Is Democracy Good for Growth? — Institutional Quality Matters[*]

Di Sima[†]   Fali Huang[‡]

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Abstract

The level of economic development during democratization exerts long-lasting effects on growth, possibly by giving permanent birthmarks to newly minted institutions. This paper finds that democracies born in weak development tend to have weak institutions and slow growth, while in contrast, those with adequate development at the political transition time establish strong institutions and achieve faster growth. Salient differences between them also exist in other dimensions such as population growth rates and populism tendencies. These results are based on data in 1960-2010 and robust to various specifications and endogeneity issues. The paper shows that without appropriate development, democratization does not facilitate growth.

Keywords: Democracy, Growth, Economic Development, Institutions, Democratization, Modernization, Human Capital.

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[†]Email: di.sima.2014@phdecons.smu.edu.sg. Address: 90 Stamford Road, School of Economics, Singapore Management, Singapore 178903.

[‡]Email: flhuang@smu.edu.sg. Address: 90 Stamford Road, School of Economics, Singapore Management University, Singapore 178903.

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1 Introduction

While most people around the world believe that democracy improves living standards[1], experts in social sciences are not so sure. Theoretical debates on whether democracy enhances or hinders economic growth have been very extensive.[2] Substantial controversies also exist on the empirical side. For example, after analyzing 470 regressions from 81 studies, Doucouliagos and Ulubasoglu (2008) find most estimated effects of democracy on economic growth are not significantly positive.[3] The recent literature, however, shows that democracy substantially promotes economic growth.[4] This new result is achieved through various channels such as constructing alternative democracy indicators, using advanced econometric techniques, or employing new instrumental variables.

So is democracy good for growth or not? Instead of trying to reach a universal yes or no conclusion, this paper tackles the issue from a novel perspective of institutional quality. Our basic hypothesis is that *democracies are born with unequal quality*; the birth conditions in terms of economic development leave permanent birthmarks to newly minted democratic institutions, which exert long-lasting effects on future economic growth.

Specifically, adequate development at the democratic transition period provides a strong foundation to establish growth-enhancing institutions, while democracies born in weak development situations tend to have weak institutions. Even though both are democracy by political definitions, their institutional quality may differ substantially in terms of capability to improve economic performance. For simplicity, the former type is labeled as **_Strong Democracy_** while the latter **_Weak Democracy_**. So the main message of the paper is that Strong Democracy is good for growth, while Weak Democracy not.

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[1]Evidence from World Value Survey (2014) shows that about 79% of the global population wish to live in a democratic country. This preference is not only prevalent in countries with a long democratic tradition (United States 79%, Sweden 92%), but also in Islamic states (Pakistan 78%, Malaysia 87%), Africa (Rwanda 74%, Zimbabwe 86%), South America (Chile 83%, Ecuador 84%), and Asia (China 81%, South Korea 86%).

[2]For example, populism and other incentive distortions from the election system and interest groups may harm growth (March and Olsen, 1983; Olson, 1993; Persson and Tabellini, 1994; Besley and Coate, 1998; De Tocqueville, 2003; Huntington, 2006), while the growth-enhancing effects may come from more investment in public goods, better information and commitment, and more inclusive opportunities for the masses (Wittman, 1989; Olson, 1993; Saint-Paul and Verdier, 1993; Alesina et al., 1996; Benabou, 1996; Feng, 1997; Sen, 1999; Lizzeri and Persico, 2004; Acemoglu and Robinson, 2012).

[3]This echoes some earlier studies such as Sirowy and Inkeles (1990); Przeworski, Limongi and Giner (1995); Hall and Jones (1999).

[4]See, for example, Minier (1998); Gerring et al. (2005); Persson (2005); Aghion, Alesina and Trebbi (2007); Persson and Tabellini (2007, 2009); Madsen, Raschky and Skali (2015); Gründler and Krieger (2016); Acemoglu et al. (Forthcoming).

Our study focuses on the period of 1960-2010 and uses within estimators based on a dynamic growth model following Acemoglu et al. (Forthcoming). In the baseline results using GDP as the developmental indicator, the estimated effect of Strong Democracy on annual GDP growth is positive and significant, while that of Weak Democracy is not statistically different from autocracy. This pattern is robust to various alternative specifications. For example, when a more realistic indicator of development is used, which combines information on income, education, natural resource and inequality during the political transition period, about 45% of democratization cases in the sample are categorized as Weak Democracy and experience no improvement in growth compared with autocracies.

The key insight of this paper is not simply that development matters,[5] but that development at the *critical junction* of the political transition time matters in an important way. During this democratization period, different groups in society usually negotiate with each other intensively to establish the fundamental institutions that make democracy work, but the political bargaining power of each group is often underpinned by its economic clout at that moment (Huang, 2012a). For example, if democratization occurs at the time when human capital has already become the main growth engine, the majority of population would have reached broad consensus on growth-enhancing institutional infrastructure; in contrast, when development is still weak, it is very likely that substantial conflicts between elites and the masses still exist even after democratization, which may lead to political and social instability and large policy swings between elitism and populism. So the economic structure during the transition time leaves deep birthmarks on new-born institutions, and exerts long-lasting effects on future growth beyond the typical transient influence of economic conditions in any arbitrary period.

The paper is also in line with the institution-matters literature (North, 1990; Acemoglu, Johnson and Robinson, 2001; Acemoglu and Robinson, 2012), since the developmental conditions at the transition time have to be embodied by institutions to exert long-term impacts. Our contribution to this literature is to present a tangible indicator of the overall institutional quality, namely the economic development at the democratization period, which is similar in spirit to using one's birth weight to predict her overall health. The underlying insight is that, it is not any specific institutions or any fixed dimension of their quality that matters *per se*, but their germinating conditions that matter. Every dynami-

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[5]The role of development in democracy is discussed extensively in the literature (Lipset, 1959; Martin, 1960; Barro, 1996, 2003; Glaeser et al., 2004; Galor and Moav, 2006; Glaeser, Ponzetto and Shleifer, 2007; Huang, 2012a,b; Murtin and Wacziarg, 2014; Madsen and Murtin, 2017).

cally effective institution must adapt continuously in order to address ever-changing issues in a growing economy; if the general human capital of the masses is not high enough to design, fund, operate, and monitor the daily functioning of so many intermingled institutions in a complex economy, then sooner or later the wheel of growth would come to a halt. Results in this paper show that the initial economic development condition can be used as an extremely simple and objective criterion to predict the quality of democratic institutions and their effects on growth.

A first glance of data shows some preliminary evidence for our hypothesis that the initial development during the democratic transition period has lasting impacts on institutional quality. Figure 1 plots the relationship between log GDP per capita in the year of democratic transition of a country and the average level of government transparency after transition measured by HRV index.[6] It shows that countries with better development conditions during the transition period are more transparent in public affairs after democratization. For illustration purpose, the 25th percentile of these initial GDP levels is used as the cutoff value to categorize Strong versus Weak Democracies. Significant differences between these two types can also be observed from their distinct fitted lines.[7]

Results from more sophisticated regressions in this paper also confirm that the quality of a broad range of institutions is indeed much higher in Strong Democracy than in both Weak Democracy and autocracy, while there are no significant differences between the latter two. Even though the quality of democratic institutions may improve over time through learning-by-doing (Gerring et al., 2005), we find that in this kind of nature versus nurture competition, nature dominates, where the quality of institutions is crucially shaped at birth and becomes consolidated over time possibly due to history dependence. And specific political forms such as presidential versus parliamentary or majoritarian versus proportional regimes (Persson, 2005) do not have significant effects either.

Salient differences between Strong and Weak Democracies also exist in other dimensions. For example, compared with autocracy, population growth is significantly lower in Strong Democracy, but significantly higher in Weak Democracy. Lower population growth is considered by Przeworski (2000) as a major channel for democracy to facilitate economic

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[6]The HRV index (Hollyer, Rosendorff and Vreeland, 2014) an objective measure of transparency using the quality of national data reported to international organizations, which predicts well of a country's law and order as well as bureaucratic quality. The GDP data are from World Bank Development Indicators and measured in 2010 US$.

[7]This pattern is robust to alternative indicators of institutional quality (such as corruption and regime instability) and initial development (such as school enrollment rates and industry share of GDP).

Figure 1. Effects of Initial Development on Government Transparency

Coef(p-value): Weak=0.035(0.345); Strong=0.108(0.000); Diff=0.073(0.072)
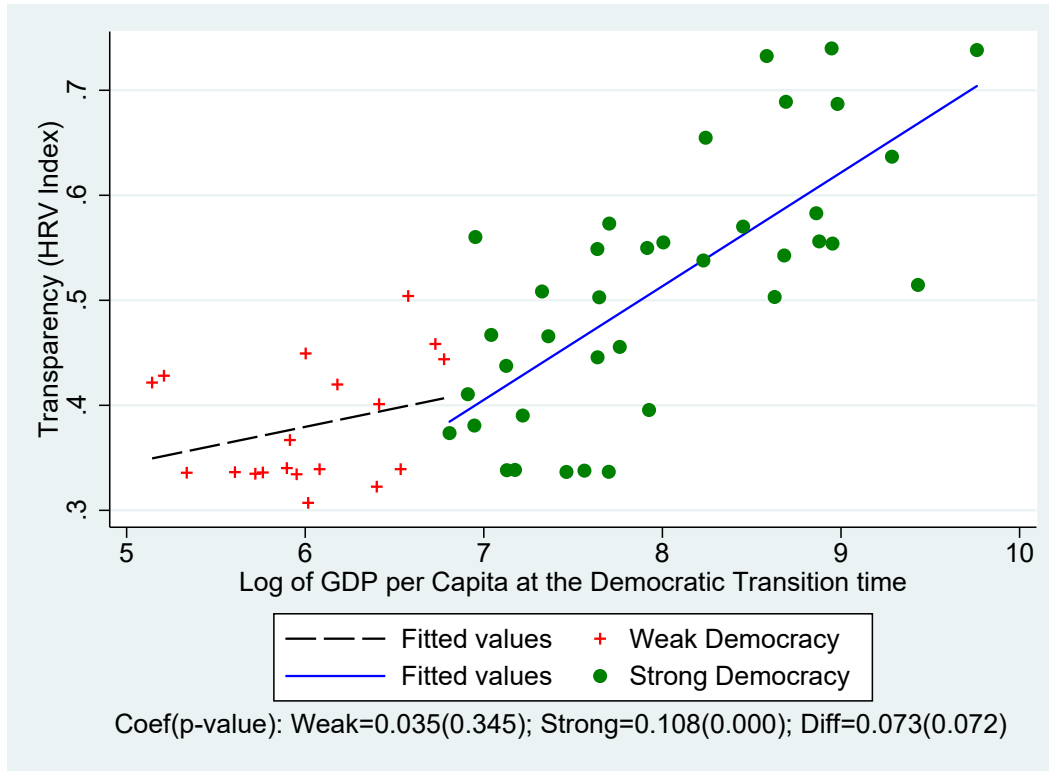
growth, which applies only to Strong Democracy in our results, while there are no significant differences between Weak Democracy and autocracy in fertility and child mortality rates. Political instability and social unrest are also much lower in Strong Democracy than in others.

Our main result is that Strong Democracy boosts economic growth but Weak Democracy does not, which is driven mainly by institutional quality difference originated from the initial development gap during democratization. This gives rise to an intriguing question: Is it better for a country to hurry into a Weak Democracy *now* or to wait and transit *later* to a Strong Democracy? Even though in reality political transitions are often unexpected and thus difficult to be planned well ahead, it is still affected by some common beliefs of society. For example, if many people believe that transition to democracy is absolutely better for economic growth, then they are willing to incur great costs to facilitate such a transition as soon as possible regardless of development conditions. In contrast, if instead

they believe the results demonstrated in this paper that only Strong Democracy is good for growth, then they may choose to change political regime only when the economic structure becomes ready for a direct transition to a Strong Democracy. Based on our simulation, this may indeed be better than rushing into a Weak Democracy from the economic growth perspective.[8] The optimal sequence between economic liberalization and democratization is also discussed by Epstein et al. (2006) and Persson and Tabellini (2006).

The rest of the paper is organized as follows. The next two sections describe data, the dynamic estimation model, and the benchmark results as well as a variety of robustness checks. Potential channels through which democracy affects growth are examined in the following two sections. Some policy implications of our regression results and further discussions are conducted in Section 6. The final section provides concluding remarks.

2 Data and Descriptive Statistics

We construct an annual panel data set from various sources. The dichotomous democracy index (1 for democracy and 0 for autocracy) is from Acemoglu et al. (Forthcoming), which draws from several widely used data sources, and contains the most updated information on political transition years. We slightly modify it by using a 5-year smoothing condition to mitigate noises caused by temporary regime changes.[9] The political transition from autocracy to democracy occurs in the data when the annual democracy indicator of a country changes from 0 to 1, and this specific year is denoted as the transition year t_0.

The democracy index captures the main characteristics of electoral democracies, but leaves out other important institutional quality that may crucially affect growth, such as information transparency, the rule of law, or corruption. This motivates us to refine it by creating two sub-types of democracy, where *Strong Democracy* has strong institutions that promote growth, while *Weak Democracy*, in contrast, has weak institutions. Such categorization, though clear and desirable conceptually, is difficult to implement empirically because of the complexity of institutions. The innovation of our approach is to measure

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[8]Of course, in actual political choices, a society has to consider complicated trade-offs other than pure economic concerns. For example, some country may opt to transit to Weak Democracy even at the cost of having slower economic growth in the long run.

[9]Such smoothing is also adopted by Giavazzi and Tabellini (2005); Persson and Tabellini (2006, 2007); Papaioannou and Siourounis (2008). Since it affects only a few countries, the main results are similar if the original data set is used. Alternative democracy data, including Polity IV, CGV (Cheibub, Gandhi and Vreeland, 2010), BMR (Boix, Miller and Rosato, 2013), and PS (Papaioannou and Siourounis, 2008) are used for robustness checks.

it indirectly, where the intuition is similar to using birth weight to predict a person's overall health. Even though the prediction is far from perfect, it is much better than no information at all.

Our basic hypothesis is that the developmental condition at this transition year (which corresponds to a person's birth weight) is of fundamental importance in affecting the long-term quality of a broad range of institutions (which corresponds to a person's overall health). If this is true, then we can use an appropriate threshold of development in the transition year t_0 to categorize a democracy into either Strong or Weak group, and verify empirically the validity of such categorization.

Specifically, two dummy variables $DStrong_{it}$ and $DWeak_{it}$ are created to denote *Strong Democracy* and *Weak Democracy* respectively in the following, where $Development_{i,t_0}$ is the development indicator for country i at the political transition time t_0.

$$DStrong_{it} = \begin{cases} 1 & \text{if } Democracy_{it} = 1 \text{ and } Development_{i,t_0} > Threshold, \\ 0 & \text{Otherwise.} \end{cases}$$

$$DWeak_{it} = \begin{cases} 1 & \text{if } Democracy_{it} = 1 \text{ and } Development_{i,t_0} \leq Threshold, \\ 0 & \text{Otherwise.} \end{cases}$$

The usual developmental indicators for solid democratization include per capita GDP, education, and industry share of GDP (Lipset, 1959; Huang, 2012a). Due to uneven data availability across countries and spanning several decades, the most widely available variable, GDP per capita from WDI, is used as the benchmark indicator for development, while others are shown in the robustness check. The threshold to distinguish the two democratic types is essentially an empirical matter, which may vary with the specific developmental indicator used in estimation. So we typically report estimation results for a wide range of cutoffs as possible thresholds, where the cutoff yielding the most significant difference between the two types of democracy is used as the main threshold to anchor discussion and interpretation of results.

The main dependent variable *Growth* is the annual log difference of real per capita GDP from the 2015 edition of World Bank Development Indicators (WDI for short), which covers 171 countries from 1960 to 2010. Democratic transitions during this era are often considered as the Third-Wave democratization (Huntington, 1993), which exhibits some

common features that are distinct from earlier waves. A few countries in this wave made political transitions before 1960 and thus have no GDP data in the transition year from WDI, which are difficult to categorize based on our criterion; dropping them as missing observations reduces the main sample to 153 countries.[10] The so-called old democratic countries, which became democracy before World War II and had never changed political regime in the sample years from 1960 to 2010, are categorized as Strong Democracy directly by definition. Robustness checks show that excluding them does not affect the main results, which are driven mostly by transitions in the Third-Wave democratization.[11]

Significant differences between the two types of democracies are indeed evident in Table 1, which presents descriptive statistics of the main economic, demographic and institutional variables separately for Strong and Weak Democracies as well as autocracies.[12] Countries with Strong Democracy are on average more educated, having more market reforms, more open to trade, and having higher GDP per capita, higher investment, lower income inequality, lower rates of fertility, lower child mortality, and lower population growth than those with Weak Democracy. Not surprisingly, Strong Democracies also have better quality institutions as indicated by higher levels of economic freedom, better legal infrastructure, more transparency, higher political stability, less corruption, less social unrest and violence. The same pattern also applies to comparison between Strong Democracy and autocracy.

Differences between Weak Democracy and autocracy, however, are not so clear-cut. It is interesting to note that Weak Democracies are poorer, and have higher Gini coefficients, lower secondary enrollments and higher child mortality rates than autocracies, even though they have more economic freedom and market reforms. A related observation is that Weak Democracies also have worse legal infrastructure, higher corruption level, and higher political instability than autocracies.

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[10]Results are similar if filling the missing data with GDP values in 1960 or from other data sources.

[11]The within estimators used in the recent literature are mainly determined by countries with political regime changes during the sample period. So those without any political changes would have little effect on the estimated coefficients.

