Is Democracy Good for Growth? —Institutional Quality Matters (Incomplete Draft, Please Do Not Circulate)[*]

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Abstract

Is democracy good or bad for growth? This paper shows that democracy can be quite good for growth if it is a strong democracy, otherwise the effect on growth is not much better than that of autocracy. In the baseline results, the annual growth rates of GDP per capita are increased by about 1.2% on average after democratization in countries where democracy functions well enough. The results are robust to various change of data sets, control variables, or criteria that categorize a democracy into strong or weak. Strong democracies have better economic development in the beginning, and their overall institutional quality is also better.

Keywords: Democracy, Growth, Economic Development, Institutions, Political Corruption, Political Instability.

JEL Codes: D73, O10, O43, P16

1 Introduction

Beginning in December 2010, the desire for democracy in the Arab World culminated in a wave of protests, riots, and demonstrations that spread throughout the nations of the Arab League and the surrounding area. The desire for the improvement in economic opportunities and performances were the main triggers for the uprisings (Campante and Chor, 2012).

While the majority of people around the world seem to be quite confident that democracy brings with it an improvement in living standards[1], the effects of democracy on economic performances are still highly controversial among political and economic researchers. Some earlier studies, mostly using cross-country growth regression models, suggest that democracy has an economically small and statistically insignificant effect on economic growth (Hall and Jones, 1999; Przeworski et al., 1995; Sirowy and Inkeles, 1990). Gerring et al. (2005) reviews the related literature and concludes that *the net effect of democracy on growth over the last five decades is negative or null* . After analyzing 470 regression estimates from 81 studies of the effects of democracy on economic growth, Doucouliagos and Ulubaolu (2008) find that about three quarters of the estimates related to this issue are not significantly positive. Using meta-regression analysis for these 470 estimates, they don't detect direct effects of democracy on growth.

Recently, some scholars find that democracy has great impacts on economic performances by using new democracy datasets (Grndler and Krieger, 2015; Acemoglu et al., 2015; Papaioannou and Siourounis, 2008), advanced econometric technologies (Acemoglu et al., 2015; Persson and Tabellini, 2007) , and novel external IVs (Madsen et al., 2015; Acemoglu et al., 2015).

Some researchers find the heterogeneous effects of democracy on growth. Persson and Tabellini (2009) and Gerring et al. (2005) find that historical experience with democracy,

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[1] The World Value Survey (2014) finds that 79% of the global population wish to live in a country that is governed democratically. This preference is not only prevalent in countries with a long democratic tradition (United States: 78.7%, Sweden: 91.9), but can also be found in Islamic states (Pakistan: 78.3, Malaysia: 86.6), African nations (Rwanda: 74.1, Zimbabwe: 86.1), South America (Chile: 83.4, Ecuador: 84.2), and Asia (China: 80.6, South Korea: 86.0).

named democratic capital, stimulates growth while the level of democracy doesn't have strong positive effects on growth. Persson (2005) shows that the forms of democracy, not democracy vs. non-democracy, have important consequences for the adoption of structural policies that impact long-run economic growth. Aghion et al. (2007) provide evidence that political rights are conducive to growth in more advanced sectors of an economy, while they do not matter or have a negative effect on growth in sectors far away from the technological frontier.
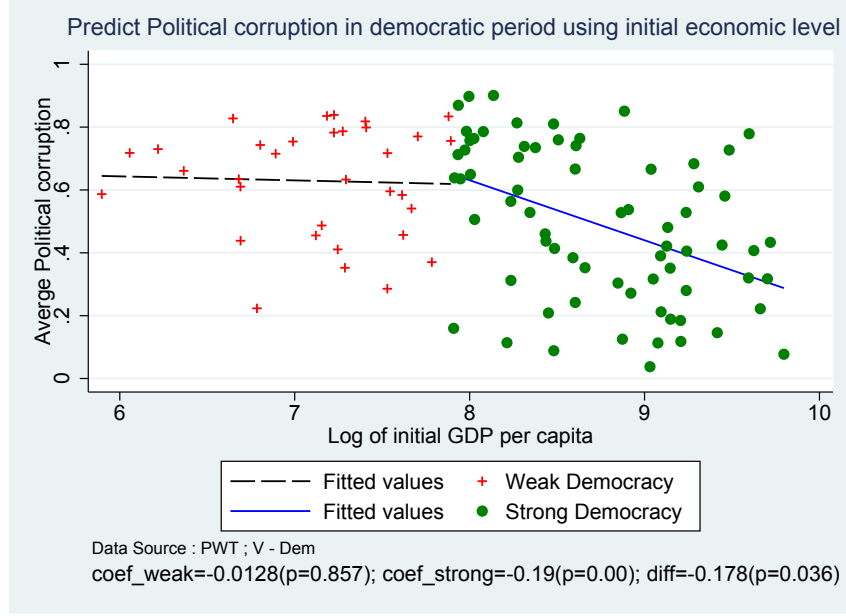
In order to address the question why and under which conditions the functions of democracy could be unleash, and what makes some of them improve economic performance while others malfunction, we study the heterogeneous effects of democracy on growth. We argue that initial economic conditions (could be measured by GDP per capita, urbanization ratio, non-agriculture share of GDP, and technology distance) matter, which have great influences on the functions of democracy after the political transition, like political corruptions and political instabilities, then impact the effects of democracy on growth. If the initial economic conditions really play important roles in the functions of democracy, we may observe that, once a certain threshold is reached, the higher the initial economic condition is, the better the functions of democracy are, while there may be not such relationship when the initial economic level is below the certain threshold.

The figure 1 is the link between the log form of initial GDP per capita and average level of political corruption[2] in the democratic country after the political reform. We set the threshold at the bottom 30th percentile ($p30$) of these initial GDP per capita in the countries with democratizations. We see that below $p30$, there is no significantly negative relationship between initial GDP per capita and average political corruption level in the democratic periods (the coefficient is 0.013, with the p-value 0.857). However, above the threshold, higher initial GDP per capita is associated with lower political corruption (the coefficient is -0.190, with the p-value 0.00. The difference is significant between the two coefficients,

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[2] Aggregate four political corruption dimensions: Judicial system, Public sector, Legislature system and Executive system. Detailed information on these indicators is shown in the Appendix 7.

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Figure 1: Relationship between initial economic condition and political corruption after democratization

Predict Political corruption in democratic period using initial economic level

Fitted values — Weak Democracy +
Fitted values — Strong Democracy •

Data Source : PWT ; V - Dem
coef_weak=-0.0128(p=0.857); coef_strong=-0.19(p=0.00); diff=-0.178(p=0.036)

with p-value 0.036), meaning that the functions of democracy could be well performed if the initial GDP per capita is larger than the threshold ($p30$), and people in these countries enjoy low level of corruptions after political transitions. We also find the similar pattern when initial urbanization ratio is used as a proxy of initial economic condition (Figure 2 in the Appendix 7).

This finding motivates us to categorize democracy into two types according to their initial economic levels[3]. One type democracy is **Strong Democracy**, which the initial economic levels[4] in the country after democratization are relatively favorable and larger than a certain threshold, then, the functions of democracy could be well unleashed. The other type is **Weak Democracy**, which the initial economic conditions are low and the roles of democracy may not be fully exploited.

Our main contribution is that different types of democracies (strong vs. weak) determined

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[3] We mainly use GDP per capita in this paper, similar results will be obtained using other indicators, like urbanization rate, technology distance, non-agriculture share of GDP, etc. These results are reported in the Table 9, 10, 11, 12.

[4] E.g., higher GDP per capita, urban population share, non-agriculture share of GDP, industry share of GDP, secondary educated population share.

by initial economic conditions have distinct influences on economic performances. Especially, strong democracy has a sizeable, positive and significant effect on economic development, while the effect of weak democracy is negligible and insignificant.

The second contribution is that the main differences between the two types of democracies are the functions of the political system on corruptions and political instabilities. Strong democracy works very well, the corruptions in all political dimensions are dramatically reduced. It also effectively lowers the political instabilities. However, corruptions are not inhibited in those weak democratic countries. And it seems not mitigate conflicts, and political stabilities don't improve, even worse in some dimensions. These finding, actually, bridge the gap between the institutionalism view (Acemoglu and Robinson, 2012; Acemoglu et al., 2001), focusing on institutions as the fundamental determinant of development, and modernization theory (Glaeser et al., 2004; Lipset, 1959), maintaining that the process of modernization, comprising, inter alia, economic growth, and structural change, that drives institutional change and then influence the economic growth. From our study, the initial level of economic developments do impact the qualities of political institutions, then, affect the democracy on economic performance. On the other hand, when the functions of democracy could be well unleashed (strong democracy), democracy itself also has great influences on stimulating GDP growth rate.

The third contribution is associated with political instabilities and economic performances. Some researchers (Aisen and Veiga, 2013) argue that it is political stability not democracy itself benefits growth. We push this further and find that initial economic conditions of political-reforming countries impact the political stabilities. In addition, it may be rush to conclude that democracy doesn't matter on growth. Considering that political instabilities are the potential channels through which strong democracy improves economic growth, it is natural that the insignificant coefficient of democracy could be obtained if the indicators of democracies and political instabilities are in the regressions at the same time to study economic performances. The political instabilities variables are *bad controls* in the

sense that they are part of the causal effects that the strong democracy impacts the growth (Angrist and Pischke, 2008).

Our fourth contribution is that the democracy, no matter strong or weak, promotes social welfares measured by fertility rate, infant or child mortality rate, as well as death rate. This finding is in line with literature on democracy and social welfare (Acemoglu et al., 2015; Gerring et al., 2012; Przeworski, 2000). But the two types of democracy have opposite effects of population growth. Strong democracy reduce population growth, which echoes the study of Przeworski (2000), finding that the democracy may reduce the policy instability and through which decreases the population growth, then improve economic growth. Our study refines this opinion and suggests that it is the strong democracy has such effect, not the otherwise.

The rest of the paper is organized as follows. The next section discusses the theoretical and empirical literature on the relationship between democracy and growth. Section 3 describes our grouping strategy and shows some preliminary evidence on the differences between two two types of democracy on political dimensions. Also, it provides data sources and descriptive statistics for our sample. Section 4 explains our identification strategy and then presents our dynamic panel model results. Section 5 presents a variety of robustness checks. Section 6 provides evidence on potential channels through which strong democracy affects growth while weak democracy does not. Section 7 concludes.

2   Literature Review

The studies on the relationship between democracy and economic development are hot topic in political science and economics. But the link is ambiguous, both theoretically and empirically.

On the theoretical side, some scholars emphasize the inefficiencies of democracy. De Tocqueville (2003) and Huntington (2006) fear populist demands for consumption and expropria-

tion. The distortions caused by incumbent politicians running excessive deficits to guarantee re-election (Besley and Coate, 1998). Potential political gridlock in democracy is emphasized by March and Olsen (1983). Olson (1993) suggests that interest group politics in the democracy can lead to stagnation. Many economists argue that democracies engage in distortionary redistribution, and by doing so could discourage economic growth (Persson and Tabellini, 1994).

Other theories of democratization stress how representative institutions contribute to growth. Democracies may redistribute by investing in education or public goods, and by doing so could increase economic growth (Saint-Paul and Verdier, 1993; Benabou, 1996; Lizzeri and Persico, 2004). Wittman (1989) suggests that transaction costs of sociopolitical organization could be minimized in democracy. Sen (1999) argues that one of the advantages of democratic rule is gathering and transmitting information with lower costs. Commitment issues are well solved in democratic institutions (Olson, 1993). Acemoglu and Robinson (2012) believe that democracy is a component of the broader bundle of inclusive political institutions, for example, constraining kleptocratic dictators, reducing social unrest, or preventing politically powerful groups from monopolizing lucrative economic opportunities, through which benefit growth. Feng (1997) and Alesina et al. (1996) emphasize that increased political stability enhances national and foreign investment.

Empirically, econometric regression results could be found to support both sides. Many empirical studies (mainly in the earlier studies) confirm that democracy has negligible, ambiguous or even negative effects on economic growth. Cross-country regression analyses, such as Tavares and Wacziarg (2001), Helliwell (1994), and Barro (1996, 1999), have produced negative, though generally inconsistent, results. Murtin and Wacziarg (2014), Giavazzi and Tabellini (2005), and Burkhart and Lewis-Beck (1994), estimate insignificant effects on growth using panel data techniques.

Many recent empirical studies, contrary to the earlier studies, find that democracy or democratization has a positive, sizeable and significant effect on growth. The failure of finding

positive effects of democracy on growth may be partly due to the large measurement errors of democracy. Grndler and Krieger (2015) use a novel approach for measuring democracy based on Support Vector Machines (a mathematical algorithm for pattern recognition). Acemoglu et al. (2015) introduce a new dichotomous measure of democracy that consolidates the information from several sources. Papaioannou and Siourounis (2008) employ a new dataset of political transitions during the Third Wave of Democratization and identify the timing and characterize the nature of each transition precisely through numerous political archives, historical resources, and election databases. All of these papers find that democratizations have benefits on economic growth.

In addition, some economists (Acemoglu et al., 2015; Brckner and Ciccone, 2011) find that democratizations are on average preceded by a temporary dip in GDP or growth rate, the failure to capture this property will lead to biased estimates of democracy on GDP or growth rate. A dynamic linear panel model that includes autoregressive dynamics, as well as year and country fixed effects, could partly control for both the influence of unobserved fixed country characteristics and serially-correlated dynamic of GDP or its growth rate. Acemoglu et al. (2015), Grndler and Krieger (2015), Madsen et al. (2015) and Persson and Tabellini (2006b), estimate positive effects using dynamic panel data techniques. Persson and Tabellini (2006a) report an average negative effect of departure from democracy on growth. Similarly, Meyersson (2015), who distinguishes the difference between the successful and unsuccessful coups, finds that there are negative effects of successful coups on economic performance.

Some researchers argue that there exist the heterogeneous effects of democracy on growth. The heterogeneous effects may depend on technology distance (Aghion et al., 2007), forms of democracy (Persson, 2005), democracy stock (Persson and Tabellini, 2007; Gerring et al., 2005) and initial economic levels (Huang, 2012a; Barro, 2003, 1996).

In this paper, we try to address the question why and under which conditions the functions of democracy could be unleash, and what makes some of them improve economic performance while others malfunction. In other word, we want to find heterogeneous effects of democracy

on growth. We argue that the economic conditions matter, which have great influences on the functions of democracy, like political corruptions and political stabilities, then impact the effects of democracy on growth.

In other words, the initial economic levels of new-born democratic countries could predict the functions of democracy. From the analysis of Huang (2012a) , political stabilities of democratic countries are determined by the benefits and costs of coups, which largely depend on technical features of main production factors used in production functions in these countries. For the countries with low initial economic levels after democratizations, their main production factors are land, natural resources, and raw labor. These factors are endowed by nature. Land and natural resources are difficult to destroy and create. Raw labor is easy to be replaced. Then, elites in these democratic countries could launch coups without so many costs. Therefore, it may lead to high conflict intentions and political instabilities. Furthermore, elites in these countries are also able to use *soft* ways to distort the functions of democracy rather than dramatically change the political systems. Then, the masses in these democratic countries do not enjoy the improvement of rule of law, clean governments, eventually, weaken the positive effects of democracy on economic growth.

However, for the countries with relatively favorable economic conditions after political reforms, their predominant production factors are physical and human capital. They have to be produced endogenously by investment and are relatively difficult to be plundered without costs. Even political powerful actors confiscate physical capital, its almost impossible to occupy the know-how knowledge and the business networks of the entrepreneurs. Likewise, elites could control the masses, but it is difficult to force them to work hard since human capital is a built-in asset, or what Barzel (1977) calls full-fledged property. So, the costs of reversing political institutions are high while the benefits of the coups are small. Meanwhile, the masses living in these democratic countries have more bargaining powers. Then, they not only contribute the political stabilities but also promote the functions of democracy like preventions of political corruptions and improvement of transparency of governments,

eventually boost economic growth.

3   Data and Descriptive Statistics

3.1   Construct Strong Democracy and Weak Democracy Indicators

We construct an annual panel that comprises 172 countries from 1960 to 2010. In order to categorize countries into different types of democracies after political transitions, we mainly use dichotomous democracy data of Acemoglu et al. (2015) to identify the timing of political transitions[5]. Considering the availability of economic conditions data for all political-reforming countries, we use GDP per capita[6] as a proxy for the economic development level[7].

