

Interpreting Polity: Collective action and political credibility as defining characteristics of Polity measures of political regimes

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Abstract: A large literature uses the subjective political measures of the Polity database and interprets these using Polity's coding rules. This analysis identifies the objective political correlates of Polity variables, taken from the Database of Political Institutions, and concludes that alternative, and potentially more interesting interpretations, are warranted. Polity measures are, unsurprisingly, significantly associated with objective measures of competitive elections and political checks and balances. They are even more strongly related to two proxies for the ability of citizens to act collectively to influence political leaders: the years of continuous competitive elections and, especially, the age of the governing party at the time of the last leadership change. These findings point to alternative interpretations of three recent contributions to the literature, Bueno de Mesquita, et al.'s (2003) analysis of the selectorate; Goldstone, et al.'s (forthcoming 2010) analysis of factional partial democracies; and Epstein, et al.'s (2006) discussion of partial democracies and democratic transitions.

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Interpreting Polity: Collective action and credibility as central determinants of the Polity measures of political institutions

The role of political institutions in economic development is a fundamental issue in political economy that is reflected in the growing use of quantitative measures of institutions. This paper exploits comparisons of four objective variables from the Database of Political Institutions (DPI) (Beck, et al. 2001) and subjective measures of political institutions from Polity (Marshall and Jaggers 2000) to offer a new interpretation of commonly-used Polity measures. As one might expect, two of the objective variables, the competitiveness of elections and the number of formal veto players, are significant correlates of several Polity measures. More surprisingly, two proxies for the ability of politicians to make credible commitments to citizens are even more strongly associated with Polity scores. This feature of Polity regime measures has not been previously observed, nor does it figure in Polity coding rules. However, it has significant implications for the interpretation of research using these variables.

Three contributions that use Polity-based variables are examined here to illustrate these implications. Bueno de Mesquita, et al. (2003) develop a Polity-based measure of the size of the winning coalition to conclude that the size of this coalition, rather than democracy *per se*, has large effects on political incentives regarding public policy. Goldstone, et al. (forthcoming 2010) argue that their Polity-based measure of factionalized partial democracies highlights the particular vulnerability to civil war of ethnically-organized political competition in partial democracies. Epstein, et al. (2006) demonstrate that income is significantly associated with democratic transitions when three-way, rather than dichotomous categorizations of regime type are used. Comparisons of these Polity-based measures with the DPI variables suggests that their results may actually capture the ability of

citizens to act collectively to discipline political leaders who renege on commitments to them. Citizen ability to act collectively is a pre-condition for the existence of a large winning coalition (selectorate); the inability of citizens to act collectively leaves politicians unable to make credible commitments to citizens and more likely to resort to ethnic appeals.

The analysis begins with two key Polity measures, the most widely-used Polity measure of democracy, *POLITY*, and Polity's measure of constraints on the executive, *XCONST*. All four objective DPI measures are strongly correlated with these two variables, even taking into account numerous controls and separately analyzing observations that exhibit competitive elections, based on the objective DPI rating, and those that do not. The discussion then uses a similar procedure to examine the three other Polity-based variables. The concluding section extends the analysis to broader measurement debates in the literature, particularly those regarding the difference between *de facto* and *de jure* or formal and informal institutions, and the measurability of each.

Measuring political institutions

Quantitative research on institutions has exploded over the last 15 years. According to Google Scholar, the Freedom House measures of civil liberties and political rights were cited 336 times from 1985 – 1995, but 1,350 times from 2006 – 2009. The Polity database, with the largest country and year coverage among all political databases was cited 392 times in the eleven years from 1985 – 1995, but 968 times in the four years from 2006 - 2009. The Database of Political Institutions, the database of objective institutional variables that most often appears in Google Scholar searches, was cited 388 times from 2006 – 2009. Contributors to periodicals classified by Google Scholar as “business, administration, finance and economics” are less likely to focus on quantitative political economy questions, but when they do, they are more likely to employ objective data. They cited the Polity database

114 times and the DPI 217 times from 2006 to 2009. Among contributions to “social sciences, arts and humanities”, 1,120 cited Polity and 139 cited the DPI.¹

Most critical attention given to Polity focuses on measurement error. Jackman and Treier (2008) argue that democracy is a latent variable that Polity measures with substantial error. They use Bayesian techniques to extract the latent variable and show that error in its measurement leads to significant overestimation of the effects of democracy on, for example, vulnerability to civil war. The analysis here demonstrates that, despite this measurement error, Polity does capture meaningful, objectively measurable distinctions across countries. However, these distinctions are not necessarily the ones emphasized in Polity documentation or by users of Polity. Jackman and Treier (2008) indicate that the level of noise and bias is greatest at the lowest and highest scores. All of the results reported below are robust, and generally stronger, when the extreme values of Polity are excluded.

Plümper and Neumayer (2009) review the variable *polity2*, which modifies the variable *polity* with new codings for periods of interregnum and transition. They argue that these new codings are substantially inaccurate. The focus here, however, is on the original *POLITY* variable.