[12]The threshold used is the 25th percentile ($p25$) of GDP per capita levels of all democratic countries during their transition times. Among the 88 democratization cases in the data, 66 are categorized as Strong Democracy, while the rest 22 as Weak Democracy. The full list of detailed definition and source of all variables are in the Online Appendix.

3 Baseline Results

The effects of Strong and Weak Democracies on GDP growth are estimated using the following dynamic growth model with fixed country and time effects:

$$g_{it} = \beta_S DStrong_{it} + \beta_W DWeak_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it}. \qquad (1)$$

The dependent variable g_{it} is the growth rate of per capita GDP in country i at time t, defined by $g_{it} = 100*(y_{it}-y_{it-1})$ as in the literature, where y is natural logarithmic form of GDP per capita. $DStrong_{it}$ and $DWeak_{it}$ are dummy variables defined earlier indicating Strong and Weak Democracies respectively. The dynamic process of growth is captured by three lags of GDP growth rate as well as a four-period lag of GDP, y_{it-4}.[13] The impact of any time-invariant country-specific characteristics such as geographic location, history, or culture is absorbed by country dummies λ_i, while any global trends of GDP growth are captured by year dummies δ_t. The residual term ε_{it} includes all other time-varying unobservable shocks to GDP growth, which are assumed to be orthogonal to democratic types conditional on the full list of control variables. Then the coefficients β_S and β_W can be estimated using the standard within estimator, which is shown to have consistent results compared with a range of alternative estimation methods in Acemoglu et al. (Forthcoming).

The dynamic structure of this model follows Acemoglu et al. (Forthcoming), except that the growth rate is used here instead of GDP level.[14] The model specification also shares similarity with Persson (2005) where multiple dummy variables of democratic forms are used. To deal with potential serial correlations, we follow the recent literature (Papaioan-

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[13]Sufficiently many lags of growth rates need to be included to eliminate the residual serial correlation in the error term, especially to remove the influence of the dip in growth rate that precedes democratization (Papaioannou and Siourounis, 2008; Acemoglu et al., Forthcoming). Results are similar when more than three lags of growth rates are used.

[14]Both variables would lead to identical estimates of democracy coefficients. Their equivalence is shown below. Equation (1) can be rewritten as

$$y_{it} - y_{it-1} = \beta_S DStrong_{it} + \beta_W DWeak_{it} + \sum_{j=1}^{3} \alpha_j(y_{it-j} - y_{it-j-1}) + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it},$$

which after re-arranging terms becomes

$$y_{it} = \beta_S DStrong_{it} + \beta_W DWeak_{it} + \sum_{j=1}^{4} \gamma_j y_{it-j} + \lambda_i + \delta_t + \varepsilon_{it},$$

where γ_j can be derived from α_j and φ.

nou and Siourounis, 2008; Madsen, Raschky and Skali, 2015) to use clustered standard errors at the country level in all regressions.

3.1 Using GDP as Development Indicator

Estimation results based on Equation (1) are shown in Table 2, where per capita GDP in the political transition year is used as the economic development indicator to categorize Strong versus Weak Democracy. In Column (3), for instance, when the threshold is set at the 25th percentile ($p25$), the estimated coefficient of Strong Democracy is 1.394, which is statistically significant at the 1% level, while that of Weak Democracy, 0.048, is much smaller and insignificant. The results are quite similar when the threshold is lower, such as 20% in Column (2) and 15% in Column (1), while the differences between the two groups become smaller and less significant when the cutoffs are at higher levels. These results suggest that if the economic development in the political transitional year didn't pass a certain level, democracy *per se* does not facilitate growth, and in this specific case, 25% of per capita GDP seems to be the appropriate threshold, which is about 900 US dollars measured in year 2010.

For comparison, the last column uses a single democracy dummy; its estimated coefficient 0.919 is similar as in Acemoglu et al. (Forthcoming), which lies in-between those of Strong and Weak Democracies. In all columns, the coefficients of three lagged growth rates are significantly positive but well below 1, confirming the importance of the dynamic structure. The coefficients of y_{it-4} (4-year lagged GDP per capita) are always statistically negative, indicating the existence of conditional convergence in economic growth.

Using estimates in Column (3) as the benchmark, the long run effect of a permanent transition to Strong Democracy increases GDP per capita by 35.56%, while the effect of a Weak Democracy is only 1.22%.[15] This large discrepancy in growth effects among democratic countries suggests that a more careful categorization is warranted; without appropriate developmental readiness, switching to democracy may not facilitate economic growth.

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[15]The estimated long run effect of democracy is 21.24% in Acemoglu et al. (Forthcoming). The formula derivation is in the Appendix.

3.2 Alternative Development Indicators

Table 3 shows regression results using alternative indicators of economic development during the political transition period to categorize the two types of democracies, including two education variables, natural resource share of GDP, the industry share of GDP, and income inequality. The overall results are quite similar to those in Table 2.

The first panel uses Secondary Enrollment Ratio as the indicator; significantly different effects on growth between Strong and Weak Democracies exist for almost all cutoff levels from the 10th to 50th percentile, where the coefficients of Strong Democracy are always positive and significant (from 1.044 in Column (1) to 1.638 in Column (9)), while those of Weak Democracy are not statistically different from zero across the board, even negative when the cutoffs are below the 20th percentile.

These results are almost perfectly replicated in the second panel where Tertiary Enrollment Ratio is used. For example, results in Column (9) suggest that if a country's tertiary enrollment rate was below the sample median in the transition year, democracy has no significant effect on growth, while in sharp contrast, those with higher enrollment rates would enjoy an average of 1.404 percentage points increase of economic growth rate per year. These empirical estimates are in line with theoretical models emphasizing the crucial importance of human capital in the process of industrialization and democratization (Glaeser et al., 2004; Galor, 2007; Glaeser, Ponzetto and Shleifer, 2007; Huang, 2012a; Murtin and Wacziarg, 2014; Madsen and Murtin, 2017), suggesting that democracies without adequate mass education are not likely to improve economic growth.

Another commonly used indicator for economic development is the income share of natural resources in the economy. Countries with more advanced economy would rely more on human capital than oil, mineral or other natural resource, whereas those with heavy reliance on raw materials tend to gravitate towards rent-seeking activities and institutions.[16] To be consistent with other developmental indicators, we use (1 - Natural Resources Revenue Share of GDP) in the third panel. A striking difference between Strong and Weak Democracies is observed in Column (2) where their coefficients are respectively 1.188 and -1.319, both statistically significant. That is, democracy substantially reduces economic growth in countries among the top 15 percentile of reliance on natural resources. And countries above the median in natural resource dependence see no significant improvement

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[16]This is widely recognized in the literature; see, for example, Sachs and Warner (1999, 2001); Arezki and Van der Ploeg (2011); Frankel (2012); Hodler (2006); Bhattacharyya and Hodler (2010); Tsui (2011); Ross (2015); Farhadi, Islam and Moslehi (2015).

on growth from democracy. These results are very similar to those using enrollment rates above.

The next panel uses the Industry Share of GDP as the indicator. The most significant difference is observed in Column (1) with 10% as cutoff, where the estimated effect of Strong Democracy on growth is 1.038, while that of Weak Democracy is -1.533, and both are significant. The effects are always positive and significant for Strong Democracy but insignificant for Weak Democracy in the other columns, even though the differences become less significant when the cutoffs are higher and thus the between-group gap becomes smaller.

High economic inequality is often associated with low institutional quality and political instability.[17] In the last panel, (1 - Gini) is used as the developmental indicator, where the net Gini coefficient is from Standardized World Income Inequality Database (SWIID). The overall pattern is again similar to the other panels, where for countries with income inequality higher than the median level, democracy doesn't improve growth.

At the 25th percentile cutoff, the coefficient of Strong Democracy is 1.370 when the indicator is Secondary Enrollment Rate, 1.182 for Tertiary Enrollment Ratio, 1.142 for Natural Resource Share, 1.038 for Industry Share, and 1.120 for Income Inequality, while those of Weak Democracy are respectively 0.004, -0.066, 0.303, 0.222, and 0.326, all insignificant. Since the overall results are quite similar across these indicators, GDP per capita in the transition year with the 25% cutoff will be used as the benchmark to conduct other robustness checks; this choice is partially because per capita GDP by construction is meant to reflect the economy's overall situation, and also because of its wider availability in data.[18]

3.3 Alternative Democracy Indicators

One reason for the lack of consensus in the literature on the effects of democracy on growth is because the empirical results are often sensitive to how democracy is measured. This is understandable given that democracy is a complex concept itself, implemented in reality by various institutions that are difficult to quantify and compare across countries. The

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[17]See, for example, De Tocqueville (2003); Huntington (2006); Gradstein (2007, 2008); Sunde, Cervellati and Fortunato (2008); Cervellati, Fortunato and Sunde (2014); Jung and Sunde (2014); Krieger and Meierrieks (2016); Kotschy and Sunde (2017).

[18]We are aware of the potential drawbacks of using GDP as the only developmental indicator. For example, high income may result from rich natural resources rather than better human capital or more advanced economy structure. Later in Session 6, GDP is combined with other variables to construct a more comprehensive indicator, and the overall regression results are indeed similar.

dichotomous democracy indicator and the transition year data used in the above tables are from Acemoglu et al. (Forthcoming), which combines information from several widely used data sets. Table 4 shows robustness of our results to these alternative democracy indicators.[19]

The first panel in Table 4 shows results using Polity IV data where we define $Democracy = 1$ if $polity2 > 0$, and $Democracy = 0$ if $polity2 \leq 0$ following Persson and Tabellini (2007) and Acemoglu et al. (Forthcoming).[20] Consistent with the literature using a single democracy dummy, a small and insignificant effect of democracy, 0.249, is reproduced in Column (7). In sharp contrast, for a range of cutoffs (from the 20th to 40th percentile), the coefficients of Strong Democracy are much larger and statistically significant, while those of Weak Democracy negative, and their differences are significant. At the 30th percentile cutoff, for example, the estimated coefficient is 0.74 for Strong Democracy and -0.626 for Weak Democracy, and their gap 1.366 is similar in magnitude and significance to earlier estimates.

The overall pattern is similar in the following two panels using CGV (Cheibub, Gandhi and Vreeland, 2010) and BMR data (Boix, Miller and Rosato, 2013). Both have dichotomous democracy variables. The coefficients of Strong Democracy are much higher and more significant than those of a single democracy dummy, while those of Weak Democracy are insignificant, much smaller, and sometimes negative. At the 25th percentile cutoff, for example, the estimated coefficients of Strong Democracy are 1.193 and 1.149 for CGV and BMR respectively, while those of Weak Democracy are -0.294 and -0.204, which again yield similar magnitude and significant levels in group differences.

The PS data (Papaioannou and Siourounis, 2008) in the last panel consider only permanent transitions to democracy, which exclude many Weak Democracies because they on average have short lifespans and quick reversals to autocracies; this may be a reason why the coefficient of the single democracy dummy is much larger and more significant compared with other data sets. In other words, the democracy variable in PS data already weeds out the most fragile Weak Democracies and thus is closer in spirit to our definition of Strong Democracy.[21] But even in this case, the coefficients of Weak Democracy are

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[19]Results using Freedom House data are also similar but not reported here since it does not contain political transition cases before 1972.

[20]Results are similar when a higher cutoff, $polity2 = 5$, is used instead. Detailed results are in the Appendix. The sample size is smaller partially because the polity data set does not include some small countries.

[21]Note that their sample size 124 is much lower than ours. The PS data used here is updated to 2010

insignificant for cutoffs below the 35th percentile, while those of Strong Democracy are always significant, suggesting that even for permanent transitions to democracy, development conditions matter for growth.

These results suggest that it is important to look into the heterogeneity issue more carefully in assessing the effects of democracy on growth, and our categorization based on developmental conditions during the transition year is robust to various indicators of democracy.

3.4 Robustness to Special Cases

Table 5 shows several robustness checks routinely used in the literature. In the first column, results remain almost the same as before when countries with less than 20 observations are excluded, suggesting that the Nickell bias is indeed small.[22] In Column (2) the region-specific time trends are controlled, while in Column (3) interactions between a dummy of Soviet-related countries and year dummies of 1989, 1990, 1991, and post-1992 when these countries experienced political transitions are included. In both cases, the estimated coefficients are similar as before.[23]

When outliers in growth rates (observations with a standardized residual below the 5th percentile or above the 95th percentile) are dropped in Column (4), the estimated effect of Weak Democracy, -0.453, becomes significant, while that of Strong Democracy, 0.801, is still positive and significant, and their gap 1.254 is of similar scale to the benchmark result; this suggests that democratization without adequate economic development may actually hurt economic growth if we exclude the influence of extreme outliers. Results remain similar in the last column where all controls in the earlier columns are included.

3.5 Endogeneity Issues

The dynamic panel data model (1) assumes that after controlling country and time fixed effects as well as the past growth rates and GDP level, a country's political regime choice is exogenous to the other unobserved variables that may affect growth. Although this is

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as in Pozuelo, Slipowitz and Vuletin (2016), where political situations have changed in a few countries and thus some permanent transitions considered earlier have to be corrected. Our definition of Strong and Weak Democracies, in contrast, is based on an ex ante criterion.

[22]The Nickell bias arises from the lack of strict exogeneity in dynamic panel models (Nickell, 1981; Alvarez and Arellano, 2003), which decays sharply when the time horizon exceeds 20 periods (Judson and Owen, 1999).

[23]Result are again similar if excluding Soviet-related countries.

a quite reasonable assumption, it is always possible to think about some elements that make democratic transition endogenous to growth.[24] Since political and economic forces are typically entangled and clustering together, and the democratization process is often conducted through a broad and far-reaching transformation of the whole society, it is not easy to find very clean instrumental variables to estimate a pure causal effect of democracy. The best we can do is trying to utilize some reasonably exogenous variations in democratic choices.

One possible exogenous factor that affects political regime choice is the genetic distance across countries. If countries more closely linked with each other through common ancestors are more likely to choose similar political regimes independent of their economic performance, then genetic distance between two countries can be used as the instrumental variable for democracy (Spolaore and Wacziarg, 2016). Genetic relatedness is shown to be a summary measure for a wide array of cultural traits transmitted vertically across generations, and its correlation with people's opinions on Politics and Society in the World Value Survey is much stronger than those on work. Compared with linguistic or cultural distances, genetic distance is less likely to be directly affected by political and economic conditions. Specifically, a country's democracy level is instrumented by the weighted average of democratic indicators among foreign countries, where the weight is the inverse genetic distance.[25]

The 2SLS estimators are reported in Table 6. In Column (1), the coefficients of Strong and Weak Democracies are respectively 3.61 and -2.631; though individually insignificant from that of autocracy, their difference is again significantly different from zero. Their magnitudes are larger than the baseline results, which is a quite typical pattern in the relevant literature (Madsen, Raschky and Skali, 2015; Acemoglu et al., Forthcoming), consistent with the hypothesis that richer countries are more likely to become democratic but their growth rates are lower than others. When a single democracy dummy is instrumented, the coefficient in Column (2) is estimated less precisely.[26]

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[24]For example, the presence of certain extremely visionary and able leaders may help increase GDP growth and push democratization at the same time; in this case, democracy does not affect growth *per se* but the leadership quality does. That is, if in the past several decades, capable individuals in autocratic countries are more likely to receive advanced education in the western democratic countries and thus adopt their political regimes, then in countries where these individuals become influential leaders, growth and democracy become hand-in-hand results.

[25]The Weighted Genetic Distance across countries from Spolaore and Wacziarg (2016) is used to calculate the weights. Details are in the Appendix.

[26]Precision is increased in Madsen, Raschky and Skali (2015) with 10-year average GDP levels and a

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Another possible source of exogenous variation in democracy is the influence of regional waves of democratization and reversal to autocracy (Gründler and Krieger, 2016; Acemoglu et al., Forthcoming). We construct the average level of democratic indicators in foreign countries within the same region, and use their four lagged values as IVs for a specific country's democracy level. The coefficient of Strong Democracy in Column (3) is 3.883, significant at 5% level, while that of Weak Democracy is 0.699 and insignificant; their gap is also significant. The IV result for a single democracy dummy in Column (4) is again not significant.

In the last two columns, only countries that share similar political institutions at the beginning of the sample are used to construct the regional average values. The precision of regression results indeed improves a lot, where even the coefficient of the single democracy dummy becomes statistically significant as in Acemoglu et al. (Forthcoming); the coefficient of Strong Democracy is 1.967, again significant, while that of Weak Democracy is -0.499 and insignificant.

The overall pattern in these IV results is again similar to the benchmark results, where the estimated effects of Strong Democracy are positive and significant, while those of Weak Democracy remain insignificant and sometimes even negative. So the dynamic panel model is not much affected by the endogeneity issue and thus provides a reliable framework to estimate the effects of democratic types on growth.

4 Further Evidence

4.1 Controlling Current Economic Development

One may wonder whether it is the general economic development condition, not the institutional quality as proxied by development in the transition period, that really matters. This concern has already been taken into account in the model setup, since in all regressions we have already controlled an earlier per capita GDP level y_{it-4}, which should capture the direct effect of economic development on growth. But to further address this issue, especially to capture the potentially nonlinear effects, we construct a dummy variable *poor_dummy* that equates to 1 if the development indicator is below a certain threshold in each period, and 0 otherwise.[27]

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much longer time horizon from 1820 to 2000.

[27]This variable is thus constructed in a similar way as the two dummies of Strong and Weak Democracies, except that the latter are based on development in the transitional year, while the former is for each year.

