Democratic Transitions
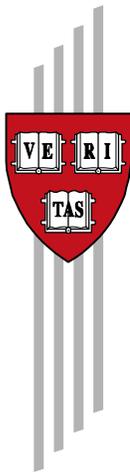
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Democratic Transitions

David L. Epstein, Robert Bates, Jack Goldstone, Ida Kristensen, and Sharyn O'Halloran*

Abstract

Recent studies of democratization, most importantly Przeworski, Alvarez, Cheibub, Limongi, 2000 (PACL), question the modernization hypothesis that richer countries are more likely to be democratic. PACL claim instead that transitions to democracy are unpredictable, but once there, countries can remain democratic with higher levels of GDP per capita. We retest this hypothesis using an expanded data set and a three-way, rather than two-way, categorization of regimes: autocracies, partial democracies, and full democracies. We find that the modernization theory does hold up well, contrary to PACL's findings: greater levels of prosperity do predict when countries are likely to leave autocracy and stay fully democratic. Partial democracies, on the other hand, emerge as the most volatile and least predictable category of regimes. We also find considerable support for Acemoglu and Robinson's (2002) theories on inequality and transitions. Our analysis highlights the need to better understand the workings of partial, or unconsolidated, democracies, as these are also the countries most likely to enter external wars or fall prey to internal failure.

Keywords: Growth, Africa, institutions, democracy, governance.

JEL Codes: H10, P51, P52, Z13

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1 Introduction

The study of democratization is one of the most venerable literatures in comparative politics. It is also one of the most vigorous, as controversies over theory and method interact with empirical research in debating the origins and determinants of democratic forms of government. In recent years, however, an uncharacteristic lull seems to have descended on this vibrant field — a lull we attribute to the need to absorb the pivotal contribution of Prezworski, Alvarez, Chibu, and Limogi (2000) (hereafter referenced PACL). Rather than igniting debate, as would be right and proper, PACL appears instead to have quenched it.

Among the most famous of PACL's findings is that modernization is not systematically related to democracy. Rather, the positive association between the two, they argue, results from the reduced likelihood of more modern countries sliding back, as it were, into undemocratic forms of government, once they have (randomly) become democratic. This finding is now treated as incontrovertible.

In this article, however, we demonstrate it to be wrong. The grounds for this contention emerge from within the field itself. For as in any established literature, in the study of democratization, debates over method and theory inform, and are informed by, empirical investigation. It is by attending to these debates that we have been led to dissent from the consensus precipitated by PACL's contribution.

Some of the oldest debates in this field center on issues of measurement. In some instances, as when addressing the core properties of a democracy (e.g. Dahl (1971) on polyarchy), these debates are richly substantive. Other times — as when debating whether democracy is best thought of as a discrete or continuous concept, or, if discrete, as a dichotomy or trichotomy (e.g., Collier and Adcock 1999) — they appear trivial. Appearances can be deceiving, however. Shifting from the dichotomous classification of political systems, in which governments are either democratic or authoritarian, leads us to reassess the validity of PACL's results. Within a continuous or even trichotomous classification scheme, measures of modernization, we find, do significantly associate with movements toward higher levels of democracy. Put another way, the findings of PACL appear not to be robust to even seemingly trivial changes in coding methods.

At least as vigorous as the debates over method are those over theory, and these too shape this paper. In particular, we have been influenced by the recent contributions of political economists to this field. As do Prezworski (1991) and O'Donnell and Schmitter (1986), political economists — such as Rosendorff (2001) and Acemoglu and Robinson (1999; 2000) — tend to downplay the analysis of sociological or economic aggregates and their relationship to democracy, as practiced by earlier contributors to the field (e.g., Lerner 1958 and Deutsch 1961). They instead tend to emphasize strategy and choice, particularly by incumbent elites. As do Haggard and Kaufman (1995), they place institutions at the forefront of their analysis; they differ, however, in tending to view institutions as objects of, rather than constraints upon, the choices of strategic actors.

Lastly, political economists place struggles over distribution at the center of their analysis. Thus Acemoglu and Robinson (1999, 2002) argue that democratization results when the loss of

income arising from the transfer of power exceeds the costs of resisting that transition; under such circumstances, they hypothesize, incumbent elites will repress calls for democracy. Acemoglu and Robinson thus view democratization as offering the elite a way of eluding the costs of repression by credibly assuring the majority of their intent to share the wealth of the nation. Their analysis offers the important, and less than obvious, prediction that the relation between inequality and democracy will have an inverse-U shape: at high levels of inequality the elite represses, while at low levels they can accommodate redistributive demands within the authoritarian system. It is thus at intermediate levels of inequality that transitions to democracy are most likely to occur. Similarly, countries with more inequality are more likely to experience coups against democracy, making democratic consolidation more difficult.

Rosendorff (2001) offers a similar argument, but renders the costs of resistance endogenous. Like Haggard and Kaufman (1995), Rosendorff stresses the importance of short-term economic conditions on the behavior of elites. While the former stress the significance of growth shocks and inflation, Rosendorff emphasizes changes in the stock of capital and size of the workforce and their impact on the contest function that yields the costs of repression.

In this article, then, we too focus on the relationship between modernization and democracy. When we refer to modernization, we refer not only to its sociological correlates, such as literacy, but also to measures of economic development, such as the size of the workforce and, most centrally, the level of per capita income. In reacting to the contributions of PACL, we employ more finely grained measures of democracy. And in responding to the contributions of political economists, we develop and deploy an indirect measure of income inequality.

From our analysis we learn a) that modernization is systematically related to democratization; b) that income inequality, and its square, are systematically related to democratization; and c) that the frontier of this field has therefore shifted. It has shifted from the study of autocracies and democracies to the study of partial democracies (see also Geddes 1999). These systems have become more numerous. As we show here, their behavior influences level and rate of democratization; as we demonstrate elsewhere (Esty, Goldstone, et. al. 1998), their behavior influences the level of conflict in the modern world. While thus influential, these systems, being highly heterogeneous, are poorly understood. The study of democratization, we therefore conclude, should place them at its focus.

The following section reviews the data used in our analysis, including our measure of partial democracies, previous experiences with democratization, and a new measure of inequality. We then summarize the statistical techniques used in our analysis: Markov, tobit, and duration models. The next section presents our results, using our methods to evaluate the alternative theories of democratization and consolidation. The last section concludes.

2 Identifying Partial Democracies

Among the most hotly debated issues in the study of democratization is that of the choice of measures (see, for example, Bollen and Jackman 1989; Collier and Adcock 1999). As we have observed, the study by PACL employs a dichotomous classification. If (i) the chief executive is elected; (ii) the legislature is elected; (iii) there is more than one political party; and (iv) an incumbent regime has lost power, then the country is deemed democratic; otherwise, it is classified authoritarian. Consider, however, the 85 authoritarian regimes that Geddes (1999, pp. 115-16) records as having collapsed during the "third wave." Of these, 34 re-emerged as authoritarian regimes, and 30 as stable democracies; 21 others, however, remained contested and unstable, she notes, and of these, four descended into "warlordism." Geddes' discussion thus reminds us of the significance of partial democracies, a category that dichotomous measures fail to — indeed, cannot — address.