Other debates surrounding the use of Polity focus on whether democracy is best measured as a continuous or dichotomous variable. Elkins (2000) summarizes the debate, particularly between Alvarez, et al. (1996), who argue that gradations of democracy are

¹ The search of Google scholar required that the article cite the name of the database (e.g., Database of Political Institutions) and the word “variable” to increase the chances that the article referred to an empirical investigation. In cases where the database name is generic (“Polity”), the search was also required to return the name of the author most commonly associated with it (“Gurr”). Ted Gurr was not a principal author of the latest version of the Polity database, so Polity references are correspondingly biased downwards. Other important objective datasets are the Henisz measure of political constraints (*polcon*) and the democracy database of Przeworski, et al. (XX). Reference to these variables is generally by author, making searches less reliable. Searches for “Henisz *polcon* variable” yielded 239 total cites in Google Scholar; for “Przeworski Cheibub ‘regime type’” yielded 674 total cites. Total cites to “Database of Political Institutions’ variable” yielded 1550 cites; adding the first author, “Beck”, the total dropped to 1300.

meaningless in countries that lack competitive elections, and Bollen and Jackman (1989), who argue that gradations do, indeed, capture substantive differences across countries. The main argument cited by proponents of a more finely-grained measure of democracy is simply that these predict phenomena that dichotomous measures do not (see, e.g., the discussion below of Epstein, et al. 2006). Elkins (2000) shows, for example, that graded measures of democracy capture associations between regime type and conflict or regime duration that dichotomous variables do not. Skeptics respond that, even if more finely-graded regime assessments exhibit greater explanatory power, the fact that they are subjective makes it difficult to attach concrete interpretations to these results. The analysis in this paper advances this debate by presenting objective characterizations of graded, subjective regime measures.

Scholars also confront the challenge of matching subjective variables to specific hypotheses. It is common, for example, to use Polity variables to examine hypotheses related to the effects of formal political institutions. However, Polity variables are not intended to measure *de jure* institutions, but instead to describe political institutions as they actually operate. The measure of constraints on the executive, *XCONST*, captures whether accountability bodies (like a legislature) have formal institutional powers to veto executive proposals, but also whether the executive is *de facto* constrained – whether those powers are in practice ignored. Since the objective of Polity is to measure the actual functioning of institutions, data and documentation do not distinguish the relative contribution of *de jure* and *de facto* conditions – whether executives are unconstrained due to the absence of formal rules or to the lack of enforcement of those rules.

Two endogeneity issues also emerge in this context. Researchers use Polity data to ask whether regime characteristics have a significant effect on outcomes of interest, ranging

from war to public policy. However, because Polity variables are subjectively coded and are explicitly designed to capture how institutions function, the coding of the variables is particularly vulnerable to coders' observations of these outcomes. Researchers run a risk, which is difficult to quantify, of regressing an outcome variable on a regime variable that is a function of the outcome. The evidence presented here suggests that this risk may be lower than one expects: objective political and other characteristics of countries, unrelated to the policy performance of government, explain a large fraction of the variation in Polity measures.

Even if Polity coding is not contaminated by the influence of observed country outcomes, researchers must address the possibility that unobserved effects drive both regime characteristics (as measured by any variables, objective or subjective) and the outcome of interest, giving rise to a spurious correlation between the two. To mitigate this endogeneity problem, scholars typically turn to instrumental variables. The persuasiveness of instruments depends on whether they plausibly determine the political variables, but not the outcome variable of interest. Since empirical tests for the validity of instruments are at best suggestive, the defense of an instrument's validity depends on the theory linking the instrument to the political variable. Such theory is less convincing to the extent that the particular country characteristics that Polity captures are ambiguous.

The analysis that follows, identifying the objective correlates of subjective Polity variables, addresses some of these concerns. It shows that Polity does, indeed, vary with concrete, theoretically important regime characteristics, beyond the competitiveness of elections, although these characteristics do not emerge in the Polity coding nor in earlier research using the Polity data. It then shows that these objective correlates have substantive implications for how empirical results using Polity are interpreted.

The political measures: DPI and Polity

The first comparisons with the objective measures from the Database of Political Institutions involve the two most widely-used Polity variables. One is *POLITY*, the difference between the democracy variable, *DEMOC*, and the autocracy variable, *AUTOC*. The institutionalized democracy (*DEMOC*) and autocracy (*AUTOC*) variables are each coded 0 – 10 (with higher values indicating more democratization or more autocratization, respectively); *POLITY* ranges correspondingly from 10 to -10. The regime variables are, in turn, derived from country scores on a number of component measures.² One of these is executive constraints (*XCONST*), coded 1 (fewest constraints) to 7 (most constraints), the other Polity variable of concern here. This variable embeds strong assumptions about regime type: a leader chosen by parliament is more subject to legislative constraints than a president.

The analysis relies on four variables from the Database of Political Institutions, but also examines the robustness of results to additional DPI controls for system of government (parliamentary or presidential), the stability of veto players, and in some specifications, the electoral system. Since competitive elections are the central feature of democracy, one of these variables is a dummy variable, *Competitive Elections*, which equals one if, for both legislative and executive elections, multiple candidates or parties are allowed to run for

² Most variables in Polity are categorical rather than ordinal; higher values do not imply “more” or “better” and cannot be readily compared to objective ordinal measures. The focus here is on widely used variables that do permit ordinal comparisons. The *DEMOC* measure is constructed based on the scores given to countries on four component variables. It is highest when executive recruitment is competitive (*XRCOMP*=3) and open to all citizens (*XROPEN*=4); when the chief executive is constrained (*XCONST* = 7, the executive’s power is equal to or subordinate to other governing bodies), and when competing public policies or leaders can be pursued in the political arena (political participation is competitive, or *PARCOMP* = 5).