In Table 7, several development indicators, including GDP, secondary and tertiary enrollment rates, industry share of GDP, and urbanization rate, are used to construct the *poor_dummy*, where a range of thresholds from the 15th to the 85th of the relevant indicator in each year are used. In Panel A of Column (3), for example, the estimated coefficient of Strong Democracy is 1.698, again highly significant, while that of Weak Democracy is -0.179 and insignificant, where the difference is also highly significant; the coefficient of *poor_dummy* is -4.299 and highly significant, suggesting that poor development is hindering growth in general. In Panel B of the same column, the coefficients of Strong and Weak Democracies are respectively 1.574 and -0.315, with a similar pattern as in Panel A, while that of *poor_dummy* is insignificant from zero. Results in the rest panels are in general similar to the first two.

So the baseline results continue to hold even when the current economic development level is further controlled in addition to the income level. These results suggest that the development conditions in the *critical junction* of political transition period capture something important beyond pure development, which in our hypothesis is the quality of newly established institutions that are affected substantially by the birth conditions.

4.2   Controlling Democratic Stock and Formats

Another reasonable conjecture is that, even though development in the transitional time is crucial, the institutional quality may also improve over time after democratization through learning-by-doing. It is somewhat similar to the nurture versus nature issue in child development. For the effect of democracy on growth, is it possible that the birthmark impact of the initial developmental conditions may be mitigated over time?

To check this possibility, we use the Democratic Stock variable from Gerring et al. (2005) as an indicator for potential improvement of institutional quality after democratization. It is measured by the sum of each country's Polity2 score from 1900 to the present year with a 1% annual depreciation rate, and we update it to 2010 to match our sample period. In Column (1) of Table 8, the coefficients of Strong and Weak Democracies are respectively 1.204 and 0.07, very similar to the baseline results, while that of Democratic Stock is 0.005 and marginally significant. So the accumulated democratic stock is indeed good for growth, but its effect is not as substantial as that of the initial development.[28]

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[28]For example, if the polity score increases from 0 to 6 (the median level in Weak Democracy) after democratization, the effect of 10 years democratic stock on growth is 0.287.

An alternative direction explored in the literature is whether the specific formats of democratic institutions, such as presidential versus parliamentary or majoritarian versus proportional regimes, matter more than the difference between democracy and autocracy in general (Persson, 2005). This issue is also examined here in Table 8. In Column (2), three dummy variables representing Majoritarian, Proportional, and Mixed Election System are controlled; their coefficients are positive but insignificant, while those of Strong and Weak Democracies are 1.492 and -0.46 respectively, again similar as before. In Column (3), indicators of Parliamentary, Presidential, and Semi-Presidential regimes are included instead; their coefficients are negative, while those of Strong and Weak Democracies are 1.635 and -0.004. When all of these six dummy variables are included Column (4), the overall pattern remains similar. In the last column, Democratic Stock is further added, and none of these specific institutional formats shows any significant effects, while the coefficients of Strong Democracy, 1.477, and Democratic Stock, 0.008, are still significant. These results demonstrate that once the initial development condition is controlled, the specific forms of democracy don't have significant effects on growth.

4.3 Controlling Economic and Demographic Variables

A common practice to check the robustness of empirical results is to control more variables for the purpose of mitigating the omitted variable problem. But the newly introduced variables may be *bad controls* since they could be part of the causal effect we aim to estimate (Angrist and Pischke, 2008). For this reason, the more comprehensive model specifications may not capture the full growth effect of democracy, though their comparison with the basic model illuminates potential mechanisms through which democracy may affect growth.

Table 9 shows results controlling for standard growth covariates (Papaioannou and Siourounis, 2008; Barro, 2013; Acemoglu et al., Forthcoming) including the trade share in GDP, investment rate, inflation rate, government spending, and enrollment rates of various school levels, fertility rate, and life expectancy. Specifically, four lags of each covariate are used to capture the dynamic process of growth.

The overall pattern and coefficient magnitudes are again very similar to the baseline results across all columns. Although the coefficients of all of these economic variables are not jointly significant *per se*, the 2nd and 3rd lags of growth rate variables lose significance compared with the baseline model, suggesting that their effects on current growth are partially or fully captured by earlier growth rates. In contrast, when only demographic

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variables are controlled in the last two columns, these earlier growth rates are still significant. The coefficients of Strong Democracy vary from 1.050 in Column (6) when secondary enrollment rate is controlled, to 1.693 in Column (2) when the investment rate is controlled, all statistically significant, while those of Weak Democracy range from -0.274 in Column (7) when tertiary enrollment rate is controlled, to 0.32 in Column (8) when fertility rate is controlled, all insignificant.

In summary, these results suggest that the distinct effects of Strong versus Weak Democracy on economic growth are quite robust, and can't be fully captured by standard economic, demographic, and political conditions. This motivates us to examine more carefully the potential transmission channels through which Strong Democracy facilitates economic growth while Weak Democracy does not.

5 Democracy on Growth: Mechanisms

In the following dynamic panel model, the dependent variable m_{it} is the potential channel that may be directly affected by Strong and Weak Democracies. Following Acemoglu et al. (Forthcoming), four of its lagged levels are controlled as well as four lagged per capita GDP to capture the dynamic process of each variable and the dynamic effects of general development. The same set of country and time dummies are also included. This model is estimated by the within estimator.

$$m_{it} = \beta_S DStrong_{it} + \beta_W DWeak_{it} + \sum_{j=1}^{4} \alpha_j m_{it-j} + \sum_{j=1}^{4} \varphi_j y_{it-j} + \lambda_i + \delta_t + \varepsilon_{it}. \quad (2)$$

5.1 Economic Channels

Table 10 explores some potential economic channels. As to be expected from the lack of additional influences in Table 9 once lagged growth rates and GDP level are controlled, differences between Strong and Weak Democracies are not significant for trade share, investment rate, physical capital, TFP, market reform index, tax share, and tertiary enrollment rate.

However, they do differ from each other in other dimensions. Compared with Strong Democracy, the probability of having hyper-inflation[29] is much higher in Weak Democracy,

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[29]It is a dummy variable equal to 1 if $CPI_{i,t} \geq 50\%$ and 0 otherwise.

and the government spending is much larger, together with higher primary and secondary enrollment rates as well as lower Gini coefficients.[30]

These results suggest that democracy without adequate economic development is likely to face heavy populism pressure to redistribute despite the lack of means to raise tax revenues (Persson and Tabellini, 1994; De Tocqueville, 2003; Huntington, 2006), which may lead to high inflation rates.

5.2 Demographic Channels

Differences in demographics are quite prevalent between Strong and Weak Democracies. In Table 11, the effect on population growth is negative for Strong Democracy but positive in Weak Democracy, both significantly different from autocracy. The population growth rate depends on both birth rate and death rate. Interestingly, Strong and Weak democracy have heterogeneous effects on them compared with autocracy: birth rates are much lower in Strong Democracy, while death rates are reduced more in Weak Democracy. So as a consequence, the population growth rate is reduced in Strong Democracies but increased in Weak Democracies. These results are broadly consistent with the populism tendency in Weak Democracies discussed above.

The fertility rate is also significantly lower in Strong Democracy than autocracy, so are infant and child mortality rates, while no significant differences are found between Weak Democracy and autocracy. The effects on life expectancy of the two democracies, though positive, are not statistically different from autocracy.

5.3 Institutional Channels

In Table 12, we explore the effects of Strong versus Weak Democracy on various institutional quality indicators, including economic freedom, legal institutions, political corruption, transparency, and instability. The values of all indicators are normalized between 0 and 1.

The Economic Freedom Index is a composite index on the institutional quality regarding

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[30]However, in Column (9) the overall human capital as measured by Aisen and Veiga (2013) is much lower in Weak Democracy, which combines the average years of schooling in the population over 25 years old, the returns to schooling, and labor force participation rate. Noticing the drop of sample size in Column (9), we repeat regressions on primary and secondary enrollment rates using the same sample, and results remain unchanged. The Online Appendix shows that Weak Democracy significantly lowers the labor participation rate, which may explain why higher enrollment rates and lower human capital stock coexist.

the overall economic freedom (Krieger and Meierrieks, 2016; Kotschy and Sunde, 2017). It is composed of 42 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. Column (1) shows that economic freedom is indeed much higher in Strong Democracy than in Weak Democracy.

Two legal indicators developed by the Cline Center, legal infrastructure and legal order, are used to measure the rule of law. Column (2) shows that the legal infrastructure is higher in Strong Democracy but lower in Weak Democracy compared with autocracy, though in Column (3) differences in legal order are insignificant.[31]

In Column (4), the overall Political Corruption Index is significantly lower in Strong Democracy than in Weak Democracy, while there is no difference between Weak Democracy and autocracy.[32] Corruption often occurs where transparency is inadequate. This is confirmed in Column (5), where the HRV Index of transparency (Hollyer, Rosendorff and Vreeland, 2014) is significantly higher in Strong Democracy.[33]

An important function of democracy is to solve conflicts among different groups in a peaceful way. Too much instability would suggest a less effective political regime. Several variables are used to measure instability following Aisen and Veiga (2013). The Regime Instability Index reflects frequencies of constitutional changes, coups, cabinet changes, executive changes, and regime crisis; as shown in Column (6), it is much lower in Strong Democracy than autocracy and Weak Democracy. The Within-Regime Instability is measured by the number of legislative elections, fragmentation index, government crises, and executive changes; as shown in Column (7), it is again significantly lower in Strong Democracy than Weak Democracy, even though higher than autocracy. These results suggest that Strong Democracy is much more effective in resolving substantial conflicts than Weak Democracy.[34]

The society-wide instability is captured by two variables: Social Unrest (Acemoglu et al., Forthcoming) is a dummy variable where 1 means there is social unrest in that

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[31]Most indicators of the rule of law start much later (from 1990 or even 2000) or have smaller samples, which renders the dynamic panel data model less suitable. In cross-sectional results in the Appendix, the rule of law is much higher in Strong Democracy than Weak Democracy.

[32]The same pattern holds true for each of the four sub-indexes covering corruption in judicial, public sector, legislature, and executive dimensions, where the difference is highest in executive corruption.

[33]Similar results are also obtained using other transparency indicators in the Appendix.

[34]The effects of violence or turmoils during the political transition time on future growth are studied by Huntington (1993), Cervellati and Sunde (2014), and Pozuelo, Slipowitz and Vuletin (2016) among others. Exploring the link between development and democratization scenarios seems to be a fruitful research topic.

year, while the Violence Index measures the number of assassinations, revolutions, and wars. Results in the last two columns show that both indexes are much lower in Strong Democracy, while Weak Democracy and autocracy are not different from each other.

The overall pattern emerging from these results is very clear: The quality of economic, legal, political, and conflict resolution institutions is much higher in Strong Democracy than Weak Democracy. So the economic developmental condition during the transition period indeed exerts significant impacts on the institutional quality in many years after democratization, where adequate development during democratization is crucial for democracy to facilitate future economic growth.

6   Discussions and Policy Implications

6.1   Timing of Democratization: Now or Later?

Our results show that Strong Democracy boosts economic growth but Weak Democracy does not. This gives rise to an intriguing question: Shall a poor country democratize first but into a Weak Democracy, or improve economic development first to prepare for a later transition to a Strong Democracy?

A proper answer to such a question involves many dimensions beyond the scope of this paper. Here we only attempt to provide some simple conceptual exploration focusing on the perspective of economic growth. The growth trajectories of three political regime choices (namely Autocracy, Weak Democracy, and Strong Democracy) are simulated from 1960 to 2010 based on the baseline results in Column (3) of Table 2. At the starting point of 1960, country j is independent but under autocracy with GDP per capita at \$400, and the threshold GDP per capita of becoming a Strong Democracy is set at \$900 (the 25th percentile). Results are plotted in the following two graphs, one with real GDP paths and the other with normalized paths against Autocracy.

On the Autocracy Path, the country never becomes democracy; the trajectory of its GDP per capita is the dashed line in both graphs. If it chooses to democratize immediately in 1960, it would follow the Weak Democracy Path along the solid line in the graphs. Since Weak Democracy has little impact on growth, it is almost indistinguishable from the Autocracy Path. The Strong Democracy Path is the dotted line in the graphs, where the country stays in autocracy for the first several years, and then transits into Strong Democracy in 1968, the first period when its income per capita is over the threshold \$900.
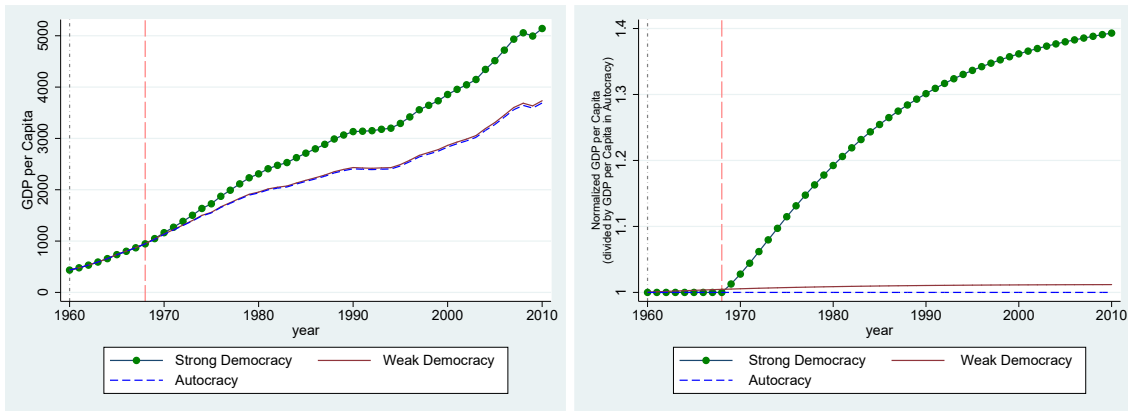
Figure 2. Simulated GDP Paths of Strong Democracy, Weak Democracy, and Autocracy

From then on it embarks on a much higher growth path, surpassing Weak Democracy from 1969 and staying ahead of the other two paths with more than 37% higher GDP in 2010.

So from the economic growth perspective alone, not rushing to democracy may be a desirable strategy for countries with low development levels; it is beneficial to improve economic conditions first, and then jump onto the Strong Democracy Path of faster growth in many years to come.

6.2   A More Realistic Indicator for Weak Democracy

The main motivation for categorizing Weak and Strong Democracies in this paper is to show that democracy has heterogeneous effects on economic growth. Without adequate development, democratization itself does not improve growth. Then another question follows: how do we predict whether a country has the adequate development or not?

In our empirical results so far, a single variable is used as the developmental indicator to categorize Weak Democracy, which is mainly to guarantee simplicity, transparency, and objectivity. But it is far from being realistic because each variable alone can't capture the overall development that enables a country to establish growth-facilitating institutions after democratization. For example, even when a country is relatively rich, but if the income is mainly from natural resources, or if its people are still poorly educated, or if the inequality is very high, one may suspect that it is not ready yet to run a solid democracy that needs robust and enlightened public participation. So a more practical criterion should combine all useful information together.

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There are many possible ways to combine various developmental indicators. Finding an optimal way to do this seems to be a fruitful topic for future research. As a first attempt, we use developmental variables in our earlier tables, namely, GDP, secondary enrollment ratio, tertiary enrollment ratio, the natural resource share of GDP, industry share of GDP, and the Gini coefficient at the transition period to categorize a country into Weak Democracy if any of these variables falls short of its specific threshold.[35]

Based on this combined indicator, Weak Democracy constitutes 45% of the sample, and the main results on growth effects and mechanisms are again similar to the benchmark. As shown in Table 13, the differences between Strong and Weak Democracy become even more striking in most cases.[36]

6.3 Comparison between Benin and Ghana

As an illustration on the relevance of our results, this subsection compares the political economy situations of Benin and Ghana in West Africa. Both countries went through democratization in the 1990s, and are considered as fully "free" democracies by Freedom House, while their polity scores have been above 6 since 2005. But economic growth in Benin didn't improve after democratization, while the opposite is true for Ghana. Figure 3 plots GDP per capita growth rates in Benin and Ghana respectively after controlling effects of growth dynamics, income level, and the time trend.

Such discrepancy in growth, however, is not surprising based on our results, where Benin is categorized as Weak Democracy while Ghana as Strong Democracy given their development conditions during democratization. As shown in Panel A of Table 14, the GDP per capita of Benin at the political transition year 1991 is only 610, well below the threshold 900 adopted in our baseline results, while Ghana's GDP in the democratization year exceeds that level. Consistent with their differences in GDP levels, both human capital and the industry share are much lower in Benin than in Ghana at the transition time; for example, the population percentage with secondary schooling was only 8.65% in Benin but 43% in Ghana.

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[35]The threshold for each of these indicators is set at the cutoff that best separates Strong and Weak Democracy in growth effect as reported in Table 2 and 3, which are the 25th, 20th, 25th, 15th, 10th, and 10th percentiles, respectively.

[36]The full set of regression results are available upon request. Honduras, for example, is categorized into Weak Democracy by its high inequality and heavy reliance on natural resources (Auty, 2001), despite adequate income and schooling levels at the transition period. South Africa is another example. Both experience worse economic growth after democratization.