In fact, we find that in our data on all countries from 1955-2000, there were only 16 transitions from full democracy to autocracy, and 22 reverse transitions from autocracy to full democracy. However, there were a total of 149 transitions into or out of partial democracy. This is particularly striking in that at any point in time, the percentage of partial democracies is always under 30% of all regimes (see Figure 1). Nonetheless, movement into and out of this intermediate category clearly dominates the dynamics of regime transitions. Moreover, as Figure 1 also shows, the percentage of partial democracies among the world's societies has grown markedly since the collapse of communism. Understanding the dynamics of movement into and out of this category is therefore likely to be of increased importance for future transitions to democracy.

Breaking down the overall pattern, Figure 2 shows the distribution of autocratic, partial, and democratic countries over time by region. This figure shows that the largest decline in autocratic states and the largest increase in democratic states have been taking place in South, North and Central America, whereas the number of autocratic states fell dramatically in Europe as the collapse of communist states began taking place in the late 1980's. Africa and Asia show similar patterns as the one depicted in Figure 1 for all states, although those two regions generally have fewer democracies and more autocracies than the world average. Finally, Australia has been a stable region, having only democratic countries until Fiji slid to partial democracy in 1990.

Whereas Figures 1 and 2 show the overall patterns of democratization, Tables 1 and 2 and Figure 3 take the individual countries as the unit of analysis. Table 1 shows the distribution of autocracies, partial democracies, and democracies, conditioning by the previous year's category. The table reveals that both autocracies and full democracies are quite stable in the short run. An average of 97.5% of all autocracies stay autocratic the next year, while an average of 98.1% of all democracies remain democratic the following year; thus around 2% of countries in these categories change in a given year. Partial democracies are almost four times less stable, with 8% of them changing into an autocracy or a democracy the following year.

Table 2 expands the time horizon to five years and hence shows the distribution of autocracies, partial democracies, and democracies by the democratization level of the countries five years earlier.
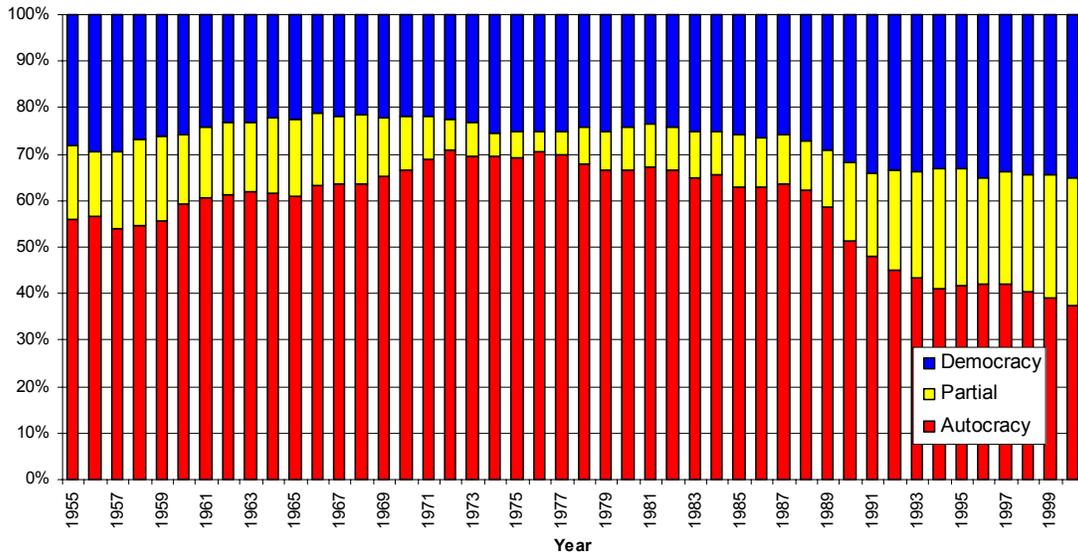
Figure 1: World Democratization Trends, 1955-2000

Table 1: Polity Transitions— One Year Lag

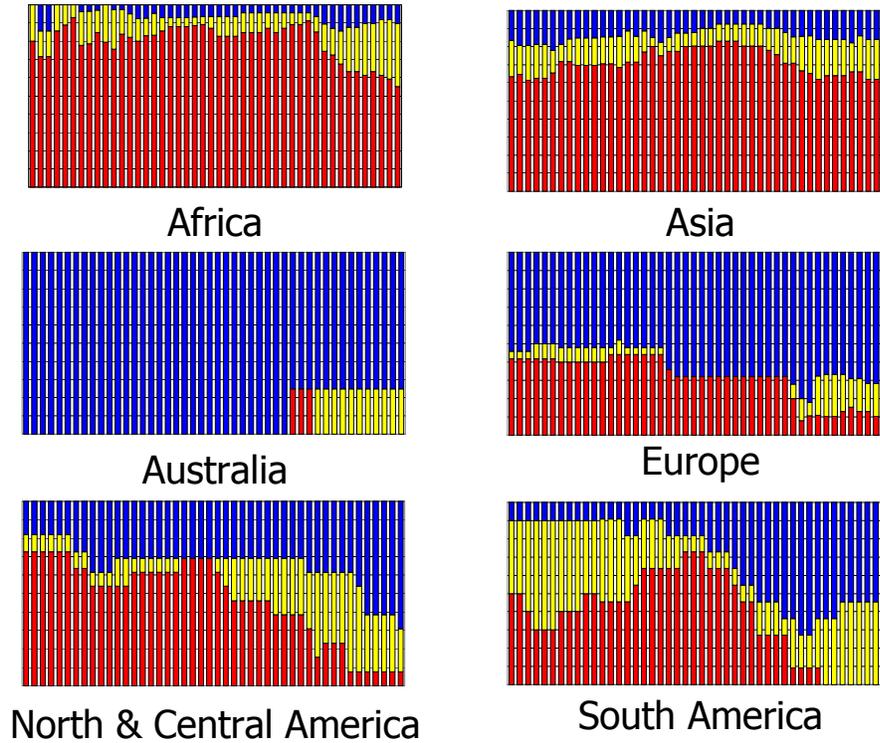| Previous Year	Polity Index		
	Autocracy	Partial Democracy	Democracy
Autocracy	97.47%	1.89%	0.63%
Partial Democracy	5.12%	91.97%	2.9%
Democracy	1.00%	0.87%	98.13%

Figure 2: Regional Democratization Trends, 1955-2000

This expansion of the time horizon makes the pattern look somewhat less stable. More than 10% of all autocracies have changed into partial or full democracies after five years, while 8% of democracies have fallen out of democracy five years later. The most volatile category, again by a large margin, is partial democracy; only 66% of these remain in this category after five years.