The institutionalized autocracy variable, *AUTOC*, is largest (most autocratic) when the executive is simply designated or is hereditary (*XRCOMP* = 1); in the absence of competing candidates (*XROPEN* = 1 or 2); the executive enjoys unlimited authority (*XCONST* = 1); political participation is restricted (*PARREG* = 4); and the ability of citizens to present competing proposals or leaders through the political process is repressed (*PARCOMP* = 1).

office, do run, and no candidate or party gets more than 75 percent of the vote (for presidential elections) or seat share (for parliamentary or legislative elections).³

The second central feature of many conceptions of democracy, and the exact objective counterpart of the variable *XCONST*, is the variable *Checks*, which counts the number of veto players in a country. It takes a value of one in a country where elections are not competitive, and increments by one when, for example, elections are competitive, for every party in the governing coalition other than the executive's, or when a legislative chamber is controlled by the opposition.⁴

The remaining two DPI variables have been shown to have important policy and development consequences. Keefer (2007) has shown that countries with more years of continuous competitive elections (years in which the *Competitive Elections* variable is one) pursue systematically different public policies, biased against public good provision and towards patronage and corruption. Others have shown that a similar variable is systematically associated with economic growth (e.g., Bond, et al. 2005).

The second variable is the age of the largest government party (the ruling party, in the case of non-democracies) at the time a country changes executives, the difference between the two DPI variables *gov1age* and *yrsoffc*, set equal to zero if years in office of the leader is greater than the age of the oldest governing party. This variable has been shown to be related systematically to the risk of civil war (Keefer 2008) and to private investment in non-democracies (Gehlbach and Keefer 2009).

³ These assessments are based on the Legislative and Executive Indices of Electoral Competitiveness (LIEC and EIEC) from the DPI.

⁴ *Checks* is one when either the Legislative or Executive Index of Electoral Competitiveness from DPI is less than six: multiple candidates are allowed to run, but choose not to.

Prior research attaches a specific interpretation to these two variables: they capture the ability of citizens to act collectively against politicians who renege on commitments. Politician incentives to abide by rules or to fulfill promises depends on whether citizens can punish politicians who do not. Commitments are less credible and rules less enforceable to the extent that citizens confront high costs of acting collectively. Keefer and Vlaicu (2008) argue that when political competitors cannot make credible commitments, collective action by citizens (e.g., coalescing to vote for the candidate who promises to do better) is ineffective. Citizens can less easily expel incumbents who under-provide public goods (secondary school education), over-provide private goods (such as patronage employment), and exhibit greater corruption and rent-seeking. Keefer (2007) shows that this is precisely the pattern of policy outcomes in democracies with fewer years of continuous competitive elections.⁵

The ability of citizens to act collectively also depends on the institutionalization of political parties – political parties in which members confront few barriers to collective action. In democratic settings, in institutionalized parties, it is possible to discipline members, including leaders, who hurt the party's reputation – and consequently, the political careers of all party members – in the pursuit of their own goals. Gehlbach and Keefer (2009) examine non-democracies and show that in settings where rulers allows members of the ruling party to act collectively, members can more easily punish expropriation by them. Private investment is significantly higher in the presence of an institutionalized party, since members are more confident that they can punish expropriatory behavior by the leader.

⁵ Numerous alternative explanations, ranging from income and differences in institutional choice (e.g., presidential versus parliamentarism) to ethnic fractionalization are insufficient to explain these outcomes.

One signal that a party is able to act collectively, independent of the ruler, is whether it can survive a leadership transition. Where party members have no capacity to act collectively, they cannot easily discipline ambitious party members who decide to set up competing parties. Leadership transitions are therefore more likely to lead to party dissolution, as losers in the leadership competition leave with their followers to set up competing parties. The older parties are at the time a new leader takes power, then, is a useful proxy of party institutionalization: the ability of party members to act collectively. The two variables are related, of course: party institutionalization facilitates both leader commitments to party members and party commitments to citizens.

Earlier research strongly supports this particular interpretation of the years of democracy and age of party variables, and the remainder of the paper adopts this interpretation in discussing their relationship with Polity measures. However, even if one disputes this interpretation of the two variables, it remains the case that one or the other of these variables is always significantly related to Polity measures. The essential conclusion of this paper is that researchers must take a stand on how these objectively measured characteristics of countries relate to the hypotheses that they test using Polity measures.

Specification

To examine the degree to which Polity variables vary with objectively measured formal political institutions and the ability of citizens to act collectively, the following is estimated: $polity\ variable = \beta_0 + X_{DPI}\beta_1 + X_{controls}\beta_2 + \epsilon$, with various combinations of Polity and DPI variables and control variables. Two interpretations of the estimated coefficients on the DPI variables are possible. One is that Polity is, in fact, correlated with the objective characteristic of the country. The other is that Polity is correlated with omitted country characteristics that are themselves associated with the DPI variables. This is a

concern depending on whether the relationship between the omitted characteristic and the DPI variable is spurious – that is, when there is no theoretical reason to believe that the DPI variable causes the omitted variable. Usually, however, such a causal relationship exists.

For example, Polity coders may judge the enforceability of political institutions by whether they observe violations of the rules. In this case, the Polity variable would be correlated with omitted country characteristics that are related to these violations, ranging from government decisions to expropriate to government spending to corruption. This correlation is of course a problem for researchers using Polity to estimate the effects of political institutions on the security of property rights. However, to the extent that the objective DPI variables that measure enforcement are predicted to influence these same variables, omitted variable bias does not induce a spurious correlation between DPI and Polity. Both measure enforcement, though Polity's measure (in this case) would be endogenous to government policy choices. One response to these interpretation issues is to use a large number of controls. Two main specifications are therefore used below. One controls only for the DPI variables, and the other for many other factors, including the rate at which veto players are replaced from one year to the next; two population variables (how large a country is and how rural its population) and continent dummies are also included.

A closer look at these controls further illustrates the argument that correlations between Polity and DPI variables are unlikely to be driven by spurious (unrelated to theory) omitted variable bias. For example, the second regression in each pair also includes controls for the system of government (presidential or parliamentary) and for the electoral system (plurality or proportional), because Polity coding rules assume that constraints on the executive are greater (*XCONST* is higher) in parliamentary forms of government. The omission of these in the first equation does not create a spurious bias, however, since these

same variables are associated with the DPI checks and balances variable that is controlled for in the first regression. Parliamentary forms of government and proportional representation voting with high district magnitudes and low thresholds is likely to yield more coalition governments, raising the number of checks and balances recorded by the DPI variable).