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The overall institutional quality is also much lower in Benin than in Ghana, which is shown in Panel B of Table 14.[37] In Benin, the average Economic Freedom Indicator is worse off after democratization, and so are the other major institutions such as legal infrastructure, political corruption, transparency, and instability. While in contrast, most of these indicators become better in Ghana after the democratic transition. Benin is also ranked at the bottom among stable democratic countries in Africa on almost all dimensions of governance (WGI) (Pinkston, 2016).[38]

As the recent literature in political science and economics (Lindberg, 2006; Bank, 2007; Aryeetey and Kanbur, 2008; Bierschenk, 2009; World Bank, 2009; Polity, 2010; Bertelsmann, 2010a,b; Pinkston, 2016) has confirmed, the deep-rooted political economic structure has not been changed in Benin by its democratic transition, where the economy is almost entirely informal with low productivity, and the politics are controlled by a closed group of elite as government insiders relying on foreign aid and donations. In contrast, Ghana has robust private sectors that are capable of supporting healthy political competition to facilitate broad economic growth. A more disturbing observation is that other African democracies such as Kenya, Malawi, Senegal, and Zambia are more like Benin than Ghana (Pinkston, 2016), all of which are also categorized as Weak Democracy based on our grouping strategy. This suggests that the failure of democratization to improve growth is quite prevalent in countries with poor development.

6.4 Weak Democracy and Partial Democracy

The concept of Weak Democracy is based on its (lack of) ability to improve economic growth, and the categorizing criterion is the overall institutional quality, which is proxied in this paper by economic development in the political transition period. It is different from Partial Democracy, which is defined from the political side as any country with a polity score between 1 and 7 (Epstein et al., 2006; Papaioannou and Siourounis, 2008). Though motivated from different perspectives, these two concepts are closely related. For example, the median polity score of Weak Democracies based on the above combined index is 6, while that of Strong Democracies is 8, where the share of partial democracy is 87%

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[37]To precisely compare the effects of democratization on these indicators, we have removed other confounding influences from lagged levels, current and past incomes, as well as the time trend. In the Appendix, we directly use raw data for comparison, and the patterns are similar; the corresponding indicators before and after democratization are also plotted.

[38]See the Appendix for more details.

Figure 3. GDP per capita Growth in Benin and Ghana
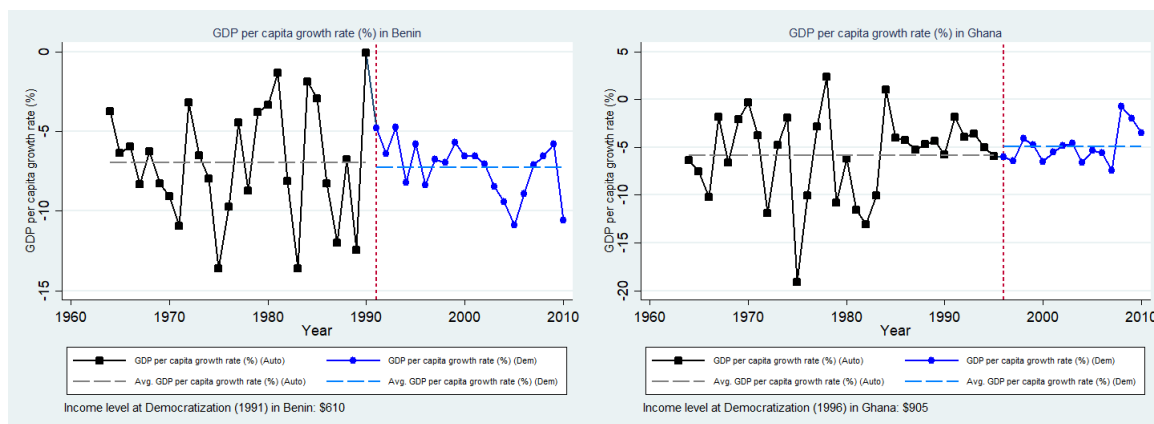
in the group of Weak Democracy, and 57% in Strong Democracy.

This suggests that a country with weak development at transition time is more likely to see no significant improvement in economic growth and to end up in a partial democracy on the political side. Given that most democratization cases after 1960 are partial democracy (Epstein et al., 2006), and among them almost half are Weak Democracy, their economic and political situations seem to have distinct features from traditional democracies, and thus need more in depth research in future works.

6.5   Does Development Matter?

The main message of this paper is that adequate development during the transition time is important for democratization to facilitate future economic growth. Acemoglu et al. (Forthcoming) also find evidence that democracy is more conducive to growth in countries with more educated people than in others, but their estimated effect of development is quantitatively small.

In order to facilitate a direct comparison, we use the model setup of Acemoglu et al. (Forthcoming) and construct the interaction term of poor development and democracy

$$Interaction_{it} = Democracy_{it} * WeakDev_{it},$$

where $WeakDev$ is a dummy variable that equals 1 if the development indicator at the transition time is below a threshold, and 0 otherwise. The only difference from Acemoglu et al. (Forthcoming) is the time at which development is measured: they use a range of fixed

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years such as 1960 or 1970 for all countries, while we use the political transition year for each country. In this specification, the coefficient of *Democracy* is equivalent to that of Strong Democracy in our basic set up, and the sum of coefficients of *Democracy* and *Interaction* is equal to that of Weak Democracy. In other words, the difference in coefficients between Strong and Weak Democracy is equivalent to the coefficient of *Interaction* here.

The results are presented in Table 15, where several variables are used to indicate poor development, including GDP, secondary and tertiary enrollment rates, natural resources rents of GDP, industry share of GDP, and net Gini coefficient. The estimated coefficients of this interaction term are significantly negative for all of these development indicators with appropriate cutoffs, and some of them have larger magnitudes than the democracy coefficient, meaning that under poor development the overall effect of democracy is negative. For example, in Panel B at the *p20* cutoff of secondary enrollment rate, the coefficient of Democracy is 1.294, while that of the interaction term with poor development is -1.562, meaning that the effect of democracy in a poor development country on growth is -0.268. In Panel E at the *p15* cutoff of industry share, the coefficient of Democracy is 1.065, while that of the interaction term with poor development is -1.920, making a net effect of -0.855. These results demonstrate that development indeed matters.

The main reason why these results differ from Acemoglu et al. (Forthcoming) is that the economic development indicators are measured at the *transition time*, while theirs in an arbitrarily fixed year.[39] So development matters most at the *critical junction* of the political transition time when different groups in society negotiate with each other intensively to establish the fundamental institutions, since the political bargaining power of each group is often underpinned by its economic clout at that moment (Huang, 2012*a*).

7 Concluding Remarks

Is democracy a better political regime for economic prosperity than autocracies? This paper suggests that the answer depends on the economic development during the transition periods of democratization when the foundation of democratic institutions is laid. Countries already having an adequate economic structure for democracy, which are labeled Strong Democracy in the paper, grow faster after democratization compared with autoc-

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[39]Without properly considering GDP growth dynamics may also lead to biased estimates of democracy on economic performance. For example, the growth effects in Benin and Madagascar (Rodrik and Wacziarg, 2005) become insignificant after controlling growth dynamics and past income levels.

racies, while the others that are not so ready and thus called Weak Democracy, do not. Based on a combined developmental index containing information on income, education, natural resource reliance, and inequality, about 45% of democratization cases after 1960 are Weak Democracy.

The analysis of potential mechanism reveals that Weak Democracy is more populist in public policies, less transparent in government operations, weaker in legal infrastructure, higher in political corruption and social instabilities compared with Strong Democracy. This lower institutional quality in Weak Democracy is determined by the poor economic development in the political transition period, enabling it to affect future growth well beyond the typically temporary effect of economic development in routine times.

These results are consistent with both the modernization theory and the new institutional theory in that economic development affects the institutional quality, which in turns exerts substantial effects on future economic growth. During the crucial transitional period where new institutions are established, the overall economic structure has the kind of birthmark effects on the institutional quality. Once institutions are stabilized, however, the direct feedback from economic development is smaller, while the indirect effects through institutions become more dominant.

Some fruitful topics for future research include finding more accurate and practical criteria to help a country gauge the readiness for Strong Democracy, examination of the links between development and specific formats of democratization, and exploring ways to help a Weak Democracy improve its institutions and growth.

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Table 1. Summary Statistics

Variable	Strong Democracy			Weak Democracy			Autocracy			Strong - Weak		
	Obs.	Mean	(Std.)	Obs.	Mean	(Std.)	Obs.	Mean	(Std.)	Mean	(Std.)	p-value
Economic & Demographic Indicators												
GDP per capita Growth (%)	2,411	2.140	(4.459)	338	2.169	(4.762)	3,058	1.512	(8.054)	-0.029	(0.261)	0.456
GDP per capita (2010 US$)	2,439	16942	(17712)	338	893	(1154)	3152	4610	(10465)	16049	(964)	0.000
Tax Revenue (%, GDP)	1,691	0.216	(0.093)	239	0.158	(0.087)	2,722	0.162	(0.096)	0.058	(0.006)	0.000
Government Spending (%, GDP)	2,322	16.536	(5.741)	325	15.860	(7.361)	2,906	15.707	(7.861)	0.675	(0.353)	0.028
Investment (%, GDP)	2,222	24.102	(7.136)	332	21.435	(11.162)	2,853	22.690	(13.830)	2.667	(0.458)	0.000
Trade (%, GDP)	2,401	76.968	(39.738)	325	70.983	(45.309)	3,001	75.706	(57.246)	5.986	(2.390)	0.006
TFP	1,854	0.931	(0.162)	160	0.974	(0.082)	1,697	1.076	(0.419)	-0.043	(0.013)	0.001
Gini	1,535	35.732	(10.175)	239	41.529	(6.963)	1,140	37.334	(9.426)	-5.797	(0.682)	0.000
Gross Enrollment Ratio, primary	2,002	102.989	(11.770)	262	90.362	(28.424)	2,612	88.774	(28.046)	12.627	(0.965)	0.000
Gross Enrollment Ratio, secondary	1,764	81.494	(26.862)	211	31.209	(19.623)	2,153	44.944	(31.585)	50.285	(1.908)	0.000
Child Mortality Rate	2,455	33.630	(37.129)	338	132.063	(62.650)	3,696	120.616	(87.680)	-98.433	(2.382)	0.000
Fertility Rate	2,402	2.743	(1.331)	338	5.394	(1.297)	4,256	5.069	(1.903)	-2.650	(0.077)	0.000
Population Growth	2,484	1.095	(1.022)	338	2.590	(0.820)	4,278	2.338	(1.716)	-1.495	(0.058)	0.000
Institutional Quality Indicators												
Economic Freedom	1,785	0.675	(0.151)	239	0.537	(0.105)	1,307	0.503	(0.176)	0.138	(0.011)	0.000
Market Reform Index	1,860	0.558	(0.225)	223	0.492	(0.238)	2,953	0.213	(0.229)	0.066	(0.016)	0.000
Legal Infrastructure	2,019	0.340	(0.220)	322	0.113	(0.062)	3,367	0.136	(0.099)	0.228	(0.012)	0.000
Political Corruption	2,144	0.343	(0.302)	337	0.673	(0.213)	3,262	0.633	(0.236)	-0.330	(0.017)	0.000
Transparency (HRV Index)	1,346	0.556	(0.133)	291	0.380	(0.058)	1,633	0.378	(0.086)	0.175	(0.008)	0.000
Regime Instability Index	1,475	0.060	(0.087)	133	0.085	(0.129)	2,926	0.068	(0.119)	-0.026	(0.008)	0.001
Within Regime Instability Index	1,900	0.131	(0.122)	206	0.137	(0.139)	3,132	0.074	(0.098)	-0.005	(0.009)	0.281
Violence Index	1,464	0.034	(0.093)	128	0.041	(0.074)	2,880	0.063	(0.125)	-0.007	(0.008)	0.220
Social Unrest	2,345	0.198	(0.398)	321	0.277	(0.448)	3,214	0.279	(0.449)	-0.079	(0.024)	0.001

Note: All institution quality indicators are normalized between 0 and 1. See the text and Appendix for the full description of the variables and their corresponding sources. T tests are implemented to compare whether the differences between Strong and Weak Democracy groups are significantly different with zero.

Table 2. Effects of Strong and Weak Democracies on GDP Growth: Baseline Results

Dependent Variable:	GDP Percentiles in Political Transition Period as Cutoffs						No Grouping
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Growth Rate	p15	p20	p25	p30	p35	p40	
Strong Democracy	1.111***	1.279***	1.394***	1.258***	1.233***	0.906**	
	(0.339)	(0.346)	(0.362)	(0.371)	(0.398)	(0.356)	
Weak Democracy	0.219	0.079	0.048	0.496	0.615	0.930**	
	(0.484)	(0.420)	(0.382)	(0.412)	(0.401)	(0.427)	
Democracy							0.919***
							(0.303)
GDP Growth First Lag	0.165**	0.165**	0.165**	0.165**	0.165**	0.165**	0.165**
	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)
GDP Growth Second Lag	0.045**	0.045**	0.045**	0.045**	0.045**	0.045**	0.045**
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
GDP Growth Third Lag	0.042**	0.042**	0.042**	0.041**	0.041**	0.041**	0.041**
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
GDP Fourth Lag	-3.904***	-3.903***	-3.920***	-3.913***	-3.913***	-3.862***	-3.864***
	(0.783)	(0.777)	(0.779)	(0.786)	(0.793)	(0.793)	(0.778)
Coef. Test (p-value):							
$\beta_S = \beta_W$	0.0955	0.0128	0.0039	0.1209	0.2303	0.9625	
Countries	153	153	153	153	153	153	153
Observations	5419	5419	5419	5419	5419	5419	5419
Adjusted R^2	0.151	0.151	0.152	0.151	0.151	0.151	0.151

Note: A full set of country and year fixed effects are controlled in all specifications. Robust standard errors for heteroscedasticity and serial correlation at the country level are in the parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 3. Effects of Strong and Weak Democracies on GDP Growth: Alternative Development Indicators

Dependent Variable: Growth Rate	(1) p10	(2) p15	(3) p20	(4) p25	(5) p30	(6) p35	(7) p40	(8) p45	(9) p50
Panel A: Secondary Enrollment Ratio Percentiles in Political Transition Period as Cutoffs									
Strong Democracy	1.044***	1.139***	1.294***	1.370***	1.271***	1.371***	1.318***	1.502***	1.638***
	(0.381)	(0.379)	(0.389)	(0.412)	(0.425)	(0.437)	(0.462)	(0.527)	(0.547)
Weak Democracy	0.116	-0.15	-0.268	0.004	0.37	0.32	0.478	0.486	0.428
	(0.713)	(0.723)	(0.558)	(0.513)	(0.481)	(0.451)	(0.431)	(0.389)	(0.382)
Coef. Test (p-value): $\beta_S = \beta_W$	0.2166	0.0905	0.0101	0.0202	0.1103	0.055	0.1279	0.0805	0.0427
Countries	148	148	148	148	148	148	148	148	148
Observations	4992	4992	4992	4992	4992	4992	4992	4992	4992
Panel B: Tertiary Enrollment Ratio Percentiles in Political Transition Period as Cutoffs									
Strong Democracy	0.917**	1.074***	1.070***	1.182***	1.240***	1.206***	1.387***	1.377***	1.404***
	(0.360)	(0.357)	(0.372)	(0.382)	(0.404)	(0.411)	(0.434)	(0.465)	(0.500)
Weak Democracy	0.356	-0.169	0.11	-0.066	0.103	0.281	0.192	0.354	0.423
	(0.654)	(0.583)	(0.557)	(0.521)	(0.434)	(0.445)	(0.403)	(0.382)	(0.373)
Coef. Test (p-value): $\beta_S = \beta_W$	0.4259	0.0472	0.1081	0.03	0.0266	0.0797	0.0198	0.0492	0.0729
Countries	140	140	140	140	140	140	140	140	140
Observations	4792	4792	4792	4792	4792	4792	4792	4792	4792
Panel C: Non-Natural Resources Share of GDP in Political Transition Period as Cutoffs									
Strong Democracy	1.053***	1.188***	1.086***	1.142***	1.153***	1.097***	1.209***	1.275***	1.500***
	(0.320)	(0.319)	(0.308)	(0.316)	(0.331)	(0.337)	(0.365)	(0.372)	(0.386)
Weak Democracy	-1.105	-1.319*	0.289	0.303	0.460	0.667	0.615	0.580	0.459
	(0.919)	(0.703)	(0.848)	(0.692)	(0.576)	(0.519)	(0.453)	(0.449)	(0.422)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0237	0.0009	0.3588	0.2456	0.2661	0.4491	0.2677	0.2051	0.0568
Countries	145	145	145	145	145	145	145	145	145
Obs.	5005	5005	5005	5005	5005	5005	5005	5005	5005
Panel D: Industry Share of GDP Percentiles in Political Transition Period as Cutoffs									
Strong Democracy	1.038***	1.065***	1.027***	1.038**	1.126***	1.169***	1.266***	1.069**	1.149***
	(0.377)	(0.385)	(0.379)	(0.400)	(0.402)	(0.412)	(0.440)	(0.411)	(0.437)
Weak Democracy	-1.533**	-0.855	-0.07	0.222	0.061	0.142	0.132	0.537	0.512
	(0.638)	(0.637)	(0.892)	(0.689)	(0.666)	(0.606)	(0.546)	(0.575)	(0.530)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0002	0.0048	0.2284	0.2624	0.1359	0.1232	0.077	0.4069	0.3086
Countries	138	138	138	138	138	138	138	138	138
Observations	4801	4801	4801	4801	4801	4801	4801	4801	4801
Panel E: Economic Equality (1-Gini) in Political Transition Period as Cutoffs									
Strong Democracy	1.030***	1.076***	1.049***	1.120***	1.264***	1.324***	1.266***	1.325***	1.506***
	(0.376)	(0.391)	(0.397)	(0.418)	(0.415)	(0.430)	(0.457)	(0.464)	(0.514)
Weak Democracy	-0.184	-0.064	0.291	0.326	0.102	0.195	0.408	0.365	0.374
	(0.424)	(0.378)	(0.478)	(0.436)	(0.490)	(0.479)	(0.457)	(0.447)	(0.398)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0121	0.0105	0.1541	0.1245	0.043	0.0553	0.1453	0.1037	0.0602
Countries	132	132	132	132	132	132	132	132	132
Observations	4514	4514	4514	4514	4514	4514	4514	4514	4514