Table 2: Polity Transitions— Five Year Lag

	Polity Index		
Five Year Lag	Autocracy	Partial Democracy	Democracy
Autocracy	89.64%	7.13%	3.24%
Partial Democracy	20.43%	65.76%	13.81%
Democracy	3.84%	4.13%	92.03%

Figure 3 shows how these transitions have taken place over time. The six graphs in the figure show the possible types of transitions: from autocracy to either partial or full democracy, from partial to either autocracy or full democracy, and from democracy to either autocracy or partial democracy. For each type of transition the number of transitions taking place each year is shown,
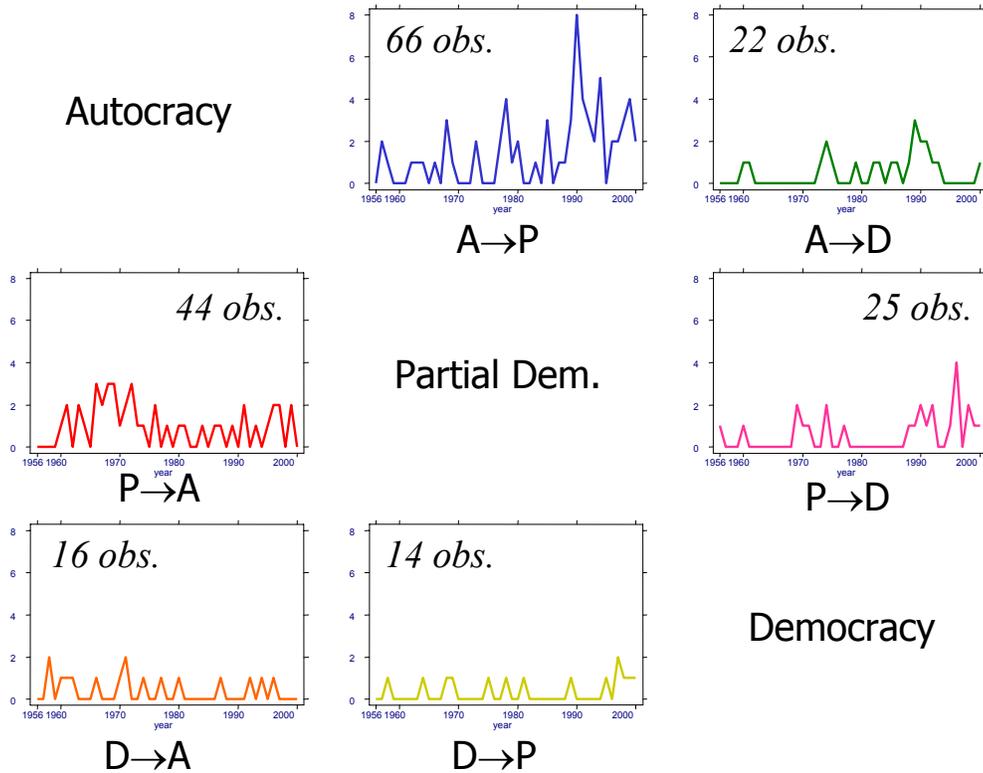
Figure 3: Transition Frequencies by Year and Type

with the total number of observations in each category provided in the upper corner. The three panels below the diagonal represent negative shifts, while those above the diagonal represent shifts towards greater democracy. As the figure shows, the numbers of negative transitions have remained fairly stable over the time period studied, while the positive transitions have increased in recent years. A complete categorization of countries by their number and type of transitions is provided in Appendix 1.

The conclusion to be drawn from these trends is that partial democracies are an important and growing feature of the political landscape, more volatile than either pure democracies or autocracies, and accounting for most of the transitions in recent years. Rather than dichotomizing countries into democracies and autocracies, then, our dependent variable will be trichotomous, including a category for partial democracy.

We examine a variety of independent variables as possible determinants of regime type. Our base model includes both political institutions and economic factors that may influence the level of democracy: income inequality; workforce measured as the percent of the population engaged in economic activity; population in millions; time spent in the current Polity category; previous attempts at democratization, and the number of regional and international organizations to which a state belongs. Summary statistics for all variables are presented in Table 3.

Table 3: Descriptive statistics for variables used in regression analysis

Variable	Description	Mean	Std. Dev.	Min	Max
Polity Score	-10 to 10 score indicating country's level of democratization	-0.50	7.62	-10	10
Inequality	Residual from infant mortality regression	0.00	0.48	-1.64	1.74
Workforce	% of population engaged in economic activity	0.43	0.08	0.14	0.71
Population	In millions	0.026	0.098	0.000035	1.28
Time in Current Polity Category	Number of years in autocracy/partial/full democracy	10.42	11.59	0	45
Previous Democratization (Sumdown)	Sum of absolute value of downward shifts in Polity Score	0.29	0.69	0	5
Memberships in Regional Orgs.	Number of memberships in regional organizations	9.97	8.43	0	46
Memberships in International Orgs.	Number of memberships in international organizations	35.70	17.62	0	98
Log GDP per capita	Log of per capita gross domestic product	7.37	1.53	4.34	10.77
Inequality Squared	Square of infant mortality residual	0.23	0.36	0.00	3.03
Δ Workforce (1 year)	One-year % change in workforce	0.00068	0.0049	-0.15	0.075
Δ Workforce (5 year)	Five-year % change in workforce	0.00006	0.029	-1.02	0.69
Δ Log Capital Stock (1 year)	One-year % change in physical capital stock	0.035	0.047	-0.22	0.35
Δ Log Capital Stock (5 year)	Five-year % change in physical capital stock	-0.00056	0.141	-1.27	1.68
GDP Growth	% change in GDP per capita	0.016	0.058	-0.44	0.77
Log of Inflation	Log of % change in producer price index	2.12	3.995	-25.02	8.08

Of the other theories, modernization predicts that GDP per capita is a consistent predictor of moves towards democracy, while PACL would claim that it only helps current democracies remain democratic, but does not predict other movements up the Polity scale.

To test Acemoglu and Robinson's approach, we add squared inequality to the base model, where the prediction is that this term will have a negative and significant coefficient. For Rosendorff, we add the change in workforce and capital stock; the prediction is that these will have negative and significant coefficients, as will the level of inequality. And for Haggard and Kaufman, we include GDP growth and the log of inflation, which should enter with negative and positive coefficients, respectively.

Of the variables in the base model, two merit further comment. Although many observers refer to the fact that a country's previous transition history may affect current attempts at democratization, this history is difficult to measure. We finally settled on a variable, Sumdown, which is the cumulative sum at any given time of a country's previous transitions down since 1955, as measured by the Polity score.

To illustrate the construction of this variable, Figure 4 provides the values of both the Polity score and the Sumdown variables for Turkey from 1955 to 2000. As shown, the Polity score for Turkey varied widely over this period, from 4 up to 9, down to -2, back up to 9, back down to -5, up to 9, and then finally down to 7. Sumdown is the cumulative sum of the absolute values of negative changes in the Polity Score. Hence, as long as the Polity Score remains unchanged or increases, the Sumdown variable does not change (as in Turkey up to the year of 1964). When the Polity Score decreases, Sumdown increases. Therefore, when Turkey's score fell from 9 to 8 in 1965, Sumdown went from 0 to 1. Likewise, when it fell 14 points from 9 to -5 in 1980, Sumdown increased 14 points (from 11 to 25). Thus the period from 1964 to 1971 represents a failed attempt at democratization, with a total drop of 11 points. The next attempt failed similarly, with a drop of 14 points. Thus the sum of the drops in the Polity Score provides a good indicator of the country's negative experiences with democratization in the past.

