Democracy and Development: Devil in the Details*

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Does democracy promote economic development? Despite many attempts to address this question, the answer remains elusive. Richer countries are generally democratic. But this cross country correlation could reflect reverse causation or omitted variables. Evidence that political regime changes produce subsequent economic growth is considerably weaker. Does this mean that political regimes have no systematic influence on economic development? Not necessarily, but – given the data limitations – such causal effects are difficult to identify from the within-country variation.

A plausible reason for this difficulty is that "democracy" is too blunt a concept. Democracies and autocracies come in various forms, and regime changes come about in various circumstances. If this heterogeneity is not random, the correlation between specific features of political reforms and their occurrence makes it hazardous to estimate an average causal effect on economic growth, or other outcomes.

This paper illustrates three specific instances where the details of democratic reform influence the effect on economic outcomes. Section I of the paper clarifies our empirical strategy. Section II zooms in on political

and economic reforms, drawing on Francesco Giavazzi and Guido Tabellini (2005). Democratizations as well as liberalizations induce accelerations of growth. But the sequence of reforms is crucial: countries liberalizing their economy before extending political rights do better. Section III considers different forms of democracy, drawing on Torsten Persson (2005). Specific democratic institutions influence the fiscal and trade policies implemented after democratization, which may explain why presidential democracy leads to faster growth than parliamentary democracy. Finally, Section IV distinguishes expected and actual political reforms, drawing on Persson and Tabellini (2005). Taking expectations of regime change into account helps identify a stronger growth effect of democracy.[1]

I. Empirical methodology

While political institutions generally show much inertia, they sometimes change suddenly and drastically – as in many democratizations or coups. Under appropriate identifying assumptions, such sudden regime changes can be exploited by comparing average performance before and after the event, as in the estimation of a treatment effect.

Our sample has annual observations for about 150 countries and includes about 120 regime changes over the period 1960-2000; in Section IV, we also consider a longer panel going back to the mid 1800s, with twice as many regime changes. Per-capita income comes from the Penn World Tables for 1960-2000 and Angus Maddison (2001) for 1850-2000. We classify a country as a democracy if the *polity*2 variable in the Polity IV data set is strictly positive.[2]

We estimate a panel regression:

$$y_{i,t} - y_{i,t-1} = \beta y_{i,t-1} + \phi D_{i,t} + \boldsymbol{\rho}\mathbf{x}_{i,t} + \alpha_i + \theta_t + \epsilon_{i,t} \ , \tag{1}$$

where $y_{i,t}$ denotes (log) per capita income in country i and year t, $D_{i,t}$ is a dummy variable equal to one under democracy, $\mathbf{x}_{i,t}$ is a vector of control variables, while α_i and θ_t are country and year fixed effects. Thus, we estimate parameter ϕ by a difference-in-difference methodology, where countries changing regime are the "treated", and those that do not are the "controls".

Our identifying assumption requires that the selection of countries into democracy be uncorrelated with the *country-specific and time-varying* shock to growth: $\epsilon_{i,t}$. It allows any correlation between regime selection and the country fixed effect, α_i – e.g., that fast-growing countries are more likely to become democracies than slow-growing ones. But it means that, in the absence of regime change, average growth in treated countries should (counterfactually) have been the same as in control countries (conditional on $\mathbf{x}_{i,t}$). This would fail, e.g., if democratic transitions are enacted by far-sighted leaders, who have a lasting impact on growth irrespective of the regime change, or if lapses into dictatorship coincide with lasting deteriorations of economic performance that would have taken place anyway.

As a concrete example, we might confound economic and political transition after the fall of the Berlin wall, when many formerly communist regimes introduced democracy as well as market economy. Therefore, we include in $\mathbf{x}_{i,t}$ a binary indicator for years after 1989 in the formerly socialist countries of Central and Eastern Europe and the split-up Soviet Union. We also include indicators for years of wars (current and lagged), since wars are correlated with regime changes as well as growth. To increase the similarity between

treated and controls, in most specifications we include dummy variables for continental location (Africa, Asia and Latin America) and socialist legal origin interacted with year dummy variables. To reduce serial correlation and allow for economic convergence, lagged per-capita income is always included.