Note: A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4. Effects of Strong and Weak Democracies on GDP Growth: Alternative Democracy Indicators

Dependent Variable:	GDP Percentiles in Political Transition Period as Cutoffs						No Grouping
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Growth	p15	p20	p25	p30	p35	p40	
Panel A: Democracy Indicator from Polity							
Strong Democracy	0.429	0.535*	0.626*	0.740**	0.659*	0.760**	
	(0.311)	(0.315)	(0.317)	(0.327)	(0.341)	(0.379)	
Weak Democracy	-0.632	-0.747	-0.679	-0.626	-0.358	-0.326	
	(0.685)	(0.622)	(0.537)	(0.475)	(0.456)	(0.512)	
Democracy							0.249
							(0.271)
Coef. Test (p-value): $\beta_S = \beta_W$	0.1413	0.0545	0.0277	0.0132	0.0614	0.1016	
Countries	128	128	128	128	128	128	128
Observations	4689	4689	4689	4689	4689	4689	4689
Panel B: Democracy Indicator from CGV							
Strong Democracy	0.970**	1.064**	1.193**	0.942*	0.845*	0.756	
	(0.449)	(0.484)	(0.524)	(0.502)	(0.506)	(0.505)	
Weak Democracy	-0.387	-0.297	-0.294	0.184	0.335	0.469	
	(0.458)	(0.371)	(0.360)	(0.472)	(0.476)	(0.477)	
Democracy							0.592*
							(0.331)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0259	0.0189	0.0157	0.2486	0.4402	0.662	
Countries	150	150	150	150	150	150	150
Observations	4694	4694	4694	4694	4694	4694	4694
Panel C: Democracy Indicator from BMR							
Strong Democracy	0.836*	1.080**	1.149**	1.159**	0.921*	0.801	
	(0.447)	(0.487)	(0.519)	(0.557)	(0.542)	(0.553)	
Weak Democracy	0.079	-0.244	-0.204	-0.004	0.359	0.544	
	(0.542)	(0.465)	(0.409)	(0.402)	(0.456)	(0.463)	
Democracy							0.691**
							(0.337)
Coef. Test (p-value): $\beta_S = \beta_W$	0.2675	0.0442	0.0375	0.085	0.4164	0.7119	
Countries	151	151	151	151	151	151	151
Observations	4957	4957	4957	4957	4957	4957	4957
Panel D: Democracy Indicator from PS							
Strong Democracy	1.310***	1.320***	1.105***	1.064**	1.053**	1.065**	
	(0.473)	(0.489)	(0.409)	(0.427)	(0.438)	(0.473)	
Weak Democracy	0.39	0.597	1.243	1.307	1.305*	1.246*	
	(0.651)	(0.603)	(0.903)	(0.801)	(0.747)	(0.637)	
Democracy							1.144***
							(0.427)
Coef. Test (p-value): $\beta_S = \beta_W$	0.2095	0.2994	0.8799	0.7683	0.748	0.7969	
Countries	124	124	124	124	124	124	124
Observations	4472	4472	4472	4472	4472	4472	4472

Note: A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5. Effects of Strong and Weak Democracies on GDP Growth: Using More Controls

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	At Least	Regional	Soviet	Outlier	Including
Growth Rate	20 Obs.	Trends	Dummies	Excluded	All
Strong Democracy	1.398***	1.229***	1.135***	0.801***	0.701***
	(0.366)	(0.342)	(0.341)	(0.261)	(0.262)
Weak Democracy	0.044	0.04	0.104	-0.453*	-0.403
	(0.381)	(0.553)	(0.369)	(0.234)	(0.309)
GDP Growth First Lag	0.168**	0.160**	0.165**	0.189***	0.188***
	(0.068)	(0.062)	(0.066)	(0.017)	(0.016)
GDP Growth Second Lag	0.043**	0.023	0.047**	0.040***	0.027*
	(0.021)	(0.022)	(0.020)	(0.013)	(0.015)
GDP Growth Third Lag	0.045**	0.041**	0.046***	0.014	0.02
	(0.018)	(0.019)	(0.017)	(0.013)	(0.015)
GDP Fourth Lag	-3.921***	-4.646***	-3.730***	-2.413***	-2.665***
	(0.782)	(0.745)	(0.779)	(0.317)	(0.407)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0038	0.0376	0.0202	0.0001	0.004
Countries	141	153	153	153	141
Observations	5284	5419	5419	4879	4759
Adjusted R^2	0.152	0.197	0.156	0.249	0.269

Note: Column (1) excludes countries with less than 20 observations of the dependent variable. Column (2) adds regional trends. Column (3) adds interactions between a dummy for Soviet-related countries and dummies for the years 1989, 1990, 1991, and post-1992. Column (4) removes observations with a standardized residual estimated below percentile 5 or above percentile 95. In Column (5), all factors controlled in columns (1)-(4) are controlled. A full set of country and year fixed effects are controlled in all specifications. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6. Effects of Strong and Weak Democracies on GDP Growth: Using Instrumental Variables

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
Growth Rate	Genetic Distance Weighted		Regional Democracy Average		Region+Initial Political Regime	
Strong Democracy	3.61		3.883**		1.967**	
	(3.363)		(1.697)		(0.833)	
Weak Democracy	-2.631		0.699		-0.499	
	(3.433)		(1.833)		(1.808)	
Democracy		21.604		2.01		1.657**
		(39.357)		(1.390)		(0.788)
Hansen Test (p-value)	0.1298	0.3934	0.0073	0.1475	0.016	0.0324
F Tests in First Stage (p-value):						
IV for Strong Democracy	0.0114		0.0047		0.0000	
IV for Weak Democracy	0.1619		0.0008		0.0016	
IV for Democracy		0.5691		0.0002		0.0000
Coef. Test (p-value): $\beta_S = \beta_W$	0.0938		0.0875		0.1525	
Countries	146	146	149	149	149	149
Observations	5271	5271	5241	5241	5206	5206

Note: All columns present results using the 2SLS method. A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7. Effects of Strong and Weak Democracies on GDP Growth: Controlling Development

Dependent Variable: Growth Rate	(1) p15	(2) p25	(3) p35	(4) p45	(5) p55	(6) p65	(7) p75	(8) p85
	Panel A: Using GDP per capita Percentiles for Poor Dummy							
Strong Democracy	1.245***	1.333***	1.698***	1.622***	1.483***	1.434***	1.363***	1.400***
	(0.386)	(0.383)	(0.434)	(0.430)	(0.389)	(0.351)	(0.356)	(0.366)
Weak Democracy	-0.135	-0.094	-0.179	-0.103	-0.022	0.009	0.029	0.072
	(0.404)	(0.436)	(0.465)	(0.437)	(0.412)	(0.395)	(0.387)	(0.385)
Poor Dummy	-3.765***	-4.533***	-4.299***	-3.362***	-2.661**	-1.593**	-1.049	-1.428**
	(0.915)	(1.231)	(1.282)	(0.927)	(1.025)	(0.713)	(0.719)	(0.556)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0056	0.007	0.0018	0.0026	0.0039	0.0026	0.0044	0.0047
	Panel B: Using Secondary Enrollment Rate Percentiles for Poor Dummy							
Strong Democracy	1.596***	1.600***	1.574***	1.491***	1.437***	1.581***	1.601***	1.597***
	(0.536)	(0.537)	(0.556)	(0.531)	(0.497)	(0.511)	(0.536)	(0.537)
Weak Democracy	-0.294	-0.311	-0.315	-0.266	-0.322	-0.289	-0.316	-0.318
	(0.428)	(0.425)	(0.430)	(0.427)	(0.421)	(0.416)	(0.427)	(0.429)
Poor Dummy	-0.413	-0.103	0.218	1.225***	1.708***	1.267**	0.125	-0.139
	(0.719)	(0.439)	(0.451)	(0.426)	(0.552)	(0.508)	(0.442)	(0.321)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0057	0.0051	0.0072	0.0091	0.0058	0.0041	0.0051	0.0053
	Panel C: Using Tertiary Enrollment Rate Percentiles for Poor Dummy							
Strong Democracy	1.218***	1.227***	1.179**	1.164**	1.221***	1.224***	1.226***	1.207***
	(0.462)	(0.459)	(0.455)	(0.477)	(0.462)	(0.456)	(0.459)	(0.455)
Weak Democracy	-0.342	-0.421	-0.409	-0.370	-0.377	-0.394	-0.390	-0.394
	(0.407)	(0.400)	(0.388)	(0.399)	(0.401)	(0.408)	(0.405)	(0.409)
Poor Dummy	-0.558	0.191	0.744	0.513	0.182	-0.311	-0.215	-1.129***
	(0.362)	(0.492)	(0.598)	(0.615)	(0.581)	(0.469)	(0.491)	(0.357)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0080	0.0049	0.0053	0.0093	0.006	0.0055	0.0056	0.0062
	Panel D: Using Industry Share of GDP Percentiles for Poor Dummy							
Strong Democracy	1.725***	1.723***	1.744***	1.764***	1.809***	1.802***	1.862***	1.887***
	(0.502)	(0.500)	(0.504)	(0.519)	(0.522)	(0.520)	(0.505)	(0.491)
Weak Democracy	-0.235	-0.225	-0.217	-0.220	-0.227	-0.230	-0.189	-0.167
	(0.409)	(0.417)	(0.431)	(0.434)	(0.436)	(0.438)	(0.443)	(0.437)
Poor Dummy	-0.515	-0.469	-0.364	-0.690**	-0.706**	-0.689*	-1.084***	-0.999**
	(0.413)	(0.320)	(0.351)	(0.304)	(0.328)	(0.352)	(0.390)	(0.498)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0013	0.0016	0.0020	0.00220	0.0020	0.0020	0.0015	0.0010
	Panel E: Using Urbanization Rate Percentiles for Poor Dummy							
Strong Democracy	1.394***	1.424***	1.394***	1.354***	1.363***	1.395***	1.427***	1.396***
	(0.362)	(0.363)	(0.361)	(0.369)	(0.355)	(0.363)	(0.374)	(0.364)
Weak Democracy	0.034	0.024	0.067	0.034	0.016	0.049	0.036	0.046
	(0.382)	(0.398)	(0.380)	(0.377)	(0.379)	(0.383)	(0.384)	(0.382)
Poor Dummy	-0.261	-0.609	-0.309	1.690	1.280*	-0.098	1.132*	0.253
	(0.777)	(0.600)	(0.852)	(1.340)	(0.751)	(0.662)	(0.675)	(0.396)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0037	0.0033	0.0046	0.0050	0.0035	0.0039	0.0032	0.0039

Note: For each period, the Poor Dummy is equal to 1 if the economic development indicator of a country is lower than the threshold percentile specified in each column, and 0 otherwise. A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 8. Effects of Strong and Weak Democracies on GDP Growth: Controlling Democratic Formats

Adding Covariates:	(1) Democratic Stock	(2) Majoritarian versus Proportional	(3) Parliamentary versus Presidential	(4) All Forms of Democracies	(5) All Covariates
Strong Democracy	1.204***	1.492**	1.635***	1.717***	1.477**
	(0.358)	(0.609)	(0.461)	(0.655)	(0.645)
Weak Democracy	0.07	-0.46	-0.004	0.156	0.256
	(0.376)	(0.606)	(0.441)	(0.707)	(0.694)
Democratic Stock	0.005*				0.008**
	(0.002)				(0.004)
Majoritarian		0.172		0.258	0.484
		(0.640)		(0.647)	(0.635)
Proportional		1.192		1.341	1.299
		(1.161)		(1.190)	(1.053)
Mixed Election System		0.363		0.706	0.694
		(0.737)		(0.815)	(0.783)
Parliamentary			-1.046	-2.415**	-1.304
			(0.669)	(1.212)	(1.006)
Presidential			-1.263**	-1.533	-0.26
			(0.625)	(1.125)	(0.971)
Semi-Presidential			-0.605	-0.623	0.433
			(0.839)	(1.197)	(1.117)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0128	0.0046	0.0055	0.0369	0.1009
Countries	150	149	153	149	149
Observations	5222	3830	5049	3830	3777
Adjusted R^2	0.159	0.105	0.133	0.106	0.112

Note: A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 9. Effects of Strong and Weak Democracies on GDP Growth: Controlling Economic and Demographic Variables

Adding Covariates:	(1) Log of Trade Share	(2) Log of Investment Rate	(3) Log of Inflation Rate	(4) Log of Gov Spending	(5) Log of Primary Enrollment	(6) Log of Secondary Enrollment	(7) Log of Tertiary enrollment	(8) Fertility Rate	(9) Log of Life Expectancy
Strong Democracy	1.574***	1.693***	1.422***	1.606***	1.259***	1.050*	1.449**	1.111***	1.306***
	(0.537)	(0.489)	(0.386)	(0.487)	(0.471)	(0.576)	(0.720)	(0.375)	(0.353)
Weak Democracy	-0.185	-0.064	-0.143	-0.191	-0.217	-0.022	-0.274	0.32	-0.151
	(0.377)	(0.382)	(0.408)	(0.392)	(0.389)	(0.541)	(0.637)	(0.383)	(0.414)
GDP Growth First Lag	0.149**	0.200***	0.148**	0.154*	0.234***	0.217***	0.278***	0.157**	0.159**
	(0.075)	(0.047)	(0.073)	(0.078)	(0.035)	(0.038)	(0.038)	(0.068)	(0.067)
GDP Growth Second Lag	0.027	0.007	0.037	0.021	-0.037	-0.026	-0.034	0.044**	0.046**
	(0.024)	(0.024)	(0.023)	(0.021)	(0.035)	(0.042)	(0.037)	(0.020)	(0.020)
GDP Growth Third Lag	0.014	0.015	0.025	0.025	-0.004	-0.046	-0.016	0.038**	0.041**
	(0.021)	(0.022)	(0.017)	(0.020)	(0.026)	(0.031)	(0.031)	(0.018)	(0.018)
GDP Fourth Lag	-3.617***	-3.513***	-4.479***	-3.549***	-4.773***	-5.049***	-5.790***	-4.285***	-3.802***
	(0.698)	(0.669)	(0.955)	(0.674)	(0.748)	(0.926)	(1.153)	(0.799)	(0.789)
Sum of Covariate Coefficients	0.013	0.007	-0.007	-0.003	-0.006	-0.006	0.002	-0.516	0.023
p-value (Covariate)	0.140	0.162	0.126	0.292	0.394	0.195	0.607	0.009	0.334
Coef. Test (p-value): $\beta_S = \beta_W$	0.005	0.0025	0.0032	0.0034	0.0089	0.1498	0.0772	0.0975	0.003
Countries	150	146	153	146	146	142	134	149	149
Observations	5038	4696	5243	4895	3444	2594	2286	5286	5289
Adjusted R^2	0.14	0.16	0.154	0.131	0.179	0.171	0.258	0.157	0.156

Note: In each column, four lags of the covariate specified in each column label are controlled, and the sum of their coefficients is reported as well as the p-value for joint significance. A full set of country and year fixed effects are controlled in all specifications. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

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Table 10. Potential Mechanisms by Economic Variables

Dependent Variable:	(1) Market Reform Index	(2) Log of Tax Share	(3) Log of Gov Spending	(4) Hyper-Inflation (Dummy)	(5) Log of Gini (Net)	(6) Log of Primary Rate	(7) Log of Secondary Rate	(8) Log of Tertiary Enrollment	(9) Log of Human Capital	(10) Log of Physical Capital	(11) Log of Trade Share	(12) Log of Investment Rate	(13) Log of TFP
Strong Democracy	1.185**	2.682	0.665	-0.040***	0.366	0.698*	1.144	0.91	0.002	0.001	1.454	3.293**	-0.125
	(0.495)	(2.138)	(1.212)	(0.012)	(0.758)	(0.397)	(0.901)	(1.044)	(0.002)	(0.001)	(1.348)	(1.552)	(0.409)
Weak Democracy	0.747	3.569	6.539*	0.01	-2.110***	2.701***	3.379***	-0.402	-0.005***	0.001	2.201	4.964	0.696
	(0.498)	(2.328)	(3.676)	(0.010)	(0.605)	(0.771)	(1.014)	(1.579)	(0.002)	(0.002)	(1.549)	(3.940)	(0.654)
Coef. Test (p-value):													
$\beta_S = \beta_W$	0.4851	0.7532	0.1093	0.0012	0.0106	0.0185	0.0815	0.4824	0.0185	0.965	0.6961	0.6871	0.2883
Countries	122	110	146	143	117	146	138	130	84	134	150	146	88
Observations	3816	3868	4879	4310	2115	3305	2412	2132	2887	3998	5030	4678	3145
Adjusted R^2	0.912	0.62	0.67	0.46	0.895	0.948	0.972	0.974	0.986	0.997	0.732	0.582	0.91

Note: Four lags of dependent variables as well as four lags of GDP per capita are controlled in each column. A full set of country and year fixed effects are controlled in all specifications. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 11. Potential Mechanisms by Demographic Variables

Dependent Variables:	(1) Log of Fertility Rate	(2) Log of Mortality Rate (infant)	(3) Log of Mortality Rate (child)	(4) Log of Birth Rate	(5) Log of Death Rate	(6) Log of Population Growth Rate	(7) Log of Life Expectancy
Strong Democracy	-0.283**	-0.243***	-0.379**	-0.460***	0.022	-0.061**	0.023
	(0.136)	(0.084)	(0.157)	(0.170)	(0.182)	(0.026)	(0.022)
Weak Democracy	-0.155	-0.15	-0.325	0.097	-0.750**	0.077**	0.081
	(0.149)	(0.096)	(0.210)	(0.184)	(0.299)	(0.035)	(0.050)
Coef. Test (p-value):							
$\beta_S = \beta_W$	0.4685	0.43	0.8186	0.0198	0.0215	0.0021	0.2678
Countries	149	153	153	152	152	153	149
Observations	5285	5233	5233	5349	5349	5409	5289
Adjusted R^2	0.994	0.999	0.998	0.988	0.991	0.835	0.998

Note: Four lags of dependent variables as well as four lags of GDP per capita are controlled in each column. A full set of country and year fixed effects are controlled in all specifications. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. $* \ p < 0.1$, $** \ p < 0.05$, $*** \ p < 0.01$.