The level of inequality in the country also features in many of the democratization theories; but unfortunately even our best direct measures provide scanty coverage. The well-known Deninger and Squire (1995) data set, using the gini-coefficient to measure income inequality, has data for only 42% of our cases. Given these limitations, we constructed an alternative inequality measure based on the idea that the expected value of infant mortality results from a combination of average living standards and inequality in access to private assets and public services. To parse out the effect of inequality on infant mortality, and hence to obtain an alternative inequality variable, we regressed infant mortality on access to safe water, access to health care, health expenditures per capita, total health expenditures, calories per capita per day, a standard of living index, reports of famine, people affected by drought, people affected by earthquakes, people affected by floods, people affected by unnamed storms, and people affected by named storms. These variables capture the *average* level if social and economic development and shocks to that level resulting from natural disasters. Given these determinants of infant mortality, a major portion of the residual variability,
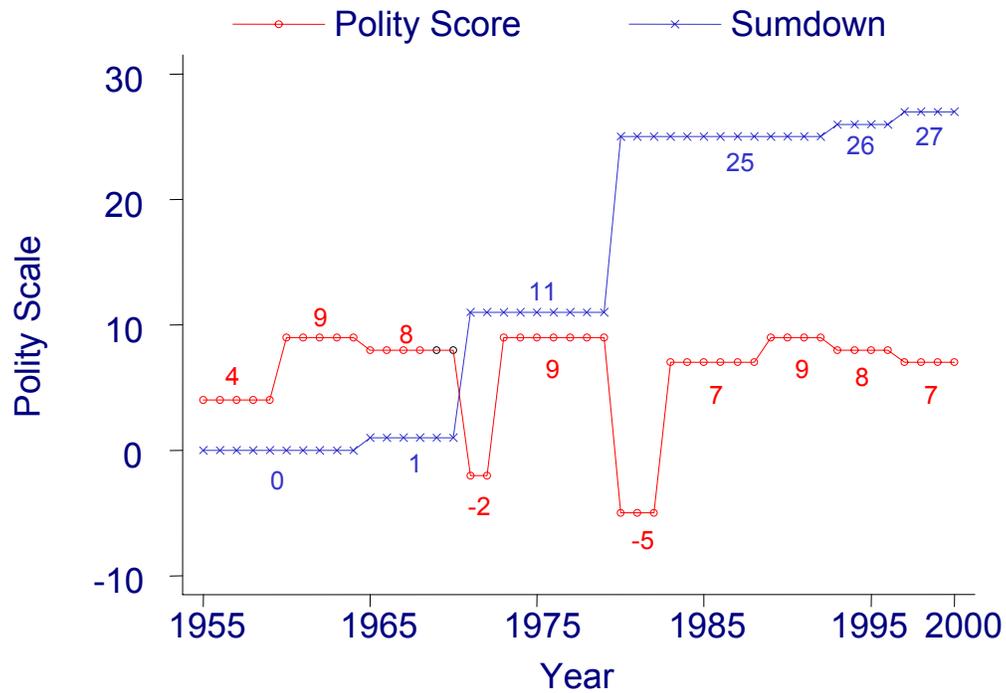
Figure 4: Illustration of Sumdown Variable for Turkey, 1955-2000

we assert, can be attributed to differentials in the access to assets and services — actors that would enhance the chances of infant survival. We therefore saved the residuals obtained from this regression and used this variable as an alternative inequality measure.

As a check, we compared country averages of our new variable with those from the Deninger and Squire data set. The two variables correlated at 0.52, with a Spearman's $\rho = 0.53$ and Kendall's $\tau = 0.36$. In all cases, the test statistics reject the null hypothesis that the two variables are independent at the 0.001 significance level. A graph of this relation is shown in Figure 5.
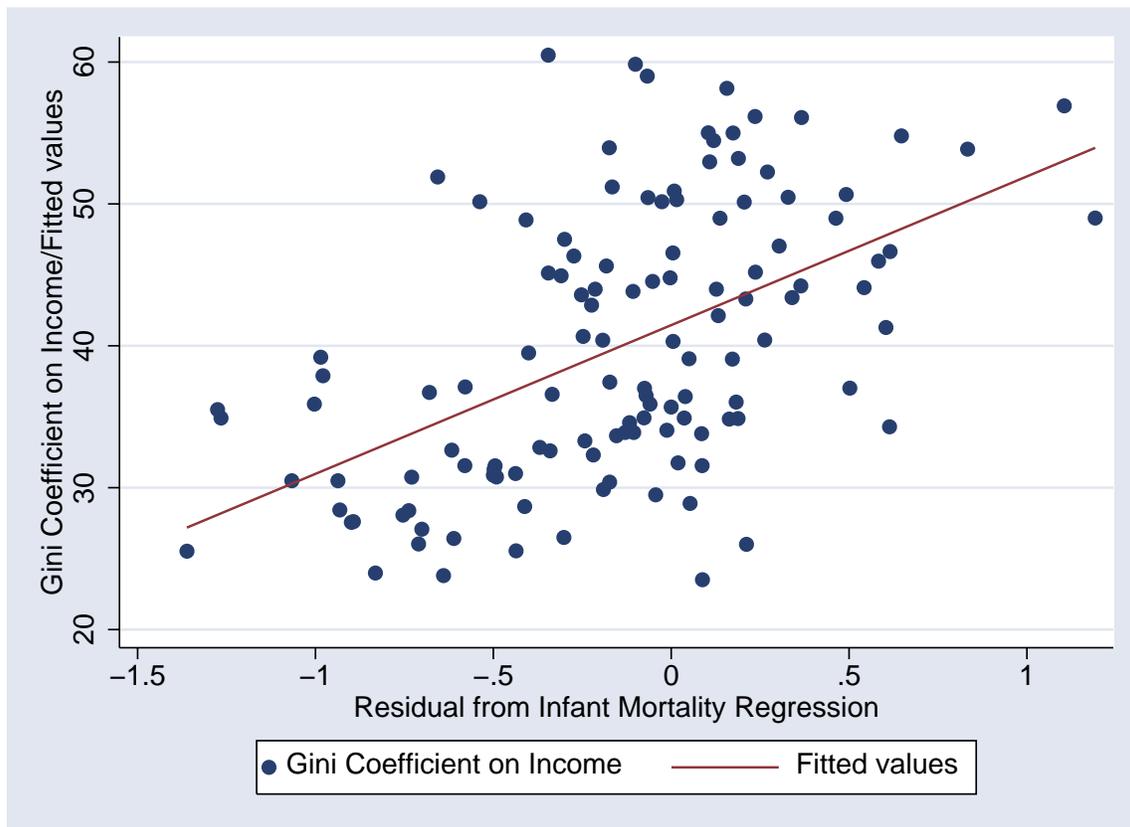
Figure 5: Two Measures of Inequality: Infant Mortality Residual vs. Deninger and Squire Gini Coefficient

To this base model, we add specific variables mentioned by each of the theories reviewed above. For the Lipset/Modernization theory, we include only the log of per capita GDP. For the Acemoglu and Robinson theory, we include squared inequality as well. For Rosendorff, we include the change in the workforce and log of the capital stock, in both 1- and 5-year intervals. And for Haggard and Kaufman we include GDP growth and the log of inflation.