In the Appendix 7, we explain in detailed grouping process. Here we provide an overview. After identifying all cases of political transitions, we use the GDP per capita of the transition year in the political-reforming country as the initial economic condition. With these initial GDP per capita data in hand, we set the cutoff at the bottom 30th percentile[8] (*p30*). Next, based on the dichotomous measure of democracy from Acemoglu, we generate two types of

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[5] We also employ other types of democracy data, including: Polity IV, Cheibub et al. (2010)-henceforth CGVand Boix et al. (2012)-henceforth BMR, and Papaioannou and Siourounis (2008)-PS. , the main results are quite similar

[6] Since some countries transited to democracy before 1960 after WWII, we have to rely on GDP per capita from PWT (9.0) that starts from 1950. It is a little smaller sample compared with WDI, but since we only need data of the countries that experience political reforms to group them, only 9 countries data are missed, including: Guyana, Kiribati, Papua New Guinea, Somalia, Sudan. After categorizing these countries, we employ growth rate and GDP per capita from WDI to do the regressions.

[7] We use other indicators to represent economic level, including: urban population share, technology distance, non-agriculture share of GDP, and industry sahre of GDP, the baseline results are similar. They are presented in the section 5.

[8] Other cutoffs are also used to group, including *p20*, *p25*,*p30*, *p35*, *p40*, etc. and the results are reported in Table 4, we mainly use *p30* of these GDP per capita data to do the subsequent regressions.

democracy:

$$Dstrong_{it} = \begin{cases} 1 & \text{if } Democracy_{it} = 1,\ initial\_GDPper_i > Threshold \\ \\ 0 & \text{Otherwise.} \end{cases}$$

$$Dweak_{it} = \begin{cases} 1 & \text{if } Democracy_{it} = 1,\ initial\_GDPper_i \leq Threshold \\ \\ 0 & \text{Otherwise.} \end{cases}$$

We identify 113 democratizations. If the cutoff is *p30*, 34 (30.1%) democracies in the countries in some periods are grouped into weak democracy type, while the rest are into strong democracy type. The democratic country-year in these two groups is listed in Table 1.

3.1.1 Some evidence on the differences between strong democracy and weak democracy

As argued in Section 1 and 2, the functions of democracy may be not fully exerted when the country with very low initial economic level. Then, political corruptions, and political instabilities may be still worring. On the contrary, these political outcomes will be better than autocratic countries and weak democratic countries when the countries with relatively better economic conditions that implement political reforms.

Table 2 reports the basic statistical information of groups among autocracy, weak democracy, and strong democracy on political outcome indicators (corruptions, transparency and political instabilities, etc.). T-tests are implemented to explore the differences between different groups mean on each indicator.

There are some patterns. First, in almost all the dimensions, autocracy group is significantly different with democracy groups (strong and weak) on each indicator, although

the difference between autocracy group and strong democracy are more striking. Second, in most cases, political variables in the strong democracy group are sounder than the weak democracy one, like corruptions, and political stabilities, which provide some preliminary evidence that our grouping strategy is valid.

Further, as show in the Introduction part, initial economic level of the political-reforming country is a great predictor for the average level of political outcomes during the democratic periods. For weak democratic countries which their initial economic levels are below a certain threshold, the functions of their democracies don't work well. Then, we will not observe the clear correlations between the initial economic condition and the subsequent political outcome variables. However, for strong democratic countries which their initial economic levels are above the threshold, the functions of their democracies will be well performed. As their initial economic levels are higher, the main production functions in these countries rely more on physical and human capital. Then, the costs of coups are larger but the benefits are smaller, and the bargaining powers of the masses are stronger. All of these help the democracy better unleash its functions. So, the negative link may be shown between the initial per capita income and hereafter corruptions (Figure[9] 3, 4, 5, and 6), regime instability (Figure 7), whereas, the positive relationship may appear between the initial GDP per capita and the transparency index (Figure 8).

To summarize, we observe sharp improvements in the political outcomes for strong democratic countries, while there are not so large enhancements for weak democratic countries. Then our grouping strategy captures a bundle of institutions that characterize political outputs. The two preliminary evidence boost our confidences that it is reasonable to divide the democracy in the political-transition countries into two types, named **weak democracy** and **strong democracy** according to their initial economic levels.

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[9] All the figures are in the Appendix 7.

3.2   Other Data

The dependent variable is the annual log difference in GDP per capita. The data come from World Development Indicators of World Bank (2015 edition) and cover a maximum of 172 countries in the 1960-2010 period. The Appendix 7 gives detailed variable definitions and sources of other indicators we use in the paper.

Table 3 presents descriptive statistics of the main economic and demographic variables that we use in the study separately for strong, weak democracies and autocracies. The raw data show several patterns between autocracies and democracies (especially, the strong one). For example, strong democracies have more educated populations, higher life expectancy, lower mortality rate, fertility rate, as well as birth rate and death rate, then lower population growth rate. But, there seem no obvious differences on investment share of GDP, government spending share, TFP (PWT) among different political regimes. Additionally, there are some interesting differences among the three groups on education. Although strong democracies are best in all level of educations, autocracies put more resources on higher educations, while the opposite is true for weak democracies. This seems consistent with the opinion of Huang (2012b), who suggests that autocratic countries need educated people with the general knowledge. Elites could enhance their skills of manipulating states or political rent-seeking skills from higher education. For democratic countries, they pay more attention on the mass education, then, use more public resources to support primary education.

4   Identification Strategy and Baseline Results

4.1   Identification strategy

In this subsection, we provide our econometric model and the identification strategy.

As mentioned in the introduction, our approach to estimating the heterogeneous effects of democracy on GDP per capita growth rate[10] is to posit a fully dynamic model for growth

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[10] The reason that we use GDP per capita growth rate rather than GDP per capita itself is that the

rate process. We define $g_{it} = y_{it} - y_{it-1}$, and y is the log form of GDP per capita and assume the following dynamic panel model:

$$g_{it} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it} \qquad (1)$$

Where g_{it} is the GDP per capita growth rate in country i at time t, and $Dstrong_{it}$ is our dichotomous measure of strong democracy in country i at time t. $Dweak_{it}$ is our dichotomous measure of weak democracy in country i at time t. The λ_i denote a full set of country fixed effects, which will absorb the impact of any time-invariant country characteristics, and the δ_t denote a full set of year fixed effects. The error term ε_{it} includes all other time-varying unobservable shocks to GDP per capita growth rate. The specification includes $\sum_{j=1}^{3} \alpha_j g_{it-j}$, 3 lags GDP per capita growth rate on the right-hand side to control for the dynamics of growth rate as discussed in the Introduction.

The model specification follows Knutsen (2013) and Papaioannou and Siourounis (2008). Another strand of the literature regress the level of GDP per capita income on democracy[11] (Madsen et al., 2015; Acemoglu et al., 2015; Murtin and Wacziarg, 2014). From regression results, in most cases, all the three coefficients of lags of growth rate are significantly different

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dynamic coefficients of growth rate are usually far away from 1, we don't need to implement unit root tests. And, the estimates of democratic coefficients are the same using these two dependent variables, see the detailed analysis at footnote 11.

[11] Actually, the estimates of coefficients on democracy are totally the same if GDP per capita (log form) level equations use p lags of GDP per capita as explanatory variables while growth rate equation uses p-1 growth rate and p-lagged of GDP per capita as explanatory variables.

$$g_{it} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it}$$

The above model could be transformed the following one:

$$y_{it} - y_{it-1} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{3} \alpha_j (y_{it-j} - y_{it-j-1}) + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it}$$

After arrangements, the below regression model will be obtained:

$$y_{it} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{4} \alpha_j^* y_{it-j} + \lambda_i + \delta_t + \varepsilon_{it}$$

Therefore, the estimates of the two types of democracy (strong and weak) are not changed.

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with zero[12].

Following the assumption made by Acemoglu et al. (2015), letting t_0 denote the first year in the sample (1961), we impose the similar assumption:

$$E(\varepsilon_{it}|g_{it-1}, ..., g_{it_0}, Dweak_{it}, ..., Dweak_{it_0}, Dstrong_{it}, ..., Dstrong_{it_0}, \lambda_i, \delta_t) = 0 \qquad (2)$$

This condition is for all g_{it},$Dstrong_{it}$,$Dweak_{it}$,λ_i,δ_t and for all i and $t > t_0$ (t_0 is the first year the country enter the sample.)

It implies that democracy (including strong and weak) and past growth rate and the 4-laged of GDP per capita are orthogonal to contemporaneous and future shocks to GDP growth rate, and that the error term ε_{it} is serially uncorrelated. It requires sufficient many lags of growth rate to be included in equation 1 both to eliminate the residual serial correlation in the error term of this equation and to remove the influence of the dip in growth rate that precedes the democratization.

Under this assumption, the equation can be estimated using the standard within estimator. Throughout, we transform all ratio indicators (e.g., growth rate, investment rate etc.) into percent forms to ease its interpretation. To deal with serial correlation, we use cluster standard errors at the country level in all regressions. This is also a common principle in the more recent literature (Madsen et al., 2015; Papaioannou and Siourounis, 2008), Country-level clustering allows for an unrestricted covariance structure of the residuals within countries, thus relaxing the assumption that the error terms in all countries follow the same process.

4.2   Baseline results

There are two aims in our paper. First, we want to know whether there are positive correlations between GDP per capita growth rate and democracies (weak democracy and strong

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[12] We also use more than 3 lags of GDP per capita growth rate to check our results. The main regressions results are quite similar (Results are reported in the Table 21 in the Appendix 7.).

democracy). That is to find whether β_1 and β_2 are positive significantly. More importantly, we would like to explore the heterogeneous effects of democracy on growth. Equally, we check whether β_2 is significantly larger than β_1.

As argued before, we don't know the precise threshold to identify strong democratic countries and weak democratic countries. Thus, we set a cutoff at *p20*, *p25*, *p30*, *p35*, and *p40* respectively and use the above regression model to estimate. After using different thresholds to group the democratic countries, columns 1-5 of Table 4 report the within estimates controlling for 3 lags of growth rate.

We can see the same pattern in the first three columns, the coefficients of Dstrong, β_2 (strong democracy) are positive and statistically significant at the 1% level, while estimates of Dweak, β_1 (weak democracy) yield negligible and statistically insignificant coefficients, although they are positive.

But, the pattern is changed when we set the cutoff at a higher level, *p35* and *p40*. Both Dweak and Dstrong are now significant and positive, and these two coefficients are not statistically different. Since some of the previous strong democratic countries are in weak democracy group now, they contribute the significantly positive effects of weak democracy on growth. We use the cutoff at p30 as our grouping criterion in the rest of our regressions.

In the last two columns, we also report the results using modified democracy[13] data and original democracy data of Acemoglu. The values of the coefficients of these two democracies are between the values of Dstrong and Dweak. And the unit standard deviation of democracy, 0.308 (0.2627/0.8522) is slightly larger than the one of Dstrong (from 0.264 to 0.28), which verifies our grouping strategy and refines the positive effects of democracy on economic performance. For the dynamic estimates in all columns, the estimates of the three lags of growth rates are all significantly positive and far away from 1, which motivates us to use 3 lags of growth rate as explanatory variables at the right side of the regression model. Also, the coefficients of y_{it-4} (4-lagged of log of GDP per capita) are always statistically negative,

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[13] Detailed information could be found in the Appendix 7

indicating the conditional convergence effect of economic growth.

Next, robustness checks are enforced to examine the validity of our grouping strategy. We also implement some robustness checks that previous literature uses to explore whether our baseline results still hold or not.

5 Robustness checks

5.1 Sensitivity analysis for using other economic level indicators to group the two types of democracies.

In the baseline result, we use GDP per capita as the proxy of economic development level to categorize these democratic countries into different groups. In this subsection, we use other indicators (including urban population share, technology distance, non-agriculture share, industry share) representing economic levels to group the democratic countries. The similar baseline regressions are implemented[14]:

$$g_{it} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \gamma X_{it-1} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it} \qquad (3)$$

where X represents the variable we use to group two types of democracy.

Similar results (Table 5, 6, 7, 8) are obtained. When the cutoffs are lower (usually at $p20$ or $p25$), the coefficients of strong democracies are significant and positive while they are insignificant for the coefficients of weak ones. The significant differences between the two coefficients could be found when we use urban population share (Table 5) and technology distance (Table 6) to group these democratic countries. Therefore, our baseline results are robust by using other economic indicators to represent economic development level.

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[14] In order to control the impact of these indicators on growth, the lag of grouping indicator is added in each regression.

5.2 Sensitivity analysis for using other democracy indicators

One of the problems of studying the link between democracy and economic development is that the results, in some sense, are very sensitive to the democracy data sources the researchers use. Some researchers (Acemoglu et al., 2015; Grndler and Krieger, 2015; Papaioannou and Siourounis, 2008) believe that there are large measurement errors in these indicators, which motivates them to construct new indicators to measure political institutions. In our paper, we mainly rely on the democracy data source from Acemoglu, which combines information from several datasets, including two major sources: Freedom House and Polity IV, three secondary sources: BMR, CGV and PS[15]. We use the four datasets of democracy[16] (Polity IV, BMR, CGV and PS) to check whether our baseline results are robust or not. The same grouping process and regressions are implemented. The results are reported in Table 9, 10, 11 and 12. The similiar results are obtained.

There are some patterns needed to stress. First, in almost cases, the coefficients of strong democracy are significantly positive. Second, in all cases, below a certain threshold (usually below *p30*), the coefficients of strong democracy are positive and significant, while the estimates of weak democracy are not. In addition, these two coefficients are significantly different in some cases when we use CGV, Polity IV and PS datasets, which are consistent with our baseline results using Acemoglus dataset. Third, weak democracy seems have negative effects on growth when the democracy datasets of Polity IV and CGV[17] are used. Fourth, we still find the positive and significant effect of strong democracy on growth even though no

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[15] The detailed information on these democracy indicators are mentioned in Appendix 7.

[16] We don't use Freedom House datasets, because it starts from 1972 and misses many political transition information before 1972. Additionally, for these political reforms were happened before 1972, we cannot employ this dataset to identify the transition timing. For Polity IV, we follow the method of Persson and Tabellini (2007) and define Democracy=1 if $polity2 > 0$, Democracy=0 otherwise. For PS dataset, we update it to 2010. Only some countries situation are changed, including: Djibouti from partial democracy to autocratic, Ethiopia from partial democracy to reversal, Fiji from democratic to intermediate, Thailand from full to partial democracy, Iran from borderline democracy to autocratic, and Liberia from authoritarian to borderline. We drop political set-back cases and treat full/partial/borderline cases as political reforms.

[17] The coefficients of weak democracy become negative and significant when we drop the observations with a standardized residual of the country above 1.96 or below -1.96. Detailed regression results are in the Table 22 in the Appendix 7.

such effect is found using democracy indicator without grouping, like Polity IV. The failure of finding the positive effect of democracy using Polity IV dataset motivates Persson and Tabellini (2007) to take advantage of a novel econometric technique, combined difference-in-difference estimates with matching based on the propensity score. This also stimulates others (Acemoglu et al., 2015; Grndler and Krieger, 2015; Papaioannou and Siourounis, 2008) construct new democracy datasets. From our results, it may also partly lead from missing to distinguish two types of democracy, in our terminology, *Strong Democracy* and *Weak Democracy*. Therefore, the two problems on this study are equally important: heterogeneous effects of democracy on growth and measurement errors of democracy datasets.

5.3 Sensitivity analysis for controlling other types of heterogeneous effects of democracy on growth

One possible concern of our basic grouping strategy (only use initial economic level) is that it seems to ignore the democratic experience to the effect of democracy on economic performance. Take the democracy in India for example, we group it into weak democracy since the initial GDP per capita is very low[18]. However, the democracy in India is not interrupted since it was independent. Then, it is possible that as people living in India have more experiences about democracy, they gradually learn to use negotiation to solve their conflicting interests rather than fighting with each other, then making their democracy institution stronger as time goes on. So, it is better to add the indicator measured democracy experience, or democracy stock to check whether our baseline results hold or not. We use the following regression model:

$$g_{it} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \gamma X_{it} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it} \qquad (4)$$

where X_{it} represents the lag of Democracy stock.