Heterogeneity may also violate our identifying assumption. Circumstances surrounding regime changes differ widely across time and location, as do the types of political institutions adopted or abandoned. Thus, the effects of a crude democracy indicator are likely to differ across time and location. If we neglect this heterogeneity and estimate the average effect of democracy as in (1), $\epsilon_{i,t}$ will also include the term $(\phi_{i,t} - \phi)D_{i,t}$, where $\phi_{i,t}$ is the effect of democracy in country i and year t. Identification of ϕ now requires heterogeneity in the effect of reforms to be uncorrelated with their occurrence. This assumption fails if countries self-select into democracy based on the growth effect of regime changes (e.g., $D_{i,t} = 1$ more likely when $\phi_{i,t} > \phi$). Addressing this problem requires a parsimonious approach, however, since the number of reforms is limited relative to the variety in democratic experience. In the remainder of the paper, we thus decompose the effects of political reforms according to a few specific and observable features, one at a time.

II. Economic liberalization and democracy

As a starting point, we estimate the average effect of democracy on growth, i.e., ϕ in (1). Column 1 of Table 1 suggests that becoming a democracy accelerates growth by 0.75 percentage points, an economically relevant and statistically significant effect (we report robust standard errors, but the results are similar with standard errors clustered by country). With an estimated

convergence rate of 6 percent per year (parameter β in (1)), the long-run effect on income per capita is 12.5 percentage points. Democracy has very similar effects on the investment rate (results not reported). While both growth and investment tend to slow down around the democratic transition, controlling for years preceding and following the regime change does not affect the inference about the average effect of democracy (see Giavazzi and Tabellini (2005) for more extensive discussion). Elias Papaioannou and Gregorios Siourounis (2004) and Richard Roll and John Talbott (2004) obtain similar results, suggesting that democracy promotes growth.

Democratization is often associated with economic reforms, such as opening the economy to international trade and generally extending the role of markets. Sometimes economic liberalization leads democratization, more often it lags by a few years – perhaps because similar forces push for both kinds of reforms. Joint economic and political reforms could violate our identifying assumptions, however. If we do not control for economic reforms, the omitted variable could bias upwards the estimated effect of democracy, via positive correlation between democracy and the error term $\epsilon_{i,t}$ in (1).

Like Giavazzi and Tabellini (2005), we use an indicator of economic liberalizations originally coded by Jeffrey Sachs and Andrew Werner (1995) and updated by Wacziarg and Karen Welch (2004). The difference in difference estimates in column 2 confirm that economic reforms promote economic performance. Without controlling for the political regimes, liberalizations accelerate growth by about 1.3 percentage points (a long-run effect on income of 26 percent). They are also associated with more investment and international trade (results not shown).

If the column-1 estimate could be biased, however, then so could the column-2 estimate. If economic and political reforms have independent effects on growth but are positively correlated, we ought to estimate a multiple treatment equation. In column 3, we thus include the two indicators in the regression. Both reforms retain a significant and positive effect on growth, with economic reform having the stronger effect (though its coefficient falls as compared to column 2).

Considering the joint effect of reforms lends additional credibility to the identifying assumption, but does not fully address the issue of heterogeneity. Giavazzi and Tabellini (2005) also address the sequence of reforms. The data reveal that, on average, enacting economic liberalizations ahead of political reforms is associated with better economic performance than the opposite sequence. Column 4 of Table 1 adds two dummy variables to the regression: the first equals unity if democracy is enacted first of two reforms, the second equals unity for the opposite order, while both equal zero if only one type of reform is enacted.[3] Countries where economic liberalization preceded democracy include South Korea, Taiwan, Chile and Mexico. The opposite sequence took place in countries such as Argentina, Brazil, the Philippines and Bangladesh.