On the contrary, a potentially greater hazard than omitted variable bias is the inclusion of variables that are theoretically predicted to be influenced by the variable of interest; by including them, the explanatory power of the variable of interest is spuriously reduced. Real income per capita, adjusted for purchasing power parity, is one example of this; it is also taken into account in the second regression. However, income per capita should be higher in settings where private investors feel more secure from expropriation, as in non-democracies where the ruling party is institutionalized.

In principle, because the Polity variables are categorical rather than continuous, ordered logits might be appropriate. However, the variable *POLITY* has 21 categories, approaching continuity. For ease of interpretation, therefore, with the exception of some multinomial logistic estimations in later sections, the estimates reported here are based on the use of ordinary least squares. However, all results are robust to using ordered logistic.

Tables 1 and 2 report three pairs of regressions for executive constraints (*XCONST*) and democracy (*POLITY*), respectively. One pair is for all country-year observations from 1975 (the first year of DPI) to 1999 (the last year of Polity); one is for country-years in which countries had leaders elected by competitive elections; and the third is for country-years in which leaders were not competitively elected. The first regression in each pair controls only for the four DPI variables of central concern. Since the competitive elections variable is always one or zero in the democratic and non-democratic subsamples, it is omitted in these regressions. Since the continuous years of competitive elections is always zero in non-

democracies, and since the electoral systems variables are coded as “missing” for countries where there are no elections, both of these are omitted in the non-democratic sub-sample.

The results in the two tables are similar: both formal institutions and the proxies for citizen ability to act collectively are significantly associated with the Polity evaluations. In Tables 1 and 2, the presence of competitive elections has a strong, significant association with the each of the Polity variables (columns one and two in each table). The DPI checks and balances variable is also a highly significant predictor of the Polity democracy variable, *POLITY*. Similarly, as one might expect, the DPI checks and balances variable is a highly significant predictor of the Polity *XCONST* variable. In the democratic sub-sample, significance drops when controls for parliamentary systems enter into the specification, but this is because *XCONST* is explicitly coded to be higher in parliamentary systems, and parliamentary systems tend to exhibit larger numbers of veto players, as coded by the DPI checks variable, because of the possibility of large coalition governments.

The DPI checks variable also predicts *XCONST* variable in *non-democratic* settings. When elections are not competitive, the DPI checks variable is generally one: even if multiple candidates can run, they do not. However, if multiple candidates can and do run in an executive or legislative election, but the elections are uncompetitive, the DPI checks variable is nevertheless allowed to be greater than one. That is, there is an assumption that the non-democratically elected leader is subject to more constraints when multiple parties compete for legislative office than when they do not. Polity coders clearly attach great weight to such elections, given that the DPI checks variable is significantly related to *XCONST* even in countries lacking competitive elections.

Tables 1 and 2 also demonstrate that the credibility of politicians is significantly associated with the Polity variables. The age of the largest government party at the time the

current executive took office is a highly significant predictor of *XCONST* and *POLITY* in all specifications. This indicates that institutionalized political parties are an important element in high scores for these Polity variables. That is, the *de facto* constraints on the executive and the democratic functioning of a country observed by Polity coders are both significantly related to the institutionalization of political parties.

On the other hand, the years of continuous competitive elections is significant in the more sparse specifications, but not robust to the addition of the numerous controls. This suggests that *XCONST* and *POLITY* are more sensitive to constraints placed on politicians by insiders (e.g., party members) than to the ability of voters to sanction politicians who break their promises, by switching their support to credible challengers.

Coefficient estimates on the additional control variables are also revealing. Income per capita is nowhere significant, indicating that there is no income bias in Polity coding. That is, higher income countries have higher *XCONST* and *POLITY* scores only because they are more likely to have objective attributes that constrain the executive and the integrity of democratic institutions. More rural countries, particularly non-democracies, generally receive lower Polity scores. Similarly, more populous non-democracies receive lower Polity scores, though more populous democracies receive higher scores. Given that formal institutional arrangements are taken into account, this suggests that, in the judgment of Polity coders, the *de facto* performance of non-democracies is weaker in larger, more rural countries.

**Table 1: Objective Political Correlates of Polity's Executive Constraints variable
XCONST**

Dependent variable: <i>XCONST</i>	Whole Sample		Democracies Only		Non-democracies Only	
Competitive Elections, 0-1	1.84 (0.00)	1.10 (0.00)				
Checks and Balances	0.45 (0.00)	0.25 (0.00)	0.16 (0.00)	0.064 (0.18)	1.26 (0.00)	0.95 (0.00)
Age of largest government party when current country executive took power	0.012 (0.00)	0.0079 (0.00)	0.0055 (0.00)	0.0042 (0.03)	0.023 (0.00)	0.027 (0.00)
Years of Continuous Competitive Elections	0.0087 (0.10)	-0.0003 (1.00)	0.019 (0.00)	0.0027 (0.69)		
Percent of previous period's veto players replaced in current period		-0.0005 (0.26)		0.0001 (0.82)		-0.00055 (0.40)
Presidential, Semi-presidential, Parliamentary, 0 – 2		0.62 (0.00)		0.56 (0.00)		0.44 (0.04)
Proportional or Plurality electoral system, 0-1		-0.46 (0.05)		-0.57 (0.01)		
Real, ppp-adjusted income/capita, US\$10,000		-0.13 (0.46)		0.10 (0.51)		0.036 (0.81)
Total population, 10 millions		0.0057 (0.41)		0.016 (0.00)		-0.0042 (0.24)
Percent population rural		-0.016 (0.02)		-0.0086 (0.21)		-0.004 (0.58)
Observations	3162	1719	1275	1071	1887	1227
R-squared	0.66	0.66	0.25	0.45	0.39	.44

Note: Robust *p*-values, adjusted for clustering, in parentheses. All right hand side political variables are objective measures from the Database of Political Institutions. Coefficients on continent dummies in the second of each pair of regressions are all insignificant and not reported.