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[18] Real GDP per capita at 1950 was only 804.76 US$, PWT 9.0.
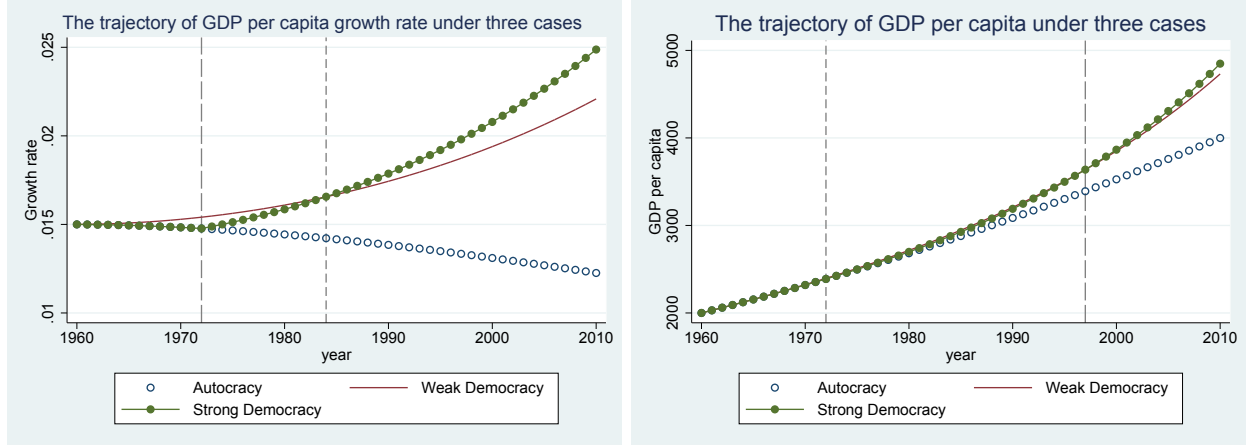
We use democratic stock data from Gerring et al. (2005) and update it to 2010. The result is reported at the first column of Table 13. Our baseline results still hold. But, democracy stock also matters, the coefficient of lag of democracy stock is 0.00446, with standard deviation 0.0023. Then, it is fair to say that, the total effects of weak democracy (including current and stock) will gradually have significantly positive effect on economic performance as people are continuously living in democratic system for a long time and more democratic experience is obtained.

When we only focus on the effect of democracy on economic performance, then, a very interesting question is emerged. Whether it is good for a country to transit to democratic system when its economic conditions are not good, e.g., low GDP per capita/urban population share/non-agriculture share, etc. According to our study, the answer may be not. If this country waits and improves economic performance, then reform its political system later, it will fully unleash the functions of democracy after the political transition, therefore both the democratic stock and the level of democracy have significantly positive effect on growth and will have greater effects on economic performance than the weak one.

The two graphs above well explain our idea. Suppose country j with 2000 \$ GDP per capita was independent at 1960 and the growth rate was 1.5% at beginning[19]. It had no democratic experience before. We set the threshold of becoming strong democracy is 2400

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[19] It is the average growth rate for all autocratic countries. see the Table 2.

$ GDP per capita and assume that $polity = 8$ each year after democratization[20].

In situation (a), it never become democracy and $polity = -4$ every year. Then the negative democratic stock has an adverse effect on growth rate. The trajectory of growth rate and income per capita are the hollow circles in the graphs, respectively. In situation (b), it became democracy after independence. Then, it is a weak democracy. And only democratic stock positively stimulates economic development. The trajectory of growth rate and income per capita are the lines in the two graphs, respectively. In situation (c), this country improves its economic conditions, firstly. After 12 years development, the income per capita is over 2400 $ (The GDP per capita will be 2423.7 $ at 1973), democratic system is implemented. It is a strong democracy. Then, both democratic stock and level of democracy boost economic growth. The trajectory of growth rate and income per capita are dots-lines in the graphs, respectively. Although it growth a slightly slower than weak democracy case at the first 12 years, but then the growth rate speeds up and is higher than the weak democracy case after 1984, eventually, not long, the GDP per capita of strong democracy case exceeds the weak one (after 1997). On economic growth perspective, not rush to democracy may be a good strategy for the countries with low economic levels. After strengthening their economic conditions and then democratizations, they could jump into the fast lane of growth.

As mentioned in Session 2, some findings of heterogeneous effect may be forms of democracy (Persson, 2005). It may be interesting to test whether the heterogeneous effects of democracy we mention still hold after adding other types of heterogeneous effects[21]. We still use the regression equation 4. And X_{it} represent the forms of democracy. Column 2-3 add forms of democracy[22]. The last column, we add all these indicators. In all these results, strong democracy has a positive and sizable effect on growth while weak democracy has little effect on growth. But, forms of democracy don't play a great role in growth, which is

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[20] We use polity data to construct democratic stock, following the method of Gerring et al. (2005).

[21] We use technology distance, measured by GDP per capita divided by the largest GDP per capita at that year, to group different types of democracy and similar baseline results are reported in the Table 6 in the Appendix 7.

[22] Detail variables definitions on the forms of democracy are displayed in the Appendix7.

different with the results of Persson (2005).

5.4 Sensitivity analysis for separating the effect of democratizations and reversals

In the regressions, we use Dweak and Dstrong to explore the effects of two type democracies on growth. However, from our setting, dynamic panel model forces democratizations and reversals to have effects of the same magnitude but of opposite sign. This may be a potential problem. We need to check whether this hidden assumption is reasonable or not.

We follow the constructing process of Acemoglu et al. (2015) to generate Demweak, Demstrong, Reversal representing the cumulative number of weak democratizations, strong democratizations and reversals for the country.

To do so, we let:

$$Demstrong_{it} = \sum_{t' \leq t} \Delta Dstrong_{it} 1\{\Delta Dstrong_{it} = 1\} \tag{5}$$

$$Demweak_{it} = \sum_{t' \leq t} \Delta Dweak_{it} 1\{\Delta Dweak_{it} = 1\} \tag{6}$$

$$
\begin{aligned}
Reversal_{it} &= \sum_{t' \leq t} \Delta D_{it} 1\{\Delta D_{it} = -1\} \\
&= \sum_{t' \leq t} [\Delta Dweak_{it} 1\{\Delta Dweak_{it} = -1\} + \Delta Dstrong_{it} 1\{\Delta Dstrong_{it} = -1\}]
\end{aligned}
\tag{7}
$$

Denote the cumulative number of strong democratization, weak democratization and reversals for country i at time t. Notice that $\Delta Demstrong_{it} = 1(\Delta Demweak_{it} = 1)$ if there is a strong(weak) democratization at t, and $\Delta Reversal_{it} = 1$ if there is a reversal, while $\Delta Demstrong_{it} = \Delta Demweak_{it} = \Delta Reversal_{it} = 0$ otherwise. This implies that democracy (including weak and strong democracy) can be decomposed as: $D_{it} = Demstrong_{it} + Demweak_{it} - Reversal_{it}$, with $Demstrong_{it}(Demweak_{it})$ capturing the within-country vari-

ation in $Dstrong_{it}(Dweak_{it})$ driven by strong (weak) democratizations and $Reversal_{it}$ cap-
turing the within-country variation in D_{it} driven by reversals.

Using this terminology, we consider the following generalization of our model:

$$g_{it} = \beta_1 Demweak_{it} + \beta_2 Demstrong_{it} + \gamma Reversal_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \varphi y_{it-4} + \lambda_i + \delta_t + \varepsilon_{it} \quad (8)$$

Then, we have to check whether $\beta_1 + \gamma = 0$ and $\beta_2 + \gamma = 0$ (effects of the same magnitude
but of the opposite signs). Table 14 presents the estimates of this model using different
cutoffs. The results are great. Our baseline results hold. In addition, the coefficient tests
indicate that the effects are similar for Demweak and Reversal, Demstrong and Reversal,
but the signs are opposite.

5.5 Sensitivity analysis for the smaller sample, regional trends, Soviet countries, and outliers test.

The within estimates of the dynamic panel model in Table 15 have an asymptotic bias of
order 1/T, which is known as the Nickell bias. This bias results from the failure of strict
exogeneity in dynamic panel models (Nickell, 1981; Alvarez and Arellano, 2003). Monte
Carlo studies show that the bias sharply decays when the time horizon exceeds 20 periods
(Judson and Owen, 1999). Because T is fairly large in our panel (on average, each country
is observed 35.2 times), this bias should be small in our setting.

In order to explain the negligible Nickell bias in our model, we exclude those countries
with less than 20 time-series observations from our sample[23]. The result presents in column
1 of Table 15. It is consistent with our baseline results, implying that Nickell bias in our
model is very small.

Following Papaioannou and Siourounis (2008), we control region-specific time trends at
the right side of the regression model. The estimates on the indicators variable Dstrong is

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[23] Papaioannou and Siourounis (2008) and Persson and Tabellini (2006b) use the similar method.

positive and significant while Dweak is insignificant in the second column. One concern is whether our results are largely driven by the transition to democracy of Soviet and Soviet satellite countries. To address this issue, we follow the method of Acemoglu et al. (2015), column 3 adds interactions between a dummy for Soviet satellite countries[24] and dummies for the years 1989, 1990, 1991, and post-1992. These controls have little impact on our results.

In column 4, we further exclude the countries that whose observations are less than 20. The results are very similar with column 3.

In column 5, we explore the sensitivity of our baseline results to outliers. We exclude the observations with a standardized residual of the country above 1.96 or below -1.96 (keep the observations whose standardized residuals are between *p5* and *p95*). The result further supports our theory. Dstrong is significantly positive while Dweak is even negative[25], though it is not significant.

5.6   Sensitivity analysis for controlling covariates

Next, in Table 16 we report models that control for standard growth covariates (Barro, 2013; Papaioannou and Siourounis, 2008), mainly to explore whether the heterogeneous effects of democracies documented in the baseline models, operates through capital accumulation or sound government and trade policies. Combining the models of Acemoglu et al. (2015) and Papaioannou and Siourounis (2008), we estimate the following regressions, adding 4 lags of covariates and regional trends at the right side of regression:

$$g_{it} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{3} \alpha_j g_{it-j} + \sum_{j=1}^{4} \gamma_j X_{it-j} + \varphi y_{it-4} + T_t + \lambda_i + \delta_t + \varepsilon_{it} \quad (9)$$

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[24] These countries (total 27) include: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russian Federation, Serbia and Montenegro, Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

[25] We find significantly negative effect of weak democracy on growth when implementing outlier tests using some other democracy datasets presented in Table 22 in the Appendix 7.

where T_t represents regional time trends. It is the region dummy variable multiplied by the time effect. X_{it-j} is the jth lag of the covariate X.

We control life expectancy, trade share, investment share, inflation, government consumption, primary enrollment rate, secondary enrollment rate, tertiary enrollment rate and fertility one by one. Next, we control all these covariates in one regression. The motivation for including additional controls is twofold. First, there may be an omitted variable problem in the reduced regression, which may result in a bias in the estimated parameters. Second, we aim to investigate the mechanisms through which democracy affects income growth rate heterogeneously by introducing potential transmission channels of democracy. 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 neither capture nor attempt to capture the full growth effect of democracy. Rather, their comparison with the reduced model in Table 16 illuminates potential mechanisms through which democracy (strong type) translates into growth. In addition, we control the regional trends to explore whether the region-variant trends impair our baseline results.

In column 1-8, the overall patterns are very similar to these of the baseline results. The estimates of Dstrong and Dweak are changed little except in some cases (e.g: after adding fertility rate), the coefficients of Dweak even become negative after adding tertiary enrollment rate. However, when we control fertility rate in column 9, estimate of the strong democracy becomes much smaller (0.718) and less significant (at 5% level). As democracies, especially the functions of which could be fully unleashed in strong one, tend to have substantially lower fertility rates (the correlation is -0.55 between strong democracy and fertility, while it is 0.09 between weak democracy and fertility), the fertility channel appears to be a important transmission mechanism of strong democracy on growth. So, it weakens the difference between strong democracy and autocracy (Grndler and Krieger, 2015), also shrinks the difference between these two types of democracies.

In column 10, the coefficients of both democracies became insignificant after controlling

all the covariates and regional trends. Estimate of Dstrong (1.18) is still larger than the coefficient of Dweak (0.68), but both are not significantly different with zero. There are two possible reasons to explain it. First, dramatically decreasing the observations may negatively influence the estimates of these two coefficients. Second, some potential channels (for example, fertility rate) through which democracy (especially strong democracy) transmits to growth absorb the effect of democracy. Then, the last column reports the regression result only adding four lags of the log of fertility rate[26] but dropping the observations where there are no data for other all covariates. The aim is to check whether the insignificant of strong democracy leads from the fewer observations. It implies that the missing data matter for the regression result of column 10.

Overall, there is a clear indication of a positive effect of strong democracy on growth rate but the effect of weak democracy is negligible, sometimes even negative, which highlights the heterogeneous effects of democracy on economic performance. For the countries with low initial economic conditions after democratizations, it seems difficult to fully exert the functions of democracy to boost economic growths. On the contrary, for the countries with relatively favorable initial economic levels implementing political reform, democracy system has a sizeable, positive and significant effect on economic development.

6 Mechanisms

In this section, we explore the channels through which strong democracy promotes economic growth while weak democracy does not. We follow the regression models from Acemoglu et al. (2015) and use 4 lags of indicators measured potential mechanisms described below and

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[26] Since after adding fertility rate, coefficients of strong democracy become smaller and less significant even though the observations are still very large. Then, it is possible that further shirking observations will lead to the disappearance of significance of strong democracy.

4 lags of y_{it} on the right side of the regression model.

$$m_{it} = \beta_1 Dweak_{it} + \beta_2 Dstrong_{it} + \sum_{j=1}^{4} \alpha_j m_{it-j} + \sum_{j=1}^{4} \varphi_j y_{it-j} + \lambda_i + \delta_t + \varepsilon_{it} \qquad (10)$$

Where m_{it} is one of our potential mechanisms described below. The terms, $\sum_{j=1}^{4} \varphi_j y_{it-j}$, help remove the mechanical effect of greater GDP on some of these intermediating variables. We estimate this model using the within estimator. Considering democracy is the complicated institution and could impact various variables, we categorize the potential channels into four types:

The first type is related to economic indicators, including share of investment in GDP (in logs), TFP (in logs), the share of trade in GDP (in logs), the share of taxes in GDP (in logs), primary school enrollment, secondary school enrollment, tertiary school enrollment, human capital (in logs), physical capital (in logs), share of government spending in GDP (in logs).

The second type is about demographic indicators, including life expectancy, fertility rate, infant mortality rate, child mortality rate (under 5 years), birth rate, death rate, population rate.

The third type is linked to one of the dimensions of political outcome: corruptions and-transparency indices[27]. Corruption indicators include judicial corruption decision, public sector corruption index, legislature corruption index, executive corruption index, political corruption index. Especially, political corruption index combines the information of the first four indicators. We normalize these corruption indexes between 0 and 1. Higher means more serious corruption. Transparency indices are HRV index, informational transparency index, accountability index, and transparency index. The transparency index is aggregated

[27] We don't use indicators represented the rule of law as the dependent variable because most of these data start from 1990 even 2000 with the much smaller samples. It will lead to a large bias of estimations when we estimate the coefficients using within country estimators. Additionally, missing information before 1990 seems not good to test the effects of different types of democracies on rule of law since many political reforms were happened before 1990.

information of informational transparency index and accountability index.

The fourth type is about political instability. We follow Aisen and Veiga (2013), and divide them into three dimensions: regime instability index, within regime instability index, and violence index. There are two indexes to measure every dimension. Detailed Data sources are introduced in the Appendix 7.

From the Table 17, we would like to explore some potential economic channels through which strong democracy stimulates economic performance while weak democracy does not. Strong democracy almost has no significant effects on these possible economic transmission channels. Weak democracy on these potential economic mechanisms is at most mixed. We observe that investment share of GDP, primary and secondary enrollment rates, TFP[28] are increased by weak democracy, which benefits economic growth, while tertiary enrollment rates and human capital[29] are undermined by weak democracy. In addition, government spending is higher in weak democratic countries. Also, it seems that weak democratic government implements more redistribution policies. These inhibit economic performance.

We would like to point out an interesting pattern here. For poor countries after democratization (weak democracy), tertiary enrollment rate dramatically decreases but primary enrollment rate rapidly increases, meaning that democratic governments transfer public spending from higher education to primary education, which, of course, benefits people with low income. It is consistent to the finding that the net Gini coefficient is smaller after democratization. But, this change also implies that there may be intense conflicts between elites and the masses in these countries. Surprisingly, there is no such patterns for the countries with relatively better economic conditions after democratization (strong democracy), suggesting that the conflicts between poor and rich are not very sharp and education resources are well distributed even when they are still autocracy. This gives us some preliminary hints that the functions of the political system may be unleashed differently between the strong and

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[28] It may be not a reliable result. We don't find such positive effect of democracy on TFP using other democracy datasets. See the regression results in Table 23 in the Appendix 7.