The estimated coefficient of "democracy after liberalization" is positive and significant, while that of "liberalization after democracy" is negative and significant. Enacting only one reform still has a positive and significant effect on growth similar to those in columns 1-3. Countries that first liberalize the economy thus perform better, if two reforms take place. Giavazzi and Tabellini (2005) show that this finding is very robust. A plausible interpre-

tation is that a young democracy born in a closed economic environment is more likely to be bogged down in redistributive conflict and pursue populist economic policies, while a young democracy in an open economy is forced to pay more attention to economic efficiency. Moreover, economic liberalization often goes hand in hand with securing the protection of property rights and enforcing the rule of law, which may be a prerequisite for a well-functioning democracy. Naturally, the usual caveats about identification apply. But if the estimates do uncover a causal effect, they suggest that reformers of closed autocracies ought to give priority to economic over political liberalization.

III. Form of democracy

Another source of reform heterogeneity is the form of democratic institutions adopted or abandoned. Political scientists stress the distinction between different electoral rules and forms of government. In recent research (Persson and Tabellini, 2003, 2004), we show that these constitutional traits imply systematic differences in economic policies. A natural question is whether the growth effects of becoming a democracy differ across these constitutional forms, and whether policy effects like those uncovered among existing democracies also appear in the reform switches between democratic and non-democratic institutions.

Column 1 of Table 2 decomposes the average growth effect of democracy in two different ways. Besides democracy, we include two additional binary variables classifying democracies by their form of government (presidential vs. parliamentary) and electoral rule (majoritarian vs. parliamentary). Otherwise, the regression is identical to that in column 1 of Table 1.[4]

Clearly, different constitutions are associated with different growth effects. The coefficient on democracy now picks up the default effect of becoming a presidential *and* majoritarian democracy. A new parliamentary democracy grows 1.5 percentage points less than a new presidential democracy. By the point estimates, the growth effect of a reform from autocracy to parliamentary democracy is negative, although not significantly different from zero. The electoral system, instead, does not appear to influence the growth effect of democracy.

A possible explanation for these results is induced policy changes. Based on cross-sectional estimates within a sample of democracies, Persson and Tabellini (2003, 2004) found parliamentary and proportional democracies to be associated with larger government spending. Here, we follow Persson (2005) and estimate the effect on government consumption with the difference-in-difference specification in (1).[5] The results are displayed in column 2. Becoming a majoritarian and presidential democracy cuts government spending by almost 2 percent of GDP. New parliamentary democracies raise government consumption by more than 3 percent of GDP. The difference in spending between the two forms of government is a highly significant 5 percent of GDP. This estimate only exploits time variation as countries enter and exit from democracy, but is remarkably similar to our earlier estimates in a cross-section of democracies. Proportional rather than majoritarian elections raise spending by 1 percent of GDP. This effect is statistically significant but lower than our previous cross-sectional estimates, probably due to the exclusion of transfers (we found the electoral rule to have a particularly strong effect on social and welfare spending).

How about other polices? Persson (2005) argues that we should expect parliamentary and proportional democracies to have less protectionist trade polices for the same reason that they are expected to have larger government spending, namely that they foster policies in the interest of broader coalitions of voters than do presidential and majoritarian democracies. Column 3 speaks to this suggestion by using the liberalization indicator of the previous section as a dependent variable. Indeed, introducing parliamentary or proportional democracy each raises the probability of a subsequent liberalization by about 10 percent, compared to majoritarian and presidential democracy.

These policy effects may explain the growth effects. A new parliamentary democracy is more prone to pursue economic liberalizations than a new presidential democracy. But as we saw in Section II, liberalizations following democratizations have weaker effects on growth.[6] At the same time, parliamentary democracies raise government consumption much more than presidential democracies. If this spending binge distorts economic activity, growth may suffer. While the electoral system also shapes policy – with proportional democracies more prone to spend and liberalize – the spending effects are less pronounced and may not show up in the growth rate.

IV. Expected and actual democracy

Changes in property rights protection, tax systems, or infrastructure are bound to alter the returns to investment. But investment reacts to expected, not actual, returns. This means that expected, and not just actual, regime change affects growth. Suppose democracy raises growth by raising the returns to investment, and that upcoming regime changes are (partly) antic-

ipated by investors. Then, growth will accelerate well before an imminent democratization, and decelerate well before an imminent coup. This would contradict our identifying assumption, by creating a negative correlation between democracy and the growth residual, $\epsilon_{i,t}$, and bias down our estimate of ϕ – the growth effect of democracy.

