715***	0.613***	0.791***	0.555**	0.579	0.649*	0.617*
	(0.203)	(0.277)	(0.208)	(0.244)	(0.243)	(0.369)	(0.352)	(0.361)
Controls	x	x	x	x	x	x	x	x
FE & TE	x	x	x	x	x	x	x	x
AR(2) test	0.920	0.623	0.932	0.624	0.889	0.470	0.783	0.643
Hansen J-test	0.137	0.102	0.317	0.417	0.023	0.090	0.015	0.009
Instruments	85	85	111	111	58	58	46	46
Groups	112	111	112	111	112	111	112	111
Observations	508	489	508	489	508	489	508	489
				Panel B: System GMM				
L.Inst. Quality	0.542***	0.586***	0.670***	0.635***	0.647***	0.566***	0.662***	0.661***
	(0.074)	(0.085)	(0.061)	(0.063)	(0.075)	(0.104)	(0.095)	(0.119)
L.Equality	-0.264	-0.247	-0.223	-0.237	-0.084	-0.243	0.505	0.229
	(0.188)	(0.194)	(0.205)	(0.208)	(0.292)	(0.353)	(0.365)	(0.331)
L.Democracy	-0.245*	-0.284*	-0.283**	-0.256*	-0.079	-0.193	0.144	-0.017
	(0.141)	(0.150)	(0.131)	(0.131)	(0.205)	(0.228)	(0.275)	(0.235)
L.Eq×Demo	0.583**	0.510*	0.514**	0.451**	-0.021	0.103	-0.472	-0.253
	(0.266)	(0.274)	(0.236)	(0.230)	(0.358)	(0.388)	(0.476)	(0.392)
Controls	x	x	x	x	x	x	x	x
Oil/Socialist	x	x	x	x	x	x	x	x
FE & TE	x	x	x	x	x	x	x	x
AR(2) test	0.905	0.908	0.936	0.945	0.969	0.983	0.898	0.922
Hansen J-test	0.209	0.175	0.992	0.991	0.030	0.037	0.021	0.009
Instruments	95	95	143	143	71	71	53	53
Groups	97	97	97	97	97	97	53	53
Observations	571	571	571	571	571	571	571	571

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. Specifications differ with respect to the transformation matrix that removes the country-fixed effect, which is either forward orthogonalized deviations (FOD) or first differences (FD). Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). For the baseline models, instruments are restricted to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Models with *more lags* use an additional lag compared to the baseline while models with *fewer lags* use one less, respectively. Collapsed specifications create instruments for each variable and lag distance rather than for each time period. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 16: Robustness: Testing Inequality Interaction Against Other Interactions (Lipset)

	Bias-Corrected Fixed Effects				Differences GMM				System GMM			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
L.Inst. Quality	0.669***	0.653***	0.651***	0.653***	0.483***	0.462***	0.501***	0.477***	0.542***	0.645***	0.684***	0.678***
	(0.058)	(0.056)	(0.057)	(0.057)	(0.082)	(0.087)	(0.094)	(0.078)	(0.074)	(0.061)	(0.070)	(0.064)
L.Equality	-0.294*	-0.274*	-0.249	-0.251	-0.358**	-0.390*	-0.493**	-0.593**	-0.264	-0.165	-0.371	-0.403
	(0.158)	(0.161)	(0.170)	(0.172)	(0.175)	(0.228)	(0.233)	(0.237)	(0.188)	(0.268)	(0.296)	(0.268)
L.Democracy	-0.246**	-0.279	-0.241*	-0.166	-0.335***	-0.209	-0.368**	-0.531**	-0.245*	0.111	-0.184	-0.595
	(0.125)	(0.237)	(0.128)	(0.314)	(0.126)	(0.244)	(0.147)	(0.263)	(0.141)	(0.323)	(0.175)	(0.447)
L.Eq.×Demo	0.461**	0.430*	0.393*	0.397*	0.583***	0.680**	0.888***	0.905***	0.583**	0.188	0.544	0.546
	(0.219)	(0.228)	(0.236)	(0.238)	(0.203)	(0.273)	(0.275)	(0.270)	(0.266)	(0.348)	(0.362)	(0.323)
L.GDP×Demo		0.007		-0.012		-0.025		0.024		-0.037		0.060
		(0.030)		(0.046)		(0.037)		(0.039)		(0.043)		(0.062)
L.HC×Demo			0.007	0.010			-0.030**	-0.036***			-0.043***	-0.055***
			(0.012)	(0.019)			(0.013)	(0.013)			(0.014)	(0.021)
Controls	x	x	x	x	x	x	x	x	x	x	x	x
Oil/Socialist									x	x	x	x
FE & TE	x	x	x	x	x	x	x	x	x	x	x	x
AR(2) test					0.920	0.863	0.946	0.973	0.905	0.928	0.983	0.964
Hansen J-test					0.137	0.085	0.055	0.164	0.209	0.114	0.077	0.327
Instruments					85	72	72	86	95	86	86	101
Groups	112	112	112	112	112	112	112	112	97	97	97	97
Observations	620	620	620	620	508	508	508	508	571	571	571	571