[29] It is constructed by Aisen and Veiga (2013), who combine information about the average years of schooling in the population over 25 years old and the returns of schooling.

weak democracy.

From coefficient tests, government spending, education channels, human capital, and TFP are significantly different. We cannot conclude that strong democracy through these economic channels has a stronger effect on GDP growth than weak democracy does.

Next, we turn to investigate some potential demographic channels that strong democracy work through to boost economic performance while weak democracy does not. The results are reported in Table 18. We find that strong democracy is able to decline infant mortality rate, child mortality rate (age below 5 years), fertility rate and population growth rate. Fertility rate, birth rate, and death rate are significantly failing in weak democratic countries. But, the population growth rate (net effects of birth rate and death rate) is higher in poor countries after democratization.

According to the coefficient tests, the significant differences between the two types of democracies are population growth and death rate. From these results, we could draw some inferences. First, the patterns between weak democracy and strong democracy on these potential demographic channels are very similar, except the population growth rate. It may be rush to conclude that the different effects of strong/weak democracy on population growth rate is the main contribution to the heterogeneous effects of democracy on growth due to the very small effect of strong democracy on population growth rate (-0.072%).

Second, declining of fertility rate in strong democratic countries could explain why, in the robustness check, the effect of strong democracy on economic growth becomes less significant and smaller after adding fertility rates as covariates.

Third, both types of democracy have a great impact on improving social welfare, measured by mortality rate anddeath rate. This finding is in line with Acemoglu et al. (2015) and Gerring et al. (2012). Thereby, even weak democracy has a negligible effect on ecnomic growth, it is still valuable if we put more weight on social welfare rather than economic performance.

In order to detect the potential mechanisms that lead to the heterogeneous effects of

democracy on growth, we further explore the effects of the different types of democracy on political outcome indicators. In Table 19, we focus on the corruption indicators measured different dimensions in political life and four transparency indicators.

After democratization, there are more *de jure* mechanisms to constrain the power of the ruler, to limit the resources of jobbery, and to improve the accountability of government. Therefore, we should expect that the corruption activities mitigate and the government become more transparent. From the results in Table 19, we do find that strong democracy dramatically lowers corruptions measured by the five indicators, meaning that the functions of democracy are well performed in the countries with better initial economic conditions after democratizations. What's more interesting is that there are no such effects for weak democracy. Furthermore, the influences of weak democracy on corruptions are even deteriorated in public sector, legislature sector, and the executive branch, although all of these coefficients are not significant. Then, it is not surprising that people living in the strong democratic countries enjoy more transparent information (measured by four transparent indexes: HRV index, information transparency index, accountability transparency index, and transparency index) and lower degree of political corruptions while people living in weak democratic countries do not. Fortunately, some improvements can be found in weak democracies. For example, information transparency index, incorporating the information of freedom of media, fiscal transparency, and political constraints, is better. This seems to contribute to the improvement of transparency index from weak democracy, which combines the index of information transparency index and accountability transparency index.

Additionally, from coefficient tests, we find significant differences between strong democracy and weak democracy on all these indicators except judicial corruption decision, accountability transparency index, and transparency Index. These findings confirm our analysis in Session 1 and 2. Although, political institutions are dramatically changed after democratizations in the countries with very low economic endowments, elites still could use some *soft* strategies, which are also more hidden, to distort political system, to erode the functions of

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democracy. Eventually, people in the countries cannot bathe in the low level of corruptions and high degree transparent governments.

Literature on corruptions and economic performance finds that corruption has a negative impact on growth independently from its impact on investment. These impacts are, however, different depending on the quality of governance. They tend to worsen when indicators of the quality of governance deteriorate (Méon and Weill, 2010; Méon and Sekkat, 2005; Aidt et al., 2008). Strong democratic countries obtain higher quality of governments. Then, inhibiting the corruptions in strong democratic countries could improve economic growth. Researchers (Asongu and Nwachukwu, 2015) suggest that there exists causal evidence of a positive (negative) nexus between political stability/no violence and corruption-control (corruption). By reducing political instabilities after repressing corruptions, strong democracy stimulates economic performance. Additionally, some (Serritzlew et al., 2014) argue that absence of corruption and high levels of social trust foster economic growth and corruption has a causal effect on social trust.

In the Table 24 in the Appendix 7, we further drop old democratic countries, which people may question that the functions of political institutions in old democratic countries work very well and worry that it is them that contribute to the better political outcomes when we do the regressions. The results are very similar. In some senses, the differences between strong and weak democracy are even more striking[30].

From our logic mentioned in Session 1 and Session 2, not only elites living in the weak democratic country could deform the functions of democracy, but also, they could threaten this political system, and lead to political instability. Eventually, the functions of democracy to solve conflicts among different groups become weak, or even invalid. However, for the masses living in the strong democratic country, the function of democracy is well unleashed. So, we could observe that some types of instabilities are failing, like regime instability (measure the risk of changing regime itself) and violence activities. But, the effects of democracy

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[30] It is not surprising. The coefficients are obtained by within estimators. Only the variations of political institution within country contribute to the estimations.

on within regime instability are different. People living in the democratic country have freedom to carry out demonstrations, they also have rights to establish political parties or other associations. So, its natural to observe that there are, in some sense, relatively higher within regime instability in democratic systems than in the autocratic ones.

In Table 20, we check the effects of strong and weak democracy on political instabilities indicators. The well-perform functions of strong democracy are verified by the dramatically decreasing regime instability and violence activities. But, we cannot observe the same patterns in weak democratic system. It even worsens the political instabilities in regime instability and violence activities, although these coefficients are not significant. Implementing the coefficient test, the coefficients of the strong democracy are significantly different with the ones of the weak democracy on regime instability and within regime instability. It is not surprising that both strong democracy and weak democracy stimulate the risk of within regime instabilities. This is the essential part of democracy. But, some differences still exist. The coefficients of strong democracy on within regime instabilities are much smaller than the ones of weak democracy, indicating that strong democracy brings moderate within regime instabilities while weak democracy exacerbates within regime instabilities.

It is well known that political instabilities like regime instability and violence activities play negative roles on economic performance (Aisen and Veiga, 2013; Jong-A-Pin, 2009) but some debates on the within regime instability on economic growth. Also, in the study of Aisen and Veiga (2013), they find that higher degrees of political instabilities are associated with lower GDP growth rates and democracy may have a small negative effect. This result may be a little misleading. From our regressions, strong democracy actually lowers the risks of political instabilities. Then, if one adds both the political instability indicator and the democracy indicator at the right side of regression and try to test whether these two variables have effects on growth, the effect of democracy on economic performance will be absorbed by the indicator of political instability. But the negligible or even negative effect of democracy on growth does not imply that democracy is worthless for growth. The opposite

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may be true. In addition, they argue that political instability matter for growth, but they don't study the determinants of political stability and why some democratic countries are more stable than others. We find that the initial economic level of the country could predict political instabilities after democratization.

In the Table 25 in the Appendix 7, we further drop old democratic countries, which people believe that they are very stable for quite a long time and then question that it is them that contribute to the decreasing of political instabilities. The results still hold. In fact, the differences between strong and weak democracy are even more significant. So, it is fair to say that, by dramatically decreasing political instabilities, strong democracy stimulates the economic growth.

Overall, we take these results as suggesting that strong democracy might be working through a number of channels. In particular, strong democracy seems to inhibit corruptions and political instabilities that are conducive to growth, while weak democracy has little effect on these channels, sometimes, even make them further worse.

7 Conclusion

The relationship between political institutions and economic performance is amongst the oldest and most controversial topics in social science. This paper addresses the question why and under which conditions the functions of democracy could be unleash, and what makes some of them improve economic performance while others malfunction. Most of this literature on democratic transitions treats democracy as an absorbing state and thereby assumes that the functions of democracy could be well performed, which obviously implies the existence of some conditions (we focus on economic development levels) that ensures these functions to work. Assuming democratic functions to be effective seems to be a critical assumption. However, from our study, that is unlikely to hold when democratization is happened in the country with poor economic conditions.

This, in some sense, is consistent with the modernization theory (Glaeser et al., 2004; Lipset, 1959), arguing that economic developments, structural change that drive the institution change and further influence that functions of political institutions. Meanwhile, once the initial economic conditions are above some thresholds, democracy itself also has strong and positive effects on economic development by unleashing the function of it, which is in line with institutionalism view (Acemoglu and Robinson, 2012; Acemoglu et al., 2001), believing that institutions are the key factors determining the economic development. Then, our study tries to build a bridge to reconcile these two views.

To do this, we analyze whether democracy has heterogeneous effects on economic growth depending on the countrys initial economic conditions. We categorize democratic countries into two groups and define the strong democratic country is the one that initial economic conditions are relatively good after democratizations, while the other type is weak democratic country. We predict that strong democracy is able to fully unleash its functions, then lower corruptions and political instabilities. Through these channels, strong democracy boosts economic performance. On the contrary, weak democracy cannot work well on these aspects, then, weaken its effect on economic growth.

Using annual frequency data from 1960 to 2010 and employing panel data techniques that control for unobserved time-invariant country-specific characteristics and general time trends, we show that strong democracy leads to almost a 1.2% increase in real annual per capita GDP growth after democratization. This means that democratizations happened in the country with favorable economic conditions will increase its GDP per capita by about 35% after 25 years. However, there is only a negligible effect for weak democracy on economic performance.

We use three dimensions indicators (including economic, demographic and political) to find the channels of heterogeneous effects of democracy on economic growth. The results on political aspect could unravel this mystery. After political reform, democracy in the countries with favorable initial economic conditions could dramatically repress political corruptions

and instabilities, while it is not the case for the countries with poor initial economic levels. Through these channels, strong democracy could boost economic performance, while positive effects of democracy on growth in poor countries are weakened by these mechanisms.

On demographic aspect, both strong and weak democracy could improve the social welfare by decrease fertility rate, mortality rate or death rate. In addition, we find strong democracy represses the population growth rate.

But, we don't find significant improvements of strong democracy on the economic indicators, e.g. investment share, trade share and human capital indicators, TFP etc. Weak democracy demonstrates the conflicting effects on these economic channels.

Thus our analysis introduces several political channels for the effects of democracy on GDP growth rate, the transmission channels that are not received much attention in the wide empirical literature on the link between democratization and economic development. It suggests that initial economic levels matter for the functions of political institutions on economic growth after democratization. Democracy is not a panacea. But, it does not mean that democracy is worthless for poor countries. At least, from our study, it doesn't have a negative effect on economic performance. Additionally, even the democracy is weak, still able to lower fertility rate, mortality rata and death rate, which, in some sense, improve social welfare.

It also should note that many democratizations took place during recessions. It might well be the case that successful transitions are those where growth resumes. In this case, possibly, it is growth that consolidates the democratic process rather than political reforms causing growth. Thus, the key issue of causality in the democracy-growth nexus remains open. We believe that given the ongoing debate on the potential merits and drawbacks of political openness in the Arab Spring and also political-reforming cases in other developing countries, the issue of causality, albeit challenging, deserves future research.

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Tables

Country	Year	Initial GDP per capita	Country	Year	Initial GDP per capita	Country	Year	Initial GDP per capita
Mozambique	1994-2010	364	Georgia	1995-2010	2828	Cyprus	1975-2010	6960
Burundi	2003-2010	427	Brazil	1960-1963	2901	Peru	1980-2010	7089
Liberia	2004-2010	502	Ecuador	1960	2927	Uruguay	1960-1971	7141
Ethiopia	1995-2004	582	Nigeria	1979-1983	2970	Ukraine	1994-2010	7221
Uganda	1980-1984	771	Moldova	1994-2010	2985	St. Kitts & Nevis	1983-2010	7328
Malawi	1994-2010	797	Nicaragua	1990-2010	2996	Ecuador	1979-2010	7391
Niger	1991-2010	804	Pakistan	1988-1998	3055	Latvia	1993-2010	7493
India	1960-2010	805	Grenada	1974-1978	3059	Uruguay	1985-2010	8358
Botswana	1966-2010	884	Mauritius	1968-2010	3067	Macedonia	1991-2010	8412
Central African Republic	1993-2002	901	St. Vincent & Grenadines	1979-2010	3145	Suriname	1975-1979	8515
Sierra Leone	2001-2010	984	Honduras	1982-2010	3224	Chile	1990-2010	8747
Mali	1992-2010	1086	Kyrgyz Republic	2005-2010	3416	Antigua & Barbuda	1981-2010	8851
Zimbabwe	1978-1986	1238	Dominica	1978-2010	3540	South Africa	1994-2010	8881
Sierra Leone	1961-1966	1280	Japan	1960-2010	3691	Lithuania	1993-2010	8907
Nepal	1991-2010	1319	Philippines	1987-2010	3773	Panama	1994-2010	9195
Bangladesh	1994-2010	1372	Fiji	1970-2005	3775	Bulgaria	1991-2010	9251
Guinea-Bissau	1994-2010	1373	Guatemala	1966-1973	3908	Suriname	1988-2010	9381
Lesotho	1993-2010	1402	Colombia	1960-2010	3924	Trinidad &Tobago	1962-2010	9402
Madagascar	1993-2008	1444	Bolivia	1982-2010	3943	Poland	1990-2010	9955
Sri Lanka	1960-2010	1462	Armenia	1991-2010	4074	Estonia	1992-2010	9973
Benin	1991-2010	1470	Belize	1981-2010	4124	Brazil	1985-2010	10278
Haiti	1994-1999	1642	Mongolia	1993-2010	4208	Korea, Rep.	1988-2010	10283
Comoros	1990-2010	1650	El Salvador	1982-2010	4342	Slovak Republic	1993-2010	10310
Gambia	1965-1993	1862	Grenada	1984-2010	4362	Romania	1990-2010	10743
Djibouti	1999-2009	1864	Greece	1960-1966	4591	Serbia	2006-2010	11034
Senegal	2000-2010	1892	Peru	1960-1967	4612	Portugal	1976-2010	12281
Ghana	1996-2010	2026	Israel	1960-2010	4678	Argentina	1983-2010	12621
Philippines	1960-1964	2040	Guatemala	1986-2010	4818	Mexico	1997-2010	12824
Zambia	1991-2010	2139	Chile	1960-2010	4823	Venezuela	1960-2008	13146
Kenya	2002-2010	2217	Turkey	1961-2010	4844	Slovenia	1992-2010	14684
Sao Tome & Principe	1991-2010	2403	Dominican Republic	1978-2010	4949	Russia	1993-2003	14736
Malta	1964-2010	2441	Namibia	1990-2010	5381	Croatia	2000-2010	15136
Nigeria	1960-1965	2643	Congo, Rep.	1992-1996	5451	Hungary	1990-2010	15707
Thailand	1974-2010	2677	Barbados	1966-2010	5453	Czech Republic	1993-2010	16361
Cabo Verde	1991-2010	2721	Paraguay	1993-2010	5477	Greece	1975-2010	16637
Panama	1960-1967	2735	St. Lucia	1979-2010	5562	Spain	1978-2010	17972
Albania	1992-2010	2789	Indonesia	1999-2010	5597	Bahamas	1973-2010	19285
Nigeria	1999-2010	2795	Jamaica	1962-2010	5766			

Note: The data of GDP per capita is from PWT(9.0), 2011US$, PPP. The country-year is listed from the smallest

Table 2: SUMMARY STATISTICS FOR THE POLITICAL OUTCOME INDICATORS IN THE ANALYSIS.