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Table 12. Potential Mechanisms by Quality of Institutions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable:	Economic Freedom	Legal Infra-structure	Legal Order	Political Corruption	Transparency (HRV Index)	Regime Instability Index	Within Regime Index	Violence Index	Social Unrest
Strong Democracy	0.010***	0.002*	0.00	-0.007**	0.007***	-0.031***	0.027**	-0.009*	-0.120***
	(0.003)	(0.001)	(0.001)	(0.003)	(0.002)	(0.010)	(0.012)	(0.004)	(0.038)
Weak Democracy	0.001	-0.003***	0.00	0.005	-0.001	0.00	0.077***	-0.002	-0.006
	(0.002)	(0.001)	(0.001)	(0.005)	(0.002)	(0.017)	(0.015)	(0.003)	(0.043)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0038	0.0028	0.4226	0.0466	0.0079	0.1051	0.0034	0.165	0.0452
Countries	98	128	127	133	106	148	147	150	144
Observations	2878	4596	4549	4631	2728	4111	3940	4349	4722
Adjusted R^2	0.969	0.886	0.995	0.886	0.896	0.032	0.05	0.19	0.089

Note: Four lags of dependent variables as well as four lags of GDP per capita are controlled in each column. A full set of country and year fixed effects are controlled in all specifications. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 13. Effects of Strong and Weak Democracies on GDP Growth and Mechanisms: Combined Developmental Indicator

Panel A: Baseline Regression and Robustness Checks

Dependent Variable: Growth	(1) Baseline	(2) Adding Democratic Stock	(3) Adding All Forms of Democracies	(4) IV Regional+Initial Political Regime
Strong Democracy	1.689***	1.474***	2.313***	2.580**
	(0.420)	(0.418)	(0.808)	(1.021)
Weak Democracy	0.129	0.127	0.113	-1.530
	(0.334)	(0.330)	(0.558)	(2.350)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0011	0.0045	0.0061	0.0817
Countries	156	153	152	150
Observations	5470	5266	3863	5218

Panel B1: Potential Economic Channels

Economic & Demographic Mechanisms	(1) Market Reform	(2) Log Tax Share	(3) Log Gov. Spending	(4) Hyperinflation (dummy)	(5) Log of Gini	(6) Log Secondary Enrollment	(7) Log Tertiary Enrollment
Strong Democracy	1.258**	2.893	0.188	-0.041***	0.361	0.670	0.634
	(0.562)	(2.581)	(1.364)	(0.014)	(0.805)	(0.859)	(1.123)
Weak Democracy	0.750	3.069	5.352*	-0.005	-1.913***	3.493***	0.211
	(0.459)	(1.908)	(2.907)	(0.011)	(0.583)	(0.996)	(1.390)
Coef. Test (p-value): $\beta_S = \beta_W$	0.4462	0.9507	0.0910	0.0361	0.0219	0.0234	0.8074
Countries	125	112	149	146	118	140	131
Observations	3850	3892	4915	4361	2133	2425	2142

Panel B2: Potential Institutional Channels

Institutional Mechanisms	(1) Economic Freedom	(2) Legal Infrastructure	(3) Legal Order	(4) Political Corruption	(5) Transparency (HRV Index)	(6) Regime Instability	(7) Within Regime Instability	(8) Violence Index	(9) Social Unrest
Strong Democracy	0.009***	0.002*	0.000	-0.011***	0.008***	-0.030**	0.020	-0.013***	-0.111***
	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)	(0.014)	(0.013)	(0.005)	(0.043)
Weak Democracy	0.004	-0.001	0.000	0.004	0.000	0.015	0.067***	0.001	-0.045
	(0.002)	(0.001)	(0.001)	(0.004)	(0.002)	(0.014)	(0.012)	(0.004)	(0.039)
Coef. Test (p-value): $\beta_S = \beta_W$	0.1137	0.0415	0.8311	0.0048	0.0076	0.0195	0.0040	0.0154	0.2321
Countries	100	131	130	136	108	141	149	153	147
Observations	2912	4647	4600	4682	2762	3300	3968	4385	4773

Note: For growth regressions, three lags of growth rates and the fourth lag of GDP per capita are controlled. For mechanism regressions, four lags of dependent variables as well as four lags of GDP per capita are controlled in each column. A full set of country and year fixed effects are controlled in all specifications. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 14. Development and Institutional Quality in Benin and Ghana

| Panel A: Development Conditions at Political Transition Time | | | | | | | | |
	Transition Year	GDP per capita	Secondary Enrollment Ratio	Average Years of Secondary Schooling	Percentage with Secondary Schooling	Tertiary Enrollment Ratio	Industry value added (% of GDP)	Net Gini (%)	Natural Resources Rents (% of GDP)
Benin	1991	610.09	16.87	0.57	8.65	2.42	11.98	-	7.54
Ghana	1996	905.20	37.06	2.38	42.95	-	26.56	35.77	19.00

| Panel B: Growth and Quality of Institutions before and after Democratization | | | | | | | | | | |
	Time Period	Growth	Economic Freedom	Legal Infra-structure	Legal Order	Political Corruption	Transparency (HRV Index)	Regime Instability Index	Within Regime Instability Index	Violence Index	Social Unrest
Benin											
Autocracy	1960-1990	-6.947	-0.023	0.007	0.001	0.003	-0.009	-0.026	-0.078	-0.009	-0.067
Weak Democracy	1991-2010	-7.289	-0.030	-0.002	-0.002	-0.001	-0.011	-0.023	0.015	-0.009	-0.208
Difference		-0.342	-0.007	-0.009	-0.003	-0.004	-0.002	0.003	0.093	0.000	-0.141
Ghana											
Autocracy	1960-1995	-5.814	-0.024	-0.004	-0.002	0.012	-0.013	0.043	-0.079	0.001	-0.051
Strong Democracy	1996-2010	-4.927	-0.014	-0.005	0.005	-0.007	-0.012	-0.020	-0.028	-0.008	-0.185
Difference		0.887	0.010	-0.001	0.007	-0.019	0.001	-0.063	0.051	-0.009	-0.134
Median Level Difference in Third Democratization Wave		0.655	0.003	0.000	0.000	-0.003	0.000	-0.016	0.047	-0.002	-0.076

Note: The values of indicators in panel B are obtained by removing the influences of time trends, income level, and their past levels.

Table 15. Effects of Democracy on Growth: Development in Political Transition Time Matters

Dependent Variable: Growth	(1) p10	(2) p15	(3) p20	(4) p25	(5) p30	(6) p35	(7) p40	(8) p45	(9) p50
Panel A: Weak Development Dummy by GDP in Transition Period									
Democracy	1.073***	1.111***	1.279***	1.394***	1.258***	1.233***	0.906**	1.002***	0.949**
	(0.322)	(0.339)	(0.346)	(0.362)	(0.371)	(0.398)	(0.356)	(0.382)	(0.400)
Dem*WeakDev	-1.020*	-0.892*	-1.200**	-1.346***	-0.762	-0.618	0.024	-0.136	-0.045
	(0.588)	(0.532)	(0.476)	(0.459)	(0.488)	(0.513)	(0.514)	(0.503)	(0.488)
Countries	153	153	153	153	153	153	153	153	153
Observations	5419	5419	5419	5419	5419	5419	5419	5419	5419
Panel B: Weak Development Dummy by Secondary Enrollment Ratio in Transition Period									
Democracy	1.044***	1.139***	1.294***	1.370***	1.271***	1.371***	1.318***	1.502***	1.638***
	(0.381)	(0.379)	(0.389)	(0.412)	(0.425)	(0.437)	(0.462)	(0.527)	(0.547)
Dem*WeakDev	-0.928	-1.289*	-1.562**	-1.365**	-0.901	-1.051*	-0.840	-1.016*	-1.210**
	(0.747)	(0.756)	(0.599)	(0.582)	(0.561)	(0.543)	(0.549)	(0.577)	(0.592)
Countries	148	148	148	148	148	148	148	148	148
Observations	4992	4992	4992	4992	4992	4992	4992	4992	4992
Panel C: Weak Development Dummy by Tertiary Enrollment Ratio in Transition Period									
Democracy	0.917**	1.074***	1.070***	1.182***	1.240***	1.206***	1.387***	1.377***	1.404***
	(0.360)	(0.357)	(0.372)	(0.382)	(0.404)	(0.411)	(0.434)	(0.465)	(0.500)
Dem*WeakDev	-0.561	-1.243**	-0.960	-1.249**	-1.137**	-0.925*	-1.195**	-1.023**	-0.981*
	(0.703)	(0.621)	(0.594)	(0.570)	(0.507)	(0.524)	(0.507)	(0.516)	(0.543)
Countries	140	140	140	140	140	140	140	140	140
Observations	4792	4792	4792	4792	4792	4792	4792	4792	4792
Panel D: Weak Development Dummy by Non-Natural Resources Share of GDP in Transition Period									
Democracy	1.053***	1.188***	1.086***	1.142***	1.153***	1.097***	1.209***	1.275***	1.500***
	(0.320)	(0.319)	(0.308)	(0.316)	(0.331)	(0.337)	(0.365)	(0.372)	(0.386)
Dem*WeakDev	-2.158**	-2.507***	-0.798	-0.839	-0.692	-0.430	-0.594	-0.695	-1.041*
	(0.944)	(0.740)	(0.866)	(0.720)	(0.620)	(0.566)	(0.533)	(0.546)	(0.542)
Countries	145	145	145	145	145	145	145	145	145
Observations	5005	5005	5005	5005	5005	5005	5005	5005	5005
Panel E: Weak Development Dummy by Industry Share of GDP in Transition Period									
Democracy	1.038***	1.065***	1.027***	1.038**	1.126***	1.169***	1.266***	1.069**	1.149***
	(0.377)	(0.385)	(0.379)	(0.400)	(0.402)	(0.412)	(0.440)	(0.411)	(0.437)
Dem*WeakDev	-2.571***	-1.920***	-1.097	-0.816	-1.065	-1.027	-1.134*	-0.532	-0.636
	(0.666)	(0.669)	(0.907)	(0.725)	(0.710)	(0.662)	(0.636)	(0.639)	(0.623)
Countries	138	138	138	138	138	138	138	138	138
Observations	4801	4801	4801	4801	4801	4801	4801	4801	4801
Panel F: Weak Development Dummy by Economic Equality (1-Gini) in Transition Period									
Democracy	1.030***	1.076***	1.049***	1.120***	1.264***	1.324***	1.266***	1.325***	1.506***
	(0.376)	(0.391)	(0.397)	(0.418)	(0.415)	(0.430)	(0.457)	(0.464)	(0.514)
Dem*WeakDev	-1.214**	-1.140**	-0.758	-0.794	-1.163**	-1.128*	-0.858	-0.961	-1.131*
	(0.477)	(0.439)	(0.529)	(0.514)	(0.569)	(0.584)	(0.586)	(0.586)	(0.597)
Countries	132	132	132	132	132	132	132	132	132
Observations	4514	4514	4514	4514	4514	4514	4514	4514	4514

Note: A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online Appendix

Di Sima[*]   Fali Huang[†]

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[*]Email: di.sima.2014@phdecons.smu.edu.sg. Address: 90 Stamford Road, School of Economics, Singapore Management, Singapore 178903.

[†]Email: flhuang@smu.edu.sg. Address: 90 Stamford Road, School of Economics, Singapore Management University, Singapore 178903.

A   The List of Countries Ranked by GDP at Democratic Transition

Table 1. The List of Countries Ranked by GDP at Democratic Transition at 1960-2010

Country	Democratic Period	GDP at Transition	Percentile (%)	Country	Democratic Period	GDP at Transition	Percentile (%)
Mozambique	1994-2010	171.1502	1	Guatemala	1986-2010	2073.067	51
Ethiopia	1995-2004	182.9408	2	El Salvador	1982-2010	2092.554	52
Burundi	2003-2010	207.8334	3	Ukraine	1994-2010	2173.163	53
Liberia	2004-2010	272.1501	4	Fiji	1970-2005	2207.626	54
Sierra Leone	2001-2010	305.0988	5	Colombia	1960-2010	2213.223	55
Malawi	1994-2010	318.2459	6	Belize	1981-2010	2262.883	56
Mali	1992-2010	363.9949	7	St. Vincent & Grenadines	1979-2010	2287.068	57
Nepal	1991-2010	370.3171	8	Dominican Republic	1978-2010	2347.866	58
Niger	1991-2010	384.5782	10	Panama	1960-1967	2350.482	60
Sierra Leone	1961-1966	398.1468	11	Kiribati	1979-2010	2456.222	61
Bangladesh	1991-2010	404.564	12	Micronesia, Fed. Sts.	1991-2010	2461.609	62
Central African Republic	1993-2002	410.1606	13	Marshall Islands	1991-2010	2627.455	63
Madagascar	1993-2008	437.1914	14	Peru	1960-1967	2629.225	64
Botswana	1966-2010	483.0933	15	Paraguay	1993-2010	2736.968	65
Guinea-Bissau	1994-2010	602.3344	16	Congo, Rep.	1992-1996	2766.262	66
Lesotho	1993-2010	688.4974	19	Turkey	1961-2010	2996.58	69
Pakistan	1988-1998	718.3286	20	Namibia	1990-2010	3507.484	70
Kyrgyz Republic	2005-2010	747.5656	21	Macedonia, FYR	1991-2010	3630.235	71
Kenya	2002-2010	836.2352	22	Peru	1980-2010	3749.998	72
Comoros	1990-2010	841.7672	23	Bulgaria	1991-2010	3798.164	73
Senegal	2000-2010	877.9714	24	Panama	1994-2010	4683.453	74
Ghana	1996-2010	905.201	26	Serbia	2006-2010	4896.824	76
Cabo Verde	1991-2010	934.6758	27	St. Kitts and Nevis	1983-2010	5280.635	77
Zambia	1991-2010	1002.85	28	Romania	1990-2010	5345.854	78
Georgia	1995-2010	1011.536	29	Antigua and Barbuda	1981-2010	5556.531	79
Zimbabwe	1978-1986	1040.175	30	Trinidad and Tobago	1962-2010	5589.407	80
Thailand	1974-2010	1046.25	31	Suriname	1988-2010	5799.678	81
Djibouti	1999-2009	1078.589	32	South Africa	1994-2010	5896.009	82
Moldova	1994-2010	1089.854	33	Poland	1990-2010	5953.034	83
Nicaragua	1990-2010	1143.267	35	Russian Federation	1993-2003	7056.162	85
Albania	1992-2010	1243.135	36	Argentina	1983-2010	7173.555	86
Nigeria	1999-2010	1247.828	37	Suriname	1975-1979	7612.023	87
Nigeria	1960-1965	1297.827	38	Korea, Rep.	1988-2010	7688.563	88
Papua New Guinea	1975-2010	1306.062	39	Cyprus	1975-2010	7726.054	89
Mongolia	1993-2010	1363.651	40	Slovak Republic	1993-2010	7792.297	90
Bolivia	1982-2010	1519.169	41	Mexico	1997-2010	7947.241	91
Honduras	1982-2010	1573.672	43	Palau	1994-2010	9434.41	93
Armenia	1991-2010	1598.556	44	Croatia	2000-2010	10572.83	94
Guatemala	1966-1973	1726.455	45	Portugal	1976-2010	10779.3	95
Guyana	1992-2010	1741.748	46	Czech Republic	1993-2010	12277.41	96
Nigeria	1979-1983	1926.418	47	Venezuela, RB	1960-2008	12468.84	97
Vanuatu	1980-2010	2070.262	48	Spain	1978-2010	17343.84	98
Indonesia	1999-2010	2071.238	49	Bahamas, The	1973-2010	19434.7	99

Note: GDP per capita data are from WDI (2015).

B   The List of Strong and Weak Democracies Grouped by Combined Development Indicators

Table 2. Strong and Weak Democracies Grouped by Combined Development Indicators at Democratic Transition

Countries with Weak Democracy (39)		Countries with Strong Democracy (46)	
Bangladesh	Mozambique	Albania	Mexico
Benin	Namibia	Antigua and Barbuda	Micronesia, Fed. Sts.
Botswana	Nepal	Argentina	Moldova
Burundi	Niger	Armenia	Mongolia
Central African Republic	Papua New Guinea	Bahamas, The	Nicaragua
Colombia	Peru	Belize	Nigeria
Congo, Rep.	Senegal	Bulgaria	Panama
Cyprus	Sierra Leone	Cabo Verde	Paraguay
Djibouti	Solomon Islands	Croatia	Poland
Ethiopia	South Africa	Czech Republic	Portugal
Fiji	Suriname	Dominica	Romania
Guinea-Bissau	Uganda	Dominican Republic	Russian Federation
Haiti	Vanuatu	Georgia	Slovak Republic
Honduras	Zambia	Ghana	Spain
Kenya	Zimbabwe	Guatemala	Vincent and the Grenadines
Kyrgyz Republic		Guyana	Suriname
Lesotho		Indonesia	Thailand
Liberia		Kiribati	Trinidad and Tobago
Madagascar		Korea, Rep.	Turkey
Malawi		Macedonia, FYR	Ukraine
Mali		Marshall Islands	Venezuela, RB

Note: The five indicators used to categorize strong and weak democracy are GDP per capita, secondary enrollment rate, tertiary enrollment rate, Gini coefficient, and natural resources.