Table 2: Objective Political Correlates of the Polity Democracy Variable *POLITY*

Dependent variable: <i>POLITY</i>	Whole Sample		Democracies Only		Non-democracies Only	
Competitive Elections, 0-1	6.70 (0.00)	4.10 (0.00)				
Checks and Balances	1.53 (0.00)	0.92 (0.00)	0.48 (0.00)	0.27 (0.03)	4.55 (0.00)	3.43 (0.00)
Age of largest government party when current country executive took power	0.032 (0.00)	0.017 (0.01)	0.015 (0.00)	0.008 (0.06)	0.048 (0.00)	0.058 (0.01)
Years of Continuous Competitive Elections	0.026 (0.07)	.0027 (0.90)	0.057 (0.00)	0.011 (0.52)		
Percent of previous period's veto players replaced in current period		-0.002 (0.19)		0.00028 (0.84)		-0.002 (0.37)
Presidential, Semi-presidential, Parliamentary, 0 – 2		1.69 (0.00)		1.18 (0.01)		1.31 (0.02)
Proportional or Plurality electoral system, 0-1		-1.44 (0.04)		-1.34 (0.02)		
Middle East		-2.67 (0.04)				-3.85 (0.02)
Real, ppp-adjusted income/capita, US\$10,000		-0.62 (0.21)		0.20 (0.65)		-0.64 (0.12)
Total population, 10 millions		.00054 (0.98)		0.029 (0.01)		-0.025 (0.02)
Percent population rural		-0.045 (0.02)		-0.012 (0.49)		-0.036 (0.08)
Observations	3162	1719	1275	1071	1887	1227
R-squared	0.71	0.70	0.27	0.45	0.43	0.51

Note: Robust *p*-values, adjusted for clustering, in parentheses. All right hand side political variables are objective measures from the Database of Political Institutions. All but the Middle East continent dummies are insignificant in the second regressions and are not reported.

Consistent with Polity coding rules, more parliamentary systems receive higher scores on *XCONST* and *POLITY*. This is true even in countries that lack fully competitive elections, when the institutional arrangements implied by parliamentary systems or proportional representation should matter less. On the other hand, political instability is not, in any specification, associated with *XCONST* and *POLITY*.

The Selectorate and Collective Action

A central topic in political economy is the effect of political institutions on public policies. In many cases, researchers use Polity variables to test hypotheses related to the effects of formal institutions, generated from theories that take the ability of citizens to act collectively for granted. The foregoing discussion points to the ambiguity that arises in interpreting such tests: the significance of the Polity variable could be due to the effect of formal institutions, as predicted, or to the fact that institutional arrangements of all kinds are more credible in countries in which citizens can act collectively.

For example, in an early effort to look at the political sources of secure property rights, Keefer and Knack (1998) found that a measure of property rights security rose with *XCONST*, concluding that political checks and balances make it more difficult for politicians to renege on commitments to respect property rights. Keefer and Knack (1997) drew similar conclusions after finding that *XCONST* is associated with greater trust and civic-mindedness. The foregoing analysis suggests that the evidence also supports an alternative conclusion: property rights are more secure, and citizens more trusting, when citizens can act collectively to enforce the formal institutional arrangements in a country.

Three examples from the literature that rely on Polity data highlight this challenge. The first, discussed in this section, is the influential analysis of the selectorate by Bueno de Mesquita, et al. (2003). They argue that variation across countries in the size of the

selectorate explains differences in policy outcomes across countries more systematically than other regime characteristics. Selectorates are the groups that choose and replace leaders. The larger is this group and, in particular, the larger is the group within the selectorate that is needed to remove the incumbent (the winning coalition size), the more publicly interested government policies are likely to be.

The size of the selectorate is a parameter in their theory. However, the analysis in Keefer and Vlaicu (2008), in democratic settings, and Keefer and Gehlbach (2009) in non-democratic settings, suggests that the size of the selectorate is determined not only by political institutions, but also by the number of citizens who can act collectively to replace political actors who fail to honor their commitments. The question, then, is whether the Polity variables that they use to represent the size of the selectorate have a deeper interpretation and actually capture the underlying country conditions that allow political actors to make credible commitments to citizens. Those characteristics, as before, are represented by the two DPI variables, the years of continuous competitive elections and the age of the largest government party at the time of the last leadership transition.

To measure the winning coalition size, Bueno de Mesquita, et al. (2003) construct the variable W from three variables in the Polity dataset and an additional variable taken from an older database of Arthur Banks. As with the Polity measure of democracy, *DEMOC*, they employ *XRCOMP*, indicating whether subordinates can compete to be the executive; *XROPEN*, indicating whether any citizen has a right to be the executive (as opposed to hereditary restrictions); and *PARCOMP*, indicating whether it is possible to pursue policies other than those approved by the executive. However, their measure differs from *DEMOC*, first, because it excludes *XCONST* and, second, because it assigns different weights to different categories. In particular, W is incremented by one for every one of these that

exceeds a certain threshold, and again by one if the countries are not controlled by the military, from the Banks variable.