Variable	(1). Autocracy			(2). Weak democracy			(3). Strong democracy			Two-samplet test(p-value)		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	(1)=(2)	(1)=(3)	(2)=(3)
Growth	3461	1.48	7.98	409	2.30	4.48	1872	2.36	4.71	0.042	0.000	0.789
Political corruption	3748	0.61	0.22	411	0.57	0.21	1736	0.45	0.24	0.001	0.000	0.000
Judicial corruption decision	3748	0.52	0.21	411	0.50	0.21	1736	0.39	0.21	0.015	0.000	0.000
Public sector corruption index	3748	0.62	0.24	411	0.57	0.26	1736	0.42	0.24	0.000	0.000	0.000
Legislature corruption activity	3111	0.57	0.22	403	0.58	0.14	1726	0.55	0.19	0.322	0.001	0.002
Executive corruption index	3748	0.62	0.25	411	0.53	0.21	1736	0.42	0.25	0.000	0.000	0.000
HRV Index	1893	-0.05	1.48	329	0.16	0.92	1114	2.47	2.14	0.016	0.000	0.000
Transparency Index (DIAT)	2248	34.95	10.65	339	46.79	7.43	1520	59.46	8.75	0.000	0.000	0.000
Regime instability1	3696	0.12	1.48	292	0.10	1.29	1471	-0.10	0.90	0.803	0.000	0.002
Regime instability2	3295	0.06	1.63	209	0.08	1.44	1128	-0.01	1.25	0.878	0.149	0.326
Within instability1	3564	-0.48	0.93	286	0.39	0.98	1434	0.61	0.96	0.000	0.000	0.001
Within instability2	3540	-0.27	1.24	286	0.33	1.45	1431	0.40	1.49	0.000	0.000	0.495
Violence index1	3772	0.04	1.07	322	0.16	1.02	1593	0.05	1.34	0.054	0.834	0.155
Violence index2	3242	0.14	1.50	204	0.52	1.67	1113	-0.10	1.27	0.001	0.000	0.000

Note: See the Appendix **??** for the full description of the variables and their corresponding sources. The table presents the statistics separately for autocracies (country-years for which our dichotomous democracy measure is 0), weak democracies (country-years for which our dichotomous democracy measure is 1 and initial GDP per capita is smaller than threshold) and strong democracies (country-years for which our dichotomous democracy measure is 1 and initial GDP per capita is stronger than the threshold). T-tests are implemented to compare whether the means of variables in different groups are significantly different or not and P-values are displayed. We set the threshold that equates to the *p30* of the initial GDP per capita (PWT) of political-reforming countries. Old democratic countries (20 countries) are not included.

Table 3. SUMMARY STATISTICS FOR THE ECONOMIC AND DEMOGRAPHIC INDICATORS IN OUR ANALYSIS.

Variable	Autocracy group			Weak democracy group			Strong democracy group (no old democratic countries)			Strong democracy group		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
GDP per capita(WDI)	3582	3354	7642	411	734	1053	1900	6438	6646	2863	13918	14288
Trade share	3540	72.68	54.51	399	63.75	43.92	1872	76.19	37.12	2861	74.52	39.36
Investment rate	3373	22.47	13.26	391	22.3	10.04	1819	23.28	6.98	2707	23.5	6.19
Government spending	3353	15.76	7.98	399	14.75	7.06	1827	15.19	5.69	2816	16.25	5.32
tax revenue share	714	14.56	8.54	145	15.88	11.7	1163	17.29	8.89	1874	18.55	8.17
TFP(PWT)	1796	1.07	0.41	245	0.92	0.24	1468	0.97	0.16	2456	0.94	0.15
TFP(Aisen)	2027	7272	16481	244	2816	1480	1087	6877	3385	1932	8006	3154
Physical capital	3411	5920	10526	289	2161	2081	1497	14063	14286	2387	26385	23654
Human capital	2050	0.61	0.20	244	0.63	0.11	1087	0.84	0.26	1932	1	0.33
Primary enrollment rate	3074	89.35	28.32	318	92.27	26.26	1623	103.22	13.49	2379	102.7	11.59
Secondary enrollment rate	2525	44.77	31.31	249	33.7	19.5	1433	75.12	23.23	2148	82.56	24.75
Tertiary enrollment rate	2273	11.04	13.20	247	4.07	3.75	1237	29.42	20.7	1939	33.55	21.92
Net Gini	1647	37.88	9.67	291	43.67	6.65	1403	40.17	9.7	2286	35.55	10.07
Life expectancy	5335	58.02	10.99	412	56.01	8.28	1930	68.65	7.57	2950	70.89	7.16
Fertility rate	4096	5.27	1.81	411	5.08	1.47	1920	2.96	1.44	2906	2.67	1.31
Infant Mortality rate	3293	72.76	44.09	382	76.7	30.65	1781	29.22	23.79	2580	22.86	22.18
Child Mortality rate	4464	118.33	84.50	410	125.68	67.03	1906	43.6	46.7	2892	33.25	40.98
Birth rate	5234	35.43	11.85	410	37.18	8.86	1934	22.84	10.33	2934	20.15	9.59
Death rate	5230	12.55	6.28	410	12.44	4.82	1934	8.73	3.35	2934	8.91	2.94
Population growth rate	5256	0.02	0.02	410	0.02	0.01	1950	0.01	0.01	2950	0.01	0.01

Note: See the Appendix **??** for the full description of the variables and their corresponding sources. The table presents the statistical descriptions on economic and demographic indicators separately for autocracies (country-years for which our dichotomous democracy measure is 0), weak democracies (country-years for which our dichotomous democracy measure is 1 and initial GDP per capita is smaller than threshold) and strong democracies (country-years for which our dichotomous democracy measure is 1 and initial GDP per capita is stronger than the threshold). We set the threshold that equates to the *p30* of all initial GDP per capita (PWT) of political-reforming countries.

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Table 4: HETEROGENEOUS EFFECTS OF DEMOCRACY ON ANNUAL PER CAPITA GROWTH.

Dependent Variable: Growth	(1) p20	(2) p25	(3) p30	(4) p35	(5) p40	(6) Modified Democracy	(7) Democracy
Dweak	0.126	0.241	0.353	0.893**	0.788**		
	(0.435)	(0.367)	(0.363)	(0.426)	(0.393)		
Dstrong	1.119***	1.196***	1.175***	0.813***	0.912***		
	(0.295)	(0.325)	(0.329)	(0.272)	(0.297)		
L.Growth	0.164**	0.164**	0.164**	0.164**	0.164**	0.164**	0.165**
	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)
L2.Growth	0.052***	0.052***	0.052***	0.052***	0.052***	0.052***	0.052***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
L3.Growth	0.049***	0.050***	0.050***	0.049***	0.049***	0.049***	0.049***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
L4.lnGDPper	-3.878***	-3.891***	-3.872***	-3.827***	-3.843***	-3.830***	-3.843***
	(0.738)	(0.741)	(0.738)	(0.742)	(0.749)	(0.734)	(0.734)
Democracy						0.849***	0.788***
						(0.262)	(0.237)
Coefficient Test							
$\beta_1 = \beta_2$(p-value)	0.0378	0.0329	0.0656	0.8631	0.7876		
R^2	0.166	0.166	0.166	0.165	0.165	0.165	0.165
adj. R^2	0.158	0.158	0.158	0.158	0.158	0.158	0.158
Country	172	172	172	172	172	172	172
Obs.	6050	6050	6050	6050	6050	6050	6050

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by the initial GDP per capita (PWT) of political-reforming countries and using different cutoffs. All columns present the results using the within estimators. The last two columns replicate the results from Acemoglu et al. (2015) using the modified dichotomous Democracy and their original Democracy data, respectively. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF DEMOCRACY (USING URBANIZATION RATIO TO GROUP) ON ANNUAL PER CAPITA GROWTH.

Grouping use urbanization ratio	(1) p15	(2) p20	(3) p25	(4) p30	(5) p35	(6) p40	(7) p45	(8) p50
Dweak	0.081	0.352	0.412	0.344	0.538	0.559	0.695*	0.581*
	(0.504)	(0.456)	(0.433)	(0.404)	(0.374)	(0.342)	(0.370)	(0.350)
Dstrong	1.049***	1.060***	1.060***	1.143***	1.069***	1.091***	1.034***	1.180***
	(0.287)	(0.303)	(0.309)	(0.315)	(0.321)	(0.336)	(0.320)	(0.337)
Coefficient Test								
$\beta_1=\beta_2$(p-value)	0.0829	0.1756	0.2014	0.0987	0.2433	0.2248	0.4456	0.1750
R^2	0.162	0.162	0.162	0.162	0.162	0.162	0.161	0.162
adj. R^2	0.155	0.154	0.154	0.155	0.154	0.154	0.154	0.154
Country	181	181	181	181	181	181	181	181
Obs.	6282	6282	6282	6282	6282	6282	6282	6282

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by initial urbanization ratio in political-reforming countries and using different cutoffs. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF DEMOCRACY (USING TECHNOLOGY DISTANCE TO GROUP) ON ANNUAL PER CAPITA GROWTH.

Grouping use tech.distance	(1) p15	(2) p20	(3) p25	(4) p30	(5) p35	(6) p40	(7) p45	(8) p50
Dweak	0.421	0.309	0.278	0.335	0.811*	0.864**	0.844**	0.861**
	(0.471)	(0.432)	(0.382)	(0.360)	(0.421)	(0.379)	(0.366)	(0.348)
Dstrong	1.057***	1.152***	1.265***	1.277***	0.975***	0.933***	0.965***	0.952***
	(0.296)	(0.309)	(0.337)	(0.346)	(0.283)	(0.307)	(0.324)	(0.336)
Coefficient Test								
$\beta_1=\beta_2$(p-value)	0.2133	0.0850	0.0386	0.0434	0.7296	0.8789	0.7911	0.8395
R^2	0.167	0.167	0.167	0.167	0.167	0.167	0.167	0.167
adj. R^2	0.159	0.159	0.160	0.160	0.159	0.159	0.159	0.159
Country	163	163	163	163	163	163	163	163
Obs.	5847	5847	5847	5847	5847	5847	5847	5847

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by initial technology distance in political-reforming countries and using different cutoffs. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF DEMOCRACY (USING NON-AGRICULTURE SHARE TO GROUP) ON ANNUAL PER CAPITA GROWTH.

Grouping use non-agriculture share	(1) p15	(2) p20	(3) p25	(4) p30	(5) p35	(6) p40	(7) p45	(8) p50
Dweak	0.900	0.469	0.555	0.811	0.848	0.742	1.052*	0.940
	(1.141)	(0.992)	(0.857)	(0.739)	(0.666)	(0.617)	(0.608)	(0.569)
Dstrong	0.937**	1.069**	1.077**	0.991**	0.981**	1.071**	0.822*	0.919*
	(0.411)	(0.419)	(0.432)	(0.447)	(0.466)	(0.497)	(0.475)	(0.498)
Coefficient Test								
$\beta_1=\beta_2$(p-value)	0.9748	0.5642	0.5696	0.8239	0.8594	0.6553	0.7454	0.9759
R^2	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
adj. R^2	0.179	0.179	0.179	0.179	0.179	0.179	0.179	0.179
Country	125	125	125	125	125	125	125	125
Obs.	3880	3880	3880	3880	3880	3880	3880	3880

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by initial non-agriculture share of GDP in political-reforming countries and using different cutoffs. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF DEMOCRACY (USING INDUSTRY SHARE TO GROUP) ON ANNUAL PER CAPITA GROWTH.

Grouping use industry share	(1) p15	(2) p20	(3) p25	(4) p30	(5) p35	(6) p40	(7) p45	(8) p50
Dweak	0.281	0.446	0.482	0.258	0.288	0.322	0.273	0.651
	(1.045)	(0.809)	(0.714)	(0.697)	(0.657)	(0.604)	(0.549)	(0.556)
Dstrong	1.119***	1.149**	1.180**	1.310***	1.326***	1.388***	1.532***	1.307**
	(0.424)	(0.442)	(0.456)	(0.463)	(0.473)	(0.488)	(0.529)	(0.523)
Coefficient Test								
$\beta_1=\beta_2$(p-value)	0.4456	0.4237	0.3804	0.1846	0.1744	0.1422	0.0800	0.3572
R^2	0.189	0.189	0.189	0.189	0.189	0.189	0.190	0.189
adj. R^2	0.178	0.178	0.178	0.178	0.178	0.178	0.178	0.178
Country	125	125	125	125	125	125	125	125
Obs.	3832	3832	3832	3832	3832	3832	3832	3832

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by initial industry share of GDP in political-reforming countries and using different cutoffs. All columns present results using the within estimator. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF DEMOCRACY (CGV) ON ANNUAL PER CAPITA GROWTH.

Dependent Variable: Growth	(1) p20	(2) p25	(3) p30	(4) p35	(5) p40	(6) Modified Democracy	(7) Democracy
Dweak	-0.422	-0.452	0.010	0.263	0.359		
	(0.380)	(0.365)	(0.407)	(0.407)	(0.360)		
Dstrong	0.936***	1.008***	0.833**	0.688*	0.630*		
	(0.357)	(0.363)	(0.362)	(0.360)	(0.369)		
Democracy						0.500*	0.479*
						(0.273)	(0.254)
Coefficient Test							
$\beta_1 = \beta_2$(p-value)	0.0083	0.0035	0.1202	0.4241	0.5760		
R^2	0.144	0.145	0.144	0.144	0.143	0.143	0.143
adj. R^2	0.137	0.137	0.136	0.136	0.136	0.136	0.136
Country	172	172	172	172	172	172	172
Obs.	5655	5655	5655	5655	5655	5655	5655

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by the initial GDP per capita (PWT) of political-reforming countries and using different cutoffs. All columns present the results using the within estimators. The last two columns report the results using modified Democracy and the original Democracy data from CGV, respectively. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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 10: HETEROGENEOUS EFFECTS OF DEMOCRACY (CONSTRUCTED BY POLITY IV) ON ANNUAL PER CAPITA GROWTH.

Dependent Variable: Growth	(1) p20	(2) p25	(3) p30	(4) p35	(5) p40	(6) Modified Democracy	(7) Democracy
Dweak	-0.245	-0.230	-0.201	-0.257	0.019		
	(0.648)	(0.597)	(0.543)	(0.483)	(0.465)		
Dstrong	0.533**	0.568**	0.642**	0.776**	0.615**		
	(0.252)	(0.254)	(0.290)	(0.310)	(0.310)		
Democracy						0.318	0.227
						(0.259)	(0.257)
Coefficient Test							
$\beta_1=\beta_2$(p-value)	0.2401	0.1967	0.1725	0.0733	0.2983		
R^2	0.174	0.174	0.174	0.174	0.174	0.173	0.173
adj. R^2	0.165	0.165	0.166	0.166	0.165	0.165	0.165
Country	146	146	146	146	146	146	146
Obs.	5212	5212	5212	5212	5212	5212	5212

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by the initial GDP per capita (PWT) of political-reforming countries and using different cutoffs. All columns present the results using the within estimators. The last two columns report the results using modified dichotomous Democracy and the dichotomous Democracy data constructing by Polity2, respectively. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF DEMOCRACY (BMR) ON ANNUAL PER CAPITA GROWTH.

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6) Modified	(7)
Growth	p20	p25	p30	p35	p40	Democracy	Democracy
Dweak	0.051	0.002	0.161	0.577	0.526		
	(0.453)	(0.413)	(0.409)	(0.477)	(0.456)		
Dstrong	0.810**	0.892**	0.829**	0.574	0.614		
	(0.379)	(0.401)	(0.402)	(0.365)	(0.376)		
Democracy						0.608**	0.616**
						(0.291)	(0.272)
Coefficient Test							
$\beta_1=\beta_2$(p-value)	0.2010	0.1231	0.2419	0.9958	0.8808		
R^2	0.167	0.167	0.167	0.167	0.167	0.167	0.167
adj. R^2	0.159	0.160	0.159	0.159	0.159	0.159	0.159
Country	171	171	171	171	171	171	171
Obs.	5953	5953	5953	5953	5953	5953	5953

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by the initial GDP per capita (PWT) of political-reforming countries and using different cutoffs. All columns present the results using the within estimators. The last two columns report the results using modified dichotomous Democracy and the original Democracy data (BMR), respectively. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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 12: HETEROGENEOUS EFFECTS OF DEMOCRACY (PS) ON ANNUAL PER CAPITA GROWTH USING.

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
Growth	p20	p25	p30	p35	p40	Democracy
Dweak	0.072	0.575	1.203*	1.042*	1.027*	
	(0.452)	(0.565)	(0.672)	(0.594)	(0.566)	
Dstrong	1.407***	1.267***	0.955***	1.051***	1.064***	
	(0.449)	(0.437)	(0.355)	(0.373)	(0.385)	
Democracy						1.047***
						(0.364)
Coefficient Test						
$\beta_1=\beta_2$(p-value)	0.0267	0.3059	0.7236	0.9888	0.9527	
R^2	0.171	0.170	0.170	0.170	0.170	0.170
adj. R^2	0.163	0.163	0.163	0.163	0.163	0.163
Country	162	162	162	162	162	162
Obs.	5769	5769	5769	5769	5769	5769

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by the initial GDP per capita (PWT) of political-reforming countries and using different cutoffs. All columns present the results using the within estimators. The last column replicate the results from Papaioannou and Siourounis (2008) using their dichotomous Democracy dataset (we update their data to 2010). In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF DEMOCRACY ON ANNUAL PER CAPITA GROWTH. THE ESTIMATES CONTROL FOR OTHER FORMS OF HETEROGENEOUS EFFECTS OF DEMOCRACY ON GROWTH.