C   Further Robustness Checks for Growth Regressions

C.1   More Robustness Checks to the Baseline Results

Table 3 contains more robustness checks to the baseline results. In Panel A, the missing values of GDP at political transitions before 1960 are filled with data at 1960. The number of countries goes up to 180. In Panel B, the original democracy data from Acemoglu et al. (Forthcoming) are used, where the gap between Strong and Weak Democracy is significant even at the 30% cutoff. In Panel C, a higher cutoff in polity score, 5, is used to construct the democracy dummy, which is also adopted in other studies (Glaeser et al., 2007; Polity, 2014). The number of countries increases to 138, and the coefficients of Strong Democracy become a bit larger, varying from 0.626 (in column (1)) to 0.908 (in column (5)). In Panel D, we check our results by using Freedom House data set.

The cutoff, 3.5, is employed to build the dichotomous democracy indicator.[1] When the threshold of initial GDP is set below the percentile 25, the effect of Strong Democracy on growth is larger than 1% and is significantly higher than Weak Democracy. In Panel E, more growth lags (6, 9, 12, and 15, respectively) are further controlled in the benchmark regression. In all of these panels, the overall results remain similar to those in the main paper.

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[1]It seems to be relatively high if the cutoff is 5 (the cutoff between "Partial Free" and "Not Free"). For example, there are more than 20% inconsistent observations between the democracy from Boix et al. (2013) and Freedom House, where the latter categorizes more than 90% of these controversial observations into democracy but Boix et al. (2013) classifies these into autocracy. When the cutoff is set at 3.5, the different observations are reduced to less than 10%.

Table 3. The Baseline Results: More Robustness Checks

Dependent Variable:	GDP Percentiles in Political Transition Period as Cutoffs					
	(1)	(2)	(3)	(4)	(5)	(6)
Growth	p15	p20	p25	p30	p35	p40
	Panel A: Filling Missing GDP Data by Values in 1960					
Strong Democracy	1.137***	1.238***	1.044***	0.821***	0.921***	0.821**
	(0.301)	(0.323)	(0.325)	(0.307)	(0.321)	(0.352)
Weak Democracy	0.084	0.137	0.619*	0.883**	0.800**	0.872**
	(0.412)	(0.345)	(0.372)	(0.386)	(0.373)	(0.338)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0243	0.0104	0.3432	0.8936	0.7957	0.9104
Countries	180	180	180	180	180	180
Observations	6261	6261	6261	6261	6261	6261
	Panel B: Original Democracy Indicator Used without Smoothing					
Strong Democracy	1.023***	1.112***	1.116***	1.204***	1.117***	1.115***
	(0.292)	(0.303)	(0.313)	(0.334)	(0.335)	(0.363)
Weak Democracy	-0.018	-0.134	0.106	0.143	0.434	0.511
	(0.450)	(0.409)	(0.367)	(0.321)	(0.364)	(0.353)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0307	0.0063	0.0179	0.0106	0.1268	0.197
Countries	152	152	152	152	152	152
Observations	5399	5399	5399	5399	5399	5399
	Panel C: Democracy Indicator from Polity Data with 5 as Cutoff					
Strong Democracy	0.626*	0.685**	0.812**	0.819**	0.908**	0.856**
	(0.320)	(0.339)	(0.356)	(0.379)	(0.395)	(0.402)
Weak Democracy	-0.424	-0.253	-0.436	-0.211	-0.234	-0.004
	(0.485)	(0.356)	(0.342)	(0.357)	(0.354)	(0.366)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0665	0.0427	0.0085	0.0433	0.0299	0.1072
Countries	138	138	138	138	138	138
Observations	5062	5062	5062	5062	5062	5062
	Panel D: Democracy Indicator from Freedom House with 3.5 as Cutoff					
Strong Democracy	1.139**	1.268**	1.258**	0.826*	0.977**	1.011**
	(0.481)	(0.528)	(0.544)	(0.428)	(0.453)	(0.487)
Weak Democracy	-0.266	-0.181	0.004	0.642	0.502	0.532
	(0.389)	(0.323)	(0.376)	(0.491)	(0.455)	(0.419)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0239	0.0183	0.0538	0.7374	0.3766	0.3661
Countries	160	160	160	160	160	160
Observations	4548	4548	4548	4548	4548	4548

	Panel E: Controlling Different Lags of Growth				
	3 lags	6 lags	9 lags	12 lags	15 lags
Strong Democracy	1.394***	1.394***	1.663***	1.277***	1.636***
	(0.362)	(0.382)	(0.449)	(0.450)	(0.518)
Weak Democracy	0.048	0.039	0.075	-0.065	-0.18
	(0.382)	(0.387)	(0.443)	(0.469)	(0.558)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0039	0.0047	0.0066	0.0234	0.011
Countries	153	153	151	149	146
Observations	5419	5006	4582	4152	3719

Note: A full set of country and year fixed effects are controlled in all specifications. From Panel A to Panel D, three lags of growth rates and the fourth lag of GDP per capita are controlled. In Panel E, more lags of growth rates and corresponding GDP per capita are included. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in the parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Figure 1. Growth Residual Distribution
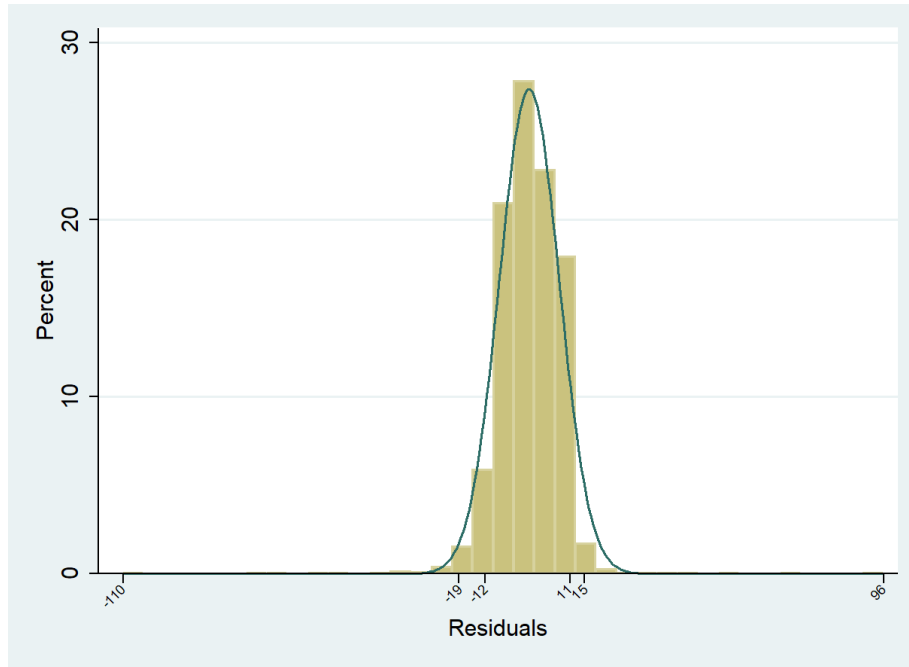
C.2 Dropping Extreme Observations

Figure 1 shows the growth residual distribution from the baseline regression. There are indeed some extreme observations. In the graph, the lowest number -100 is far below the 1st percentile level -19, while the highest residual 95 is well above the 99th percentile at 15. The 5th percentile value is -12 while the 95th is 11. To avoid the influences of such extreme values, we run the baseline regression using observations with standardized residuals between the 1th percentile and the 99th percentile (then $p99$) as well as other ranges. The results are displayed in Table 4. When a small amount of extreme observations are dropped (the first column), the patterns are the same as the baseline one. However, as more outlier observations are removed as in column (2)-column (6), the coefficients of Weak Democracy become significantly negative, indicating that Weak Democracy may actually hurt economic performance. And the differences between Strong and Weak Democracy become much more striking. This pattern is also robust to other regression setups reported in the paper.[2]

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[2]Results are available upon request.

Table 4. Effects of Strong and Weak Democracies on GDP Growth without Extreme Observations

Dependent Variable: Growth	(1)	(2)	(3)	(4)	(5)	(6)
	Dropping Extreme Observations with Residuals outside Specified Ranges					
	P1-P99	P5-P95	P10-P90	p15-p85	P20-P80	P25-P75
Strong Democracy	0.957***	0.801***	0.623**	0.738***	0.763***	0.803***
	(0.284)	(0.261)	(0.253)	(0.261)	(0.249)	(0.228)
Weak Democracy	0.051	-0.453*	-0.635**	-0.570**	-0.807***	-0.742***
	(0.312)	(0.234)	(0.259)	(0.282)	(0.279)	(0.266)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0216	0.0001	0.0001	0.0002	0.0000	0.0000
Countries	5311	4879	4337	3795	3253	2711
Observations	153	153	153	152	152	150
Adjusted R^2	0.1904	0.2486	0.2961	0.3355	0.379	0.4407

Note: A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

C.3 Calculating Long-Run Growth Impact

The growth regression model we used is:

$$g_{it} = \beta_S DStrong_{it} + \beta_W DWeak_{it} + \alpha_1 g_{it-1} + \alpha_2 g_{it-2} + \alpha_3 g_{it-3} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it}.$$

To find the impact of democracy on income in the long run, we re-arrange the regression model after substituting $g_{it} = 100(y_{it} - y_{it-1})$ into the above equation

$$100y_{it} = \beta_S DStrong_{it} + \beta_W DWeak_{it} + 100(1 + \alpha_1)y_{it-1} + 100(\alpha_2 - \alpha_1)y_{it-2} +$$
$$100(\alpha_3 - \alpha_2)y_{it-3} + (\varphi - 100\alpha_3)y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it}.$$

Suppose when $t \to +\infty$, the income level will reach the long run equilibrium values, y_S^* for Strong Democracy and y_W^* for Weak Democracy, respectively. Then the long-run growth effect of Strong Democracy is obtained by

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$$LongEffect_{DStrong} = 100(y_S^* - y_0)$$

$$= \frac{100\hat{\beta}_S}{100 - 100(1 + \hat{\alpha_1} + \hat{\alpha_2} - \hat{\alpha_1} + \hat{\alpha_3} - \hat{\alpha_2} + 0.01\hat{\varphi} - \hat{\alpha_3})}$$

$$= \frac{100\hat{\beta}_S}{-\hat{\varphi}}$$

$$= \frac{100\hat{\beta}_S}{|\hat{\varphi}|},$$

since $\hat{\varphi} < 0$ is always true for the coefficient of the 4th-lagged GDP per capita. Similarly, the long-run growth effect of Weak Democracy is

$$LongEffect_{DWeak} = 100(y_W^* - y_0) = \frac{100\hat{\beta}_W}{-\hat{\varphi}} = \frac{100\hat{\beta}_W}{|\hat{\varphi}|}.$$

C.4 Sensitivity Analysis for Separating the Effects of Democratizations and Reversals

An implicit assumption in the baseline regression is that the effects of democratization and the reversal are of the same magnitude but with opposite signs. To check whether this assumption is reasonable, we consider the following generalization of our model:

$$g_{it} = \beta_S DemStrong_{it} + \gamma_S SReversal_{it} + \beta_W DemWeak_{it}$$
$$+ \gamma_W WReversal_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it}, \tag{1}$$

where $DemStrong$, $DemWeak$, $SReversal$, $WReversal$ represent respectively the cumulative number of strong democratization, weak democratization, and their reversals for country i at time t. We need to check whether $\beta_S + \gamma_S = 0$ and $\beta_W + \gamma_W = 0$ to assess whether their effects are indeed of the same magnitude but with the opposite signs. The two conditions do hold in Table 5, where results of this generalized model are presented using different cutoffs.

Table 5. Effects of Strong and Weak Democracies on GDP Growth with Reversals

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
Growth	p15	p20	p25	p30	p35	p40
DemStrong	1.071***	1.235***	1.353***	1.243***	1.221***	0.890**
	(0.363)	(0.371)	(0.387)	(0.397)	(0.425)	(0.390)
SReversal	-1.334***	-1.554***	-1.634***	-1.108**	-1.088**	-0.858*
	(0.509)	(0.549)	(0.552)	(0.439)	(0.456)	(0.447)
DemWeak	0.162	0.041	0.011	0.399	0.528	0.860*
	(0.515)	(0.446)	(0.405)	(0.429)	(0.419)	(0.447)
WReversal	-0.600	-0.251	-0.245	-1.373	-1.440	-1.540
	(1.818)	(1.266)	(1.265)	(1.111)	(1.082)	(1.041)
Coef.Test (p-value): $\beta_S = \beta_W$	0.1036	0.0160	0.0051	0.093	0.1893	0.9546
Coef.Test (p-value): $\beta_S + \gamma_S = 0$	0.6296	0.5833	0.6288	0.7822	0.7905	0.9516
Coef.Test (p-value): $\beta_W + \gamma_W = 0$	0.8183	0.8741	0.8595	0.3988	0.4176	0.5300
Countries	153	153	153	153	153	153
Observations	5419	5419	5419	5419	5419	5419
Adjusted R^2	0.1507	0.1511	0.1513	0.1508	0.1507	0.1504

Note: A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

C.5 The Process of Building IVs

Suppose the genetic distance of country j to country i is $Gene_{ij}$. It is normalized to the interval $[0, 1]$ by a reverse order based on

$$\widehat{Gene}_{ij} = \frac{max\{Gene_{ij}\} - Gene_{ij}}{max\{Gene_{ij}\} - min\{Gene_{ij}\}},$$

and then used to calculate the genetic weight δ_{ij} via

$$\delta_{ij} = \frac{\widehat{Gene}_{ij}}{\sum_{k \neq i}^{k \in G_i} \widehat{Gene}_{ik}}$$

to ensure that the weights sum up to 1 for each country i, where G_i is the set of genetically related countries of country i. Through this transformation, the closer the genetic distance between country i and country j, the higher the weight of country j for country i. Finally, the genetic weighted instruments $\widehat{DStrong}_{it}^{F,IV}$ and $\widehat{DWeak}_{it}^{F,IV}$ are computed as follows

$$\widehat{DStrong}_{it}^{F,IV} = \sum_{j \neq i}^{j \in G_i} \delta_{ij} DStrong_{jt},$$

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$$\widetilde{DWeak}_{it}^{F,IV} = \sum_{\substack{j\neq i}}^{j\in G_i} \delta_{ij} DWeak_{jt}.$$

The Regional Democratization Wave IVs are constructed as follows. Let R denote a set of regions. Each country i belongs to one region r, where N_{rt} is the number of countries in region r at time t. The two instrumental variables $DStrong_{it}^{F,IV}$ and $DWeak_{it}^{F,IV}$ are calculated via

$$DStrong_{it}^{F,IV} = \frac{1}{N_{rt}-1} \sum_{j\neq i, i\in R, j\in R} DStrong_{jt},$$

$$DWeak_{it}^{F,IV} = \frac{1}{N_{rt}-1} \sum_{j\neq i, i\in R, j\in R} DWeak_{jt}.$$

Alternatively, if only countries with the same initial political institution in the region are influential, we can calculate another set of IVs in a similar way. Let the initial political institution of country i is D_{it_0}, where t_0 is the initial time of the sample. N'_{rt} is the number of countries in the same region with the same initial political institution. Then, $\widetilde{DStrong}_{it}^{F,IV}$ and $\widetilde{DWeak}_{it}^{F,IV}$ are calculated via

$$\widetilde{DStrong}_{it}^{F,IV} = \frac{1}{N'_{rt}-1} \sum_{\substack{j\neq i, i\in R, j\in R \\ D_{jt_0}=D_{it_0}}} DStrong_{jt},$$

$$\widetilde{DWeak}_{it}^{F,IV} = \frac{1}{N'_{rt}-1} \sum_{\substack{j\neq i, i\in R, j\in R \\ D_{jt_0}=D_{it_0}}} DWeak_{jt}.$$

C.6 IV Regressions by Using Alternative Cultural and Regional Information

In the main paper, we report results using genetic distance from Spolaore and Wacziarg (2016) and regional data provided by WDI to build IVs. Here, we use alternative genetic distance from Spolaore and Wacziarg (2016) and regional data provided by Quality of Government Dataset (QOG) to construct IVs. The results are still similar, which are shown in Table 6.