Notes: Results for standard fixed and random effects (available on request) are qualitatively and quantitatively similar. Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Civil Liberties. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. All regressions include country-fixed and time effects. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. Gini×Demo is the interaction of the reversed Gini coefficient with the Polity4 democracy indicator; GDP×Demo and HC×Demo are the interactions of GDP p.c. and average years of schooling with Polity4, respectively. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). For models with only one interaction term, instruments are restricted to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. For models with more than one interaction, explanatory variables are instrumented with the most recent lag in both differences and level equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 17: Robustness: Redistribution as Dependent Variable

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
					Panel A: Relative Political Extraction					
L.Extraction	0.457***	0.458***	0.853***	0.850***	0.622***	0.623***	0.666***	0.646***	0.661***	0.651***
	(0.051)	(0.052)	(0.028)	(0.027)	(0.046)	(0.045)	(0.092)	(0.100)	(0.090)	(0.097)
L.Equality	0.071	-0.171	0.015	-0.169	0.068	-0.173	0.058	-0.169	-0.006	-0.456
	(0.155)	(0.312)	(0.072)	(0.183)	(0.162)	(0.252)	(0.140)	(0.277)	(0.161)	(0.447)
L.Democracy	0.101	-0.145	0.060	-0.085	0.094	-0.150	0.080	-0.159	0.068	-0.346
	(0.056)	(0.238)	(0.030)	(0.151)	(0.053)	(0.197)	(0.071)	(0.230)	(0.072)	(0.360)
L.Eq×Demo		0.449		0.259		0.448		0.428		0.762
		(0.381)		(0.238)		(0.347)		(0.405)		(0.640)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.832	0.901	0.799	0.934
Hansen J-test							0.410	0.342	0.094	0.100
Instruments							50	50	57	57
Groups	110	110	96	96	110	110	110	110	96	96
Observations	632	632	591	591	632	632	522	522	591	591
					Panel B: Relative Political Extraction (Corrected for OECD)					
L.Extraction	0.454***	0.454***	0.849***	0.844***	0.621***	0.620***	0.665***	0.652***	0.649***	0.555***
	(0.046)	(0.046)	(0.028)	(0.028)	(0.045)	(0.044)	(0.077)	(0.083)	(0.092)	(0.118)
L.Equality	0.092	-0.216	0.078	-0.192	0.094	-0.214	-0.035	-0.181	0.018	-0.859
	(0.157)	(0.300)	(0.076)	(0.180)	(0.159)	(0.246)	(0.129)	(0.310)	(0.161)	(0.613)
L.Democracy	0.081	-0.230	0.057**	-0.157	0.076	-0.237	0.054	-0.083	0.033	-0.644
	(0.052)	(0.224)	(0.029)	(0.145)	(0.053)	(0.192)	(0.074)	(0.245)	(0.075)	(0.438)
L.Eq×Demo		0.571		0.385*		0.573*		0.246		1.234
		(0.361)		(0.230)		(0.339)		(0.421)		(0.785)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.836	0.800	0.904	0.689
Hansen J-test							0.567	0.507	0.087	0.186
Instruments							50	50	57	57
Groups	110	110	96	96	110	110	110	110	96	96
Observations	632	632	591	591	632	632	522	522	591	591