3 Statistical Techniques

One of the problems bedeviling the transitions literature is the difficulty in determining the appropriate statistical technique for analysis. There are two distinct types of questions that we want to answer: what makes countries more or less democratic, and what factors help insure new democracies against backsliding to autocracy? The first is a democratization question; the second, consolidation. We use two statistical techniques to estimate the former — Markov and tobit analyses — and one to estimate the latter — duration analysis.

First, like PACL, we shall use a Markov model of transitions. However, as argued above, instead of their two-state model (democracy and dictatorship), which allows estimation of only two transition probabilities, namely democracy to dictatorship and the reverse, we shall use a three-

state model. Using the Polity IV scaling of regimes from +10 to -10 (Marshall and Jaggers 19??), we define regimes as Full Autocracies (Polity value -10 to 0), Partial Democracies (+1 to +7), and Full Democracies (+8 to +10). This allows us to estimate six distinct transitions: Autocracy to Partial Democracy, Partial Democracy to Full Democracy, and Autocracy to Full Democracy, as well as the reverse of each. The Markov model allows us to treat each of these six transitions as distinct, and to search for causal factors associated with each kind of change.

In addition, we shall examine democratization using a method that allows an explicit means of controlling for the fact that our data is necessarily censored — that is, our scale is limited to the -10 to +10 range, perhaps artificially. So we use a double-censored tobit model for these estimations as well, which allows us to use the full range of Polity values, rather than categories or ranges of values.

To investigate the consolidation question, duration models are appropriate. These were developed in biometrics to estimate, for example, the factors affecting the survival of patients with a given disease. In our setting the equivalent question is to determine what factors help a newly-fledged democracy survive.

Our analysis differs from the classic medical setting, though, in that each "patient" (or country, for us) can experience more than one episode of failure; they can fall out of democracy more than once. Hence we want to employ a repeated failures variant of the duration model. These models are becoming increasingly popular in political science, and our treatment of them owes much to recent work by Box-Steffensmeier and Zorn (2002).

Data Censoring

To examine the impact of data censoring, we first estimate a variant of linear regression known as a tobit model, where it is assumed that the data are censored at either or both ends of their range of values. That is, we assume

$$y_t^* = x_t(\beta) + \epsilon_t, \epsilon_t \sim N(0, \sigma^2), \tag{1}$$

$$y_t = y_t^* \text{ if } a \leq y_t^* \leq b; y_t = a \text{ if } y_t^* < a; y_t = b \text{ if } y_t^* > b, \tag{2}$$

where a and b are the upper and lower bounds of the interval, respectively. (For the Polity scale used in this study, $a = -10$ and $b = 10$.) This gives rise to the log-likelihood function:

$$\sum_{a \leq y_t^* \leq b} log(\frac{1}{\sigma}\phi(\frac{1}{\sigma}(y_t - X_t\beta))) + \sum_{y_t^* < a} log(\Phi(\frac{1}{\sigma}(a - X_t\beta))) + \sum_{y_t^* > b} log(\Phi(-\frac{1}{\sigma}(b - X_t\beta))).$$

The first term corresponds to non-limit observations, the second to observations at the lower limit a, and the third to observations at the upper limit b.[1]

The tobit methodology will give accurate estimates for processes in which data cannot be observed out of some predetermined range. It also allows for the estimation of the percent of

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[1]See Greene (2003), pp. 764-66 for a discussion of these models.

censored observations, in order to determine the degree to which the upper and lower limits constrain the estimation.

This part of the estimation, then, acts similarly to a standard least squares regression, and it takes advantage of the full 21 point Polity scale when determining marginal effects. However, it is vulnerable to the criticism that moves up the Polity scale are caused by factors equal and opposite to those driving moves down the scale. As PACL have shown, it is often the case that a given factor may have a different impact on transitions toward, or away from, greater democracy. We therefore supplement the tobit analysis with a Markov switching model.

Markov Transition Model

The Markov model looks at a smaller number of possible democratization categories and then estimates the probability of moving from any given state to any other state in a single period. Markov models analyze the transitions from a lagged y of zero, one, or two, to a current y of zero, one, or two, allowing for different processes based on the lagged value of y. While in principle these processes could be based on totally different independent variables, it is notationally most convenient that the same variables affect both transition processes, but with different parameters. With this simplifying assumption, the transition model has

$$P(y_t|y_{t-1}=0) \quad = \text{Oprobit}(\mathbf{x}_t\alpha) \tag{3}$$

$$P(y_t|y_{t-1}=1) \quad = \text{Oprobit}(\mathbf{x}_t\beta) \tag{4}$$

$$P(y_t|y_{t-1}=2) \quad = \text{Oprobit}(\mathbf{x}_t\gamma), \tag{5}$$

where Oprobit is the ordered probit function. The key to this equation is that the parameter vectors α, β, and γ are not constrained to be equal, so the transition probabilities can change depending on whether the state starts out the period as an autocracy, partial, or full democracy. Due to their flexibility, Markov transition models are becoming increasingly popular in political studies; see for instance Jackman (2000) and Beck, Epstein, Jackman and O'Halloran (2001).

Survival Analysis

To investigate the consolidation question, we employ duration models. However, as mentioned above, our application differs from the classic biometric scenario in two important ways: we think that countries might have unit-specific heterogeneity, and they are subject to repeated failures.

First, it is clear that different countries might have different probabilities of failure due to particularities of history, government, interest group configurations, and so on. In panel regressions, we would use fixed effects to account for this. In duration models, the equivalent notion is unit-specific "frailty," written as

$$h_i(t) = \lambda_i(t)\nu_i,$$

where $h_i(t)$ is the hazard rate for observation i at time t and ν_i is an individual-specific factor which

operates multiplicatively on the hazard.

If countries differ in their frailties, but these terms are left out of the estimating equation, then there will be more variability in the actual hazard than the model is picking up (Omori and Johnson 1993). Over time, this will cause observations to "select out" of the data; that is, low-frailty cases will stay in, while high-frailty ones will drop out. The result is an underestimated hazard function, with a corresponding overestimate of the survival times. Not only will this lead to incorrectly estimating the shape of the hazard; if the ν_i terms are correlated with the independent variables, then the coefficient estimates on these will be biased as well.

Analogously with panel data, these unit-specific effects can be estimated via fixed or random effects. In the survival context, fixed effects are not considered a good option (see Lancaster 2000), so a random-effects approach is much more common (Lancaster 1979, Vaupel et. al. 1979, 1981). This typically involves choosing a distribution for the ν_i's; the most commonly-used is the gamma $(1, \theta)$ distribution, which we use here.

For the estimation, we first fit a standard proportional hazards model, and then choose a set of possible values for θ (e.g., $\{0, 0.1, 0.2, \ldots, 4.0, 4.5, 5.0\}$). For each possible value of θ, we then generate an estimated "predicted frailty" for each observation:

$$\hat{\nu}_i = \frac{1 + \theta C_i}{1 + \theta \hat{H}(T_i | X_i, \hat{\beta})}.$$

We then fit a second duration model, this time including the estimated ν_i terms as an additional covariate, with a fixed coefficient of 1.0 (that is, as an *offset*):

$$h(t) = h_0(t) \hat{\nu}_i \exp(X_i \beta).$$

We then repeat these steps for each value of θ, replacing $\hat{H}(T)$ with the value from the model including the generated frailties, until convergence.