Motivated by this observation, Persson and Tabellini (2005) formulate a theoretical model of economic and political change, where both actual and expected political regime influence economic growth. In the model, countries stochastically enter and exit from democracy with probabilities influenced by current and lagged income. The probability of regime change also depends on a country's "democratic capital", which influences the willingness of its citizens to fight for democracy. Democratic capital is measured by assuming that it accumulates in years of democracy and in environments with democratic neighbors, but depreciates with autocratic experience.

Persson and Tabellini (2005) discuss the empirical strategy in detail. Here, we estimate an equation similar to (1) augmented by the probability of regime change – in the form of a hazard rate – as estimated by Persson and Tabellini (2005) over the full sample 1850-2000. The growth equation is specified to be consistent with the estimated hazard rate – see Table 3 for details. As country and year fixed effects are included, we identify the effects of expected democracy entirely from the time variation in the hazard rate.

The first two columns of Table 3 report the estimated results *within* regimes, confining the attention to observations under democracy only, or observations under autocracy only. Identification is achieved by an exclusion restriction derived in the model, namely that democratic capital (measured

as described above) has no direct effect on growth (given lagged income and the income of neighboring countries). In each sample, we consider economic growth (available for 1850-2000), Panel A, as well as investment (available only for 1960-2000), Panel B.[7]

Under democracy, column 1, the probability of regime change hurts both investment and growth, as expected and consistent with the finding that democracy raises growth. The large negative estimated coefficient reflects the dimension of the hazard rate: most observations lie below 10% with an average of 3%, as political regimes are very persistent.[8]

Under autocracy, the probability of regime change ought to spur growth and investment. Instead, in column 2, both coefficients are negative although not significantly different from zero. A possible interpretation is that we have omitted further heterogeneities, such that democratic reforms do not boost economic performance in some autocracies. Alternatively, political uncertainty exerts an offsetting negative effect.

Consider now actual as well as expected political regimes in the full sample.[9] In column 3, we include the dummy variable for democracy plus the probability of autocracy in the current period (alone and interacted with lagged democracy to allow the effect of expectations to differ by regime). In addition to the aforementioned exclusion restriction, we rely on the usual identifying assumption – $\epsilon_{i,t}$ in (1) uncorrelated with $D_{i,t}$ – now made more credible by including the probability of autocracy as a regressor. This specification is demanding, because actual democracy and the probability of autocracy are highly collinear due to the inertia of political regimes. Nevertheless, the results support the idea that democracy has a positive effect on growth

and that expectations also play a role. Actual democracy now induces a growth acceleration of over 1 percent. Given an estimated convergence rate of 2.8 percent, this implies a long-run impact on the level of per capita income of 35 percent. The estimated growth effect is larger than in Table 1, where expectations are neglected. More importantly, it is also much larger than in the same specification over 150 years of data, without controlling for the probability of autocracy (see Persson and Tabellini, 2005). Thus, including expected regime changes brings out a more forceful effect of actual transitions. On the other hand, the estimated coefficients on investment are more disappointing.

Taken together, all these results suggest that democracy is indeed too blunt a concept: the devil is in the details. Future theoretical and empirical work should pay close attention to the heterogeneity of political reforms.

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Notes

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[1] We refer the reader to the three papers cited in this paragraph for references on the wide topic of democracy and growth. Dani Rodrik and Romain Wacziarg (2005) obtain related results considering different ways of disaggregating the effect of democracy.

[2] Large changes in *polity*2 are generally clustered around 0. Although lower than that often chosen by political scientists, this threshold more easily captures the effect of discrete political reforms. We discard reforms in the last three years of the sample, setting to missing the observations of outcomes after such reforms. At the start of the sample, we only require one available observation before the reform. See Giavazzi and Tabellini (2005) and Persson (2005) for more details.

[3] To unambiguously identify the sequence, Giavazzi and Tabellini (2005) only classify episodes that last at least four years as reforms, omitting temporary changes in political or economic institutions. The variables in column 4 of Table 1 use this classification, which is slightly different from that in the preceding columns for a small number of countries.