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Relative Political Extraction. Democracy is measured with the Polity4 indicator, Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instrument sets are collapsed. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 18: Robustness: Political Stability 1970-2010

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Democracy	0.495***	0.337*	0.781***	0.680***	0.675***	0.337***	0.332***	0.679***	0.511***	0.603**
	(0.062)	(0.177)	(0.038)	(0.123)	(0.060)	(0.063)	(0.089)	(0.284)	(0.075)	(0.273)
L.Equality	-0.079	-0.216	0.014	-0.107	-0.075	-0.212	-0.320	-0.034	0.013	0.113
	(0.147)	(0.200)	(0.069)	(0.186)	(0.158)	(0.229)	(0.205)	(0.310)	(0.221)	(0.355)
L.Eq×Demo		0.269		0.175		0.262**		-0.608		-0.160
		(0.283)		(0.208)		(0.119)		(0.520)		(0.498)
Controls	x	x	x	x	x	x	x	x	x	x
Oil/Socialist			x	x					x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.485	0.478	0.459	0.461
Hansen J-test							0.126	0.190	0.131	0.111
Instruments							80	80	84	84
Groups	112	112	97	97	112	112	112	112	97	97
Observations	662	662	613	613	662	662	550	550	613	613

Notes: Time periods are five-year intervals. All regressions include country-fixed and time effects. The dependent variable is Polity4. Equality is proxied by the reversed net Gini coefficient. Control variables are log GDP p.c. and average years of schooling. Level equations additionally employ dummies for existing oil reserves and former socialist countries. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are limited to the second lag for the lagged dependent variable and up to the fourth lag for explanatory variables for differences GMM. The differenced equation of SGMM uses the first lag for the lagged dependent variable and the first lag of the explanatory variables. In the level equation, the second level lag of the endogenous regressors is used additionally so that for the variables of interest the same time periods are employed in both equations. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 19: Robustness: Political Stability 1870-2010 (10-year intervals)

	(1) FE	(2) FE	(3) RE	(4) RE	(5) CFE	(6) CFE	(7) DGMM	(8) DGMM	(9) SGMM	(10) SGMM
L.Democracy	-0.067	0.603	0.591***	1.542***	0.164	0.377	-0.203	0.139	0.370	3.952**
	(0.141)	(0.359)	(0.220)	(0.405)	(0.281)	(0.278)	(0.167)	(1.995)	(0.404)	(1.934)
L.Equality	-0.001	-0.020**	0.002	-0.029	-0.001	-0.011	-0.004	-0.014	-0.007	-0.114**
	(0.002)	(0.010)	(0.002)	(0.017)	(0.007)	(0.009)	(0.008)	(0.046)	(0.011)	(0.053)
L.Eq×Demo		0.019**		0.031*		0.010*		0.010		0.117**
		(0.009)		(0.017)		(0.006)		(0.062)		(0.056)
Control for GDP	x	x	x	x	x	x	x	x	x	x
FE & TE	x	x	x	x	x	x	x	x	x	x
AR(2) test							0.665	0.998	0.250	0.559
Hansen J-test							1.000	1.000	1.000	1.000
Instruments							33	33	37	37
Groups	19	19	19	19	19	19	17	17	19	19
Observations	82	82	82	82	82	82	63	63	82	82

Notes: Time periods are ten-year intervals. The dependent variable is Polity4. Equality is proxied by the reversed Top 10% income share. All regressions include country-fixed and time effects as well as a control variable for log GDP p.c. The variance-covariance matrix of CFE is estimated using bootstrap procedures with 100 repetitions. Preliminary estimates for the autoregressive parameter are obtained from DGMM. Standard errors in GMM are estimated with the two-step procedure and corrected with respect to finite-sample size (Windmeijer, 2005). Instruments for models are collapsed. Hansen J-tests are upward biased due to the high instrument count. Stars indicate significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.