The second aspect of our data is that we can have repeated failures — countries can fall out of democracy more than once, and we would not wish to impose a priori the requirement that these failures be independent of one another. In particular, methods that ignore correlations among repeated failures tend to underestimate the standard errors of the coefficients of interest.

To account for this, we require that our frailty terms not be independent, but rather correlated across observations. This can be done most simply at the country level, or more generally among some aggregation of countries, like continent or region. Our approach is to test down: start with a model with shared frailties, and if these are not significant, remove this requirement and estimate a less restricted model instead.

4 Results

The results from the tobit model are illustrated in Table 4, which highlights some interesting regularities in the data. First, the results in our base model hold up well in all specifications:

countries are more likely to be democratic with low inequality, larger workforce participation, lower total population, less time in their current Polity category, fewer previous attempts at democratization, fewer memberships in regional organizations, and more memberships in international organizations. The results on previous democratization attempts indicate that countries which experience many rises and falls tend to be more autocratic. But compare these finding to those of the Markov and duration models below.

Testing the modernization hypothesis, our results contradict those of PACL, in that GDP per capita is a consistently strong predictor of democracy. PACL find that the level of affluence in a society has no impact on democratization, although democratic consolidation is more likely in an affluent country. PACL "find it difficult to explain why dictatorships die and democracies emerge (137)." We, on the other hand, identify several variables that significantly affect democratization — GDP per capita being one of those variables. Thus, a higher level of GDP per capita is associated with a positive change in a country's Polity score in models 2, 3, and 5. This finding is, of course, subject to the possible objection that the modernization variables describe well those countries already in democracy, but do not predict transitions out of autocracy. This possibility is addressed in the Markov transition analysis below.

On the other hand, our results support the predictions offered by Acemoglu and Robinson (1999; 2002). The squared inequality variable is negative and significant, even when the untransformed inequality variable is included in the model as well. This highlights the importance of good theory building in the study of democratization; economic disparities do influence the rate of democratic change, but sometimes in less than obvious ways. It is in the intermediate range of inequality that the elite are forced to relinquish political power and democratize as a credible commitment towards redistribution in the future.

Rosendorff's predictions fare less well. There is indeed a negative and significant coefficient on inequality in model 4, as in the other models, but the coefficients on the change in capital stock and workforce have positive coefficients, significant in one case. Neither are the Haggard and Kaufman variables significant predictors of democratic levels.

We now turn to the Markov analysis in Table 5, which addresses the question: Is a transition from autocracy to partial democracy the same as a move from partial democracy to a stable, consolidated democracy? The table presents a summary of the α, β, and γ coefficients from equations 3 through 5, with a blank square indicating that the coefficient was not significant at the 5% level.

Once again our findings conflict with PACL. Table 5 indicates that they are right in assessing that a high level of GDP makes it more likely than democracies will stay democratic. But, contrary to the PACL findings, GDP per capita also helps countries move from autocracy to partial democracy and hence begin their democratization process. And higher GDP also helps prevent partial democracies from backsliding to autocracy. Thus at every stage, the original modernization theory seems to be a good description of reality.

A few other results from the Markov analysis are worth noting. First, inequality predicts changes

Table 4: Tobit regression analysis of competing democratization theories (regional fixed effects omitted)

Indep. Var.	Dependent Variable: Polity Score				
	Base model	Lipset/PACL	A & R	Rosendorff	H & K
Lagged Polity	0.964**	0.950**	0.949**	0.931**	0.954**
	(0.007)	(0.008)	(0.008)	(0.015)	(0.009)
Inequality	-0.637**	-0.886**	-0.871**	-1.046**	-0.848**
	(0.100)	(0.110)	(0.110)	(0.259)	(0.127)
Workforce	2.589**	2.669**	2.962**	6.339**	3.449**
	(0.768)	(0.766)	(0.775)	(2.067)	(0.904)
Population	-1.859**	-1.213**	-1.132**	-1.964	-1.198*
	(0.370)	(0.388)	(0.389)	(1.062)	(0.542)
Time in current Polity category	-0.024**	-0.030**	-0.030**	-0.000	-0.029**
	(0.005)	(0.005)	(0.005)	(0.012)	(0.006)
Previous Democrati-zation (Sumdown)	-0.587**	-0.566**	-0.570**	-0.733**	-0.549**
	(0.063)	(0.063)	(0.063)	(0.131)	(0.070)
Memberships in Regional Orgs.	-0.069**	-0.063**	-0.064**	-0.111**	-0.067**
	(0.012)	(0.013)	(0.013)	(0.031)	(0.015)
Memberships in International Orgs.	0.063**	0.056**	0.056**	0.076**	0.055**
	(0.007)	(0.007)	(0.007)	(0.018)	(0.009)
Log GDP Per Capita		0.276**	0.312**		0.283**
		(0.052)	(0.053)		(0.061)
Inequality squared			-0.314*		
			(0.124)		
Δ Workforce (1 year)				67.112	
				(35.973)	
Δ Workforce (5 years)				30.822**	
				(10.696)	
Δ log capital stock (1 year)				2.475	
				(2.024)	
Δ log capital stock (5 years)				0.335	
				(0.636)	
GDP Growth					-0.799
					(0.925)
Log of Inflation					0.015
					(0.013)
Constant	-1.756**	-3.578**	-3.754**	-0.834	-3.708**
	(0.429)	(0.549)	(0.553)	(1.339)	(0.674)
Pseudo R^2	0.40	0.41	0.41	0.41	0.41
N	3662	3662	3662	1236	3126
Left-censored	87	87	87	23	82
Uncensored	2801	2801	2801	808	2272
Right-censored	774	774	774	405	772