Adding Covariates:	(1) Democratic Stock	(2) Majortarian & Proportional	(3) Parliamentary & Presidential	(4) All forms of Democracy	(5) All
Dweak	0.398	0.025	0.507	0.456	0.517
	(0.352)	(0.531)	(0.391)	(0.572)	(0.560)
Dstrong	0.977***	1.343**	1.403***	1.567**	1.369**
	(0.326)	(0.558)	(0.432)	(0.613)	(0.603)
Democratic Stock	0.004*				0.007*
	(0.002)				(0.003)
Majortarian		-0.076		0.044	0.249
		(0.573)		(0.576)	(0.547)
Proportional		1.200		1.373	1.320
		(1.084)		(1.109)	(0.973)
Mixed election system		0.205		0.584	0.582
		(0.697)		(0.772)	(0.741)
Parliamentary			-1.354**	-2.379**	-1.369
			(0.657)	(1.134)	(0.981)
Presidential			-1.365**	-1.593	-0.472
			(0.598)	(1.052)	(0.923)
Semi-presidential			-0.518	-0.330	0.585
			(0.781)	(1.069)	(1.023)
Coefficient Test					
$\beta_1=\beta_2$(p-value)	0.1853	0.0500	0.0944	0.1072	0.2198
R^2	0.173	0.118	0.146	0.120	0.125
adj. R^2	0.165	0.109	0.138	0.111	0.116
Country	168	168	172	168	167
Obs.	5849	4269	5641	4269	4215

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. The strong and weak democracy are categorized by the initial GDP per capita (PWT) of political-reforming countries. The threshold is set at *p30*. In all specifications, we control for a full set of country and year fixed effects. column 1 adds the indicator representing democratic stock. In column 2, we control one dimension of the form of democracy (proportional, majoritarian, and mixed election system) In column 3, we control the other dimension of the form of democracy (parliamentary, presidential, and semi-presidential system). In column 4, we consider two dimensions of forms of democracy. The last column adds the all covariates using in column 1-4. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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: HETEROGENEOUS EFFECTS OF TRANSITIONS IN AND OUT OF DEMOC-
RACY ON ANNUAL PER CAPITA GROWTH.

Dependent Variable: Growth	(1) p20	(2) p25	(3) p30	(4) p35	(5) p40
Demweak	-0.042	0.033	0.160	0.756	0.681
	(0.448)	(0.408)	(0.406)	(0.477)	(0.421)
Demstrong	1.116***	1.184***	1.169***	0.833***	0.917***
	(0.334)	(0.353)	(0.358)	(0.316)	(0.345)
Reversal	-0.879*	-0.925**	-0.933**	-0.842*	-0.831*
	(0.447)	(0.452)	(0.454)	(0.463)	(0.462)
Coefficient Test					
$\beta_1=\beta_2$(p-value)	0.0217	0.0192	0.0398	0.8840	0.6347
$\beta_1=\gamma$(p-value)	0.6508	0.6250	0.6577	0.9876	0.8841
$\beta_2=\gamma$(p-value)	0.1689	0.1708	0.2313	0.8995	0.8000
R^2	0.155	0.155	0.155	0.154	0.154
adj. R^2	0.148	0.148	0.148	0.147	0.147
Country	181	181	181	181	181
Obs.	6431	6431	6431	6431	6431

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth allowing democratizations (two types) and reversals to have different effects.. The strong and weak democracy are categorized by the initial GDP per capita (PWT) of political-reforming countries and using different cutoffs. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. More importantly, to test whether the coefficients of the strong (weak) democracy are significantly different with the estimates of reversals. 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 15: THE ESTIMATES CONTROL FEWER OBSERVATIONS, REGIONAL TRENDS, SOCIALIST COUNTRIES AND THE INFLUENCE OF OUTLIERS.

	(1)	(2)	(3)	(4)	(5)
			Soviet	20 Obs. &	
		Regional	Soviet	Regional trends	Outlier
	20 Obs.	trends	dummies	& Soviet dummies	test
Dweak	0.359	0.319	0.428	0.316	-0.088
	(0.361)	(0.426)	(0.349)	(0.419)	(0.260)
Dstrong	1.180***	0.938***	0.880***	0.668**	0.509**
	(0.332)	(0.331)	(0.300)	(0.325)	(0.239)
Coefficient Test					
$\beta_1=\beta_2$(p-value)	0.0660	0.2239	0.2815	0.4767	0.0711
R^2	0.163	0.243	0.171	0.244	0.271
adj. R^2	0.156	0.199	0.163	0.198	0.264
Country	154	172	172	154	172
Obs.	5851	6050	6050	5851	5446

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. In column 1, we exclude countries with less than 20 observations of the dependent variable (to minimize the bias arising from the joint presence of country fixed-effects and the lagged dependent variable). Column 2 adds regional trends to control time-varying observable factors. In column 3, we add interactions between a dummy for Soviet and Soviet satellite countries and dummies for the years 1989, 1990, 1991, and post-1992. In column 4, we consider all of these factors controlled in column 1-3. In the last column, we remove observations with a standardized residual estimated above 1.96 or below -1.96. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. 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 16: HETEROGENEOUS EFFECTS OF DEMOCRACY ON ANNUAL PER CAPITA GROWTH FOR COVARIATES.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Log of life		Investment		Gov	Primary	Secondary	Tertiary	Log of fertility		Dropping missing
Adding Covariate	expectancy	Trade/GDP	Share	Inflation	spending	enrollment	enrollment	enrollment	rate	All	Obs.
Dweak	0.031	0.151	0.083	0.195	0.307	0.479	0.085	-0.221	0.322	0.684	0.217
	(0.464)	(0.486)	(0.459)	(0.448)	(0.528)	(0.436)	(0.625)	(0.712)	(0.454)	(0.870)	(1.021)
Dstrong	0.860**	1.297**	1.249***	0.887**	1.220***	1.424***	1.314**	1.455*	0.718**	1.184	1.231
	(0.331)	(0.509)	(0.478)	(0.353)	(0.464)	(0.509)	(0.598)	(0.806)	(0.324)	(1.003)	(1.056)
L.Growth	0.157**	0.142**	0.186***	0.145**	0.147**	0.220***	0.216***	0.255***	0.155**	0.183***	0.244***
	(0.063)	(0.068)	(0.042)	(0.065)	(0.073)	(0.035)	(0.036)	(0.038)	(0.063)	(0.045)	(0.041)
L2.Growth	0.033	0.020	0.000	0.034	0.018	-0.022	-0.012	-0.048	0.034*	-0.056	-0.014
	(0.020)	(0.020)	(0.022)	(0.021)	(0.019)	(0.034)	(0.041)	(0.038)	(0.021)	(0.050)	(0.048)
L3.Growth	0.046**	0.018	0.017	0.041**	0.031	-0.002	-0.044	-0.022	0.042**	-0.049	-0.067*
	(0.018)	(0.020)	(0.019)	(0.018)	(0.021)	(0.026)	(0.029)	(0.031)	(0.019)	(0.041)	(0.037)
L4.lnGDPper	-4.330***	-4.042***	-4.382***	-5.105***	-4.311***	-5.054***	-5.652***	-6.162***	-4.718***	-5.868***	-6.367***
	(0.687)	(1.010)	(0.864)	(0.852)	(0.722)	(0.682)	(0.921)	(1.102)	(0.737)	(1.202)	(1.045)
Coefficient Test											
$\beta_1=\beta_2$(p-value)	0.4570	0.1193	0.0931	0.0741	0.2014	0.1892	0.1618	0.1505	0.1296	0.6994	0.4878
R^2	0.251	0.228	0.253	0.244	0.217	0.263	0.295	0.366	0.248	0.419	0.375
adj. R^2	0.207	0.180	0.205	0.199	0.167	0.212	0.230	0.298	0.203	0.321	0.285
Country	169	169	167	172	166	164	160	152	170	133	133
Obs.	5930	5681	5408	5849	5560	3910	2988	2589	5934	1872	1872

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. All columns present results using the within estimators. We control for the covariates specified in each column label and described in the text. In all specifications, we control for a full set of country and year fixed effects. Additionally, regional trends are added to control time-varying observable factors. Column 10 adds all the covariates adding in column 1-9. The last column regresses controlling four lags of the log of fertility rates without the missing observations of the other covariates. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. We dont report the coefficients of these covariates due to the space constraints.

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Table 17: HETEROGENEOUS EFFECTS OF DEMOCRACY ON POTENTIAL ECONOMIC MECHANISMS.

Dependent Variable:	(1) Log of trade share	(2) Log of Investment share	(3) Log of Gov Spending	(4) Log of Tax/GDP	(5) Log of TFP (PWT)	(6) Log of TFP (Aisen)	(7) Log of physical capital	(8) Log of human capital	(9) Primary enrollment	(10) Secondary enrollment	(11) Tertiary enrollment	(12) Net Gini
Dweak	0.035**	0.028	0.678***	0.027	0.011*	0.029***	-0.000	-0.005***	2.075***	0.485	-0.876***	-0.764**
	(0.017)	(0.018)	(0.229)	(0.050)	(0.006)	(0.010)	(0.002)	(0.001)	(0.660)	(0.303)	(0.257)	(0.301)
Dstrong	0.014	0.004	0.148	0.032	0.002	-0.002	0.001	0.000	0.329	-0.084	0.312	-0.058
	(0.013)	(0.009)	(0.187)	(0.019)	(0.004)	(0.007)	(0.001)	(0.002)	(0.321)	(0.404)	(0.230)	(0.177)
Coefficient Test												
$\beta_1=\beta_2$(p-value)	0.2616	0.2026	0.0731	0.9803	0.1511	0.0049	0.4902	0.0107	0.0107	0.2697	0.0001	0.0414
R^2	0.747	0.537	0.721	0.716	0.911	0.881	0.997	0.987	0.909	0.945	0.980	0.905
adj. R^2	0.745	0.532	0.718	0.709	0.910	0.879	0.997	0.987	0.908	0.944	0.979	0.902
Country	169	167	166	130	111	100	153	100	163	156	149	137
Obs.	5673	5394	5544	1974	3936	3406	4547	3428	3763	2783	2414	2494

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on the possible economic channels specified in the columns labels. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Additionally, we control for the four lags of covariates specified in each column label and described in the text. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. We only report the coefficients of the strong democracy and weak democracy due to the space constraints. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 18: HETEROGENEOUS EFFECTS OF DEMOCRACY ON POTENTIAL DEMO-GRAPHIC MECHANISMS.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Log of	Log of	Log of	Log of			Population
Dependent	life	fertility	mortality	mortality	Birth	Death	growth
Variables:	expectancy	rate	rate(infant)	rate(child)	rate	rate	rate
Dweak	0.001*	-0.003**	-0.002*	-0.004*	-0.079**	-0.071***	0.067*
	(0.000)	(0.002)	(0.001)	(0.003)	(0.036)	(0.026)	(0.036)
Dstrong	0.000	-0.003**	-0.002***	-0.004**	-0.038	0.013	-0.069***
	(0.000)	(0.001)	(0.001)	(0.002)	(0.031)	(0.014)	(0.024)
Coefficient Test							
$\beta_1=\beta_2$(p-value)	0.1694	0.9246	0.7175	0.8847	0.3429	0.0044	0.0020
R^2	0.998	0.993	0.999	0.997	0.994	0.993	0.821
adj. R^2	0.998	0.993	0.999	0.997	0.994	0.993	0.820
Country	169	170	172	172	172	172	172
Obs.	5930	5933	5839	5839	5998	5983	6035

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on the possible demographic channels specified in the columns labels. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Additionally, we control for the four lags of covariates specified in each column label and described in the text. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. We only report the coefficients of strong democracy and weak democracy due to the space constraints. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 19: HETEROGENEOUS EFFECTS OF DEMOCRACY ON CORRUPTIONS AND TRANSPARENCY.

Dependent Variables:	(1) Judicial corruption decision	(2) Public sector corruption Index	(3) Legislature corruption activities	(4) Executive corruption Index	(5) Political corruption Index	(6) HRV Index	(7) Information Transparency Index	(8) Accountability transparency Index	(9) Transparency Index
Dweak	-0.005	0.001	0.005	0.000	0.001	-0.008	5.736***	0.338	2.342***
	(0.004)	(0.006)	(0.005)	(0.005)	(0.005)	(0.027)	(1.005)	(0.253)	(0.419)
Dstrong	-0.008**	-0.015***	-0.008***	-0.022***	-0.012***	0.093**	4.896***	1.189***	2.342***
	(0.003)	(0.003)	(0.003)	(0.005)	(0.003)	(0.043)	(1.005)	(0.329)	(0.514)
Coefficient Test									
$\beta_1 = \beta_2$ (p-value)	0.5948	0.0135	0.0182	0.0013	0.0142	0.0359	0.4134	0.0391	0.9987
R^2	0.868	0.869	0.908	0.849	0.889	0.883	0.700	0.888	0.827
adj. R^2	0.866	0.868	0.907	0.848	0.887	0.881	0.697	0.887	0.826
Country	152	152	152	152	152	120	170	171	170
Obs.	5247	5247	4434	5247	5247	3075	3733	4023	3723

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on the possible political channels (focus on corruption and transparency) specified in the columns labels. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Additionally, we control for the four lags of covariates specified in each column label and described in the text. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. We only report the coefficients of the strong and weak democracy due to the space constraints. $*$ $p < 0.1$, $**$ $p < 0.05$, $***$ $p < 0.01$.

Table 20: HETEROGENEOUS EFFECTS OF DEMOCRACY ON POTENTIAL POLITI-CAL INSTABILITIES.

	(1)	(2)	(3)	(4)	(5)	(6)
	Regime	Regime	Within	Within		
Dependent	instability	instability	instability	instability	Violence	Violence
Variable:	Index 1	Index 2	Index 1	Index 2	Index 1	Index 2
Dweak	-0.052	0.145	0.812***	0.761***	-0.042	0.015
	(0.168)	(0.223)	(0.113)	(0.137)	(0.055)	(0.100)
Dstrong	-0.441***	-0.373**	0.728***	0.327**	-0.170*	-0.131*
	(0.115)	(0.145)	(0.112)	(0.142)	(0.090)	(0.072)
Coefficient Test						
$\beta_1=\beta_2$(p-value)	0.0509	0.0433	0.5494	0.0139	0.1999	0.1795
R^2	0.040	0.044	0.166	0.054	0.200	0.501
adj. R^2	0.029	0.033	0.157	0.043	0.191	0.495
Country	165	155	164	164	169	154
Obs.	4620	3736	4473	4450	4900	3682

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on the possible political instability channels speci-fied in the columns labels. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Addi-tionally, we control for the four lags of covariates specified in each column label and described in the text. Coefficient tests are implemented to check whether the coef-ficients of the strong democracy and the weak democracy are significantly different. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. We only report the coefficients of the strong and weak democracy due to the space constraints. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Figures

Figure 2: HETEROGENEOUS EFFECTS OF DEMOCRACY ON POLITICAL CORRUP-
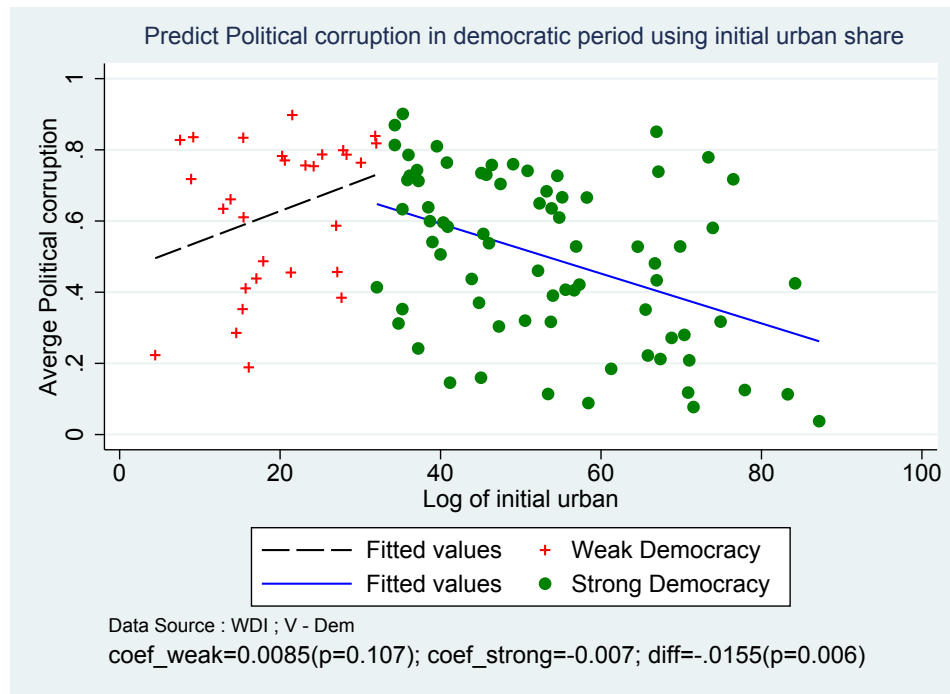TION USING URBANIZATION RATIO.