Table 6. Effects of Strong and Weak Democracies on GDP Growth: Using Other Instrumental Variables

Dependent Variable: Growth	(1)	(2)	(3)	(4)	(5)	(6)
IV	Genetic Distance (all groups)		Region (QOG)		Region(QOG)+Initial Political Institution	
Strong Democracy	4.563		4.736*		3.102**	
	(7.046)		(2.463)		(1.335)	
Weak Democracy	-0.969		0.881		0.066	
	(4.061)		(1.889)		(1.739)	
Democracy		-3.634		3.601*		2.706**
		(9.303)		(1.930)		(1.174)
Hansen Test (p-value)	0.0484	0.091	0.0001	0.0015	0.0004	0.0011
F test in First Stage (p-value)						
IV for Strong Democracy	0.0134		0.0342		0.00	
IV for Weak Democracy	0.2714		0.0009		0.0084	
IV for Democracy		0.2384		0.0003		0.00
Coef. Test (p-value): $\beta_S = \beta_W$	0.236		0.0944		0.1156	
Countries	144	144	149	149	148	148
Observations	5248	5248	5237	5237	5149	5149

Note: All columns present results using the 2SLS method. A full set of country and year fixed effects are controlled in all specifications as well as three lags of growth rates and the fourth lag of GDP per capita. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D   More Evidence on Benin and Ghana

D.1   Graphs Related with Two Countries: Benin and Ghana

These graphs plot the institutional qualities in Benin and Ghana, with a focus on the average performances before and after democratization. To precisely explore the effect of political transition on the influence of these indicators, we remove the dynamic effects of the corresponding indicator and income, as well as the effect of time trend.
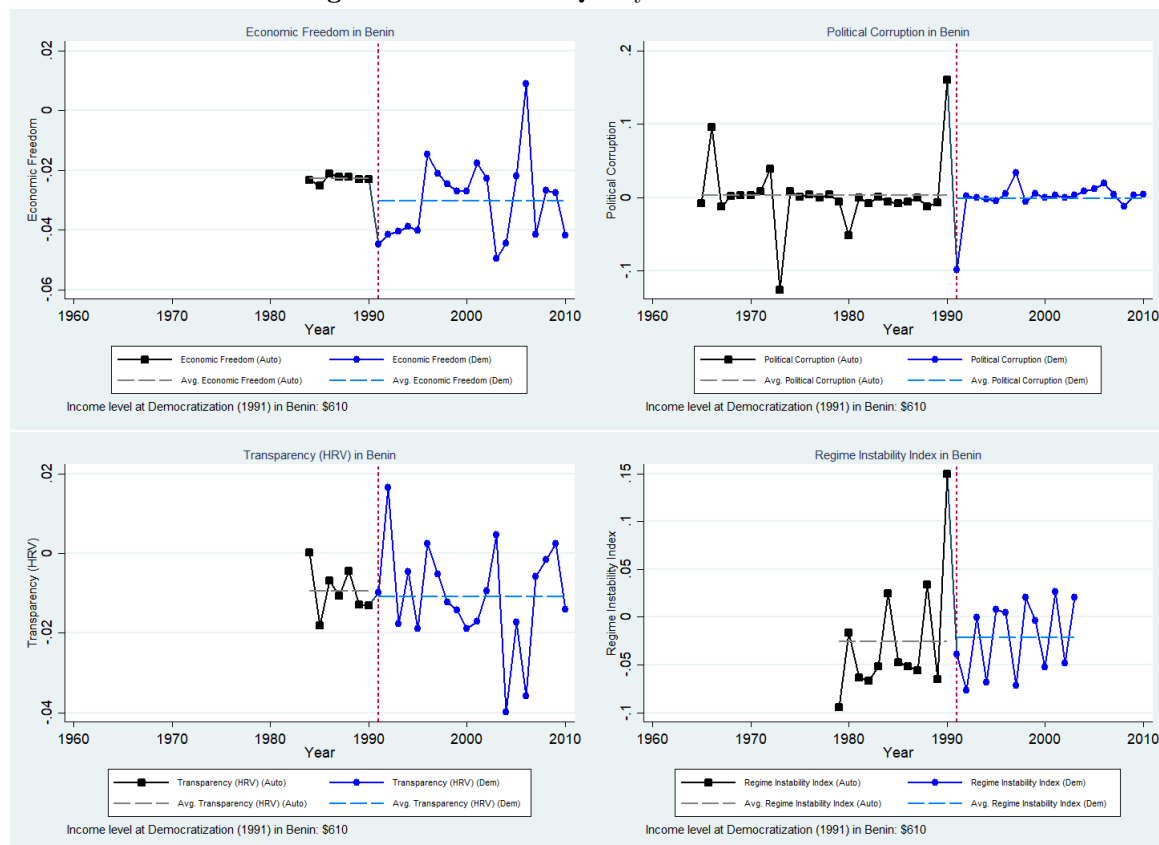
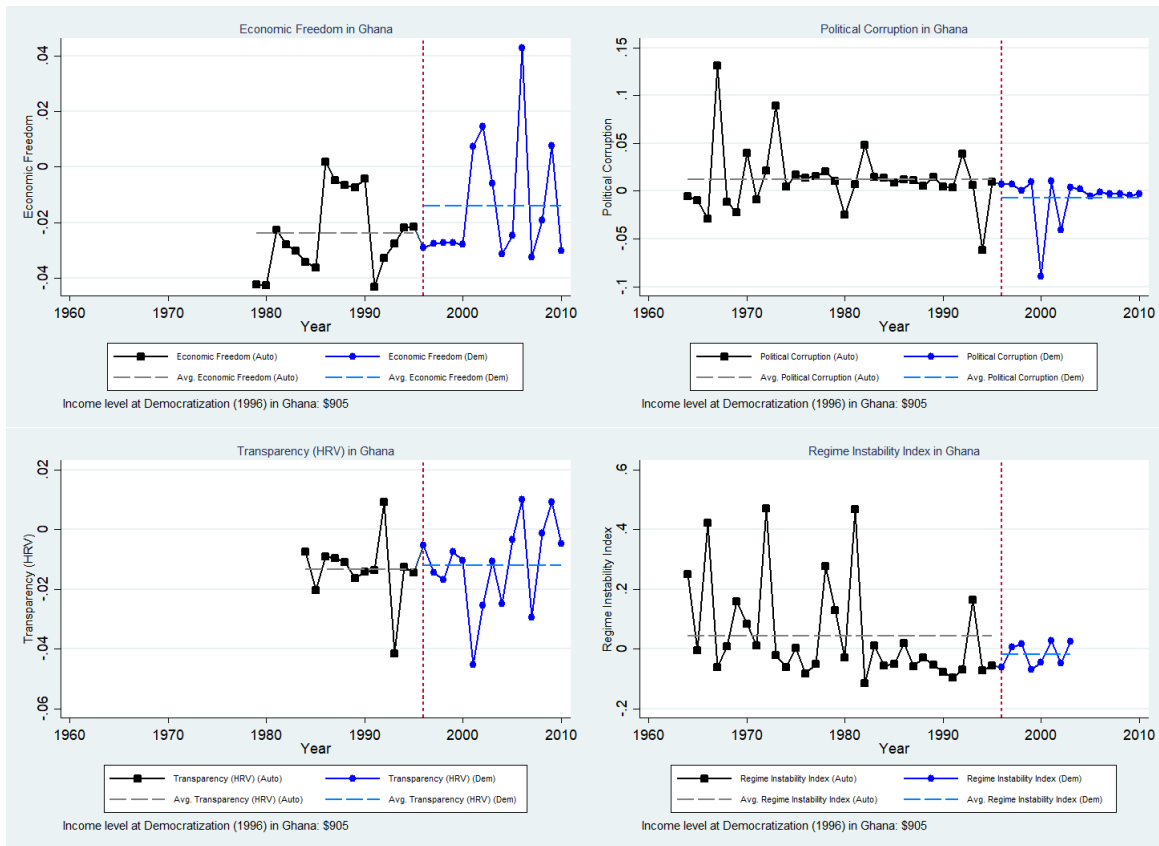**Figure 2.** Institutional Quality Indicators in Benin

Figure 3. Institutional Quality Indicators in Ghana

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D.2 World Governance Indicators for Africa's Democracies

This table compares Benin and Ghana with other African democratic countries.

Table 7. World Governance Indicators for Africa's Democracies: Average from 1996 to 2010

Country	Freedom House	Polity Score	Rule of Law	Control of Corruption	Government Effectiveness	Regulatory Quality	Voice and Accountability
Benin	2.10	6.33	-0.47	-0.58	-0.44	-0.38	0.26
Ghana	2.20	5.60	-0.10	-0.16	-0.05	-0.15	0.22
Other Democratic Countries in Africa							
Cabo Verde	1.23	9.33	0.46	0.73	0.09	-0.18	0.79
Lesotho	3.17	6.67	-0.13	0.01	-0.24	-0.53	-0.14
Namibia	2.30	6.00	0.17	0.38	0.15	0.19	0.36
Senegal	3.13	5.33	-0.16	-0.25	-0.23	-0.23	0.03
South Africa	1.67	9.00	0.09	0.42	0.61	0.55	0.68

D.3 Growth and Quality of Institutions before and after Democratization: Benin and Ghana

This table reproduces Panel B in Table 14 of the main text using raw data. The basic pattern remains.

Table **8**. Growth and Quality of Institutions before and after Democratization: Benin and Ghana

	Time Period	(1) Growth	(2) Economic Freedom	(3) Legal Infrastructure	(4) Legal Order	(5) Political Corruption	(6) Transparency (HRV Index)	(7) Regime Instability Index	(8) Within Regime Instability Index	(9) Violence Index	(10) Social Unrest
Benin											
Autocracy	1960-1990	0.511	0.470	0.173	0.363	0.596	0.375	0.054	0.034	0.005	0.188
Weak Democracy	1991-2010	0.946	0.511	0.220	0.584	0.667	0.401	0.045	0.224	0.000	0.050
Difference		0.435	0.041	0.047	0.221	0.071	0.026	-0.009	0.190	-0.005	-0.138
Ghana											
Autocracy	1960-1995	-0.493	0.312	0.082	0.493	0.688	0.359	0.109	0.036	0.019	0.250
Strong Democracy	1996-2010	2.670	0.633	0.110	0.598	0.614	0.374	0.036	0.148	0.000	0.000
Difference		3.163	0.321	0.028	0.105	-0.074	0.015	-0.073	0.112	-0.019	-0.250
Median Level Difference in Third Democratization Wave		0.655	0.156	0.020	0.133	-0.005	0.040	-0.011	0.107	0.000	-0.071

E Further Robustness Checks for Mechanism Regressions

E.1 The Effects on Rule of Law

To explore the effects of Strong Democracy and Weak Democracy on the rule of law measured by other indicators in the literature, we use the cross-country regression model from Sunde et al. (2008) $m_i = \beta_S DStrong_i + \beta_W DWeak_i + \alpha\lambda_i + \varepsilon_i$, where m_i is the average level of rule of law between 2005 and 2010,[3] and λ_i is the vector of other control variables. Rule of law indicators are from Skaaning (2010), Freedom House, Worldwide Governance Indicator, Welzel (2013), and Quality of Governance data set. Results in Table 9 show that the rule of law is much higher in Strong Democracy than Weak Democracy, and their gaps are always significant.

Table 9. Effects of Strong and Weak Democracies on Rule of Law

	(1)	(2)	(3)	(4)	(5)
			Worldwide		Quality
Rule of Law Indicator	Bertelsmann	Freedom	Governance	Christian	of
	Stiftung	House	Indicator	Welzel	Governance
Strong Democracy	3.046***	6.856***	0.880***	0.177***	0.117***
	(0.268)	(0.593)	(0.165)	(0.033)	(0.040)
Weak Democracy	2.110***	4.837***	0.332*	0.065*	0.015
	(0.352)	(0.786)	(0.185)	(0.037)	(0.038)
Tropical Land Share	0.038	-2.996	-0.196	-0.025	-0.225
	(1.062)	(3.235)	(1.073)	(0.220)	(0.243)
Tropical Population Share	-0.675	0.829	-0.457	-0.104	0.034
	(1.019)	(3.168)	(1.039)	(0.213)	(0.233)
Language Fractionalization	-0.143	1.656	0.017	-0.004	0.013
	(0.542)	(1.216)	(0.345)	(0.071)	(0.068)
Religion Fractionalization	1.016**	2.314**	0.397	0.071	0.069
	(0.507)	(1.001)	(0.294)	(0.060)	(0.064)
Ethnic Fractionalization	-0.045	-3.420**	-0.881**	-0.167*	-0.167*
	(0.644)	(1.362)	(0.435)	(0.089)	(0.087)
Oil Dummy (OPEC Related)	0.126	0.226	0.468	0.096	0.023
	(0.305)	(1.059)	(0.389)	(0.080)	(0.075)
Coef. Test (p-value): $\beta_S = \beta_W$	0.0098	0.0174	0.0061	0.0051	0.0097
Observations	95	127	127	125	104
Adjusted R^2	0.585	0.641	0.411	0.399	0.415

Note: Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

E.2 The Effects on Human Capital Related Indicators

The first three columns in Table 10 replicate results on human capital in Table 10 of the paper using the same smaller sample. The main pattern still holds, where even though enrollments of

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[3]We choose 2005 as the baseline year because afterwards there is no change in political institutions in most countries, and most indicators for rule of law are available only from 2000.

Table 10. Effects of Strong and Weak Democracies on Human Capital Indicators

Dependent Variable:	(1) Log of Human Capital per capita	(2) Log of Primary Enrollment	(3) Log of Secondary Enrollment	(4) Log of Labor Participation Rate
Strong Democracy	0.002	1.192*	1.859	0.069
	(0.003)	(0.632)	(1.208)	(0.083)
Weak Democracy	-0.006*	5.197***	3.471***	-0.291**
	(0.003)	(1.951)	(1.091)	(0.145)
Coef.Test (p-value):$\beta_S = \beta_W$	0.1164	0.0435	0.2975	0.0243
Countries	80	80	80	125
Observations	1371	1371	1371	3751

Note: A full set of country and year fixed effects are controlled in all specifications as well as four lags of GDP per capita and dependent variables. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

primary and secondary schools are increased more in Weak Democracy, the human capital stock is lower. Note that the human capital stock per capita combines information on average schooling, return of education, as well as labor share in the whole population. In column (4), we find that Weak Democracy reduces the labor participation rate[4], while Strong Democracy does not. This result may reconcile the seemingly inconsistent results between different indicators of human capital.

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[4]Labor participation rate is the proportion of the population aged 15 and older and economically active.

F Data Sources

Indicators from World Development Indicators (2015 Edition): **Birth Rate, Death Rate, Enrollment Rates, Fertility Rat**e, **GDP per capita, Government Spending Share of GDP, Inflation Rate, Industry Share of GDP, Investment Rate, Life Expectancy, Mortality Rate, Natural Resources Share of GDP, Population Growth Rate, Regional Area (WDI), Trade Share of GDP, Urbanization Rate, Agriculture Share of GDP, Labor Participation Rate, Manufacturing Share of GDP.**

Indicators from Quality of Government Data Set: **HRV (Transparency) Index, Economic Freedom, Forms of Democracy**[5]**, Ethnic Fractionalization, Language Fractionalization, Religion Fractionalization, Rule of Law, Regional Area (QOG).**

Indicator from World Bank Governance Index Data Set: **Rule of Law, Control of Corruption, Government Effectiveness, Regulatory Quality, Voice and Accountability.**

Indicators from Acemoglu et al. (Forthcoming): **Democracy, Market Reform Index, Social Unrest, Tax Revenue, TFP, Tropics Land Share, Tropics Population Share.**

Indicators from Aisen and Veiga (2013): **Human Capital per capita, Physical Capital per capita, Regime Instability Index, Within Regime Instability Index, Violence Index.**

Alternative Democracy indicators are from Boix et al. (2013), Cheibub et al. (2010), Papaioannou and Siourounis (2008), and Polity IV.

Democratic Capital (Democratic Stock) is extracted from Gerring et al. (2005).

Hyperinflation is a dummy variable, which is equal to 1 if the inflation rate (CPI) exceeds 50%, and 0 otherwise.

Two rule of law related indicators are from Nardulli et al. (2013):

Legal Infrastructure refers to a set of entities and processes that are essential to the creation, development, and operation of a viable legal order. Infrastructures include legal educational programs, vehicles to conduct formalized legal discourse, and bodies that regulate legal professionals.

Legal Order refers to a distinctive type of rule-based governance, one that relies on (1) transparent and formally institutionalized rules to order human behavior and interactions and (2) the structured deployment of coercion to enforce rules.

Net Gini Coefficient is from Solt (2016).

Soviet-Related Countries include Ex-Yugoslav countries, Ex-Soviet countries, and Soviet satellite countries. Ex-Yugoslav countries include: Bosnia & Herzegovina, Croatia, Macedonia, Serbia & Montenegro, Slovenia. Ex-Soviet countries include: Estonia, Latvia, Lithuania, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan, Armenia, Azerbaijan, Georgia, Russian

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[5]We combine Regime Institutions (Cheibub et al., 2010), Political System (The Database of Political Institutions), and Institution (Bormann and Golder, 2013) to construct dummy variables of Parliamentary Democracy, Mixed (semi-presidential) democracy and Presidential democracy. Electoral System (Bormann and Golder, 2013) and Electoral Family (Norris, 2009) are used to generate three dummy variables to represent Majoritarian Election System, Proportional Election System, and Mixed System.

Federation, Belarus, Moldova, Ukraine. Ex-Soviet satellite countries: Albania, Poland, Bulgaria, Romania, Czech Republic, Hungary, Slovak Republic.

Two Genetic Distance related indicators are from Spolaore and Wacziarg (2016):

Weighted Genetic Distance (main group) represents the expected genetic distance between two randomly selected individuals, one from each country. Individual is only selected by the main group in each country.

Weighted Genetic Distance (all groups) represents the expected genetic distance between two randomly selected individuals, one from each country. Individual is selected from all groups in each country.

Political Corruption Index is from V-Dem Project Coppedge et al. (2017). The index is the average of public sector corruption index, executive corruption index , the indicator for legislative corruption, and the indicator for judicial corruption.

Oil Dummy is from Cervellati et al. (2014), indicating members and former members of OPEC.

Share of Labor in Agriculture is from Wingender (2014). The share of the labor force employed in agriculture.

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