Table 5: Markov regression analysis of transitions among Polity categories

| Variable description	Impact if country is autocracy	Impact if country is partial democracy	Impact if country is democracy
Log GDP Per Capita	More likely to turn partially democratic	More likely not to slide to autocracy	More likely to stay democratic
Inequality	More likely to stay autocratic		Less likely to stay democratic
Inequality squared			
Workforce			
Population (in millions)			
Time in current Polity category			
Previous Democratization (Sumdown)	Less likely to stay autocratic	More likely to slide to autocracy. Less likely to turn democratic	More likely to turn autocratic. Less likely to be partial or democracy.
Member of Regional Org.	More likely to stay autocratic		Less likely to stay democratic
Member of International Org.	More likely to go to partial		More likely to turn partial or stay democratic compared to autocracy
Change in Workforce (1 year)	More likely to turn democratic		
Change in Workforce (5 years)	More likely to turn democratic		
Change in log of capital stock (1 year)	More likely to turn democratic		More likely to stay democratic
Change in log of capital stock (5 years)	More likely to turn democratic		
GDP Growth	More likely to stay autocratic		
Log of Inflation			More likely to turn partial compared to autocracy (no influence on prob. of being democratic)
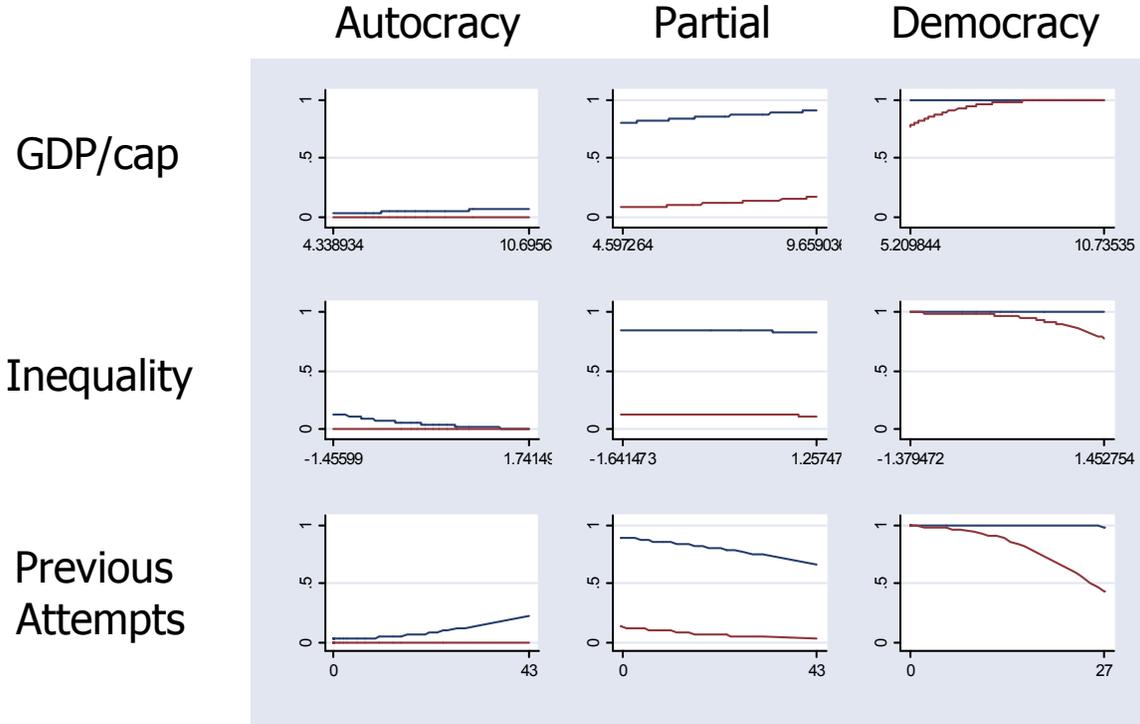
Figure 6: Summary of Markov Model Analysis

out of autocracy and full democracy, but not partial democracy. Second, previous experiences with democratization are significant in all three categories, making partial and full democracies more likely to slide back, but making autocracies more likely to transition to some form of democracy. Thus this variable seems to capture inherent volatility: countries with histories of movement up and down the polity scale are likely to leave their current state as well, be it democracy or autocracy.

The impact of these three variables is illustrated in summary form in Figure 6. There are two lines in each figure: the area above the top line represents the probability that a country is autocratic next period; the area between the lines represent the probability of a partial democracy next period; while the area below the lines represents the probability of a full democracy. The horizontal axis goes from the minimum to maximum value that the variable takes on for that category, and the probabilities are calculated with all other variables held to their means.

The figure shows that, while GDP per capita is significant in all three states, its largest impact is on full democracies. In particular, full democracies with low GDP are likely to backslide into partial democracies in the next period. Similarly, full democracies with high inequality are relatively likely to backslide, as are those with many previous democratization attempts (high values of Sumdown).

The most notable pattern in the table, though, is the lack of many significant determinants of movement out of partial democracy. This suggests that while we have good predictors of transitions from autocracy and democracy, we lack explanations of what makes partial democratic countries democratize or revert from partial democracies to autocratic systems. It is this middle category that seeks further understanding.

18

Duration Analysis

Finally, we turn to the duration analysis, which determines which factors help countries stay democratic. Given our trichotomous measure of democracy, there are two ways in which we could ask this question: what prevents full democracies from sliding back to partial democracies or autocracies, and what prevents partial democracies from sliding back to autocracy?

PACL also perform duration analysis, and they find that new democracies are in fact more likely to fail than more established ones, but that once GDP per capita is taken into account, this difference disappears. We therefore include GDP per capita as one of our independent variables, as well as inequality, Sumdown, and workforce participation.

Table 6 shows the results of estimating the probabilities that states fall out of full democracy. Using our testing down approach, we see that the frailty terms were not significant, either shared or unshared, as indicated by the fact that the likelihood ratio test of θ is always over the standard 0.05 significance level. This alone is an important finding: once the other independent variables have been taken into account, the country-specific effects disappear.[2]

Table 6: Duration analysis of probability states fall out of full democracy.

	Parametric (Weibull)		Cox
Independent variable	Shared Frailty	Frailty	
Log GDP Per Capita	0.346**	0.269*	0.333**
	(0.092)	(0.158)	(0.098)
Previous Democratization (Sumdown)	0.396**	0.306^a	0.421**
	(0.109)	(0.188)	(0.122)
Inequality	8.583**	14.72*	8.220**
	(5.299)	(5.299)	(5.194)
Workforce	0.0002*	5.04e-06	0.0001*
	(0.0008)	(0.00005)	(0.0003)
1/p	0.477	0.380	
	(0.138)	(0.202)	
θ	0.329	8.71e-08	
LR test of θ	0.313	1.00	
N	894	894	894
# of subjects	50	50	50
# of failures	19	19	19

Note: Standard errors in parentheses. ** denotes significant at the 0.01 level; * denotes significant at the 0.05 level; ^{a} denotes significant at the 0.1 level.

Using our testing down approach, we thus estimate a standard Cox proportional hazards model, reported in the last column of the table. We see that higher GDP per capita, more previous attempts at democratization, and higher workforce participation make a country less likely to fall

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[2]The frailty terms are significant with only GDP per capital on the right hand side of the equation, for instance.

out of democracy, while greater inequality makes it more likely.[3] Our results thus question the findings of PACL, in that more than just GDP per capita affects the probability of dropping out of full democracy. They do support Acemoglu and Robinson, though, as inequality does predict coups against democratic governments.

We now run a similar analysis for partial democracies, to see if we can gain some traction on the question of what keeps them stable. Table 7 presents the results. Again, the frailty terms were never more than marginally significant, with or without workforce participation included in the estimating equation. We therefore use the Cox model for our estimates.

Table 7: Duration analysis of probability states fall out of partial democracy.

	Paramteric (Weibull)				Cox
Independent Variable	Shared Frailty	Shared Frailty	Frailty	Frailty	
Log GDP Per Capita	0.503**	0.581**	0.440**	0.500**	0.503**
	(0.088)	(0.114)	(0.115)	(0.133)	(0.090)
Previous Democrati-zation (Sumdown)	0.369**	0.357**	0.310**	0.274**	0.402**
	(0.097)	(0.104)	(0.115)	(0.108)	(0.106)
Inequality	2.665^a	2.887^a	3.577^a	5.748*	2.409^a
	(1.456)	(1.623)	(2.661)	(4.798)	(1.207)
Workforce		115.93		1553.51	31.41
		(385.86)		(7049.6)	(93.81)
Inequality squared					3.372*
					(1.649)
1/p	1.233	1.339	0.990	0.970	
	(0.392)	(0.471)	(0.404)	(0.410)	
θ	6.30e-07	0.134	0.202	0.319	
LR test of θ	1.000	0.341	.204	0.088^a	
N	1549	1545	1549	1545	1549
# of subjects	83	82	83	82	83
# of failures	35	35	35	35	35

Note: Standard errors in parentheses. ** denotes significant at the 0.01 level; * denotes significant at the 0.05 level; ^{a} denotes significant at the 0.1 level.