One source of controversy regarding this variable is whether it really captures something different than Polity's *DEMOC* or *POLITY*, with which it is highly correlated. Clarke and Stone (2008) argue that W is no longer significant when they control for *POLITY*, concluding that the distinction between W and democracy is not empirically meaningful. Bueno de Mesquita, et al. (2008) respond that this may be because the *POLITY* measure gives great weight to the size of the selectorate, so that controlling for both *POLITY* and W leads to the spurious rejection of W . They argue, instead, that one should examine whether the effects of W are robust to controlling for constraints on the executive, since *XCONST* enters into the construction of *POLITY*, but not W . They find that W is robust to these controls.

The comparison of W with objective political characteristics of countries casts a different light on this debate. It supports the contention of Bueno de Mesquita, et al. (2008) that Polity's democracy variable gives great weight to the size of the winning coalition. However, it also suggests that it is not simply the winning coalition, *per se*, that matters, but the underlying conditions that permit leaders to make credible commitments to citizens or followers, consistent with arguments in Keefer and Vlaicu (2008) and Keefer and Gehlbach (2009). The two DPI variables reflecting this ability to make credible commitments, the years of continuous competitive elections and the age of the largest government party at the time of the last leader transition, are strongly associated with W , *POLITY* and *XCONST*, even after controlling for *POLITY* or *XCONST*.

The measure of W used in Bueno de Mesquita, et al. (2003) relies on the Banks measure of whether a regime is controlled by the military. This restricts analysis to a period

up until the 1992. However, since the Database of Political Institutions begins in 1975 and Polity ends in 1999, a total of 25 years, using the Banks measure would force nearly one-third of the observations (1993 – 1999) to be dropped. The exercise here therefore focuses on a simpler measure of W constructed using only the three Polity variables, following the rules laid out in Bueno de Mesquita, et al. (2003). All of the results, however, are robust to an alternative measure, one that is incremented by one if, according to the *military* variable in the DPI, the leader of the country is *not* a military officer. This measure is correlated with the Polity-only measure at .93.⁶

The objective correlates of W (modified) are identified using specifications and estimation approach similar to those in Tables 1 and 2. The one difference is that in these regressions, the variable describing a country's electoral system is dropped: it is not a significant determinant of W (modified) and reduces the sample size by nearly half in the specifications with full controls.

The specifications ask two questions. First, are objective measures of political institutions also significant determinants of W ? This tests whether institutions that allow rulers to make credible commitments are significantly associated with the size of the winning coalition. They are. Second, do they remain significant even after controlling for either of the two Polity measures, *POLITY* and *XCONST*? This asks whether W accounts for variation in the ability of leaders to make credible commitments, as measured by the DPI variables, beyond what is captured by the two Polity variables. It does.

⁶ The variation in the military variable across regime type is intuitive and suggests that it is a reasonable objective proxy for military control. There are 1,087 country-years in the DPI in which the executive is a military officer and 4119 in which the executive is not. Of observations in which the executive is a military officer, 122 occur in countries with fully competitive legislative and executive elections, compared to 2,156 observations with competitive elections in which the executive is not a military officer.

The results are displayed in Table 3. The main conclusion to be drawn from columns 1 and 2 is that objective measures of the ability of leaders to make credible commitments are significantly associated with W (modified). Just as in the cases of *XCONST* and *POLITY* in Tables 1 and 2, the formal institutional variables, the presence of competitive elections and the number of political checks and balances, are always significant, as is the objective measure of the ability of members of the governing party to act collectively, the age of the governing party at the last leadership transition. The association with years of continuous competitive elections, as in Tables 1 and 2, becomes insignificant in the presence of numerous controls.

From columns 1 and 2 one can conclude, first, that W (modified) is sensitive to formal institutional arrangements. This includes a strong correlation with political checks and balances, despite the fact that Bueno de Mesquita, et al. (2003) construct W so as to exclude this correlation. Second, it is highly sensitive to objective political characteristics of countries that favor the ability of leaders to make credible commitments to citizens, a key determinant of the size of the selectorate.

A key argument of Bueno de Mesquita, et al. (2003) is that their measure W captures different regime characteristics than the Polity democracy measures. Columns 3 and 4 therefore examines the effect of DPI variables on W holding *POLITY* constant: if *POLITY* fully capture the effect of the DPI variables, then W and *POLITY* are not objectively distinct. Columns 5 and 6 do the same with Polity's executive constraints measure, *XCONST*.

Columns 3 and 4 confirm, as is well-known, that the democracy measure, *POLITY*, and W are significantly associated. More importantly, though, W is significantly associated with the objective political characteristics of countries even after controlling for *POLITY*.

The presence of competitive elections has a significantly different effect on W than on *POLITY*: the negative coefficient on the DPI competitive elections variable indicates that the presence of competitive elections has a significantly more positive effect on *POLITY* than on W , consistent with the argument that W measures something other than democracy and that elections are not necessary to have a large winning coalition. The objective measure of political checks and balances is also, though less robustly, associated with W after controlling for *POLITY*. In sum, W captures variation in the formal institutional characteristics of countries in ways that *POLITY* does not.

It also captures variation in the ability of leaders to make credible commitments to followers or voters, again even after controlling for *POLITY*. This is consistent with the claim that W is related to the size of the winning coalition, as distinct from democracy itself. However, it raises the possibility that W does not measure the size of the coalition so much as the existence of the conditions under which a large coalition can emerge.