[4] Table 2 assumes the effect of the form of government and the electoral system to be additive. The results are robust to relaxing this assumption.

[5] While Persson and Tabellini (2003, 2004) use IMF data for central government spending (including transfers), we here use Penn World Tables for central plus local government consumption, as a percentage of GDP.

[6] Indeed, all countries that pursued the "more favorable" sequence (open the economy, then democratize) became presidential democracies, while the opposite sequence is observed for both forms of government.

[7] Results are very similar for growth on the shorter sample 1960-00 (still using the Maddision data for per capita income).

[8] Transition years (defined as the year of the change in regime and the immediately preceding year) are omitted from the sample, to ensure that the results are not just due to unrest during democratic transitions.

[9] Earlier empirical work by Adam Przeworski et al (2000) considers the effect of expected regime changes on economic growth in the post war period.

Table 1 Effects of political and economic reforms on economic growth (1960-2000)

	(1) Growth	(2) Growth	(3) Growth	(4) Growth
Democracy	0.75**		0.81**	0.70*
	(0.34)		(0.33)	(0.33)
Liberalization		1.31***	0.92**	1.22***
		(0.39)	(0.39)	(0.43)
Democracy after liberalization				1.62*
				(0.86)
Liberalization after democracy				- 1.71***
				(0.62)
Number of countries	138	134	130	130
Number of observations	4338	4492	4229	4229
Adjusted R-square	0.10	0.09	0.11	0.12

Notes: Robust standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%
Control variables: country and year fixed effects, lagged income, dummy variable for wars and lagged wars, dummy variable for former socialist countries in Central and Eastern Europe plus former Soviet Union after 1990, year dummy variables interacted with dummy variables for Latin America, Africa, Asia and Socialist legal origin

Table 2 Forms of democracy, growth and economic policies (1960-2000)

	(1) Growth	(2) Government consumption	(3) Liberalization
Democracy	1.00**	− 1.87***	− 0.07***
	(0.51)	(0.54)	(0.02)
Parliamentary democracy	− 1.61***	4.89***	0.11***
	(0.59)	(0.79)	(0.04)
Proportional democracy	0.16	1.15**	0.11***
	(0.49)	(0.49)	(0.03)
Number of countries	138	150	132
Number of observations	4338	4552	4578
Adjusted R-square	0.14	0.20	0.47

Notes: Robust standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%
Control variables: country and year fixed effects, dummy variable for wars and lagged wars, dummy variable for former socialist countries in Central and Eastern Europe plus former Soviet Union after 1990, year dummy variables interacted with dummy variables for Latin America, Africa, Asia and Socialist legal origin

Table 3 Expected and actual democracy, growth (1850-2000) and investment (1960-2000)

	(1) Democracies	(2) Autocracies	(3) Full sample
Panel A Dependent variable: Growth 1850-2000			
Hazard rate out of current regime	− 20.05***	− 17.85	
	(5.51)	(11.93)	
Democracy			1.04*
			(0.62)
Probability of autocracy			0.47
			(0.73)
Prob. of autocracy in lagged democracy			− 3.42
			(2.52)
Number of countries	107	117	148
Number of observations	3656	4130	8135
R-square (within)	0.19	0.12	0.10

Panel B Dependent Variable: Investment 1960-2000

Hazard rate out of current regime	− 27.03** (12.10)	− 19.43 (21.73)	
Democracy			0.38 (0.64)
Probability of autocracy			0.00 (0.75)
Prob. of autocracy in lagged democracy			− 2.30 (4.15)
Number of countries	94	84	131
Number of observations	1840	1897	4080
R-square (within)	0.14	0.12	0.11

Notes: Robust standard errors in first parentheses: significant at 10%; ** significant at 5%; *** significant at 1%
Control variables: country and year fixed effects, lagged income, dummy variable for wars and lagged wars, dummy variable for former socialist countries in Central and Eastern Europe plus former Soviet Union after 1990
Transition years excluded from columns 1-4; an indicator for transition years is included in columns 5-6.