As above, GDP per capita and more attempts at democratization make falling out of democracy less likely, and inequality has a negative effect. Note that the results on Sumdown contradict the findings from the Markov analysis, which found that higher values of Sumdown were correlated with a lower likelihood of remaining democratic. This is puzzling, and demands greater investigation.

Interestingly, infant mortality squared is also significant in this equation (including this variable in the parametric regressions caused difficulties in model convergence). This is also a logical consequence of the Acemoglu and Robinson approach, though they do not call attention to it

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[3]Recall that in interpreting duration models, coefficients less than 1 mean that a transition is less likely at higher values of the variable, and coefficients greater than 1 make it more likely.

in their writings.

5   Conclusion

The conditions under which democracies arise and consolidation takes place is one of the most pressing for students of governmental processes. Not because democracy is an outcome in and of itself, but it is a process by which conflict is managed, resources are distributed, and the public will is translated into policy.

We tackled this problem with a new data set including more independent variables, countries, and years than had previously been available. We employed tobit regressions, which take advantage of the full range of the independent variable, Markov transition models, and duration models.

Our results are intriguing. On the one hand, they counter the results of PACL, the standard against which work in this field should be judged, by showing that a range of modernization variables, including per capita GDP, predict well transitions out of autocracy, and help prevent democratic regimes from backsliding into authoritarianism. On the other hand, we have removed the problem from autocracies only to deposit it in the lap of partial democracies. These are "fragile" democracies, countries in their "awkward middle stages," or perhaps "unconsolidated democracies." Whatever one wishes to call them, they emerge from our analysis as the keys to understanding democratic transitions, more volatile than either straight autocracies or democracies, yet whose movements up and down the Polity scale seem, at the moment, to be largely unpredictable. One of our major findings, then, is that it is this category — the partial democracies — upon which future research should focus.

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Appendix 1: Descriptive Statistics on Transitions

We have 195 countries in the dataset. 25 countries have no values for polx[4]. That leaves 170 countries:

- 40 very stable countries: same Polity value throughout the dataset

  - 24 very stable full democracies with Polity value of 10[5]
  - 1 very stable democracy with Polity value of 8[6]
  - 4 very stable partial democracies existing between 6 and 11 years[7]
  - 11 very stable autocracies[8]

- 44 stable countries: same category (autocracy, partial or democracy) throughout the dataset but Polity value changes

  - 4 stable democracies[9]
  - 5 stable partial democracies[10] (only one older than 10 years)
  - 35 stable autocracies[11]

After identifying the very stable and the stable countries, we want to characterize the countries making transitions between categories. Two features seem to be of interest: the size of transitions (how many categories) and the number of transitions (average stay in each category). Concerning the latter feature, I distinguish between somewhat stable countries making a single transition and unstable countries making several transitions.

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[4] Andorra, Antigua & Barbuda, Bahamas, Barbados, Belize, Bosnia and Herzegovina, Brunei, Cape Verde, Dominica, Grenada, Liechtenstein, Maldive Islands, Malta, Monaco, Palau, San Marino, Sao Tome-Principe, Seychelles, Solomon Islands, St. Kitts-Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Vanuatu, and Western Samoa.

[5] Countries existing in all 46 years are: Australia, Austria, Belgium, Canada, Costa Rica, Denmark, Finland, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Sweden, Switzerland, and UK. Countries existing less than all 46 years are: Czech Republic (8), Germany (11), West Germany (36), Lithuania (10), Papua New Guinea (26), and Slovenia (10).

[6] Latvia (10)

[7] Estonia (10), Ethiopia after 1993 (6), Macedonia (10), Namibia (11)

[8] Countries existing in all 46 years are: Bhutan, Libya, and Saudi Arabia. Countries existing less than all 46 years are: Eritrea (8), Kyrgyzstan (10), Qatar (30), United Arab Emirates (30), Uzbekistan (10), Vietnam (25), South Vietnam (21), and Yemen (8).

[9] Israel, Jamaica, Mauritius, and Trinidad.

[10] Georgia (10), Lebanon (46), Moldova (10), Russia (9), and Ukraine (10)

[11] Afghanistan, Algeria, Angola, Bahrain, Burundi, Cameroon, Chad, China, Congo-Kinshasa, Cuba, Egypt, Ethiopia, Gabon, Germany – East, Guinea, Iraq, Jordan, Kazakhstan, Korea –North, Kuwait, Liberia, Mauritania, Morocco, Oman, Rwanda, Swaziland, Tajikistan, Togo, Tunisia, Turkmenistan, USSR, Vietnam – North, Yemen – North, Yemen – South, and Yugoslavia - former.

- 56 shifting between two categories

    - 8 shifting between partial and democracy

        * 4 somewhat stable: 3 countries up to democracy[12] and 1 down to partial[13]

        * 4 unstable countries going up once and down once[14]

    - 37 shifting between partial and autocracy

        * 22 somewhat stable: 15 up to partial[15] and 7 down to autocracy[16]

        * 15 unstable[17]

    - 11 shifting between autocracy and democracy

        * 9 somewhat stable: 7 countries up to democracy[18] and 2 down to autocracy[19]

        * 2 unstable countries going two categories up once and two down once[20]

- 30 shifting between all three categories

    - Only in one direction

        * 6 countries up[21] and none the other way

    - 24 forth and back

        * 10 countries making 3 transitions between categories[22]

        * 3 making 4 transitions[23]

        * 2 making 5 transitions[24]

        * 6 making 6 transitions[25]

        * 2 making 8 transitions[26]

        * 1 making 10 transitions[27]

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[12] Botswana, Slovakia, and South Africa

[13] Malaysia

[14] Cyprus, France, India, and Sri Lanka

[15] Central African Republic, Cote d'Ivoire, Croatia, Djibouti, El Salvador, Guinea-Bissau, Honduras, Indonesia, Iran, Malawi, Mali, Mozambique, Paraguay, Tanzania, and Yugoslavia

[16] Belarus, Equatorial Guinea, Kenya, Singapore, Somalia, Syria, and Zimbabwe

[17] Up once and down once: Armenia, Azerbaijan, Benin, Burkina Faso, Guyana, and Zambia. More shifts: Albania, Cambodia, Comoros, Congo-Brazzaville, Ghana, Haiti, Nepal, Sierra Leone, and Uganda

[18] Bolivia, Bulgaria, Czechoslovakia, Hungary, Portugal, Senegal, and Spain

[19] Burma and Laos

[20] Lesotho and Uruguay

[21] Mexico, Mongolia, Nicaragua, Poland, Romania, and Taiwan

[22] Bangladesh, Brazil, Chile, Colombia, Fiji, Greece, Madagascar, Panama, Philippines, and Venezuela

[23] Gambia, Guatemala, and Pakistan (pre 72)

[24] Niger and Nigeria

[25] Argentina, Dominican Republic, Ecuador, Pakistan (post 72), Peru, and Sudan

[26] Korea – south and Thailand

[27] Turkey