Columns 5 and 6 repeat this exercise substituting *XCONST* for *POLITY*. W continues to be correlated with the objective measure of constraints even after controlling for the subjective measure. W also reflects additional political characteristics of a country that relate to the size of the selectorate and are not correlated with constraints on the executive. Both party age and years of competitive elections are highly significant in column 5. As usual, when more controls are added, in column 6, the years of elections variable is insignificant; the party age variable, however, is nearly significant. However, Bueno de Mesquita, et al. (2008) claim, in responding to criticisms of Clarke and Stone (2008), that W is constructed to be independent of executive constraints. Table 3 suggests that W is actually significantly associated with both objective and subjective measures of these constraints.

Table 3: Leader credibility and the objective correlates of W

Dependent variable: <i>W</i> (modified)	(1)	(2)	(3)	(4)	(5)	(6)
Competitive elections, 0-1	0.59 (0.00)	0.33 (0.00)	-0.15 (0.05)	-0.16 (0.01)	-0.008 (0.93)	-0.066 (0.32)
Checks and balances	0.20 (0.00)	0.12 (0.00)	0.030 (0.09)	0.010 (0.45)	0.051 (0.02)	0.035 (0.02)
Age of largest government party when current country executive took power	0.0063 (0.00)	0.0042 (0.00)	0.0027 (0.02)	0.0019 (0.03)	0.0023 (0.04)	0.0013 (0.13)
Years of continuous competitive elections	0.0095 (0.00)	0.0010 (0.81)	0.0067 (0.00)	0.0011 (0.64)	0.0066 (0.00)	0.0016 (0.49)
POLITY (Polity democracy measure)			0.11 (0.00)	0.10 (0.00)		
Executive Constraints (Polity)					0.33 (0.00)	0.29 (0.00)
Percent of previous period's veto players replaced in current period		- 0.0002 (0.15)		-0.0001 (0.35)		-0.0002 (0.12)
Presidential, Semi-presidential, Parliamentary, 0 – 2		0.25 (0.00)		0.084 (0.03)		0.072 (0.13)
Latin America		0.40 (0.12)		0.25 (0.13)		0.31 (0.11)
East Asia		0.26 (0.25)		0.41 (0.01)		0.30 (0.08)
OECD		0.79 (0.01)		0.71 (0.00)		0.81 (0.00)
Eastern Europe		0.51 (0.05)		0.44 (0.01)		0.40 (0.04)
Real, ppp-adjusted income/capita, 10,000 dollars		-0.098 (0.01)		-0.032 (0.41)		-0.089 (0.06)
Total population, 10 millions		-0.003 (0.03)		-0.0004 (0.66)		-0.003 (0.03)
Percent population rural		-0.005 (0.05)		-0.0004 (0.98)		-0.001 (0.66)
Observations	3162	2318	3162	2318	3162	2318
R-squared	0.64	0.73	0.82	0.86	0.82	0.85

Note: Robust *p*-values, adjusted for clustering, in parentheses. Dependent variable is a modified version of *W*, based only on Polity variables. Right hand side political variables are from the Database of Political Institutions. Insignificant continent dummies not reported; rural population is insignificant and not reported.

The results in Table 3 point to three conclusions relative to the measurement of political institutions, generally, and to the literature on the selectorate, specifically. First, objective measures allow researchers to sharpen the interpretation they give to subjective measures and to match them more closely to theory. Second, subjective variables capture a variety of country characteristics that are associated with the enforceability of institutional arrangements – the ability of leaders to make credible commitments to citizens or followers. Third, recognizing these alternative interpretations does not necessarily undercut conclusions reached by researchers who use subjective variables; it can enrich them, as well. For example, the objective correlates provide direct support for the claim that *W* is distinct in meaningful ways from Polity's democracy measure.

Factionalization, Credible Commitment and War

Goldstone, et al. (forthcoming 2010) investigate the regime correlates of civil war. They argue that predicting conflict on the basis of variables such as *POLITY* does not recognize the distinctions that theoretical considerations draw among regime types. Not all country characteristics that cause countries to receive lower *POLITY* scores feed conflict, nor do factors driving higher scores necessarily prevent it. They use Polity data to construct new regime categories that they argue are more closely aligned with theory. They emphasize one of these, in particular, factionalized partial democracies. These had not been the focus of previous research, but turn out to be particularly vulnerable to conflict.

They construct five regime categories – autocracy, partial autocracy, partial democracy, partial, factionalized democracy, and democracy – out of different values of two Polity variables, *EXREC* and *PARCOMP*. Values of *EXREC* are based on the extent to which executive transfers are regulated or institutionalized (*XRREG*); the competitiveness of executive selection (*XRCOMP*); and the openness of executive recruitment (*XROPEN*).

PARCOMP is the extent to which alternative policy and leadership preferences can be pursued in the political arena. If efforts to present these preferences are repressed entirely or suppressed, *PARCOMP* is coded 1 or 2; if parochial or ethnic-based political factions regularly compete for political influence in order to favor group members at the expense of the country as a whole, a politics is factional and *PARCOMP* is coded 3. The highest score, 5, is assigned to countries in which stable and enduring, secular political groups regularly compete for political influence at the national level, and ruling groups regularly and voluntarily transfer central power to competing groups.

XRCOMP, *XROPEN* and *PARCOMP* also enter into the coding of Polity's democracy measure, *POLITY*. However, Goldstone, et al. (forthcoming 2010) take a different approach to regime categorization. They argue that autocracies are simply those in which there is limited competition for the position of executive and in which alternative political viewpoints are suppressed. Partial autocracies are those in which either executive competition is competitive and alternative political viewpoints are repressed; or executive competition is not competitive and there is some freedom to pursue alternative policies in the political arena. Partial democracies are countries in which there is greater ability to pursue alternative political viewpoints and there is greater competition to be the executive. Factionalized partial democracies are similar, but are characterized by ethnically-polarized political competition. Full democracies exhibit unrestricted competition for the executive and freedom to pursue alternative policy and leadership positions in the political arena.