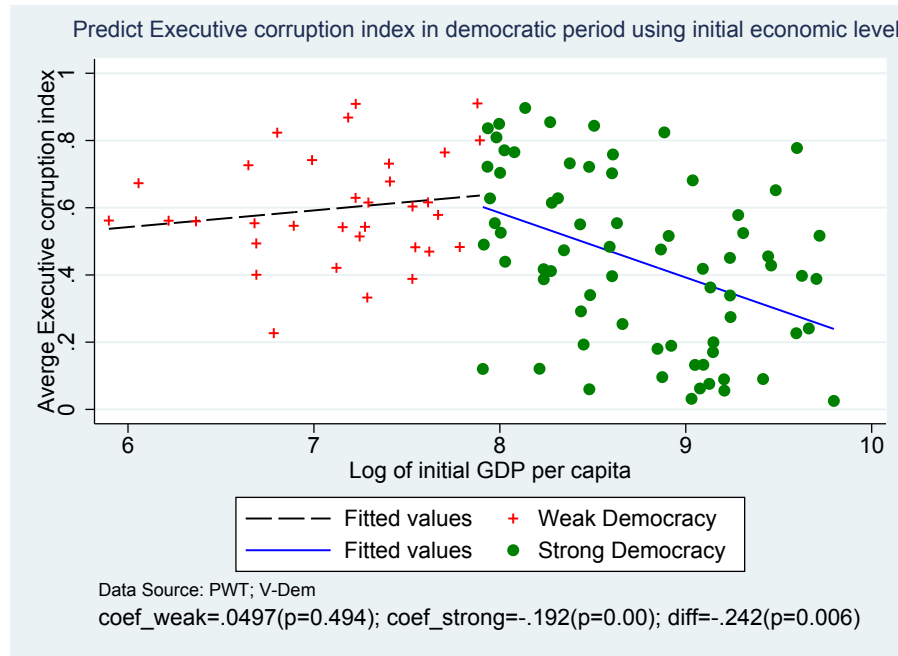Figure 3: HETEROGENEOUS EFFECTS OF DEMOCRACY ON EXECUTIVE SECTOR CORRUPTION.

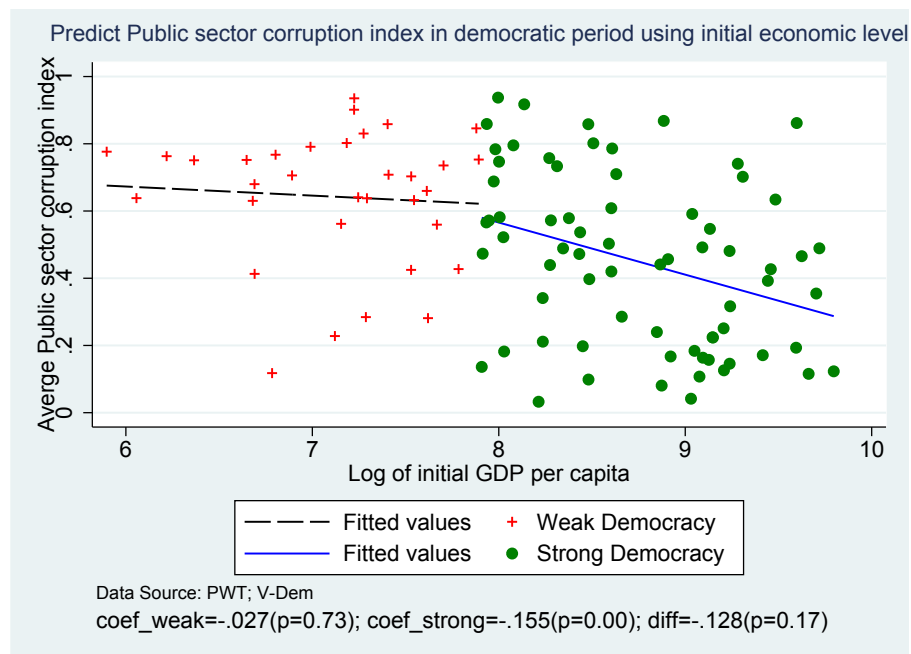Figure 4: HETEROGENEOUS EFFECTS OF DEMOCRACY ON PUBLIC SECTOR CORRUPTION.

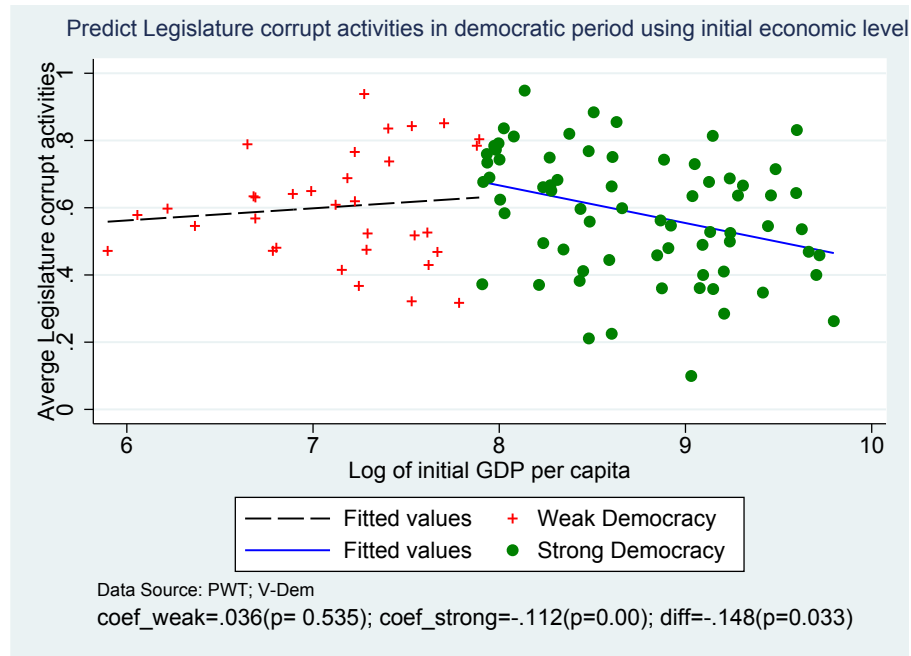Figure 5: HETEROGENEOUS EFFECTS OF DEMOCRACY ON LEGISLATURE SEC-
TOR CORRUPTION.

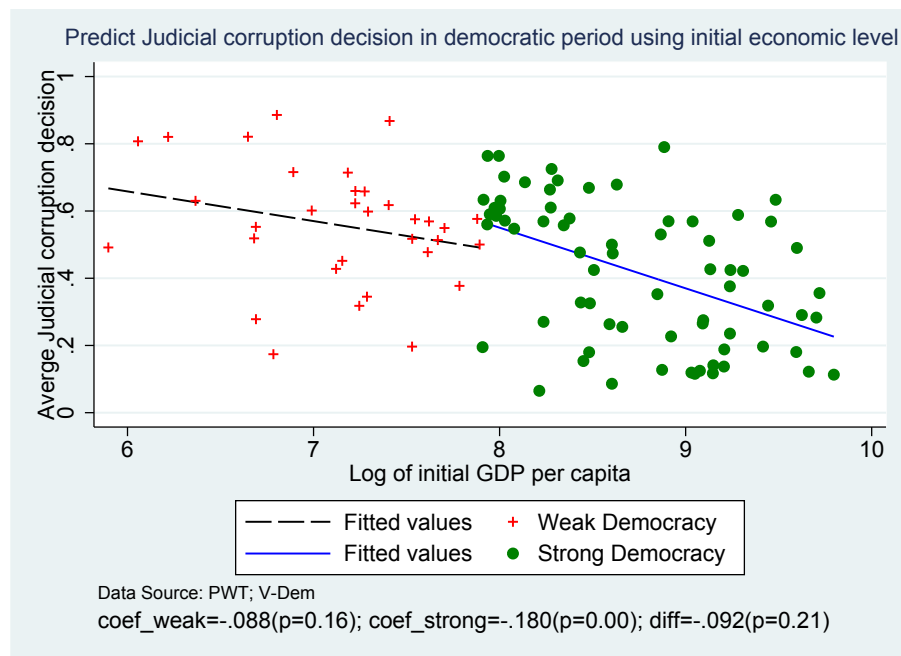Figure 6: HETEROGENEOUS EFFECTS OF DEMOCRACY ON JUDICIAL SYSTEM
CORRUPTION.

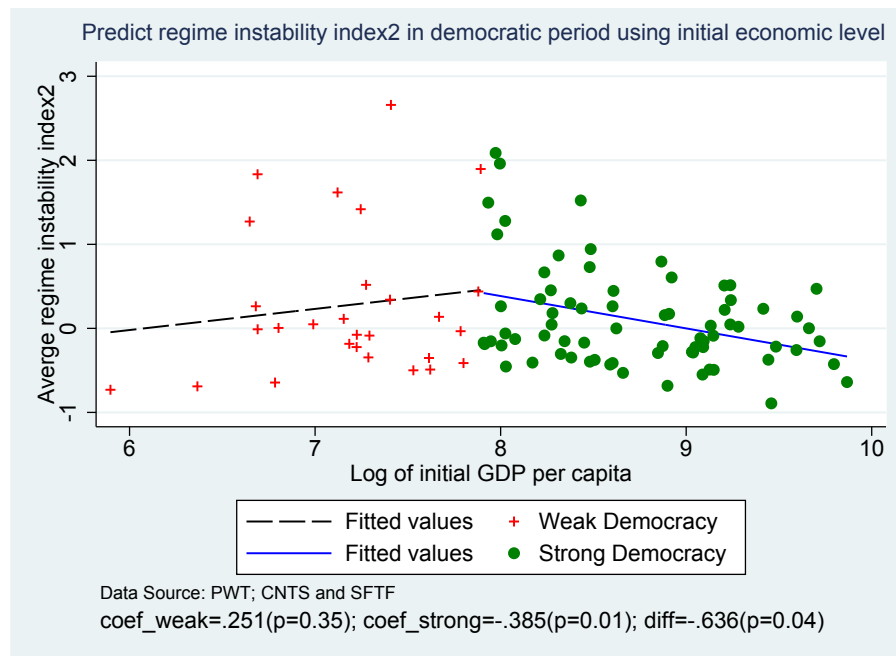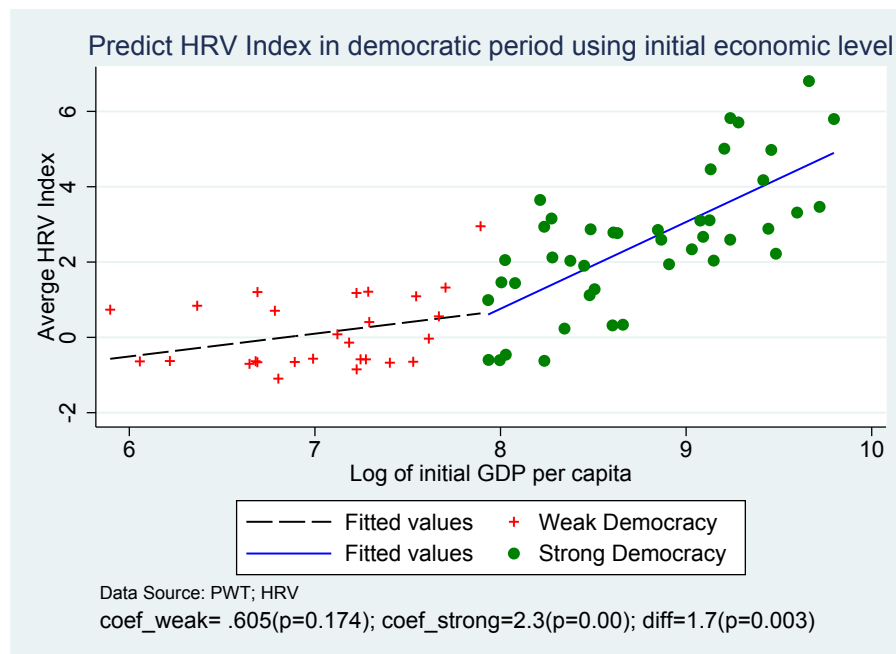Figure 7: HETEROGENEOUS EFFECTS OF DEMOCRACY ON REGIME INSTABIL-
ITY INDEX

Figure 8: HETEROGENEOUS EFFECTS OF DEMOCRACY ON HRV(MEASURED
TRANSPERANCY OF GOVERNMENT).

Appendix A. The grouping process

We modify the democracy dataset from Acemoglu et al. (2015) and impose a 5-year stability condition. Therefore, brief spikes[31] are ignored in the democracy indicator. This is a very common strategy using by other researchers like Giavazzi and Tabellini (2005) and Papaioannou and Siourounis (2008). In addition, some reforms take place very close to the end of the sample, we discard the reforms that took place in the last 5 years of the available sample. Specifically, we set to missing the observations of the Democracy indicator after a reform, if the reform is happened after 2005 and not followed by at least five additional years[32]. All the regressions results are very similar if we don't implement these two steps and use original democracy data from Acemoglu.

Using modified democracy data, we identify country-year democratizations (democracy indicator changes from 0 to 1). For the countries that already become democracies before entering sample, there are two cases. One is so-called old democratic countries, like United States, France, which have been already democracies before WWII and are very stable. There are 20 countries[33], which are grouped into strong democratic countries without considering their initial economic conditions. Another case is that the countries become democracies after WWII, like Japan, India etc. In order to detect the political reform years of these countries, we follow the main principle of constructing democracy data of Acemoglu, and use Polity IV and other two popular democracy data (Cheibub, Gandhi, and Vreeland (2010) or Boix, Miller, and Rosato (2012)) and identify the transition year nearest 1960 when score of Polity IV becomes positive and democracy indicators in CGV or BMR also equate to 1[34].

Next, we use GDP per capita of the transition year as the initial economic condition of the political-reforming country. For the countries that transited into democracy before 1950,

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[31] For example, Albania was set back to autocracy at 1996, but it quickly became democracy at 1997. Autocracy in 1996 is ignored. Argentina had a very short democratic period between 1973 and 1975. This short democratic time is neglected.

[32] For example, Pakistan became democracy after 2007. Then, we set the observation of democracy between 2008 and 2010 as missing values.

[33] There are 20 countries, including: Australia, Austria, Belgium, Canada, Costa Rica, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States. Costa Rica may be a little surprising to categorize into old democratic country. But it did transit into democracy in the early 20th, and score of Polity2 is very high (above 8) and stable after democratization. Since we don't use the initial conditions of these countries to group them and consider them as strong democratic countries directly, it, in some sense, will weaken our logic. Robustness checks dropping these countries are employed to re-run all the regressions reported in this paper. Main results don't change. It is not surprising, since the estimates of coefficients of the strong and weak democracy take advantage of within variations of political institutions but all of these countries don't change their political status from 1960 to 2010, then, play little role in the estimation process.

[34] The country-year including: Brazil-1946, Chile-1935, Colombia-1957, Congo, Rep.-1960, Ecuador-1948, Greece-1944, India-1950, Israel-1948, Japan-1952, Lebanon-1946, Nigeria-1960, Panama-1955, Peru-1956, Philippines-1946, Sri Lanka-1948, Uruguay-1952, Venezuela-1959.

like Japan, we use GDP per capita at 1950 to represent their initial conditions due to the availability of GDP data from PWT 9.0.

Last, we set the cutoffs and group these political-reforming countries.

Since we don't know the precise threshold, we use all these initial GDP per capita data and find the value of *p20* (percentile 20), *p25*, *p30*, *p35* and *p40* then set them as thresholds, respectively.

We define two types of democracies. One group, the initial GDP per capita of the country is smaller than the threshold and the democracy indicator is 1, we categorize the democracy in the country is weak democracy and generate a new indicator:

$$Dweak_{it} = \begin{cases} 1 & \text{if } Democracy_{it} = 1, \, initial\_GDPper_i \leq Threshold \\ 0 & \text{Otherwise.} \end{cases}$$

The other group, the initial GDP per capita in the country is larger than the threshold, which is categorized into the strong democratic group. Also, a new democracy indicator is generated:

$$Dstrong_{it} = \begin{cases} 1 & \text{if } Democracy_{it} = 1, \, initial\_GDPper_i > Threshold \\ 0 & \text{Otherwise.} \end{cases}$$

Notice that $Dweak_{it} = 0$ includes always autocracy and strong democracy. Similarly, $Dstrong_{it} = 0$ includes always autocracy and weak democracy.

The information of groups on country-year is presented in the Table 1.

Appendix B. Data Appendix: Variable Definitions and Sources

GDP growth: Real per capita GDP growth is defined as the annual logarithmic change of real per capita GDP. To make the coefficients more easily interpretable we multiply the variable by 100. Source: World Bank World Development Indicators (2015 Edition).

Income: Natural logarithm of real per capita GDP. Data are in constant 2010 US$. Source: World Bank World Development Indicators (2015 Edition).

Investment rate: Gross capital formation (% of GDP). We use natural log form. Since there are some negative data, we add 15 to all of these data (the minimum of this variable is between -14 and -15.), then transfer to the log form. Source: World Bank World Development Indicators (2015 Edition).

Trade share: Trade (% of GDP). We use natural log form. Source: World Bank World Development Indicators (2015 Edition).

Enrollment rates: three indicators, including: primary enrollment rate, secondary enrollment rate and tertiary enrollment rate. All are Gross enrollment ratio, both sexes (%). Source: World Bank World Development Indicators (2015 Edition).

Mortality rate: two indicators, infant mortality rate and child mortality rate (age is under 5). Both are per 1,000 live births. We use natural log form. Source: World Bank World Development Indicators (2015 Edition).

Fertility rate: total (births per woman). We use natural log form. Source: World Bank World Development Indicators (2015 Edition).

Birth rate: crude birth rate (per 1,000 people). Source: World Bank World Development Indicators (2015 Edition).

Death rate: crude death rate (per 1,000 people). Source: World Bank World Development Indicators (2015 Edition).

Life expectancy: Life expectancy at birth, total (years). We use natural log form. Source: World Bank World Development Indicators (2015 Edition).

Inflation rate: Inflation, GDP deflator (annual %). Source: World Bank World Development Indicators (2015 Edition).

Government spending: General government final consumption expenditure (% of GDP). Source: World Bank World Development Indicators (2015 Edition).

Tax revenue: Tax revenue (% of GDP). We use natural log form. Source: World Bank World Development Indicators (2015 Edition).

Agriculture share of GDP: Agriculture, value added (% of GDP). Source: World Bank World Development Indicators (2015 Edition).

Industry share of GDP: Industry, value added (% of GDP). Source: World Bank World Development Indicators (2015 Edition).

Population growth rate: Population growth (annual %). Source: World Bank World Development Indicators (2015 Edition).

Urbanization rate: Urban population (% of total). Source: World Bank World Development Indicators (2015 Edition) and Jedwab[35] (2015).

Region: These regions are Africa, East Asia and the Pacific, Eastern Europe and Central Asia, Western Europe and other developed countries, Latin America and the Caribbean, Middle East and the North of Africa, and South Asia. Source: World Bank World Development Indicators (2015 Edition).

Net Gini: Net gini coefficient. Source: SWIID.

Real GDP per capita: it is based on purchasing power parity (PPP). Data are in constant 2011US$. Source: PWT 9.0.

TFP1: TFP at constant national prices (2011=1). We use natural log form. Source: PWT 9.0.

Judicial corruption decision: We normalize the index between 0 and 1. Higher means more serious corruption Source: QOG dataset.

Public sector corruption index: We normalize the index between 0 and 1. Higher means more serious corruption. Source: QOG dataset.

Legislature corruption index: We normalize the index between 0 and 1. Higher means more serious corruption. Source: QOG dataset.

Executive corruption index: Higher means more serious corruption. Source: QOG dataset.

Political corruption index: Higher means more serious corruption. Source: QOG dataset.

HRV index: It measures a specific aspect of government transparency reporting national data to international organizations. Source: QOG dataset.

Transparency index: It includes two composite indicators: Informational Transparency index, and Accountability index. Source: QOG dataset.

Accountability Transparency index: It combines the information from measurements of the degree of the free media, fiscal transparency, political constraint. Source: QOG dataset.

Information transparency index: It is constructed by three sub-components: (1) the existence of a free and independent media; (2) fiscal (budgetary) transparency; (3) political constraints. Source: QOG dataset.

Political instabilities indicators: The raw data is obtained from Aisen et al. (2013). Following their method, we construct six alternative indexes of political instability by applying

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[35] We use their urbanization rate data before 1960.

the principal component analysis[36]. The first two indexes include variables that are associated with regime instability, the next two are related to instability within the regime, and the last two are composed of violence indicators. The variables used to define each index are:

Regime Instability Index 1: Constitutional changes, coups, and Cabinet changes.

Regime Instability Index 2: Constitutional changes, coups, Cabinet changes, executive changes, and regime crisis indicator.

Within Regime Instability Index 1: Number of legislative elections, fragmentation index, and government crisis.

Within Regime Instability Index 2: Number of legislative elections, fragmentation index, government crises, executive changes, and Cabinet changes.

Violence Index 1: Assassinations and revolutions.

Violence Index 2: Assassinations, revolutions, revolutionary war indicator, ethnic wars indicator, and genocides indicator.

TFP2: It is constructed by production function. TFP is a labor-augmenting measure of productivity. We use natural log form. Source: Ari Aisen et al. (2013).

Human capital: Source: human capital per capita. It combines information of average years of schooling in the population over 25 years old (taken from Barro and Lee, 2010) and returns of schooling. We use natural log form. Ari Aisen et al. (2013).

Physical capital: It is constructed by using the perpetual inventory equation. Source: physical capital per capita. We use natural log form. Ari Aisen et al. (2013).

Democracy data: We mainly use Democracy data from Acemoglu et al. (2015). It is a dichotomous indicator and combines information from several datasets, including Freedom House and Polity IV, and only considers a country as democratic when several sources classify it as such.

Polity IV: We use the data of polity2.

Democracy of CGV: Dichotomous measure of democracy. Source: Cheibub, Gandhi, and Vreeland (2010).

Democracy of BMR: Dichotomous measure of democracy. Source: Boix, Miller, and Rosato (2012).

Democracy of PS: Dichotomous measure of democracy. We update it to 2010. Source: Papaioannou and Siourounis (2008).

Democratic capital (Democratic stock): It is constructed by adding up each countrys

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[36] This technique for data reduction describes linear combinations of the variables that contain most of the information. It analyzes the correlation matrix, and the variables are standardized to have mean zero and standard deviation of 1 at the outset. Then, for each of the groups of variables, the first component identified, the linear combination with greater explanatory power, was used as the Political Instability Index.

Polity2 score from 1900 to the present year, with a 1 percent annual depreciation rate. Source: Gerring (2005). We update it to 2010.

Forms of Democracy: We use Regime Institutions (Cheibub et al., 2010), Political System (DPI) and Institution (Bormann & Golder, 2013) to construct dummy variables of Parliamentary Democracy, Mixed (semi-presidential) democracy and Presidential democracy. Electoral System (Bormann & 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. Source: QOG.

Appendix C. Political Mechanisms Dropping Old Democratic Countries

Table 21: HETEROGENEOUS EFFECTS OF DEMOCRACY ON ANNUAL PER CAPITA GROWTH USING DIFFERENT LAGS OF GROWTH AS INDEPENDENT VARIABLES.

Using different lags of Growth	(1) 3 lags	(2) 6 lags	(3) 9 lags	(4) 12 lags	(5) 15 lags
Dweak	0.353	0.370	0.463	0.375	0.334
	(0.363)	(0.376)	(0.409)	(0.457)	(0.539)
Dstrong	1.175***	1.115***	1.260***	0.933**	1.286***
	(0.329)	(0.354)	(0.428)	(0.443)	(0.482)
L.Growth	0.164**	0.173**	0.152*	0.120	0.109
	(0.065)	(0.074)	(0.082)	(0.088)	(0.092)
L2.Growth	0.052***	0.049**	0.022	0.016	-0.004
	(0.020)	(0.023)	(0.026)	(0.029)	(0.035)
L3.Growth	0.050***	0.035**	0.015	0.003	-0.014
	(0.017)	(0.015)	(0.017)	(0.017)	(0.023)
L4.Growth		-0.051*	-0.050**	-0.061***	-0.074***
		(0.026)	(0.024)	(0.023)	(0.019)
Coefficient Test					
$\beta_1=\beta_2$(p-value)	0.0656	0.1110	0.1538	0.3481	0.160
R^2	0.166	0.168	0.151	0.141	0.154
adj. R^2	0.158	0.160	0.142	0.131	0.143
Country	172	172	170	166	159
Obs.	6050	5568	5083	4598	4115

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth. We control for the different lags of growth rate specified in each column label. All columns present the results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Only the coefficients of 4 lags of growth rates are reported due to the space constraints. 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 22: HETEROGENEOUS EFFECTS OF DEMOCRACY ON ANNUAL PER CAPITA GROWTH, OUTLIER TESTS USING DIFFERENT DEMOCRACY DATASETS.

	(1) p25 Acemoglu	(2) p25 CGV	(3) p25 BMR	(4) p35 Polity	(5) p20 PS
Dweak	-0.237	-0.866***	-0.439	-0.337	-0.381
	(0.253)	(0.294)	(0.296)	(0.263)	(0.292)
Dstrong	0.546**	0.378	0.225	0.321	0.637**
	(0.234)	(0.299)	(0.297)	(0.274)	(0.274)
Coefficient Test					
$\beta_1=\beta_2$(p-value)	0.0149	0.0017	0.0017	0.0472	0.0038
R^2	0.271	0.244	0.264	0.278	0.279
adj. R^2	0.264	0.237	0.257	0.270	0.272
Country	172	172	171	146	162
Obs.	5446	5091	5359	4691	5193

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on annual per capita growth using different democracy datasets. We remove observations with a standardized residual estimated above 1.96 or below -1.96. The thresholds are chosen according the regression resluts in Table 9, 10, 9, and 12, respectively. All columns present the results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Only the coefficients of the strong and weak democracy are reported due to the space constraints. 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 23: HETEROGENEOUS EFFECTS OF DEMOCRACY ON TFP, USING DIFFER-ENT DEMOCRACY DATASETS.

	(1) CGV25 ltfp1	(2) CGV25 ltfp2	(3) BMR25 ltfp1	(4) BMR25 ltfp2	(5) PS20 ltfp1	(6) PS20 ltfp2	(7) Polity35 ltfp1	(8) Polity35 ltfp2
Dweak	-0.012**	0.001	0.000	0.010	0.004	0.023*	0.002	0.005
	(0.006)	(0.014)	(0.007)	(0.012)	(0.008)	(0.012)	(0.006)	(0.013)
Dstrong	0.001	-0.005	-0.002	-0.006	-0.002	-0.009	-0.004	-0.008
	(0.004)	(0.008)	(0.004)	(0.007)	(0.004)	(0.007)	(0.004)	(0.006)
Coefficient Test								
$\beta_1=\beta_2$(p-value)	0.0900	0.7402	0.7850	0.2830	0.5202	0.0182	0.3820	0.3565
R^2	0.909	0.885	0.911	0.885	0.913	0.883	0.915	0.886
adj. R^2	0.908	0.883	0.909	0.883	0.912	0.881	0.914	0.884
Country	111	98	111	98	110	98	104	90
Obs.	3706	3375	3928	3375	3924	3357	3659	3116

Note: This table presents estimates of the heterogeneous effects of democracy (strong democracy and weak democracy) on TFP. We use log forms of TFP from two datasets: PWT(ltfp1) and **?**(ltfp2). The thresholds for different democracy data sources are same as Table 22. All columns present the results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Only the coefficients of the strong and weak democracy are reported due to the space constraints. 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 24: HETEROGENEOUS EFFECTS OF DEMOCRACY ON CORRUPTIONS AND TRANSPARENCY WITHOUT OLD DEMOCRATIC COUNTRIES.

Dependent Variables:	(1) Judicial corruption decision	(2) Public sector corruption Index	(3) Legislature corruption activities	(4) Executive corruption Index	(5) Political corruption Index	(6) HRV Index	(7) Information transparency Index	(8) Accountability Transparency Index	(9) Transparency Index
Dweak	-0.006	0.001	0.005	-0.000	0.000	-0.009	5.700***	0.243	2.305***
	(0.004)	(0.006)	(0.005)	(0.005)	(0.005)	(0.027)	(1.013)	(0.256)	(0.430)
Dstrong	-0.009***	-0.016***	-0.009***	-0.022***	-0.013***	0.115**	4.754***	1.146***	2.289***
	(0.003)	(0.004)	(0.003)	(0.005)	(0.003)	(0.044)	(1.003)	(0.336)	(0.527)
Coefficient Test									
$\beta_1=\beta_2$(p-value)	0.5369	0.0128	0.0153	0.0013	0.0124	0.0132	0.3576	0.0314	0.9769
R^2	0.868	0.870	0.909	0.851	0.889	0.869	0.706	0.890	0.833
adj. R^2	0.867	0.868	0.908	0.849	0.887	0.868	0.702	0.889	0.832
Country	133	133	133	133	133	103	150	151	150
Obs.	4433	4433	3620	4433	4433	2616	3205	3494	3195

Note: This table presents estimates of the heterogeneous effects of democracy dropping old democratic countries (strong democracy and weak democracy) on the possible political channels (focus on corruption and transparency) specified in the columns labels. All columns present results using the within estimators. In all specifications, we control for a full set of country and year fixed effects. Additionally, we control for the four lags of covariates specified in each column label and described in the text. Coefficient tests are implemented to check whether the coefficients of the strong democracy and the weak democracy are significantly different. Standard errors robust against heteroscedasticity and serial correlation at the country level are reported in parentheses. We only report the coefficients of the strong and weak democracy due to the space constraints. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 25: HETEROGENEOUS EFFECTS OF DEMOCRACY POLITICAL INSTABILI-
TIES WITHOUT OLD DEMOCRATIC COUNTRIES.

	(1)	(2)	(3)	(4)	(5)	(6)
	Regime	Regime	Within	Within		
Dependent	instability	instability	instability	instability	Violence	Violence
Variable:	Index 1	Index 2	Index 1	Index 2	Index 1	Index 2
Dweak	-0.065	0.106	0.739***	0.669***	-0.062	-0.000
	(0.169)	(0.221)	(0.106)	(0.129)	(0.059)	(0.103)
Dstrong	-0.457***	-0.408***	0.645***	0.227	-0.208**	-0.160**
	(0.117)	(0.144)	(0.109)	(0.137)	(0.092)	(0.077)
Coefficient Test						
$\beta_1=\beta_2$(p-value)	0.0485	0.0406	0.4795	0.0080	0.1421	0.1484
R^2	0.043	0.050	0.198	0.061	0.206	0.511
adj. R^2	0.031	0.037	0.188	0.049	0.196	0.503
Country	145	136	144	144	149	135
Obs.	3893	3144	3746	3723	4133	3090

Note: This table presents estimates of the heterogeneous effects of democracy dropping
old democratic countries (strong democracy and weak democracy) on the possible po-
litical instability channels specified in the columns labels. All columns present results
using the within estimator. In all specifications, we control for a full set of country
and year fixed effects. Additionally, we control for the four lags of covariates speci-
fied in each column label and described in the text. Coefficient tests are implemented
to check whether the coefficients of the strong democracy and the weak democracy
are significantly different. Standard errors robust against heteroscedasticity and serial
correlation at the country level are reported in parentheses. We only report the coef-
ficients of the strong and weak democracy due to the space constraints. * $p < 0.1$, **
$p < 0.05$, *** $p < 0.01$.