They find that partial autocracies are highly vulnerable to conflict, but so also are partial *fractionalized* democracies. Their interpretation of these results is that more nuanced characteristics of regimes, particularly the degree to which they are factionalized, need to be considered in the analysis of conflict. The results reported in Tables 1 and 2 raise two

questions regarding this conclusion. First, is the Polity coding of factionalization based only on the fact of ethnically-organized political competition, or does it emphasize settings where ethnic competition has turned into outright ethnic tensions? If the latter is true, the findings in Goldstone, et al. (forthcoming 2010) simply confirm what others have also found, that ethnic tensions are associated with civil war. In either case, a second question arises: are there underlying regime differences between factionalized and non-factionalized democracies that give rise to factionalization?

These questions can be addressed following the same methodology as before. One can ask, first, whether the objective political characteristics of factionalized partial democracies differ from the non-factionalized variety; and second, whether a subjective measure of ethnic tensions, from the *International Country Risk Guide*, distinguishes the two types of democracies. This variable goes from zero to six, with the lowest scores reflecting the highest level of ethnic tension. Keefer (2008) analyzes sources of conflict and concludes that countries with non-institutionalized (younger) governing parties and fewer years of continuous competitive elections are significantly more vulnerable to conflict. These two DPI variables are therefore particularly relevant to interpreting subjective regime type characterizations related to conflict.

Because there are five different categories, the correlates of the categories are estimated with a multinomial logit; since theory is not clear about the relative ordering of partial and factionalized regime types, ordered logit is not appropriate. The omitted category, against which all others are compared, is the factionalized partial democracy. The estimation results are then presented in four columns; the odds ratios in each column describe whether a particular correlate significantly distinguishes the regime type in that column from the omitted regime category. Since they are odds ratios, values less than one

indicate that the odds that the regime type has a characteristic are less than the odds that factionalized partial democracies have the characteristic.

Table 4 reports results of two specifications, one using only the four objective DPI variables and the second adding the *ICRG* ethnic tensions variable. The first four columns of Table 4 indicate that, unsurprisingly, autocracies and partial autocracies are significantly different in nearly all respects from partial, factionalized democracies: they exhibit significantly fewer political checks and balances; younger, less institutionalized governing parties; and fewer continuous years of competitive elections. Democracies and partial democracies, however, are not significantly different than factionalized partial democracies with respect to the competitiveness of elections or political checks and balances. Democracies have significantly older government parties and more years of continuous competitive elections. Partial democracies are indistinguishable from partial, factionalized democracies with respect to the years of competitive elections. Consistent with the findings in Keefer (2008), partial factionalized democracies, which Goldstone, et al. (forthcoming 2010) show are more likely to experience conflict, differ from partial democracies in exhibiting significantly younger (less institutionalized) governing parties.

The second specification in Table 4 controls, in addition, for ethnic tensions. Again, the key question is how partial democracies differ from partial factionalized democracies. The estimated coefficient on ethnic tensions indicates that partial democracies exhibit significantly less ethnic tensions than their factionalized counterparts. This suggests that outright ethnic tensions are a significant determinant of the factional coding in Polity. This result is robust to controlling for a common measure of ethnic fractionalization (Alesina, et al. 2002), which is neutral (describing only the ethnic makeup of a society and not the

politicization of its ethnic groups). Only ethnic tensions, not ethnic fractionalization, is a significant determinant of factionalization.

The other important result in Table 4, to which the discussion returns below, is that the government age variable is no longer significant in the presence of the ethnic tensions variable. This remains true in Table 5, which repeats the estimations in Table 4 with the full set of controls, as in Tables 1 and 2. In the estimation without ethnic tensions, but with a full set of controls, the age of the largest governing party again significantly distinguishes partial democracies from partial, factionalized democracies. In the second estimation, controlling for ethnic tensions, neither the ethnic tensions variable nor the party age variable is significant. If the party age variable is removed from the second specification in Table 5, however, ethnic tensions is again highly significant.

The results in Tables 4 and 5 are revealing in two ways. On the one hand, outright ethnic tension seems to distinguish partial and partial factionalized democracies. Since we expect tension to precede conflict, the finding that partial factionalized democracies are more vulnerable to conflict is less surprising than it would be if factionalization were coded based on the simple ethnic organization of political competition or ethnic fractionalization in the society. On the other hand, since ethnic tensions are not regime characteristics, but rather an indicator of regime performance, the tables raise the question of why one type of partial democracy is more likely to be associated with ethnic tensions than another. They also suggest a potential explanation: partial factionalized democracies exhibit less institutionalized (younger) governing parties, relative to leader years in office, creating a breeding ground for ethnic tension.

Table 4: What distinguishes partial, factionalized democracies (sparse specification)?

Dependent variable: Goldstone, et al. (2010 forthcoming) 5-way regime type	Autocracy	Partial Autocracy	Partial Democracy	Democracy	Autocracy	Partial Autocracy	Partial Democracy	Democracy
Competitive elections, 0-1	4.32 (0.16)	2.66 (0.07)	0.79 (0.61)	0.82 (0.77)	8.23 (0.02)	1.87 (0.35)	0.72 (0.54)	0.69 (0.60)
Checks and balances	0.020 (0.00)	0.33 (0.00)	1.05 (0.64)	1.23 (0.18)	0.018 (0.00)	0.31 (0.00)	1.11 (0.39)	1.30 (0.12)
Age of largest government party when current country executive took power	0.98 (0.01)	0.98 (0.04)	1.01 (0.10)	1.01 (0.16)	0.97 (0.00)	0.97 (0.00)	1.01 (0.31)	1.01 (0.57)
Years of continuous competitive elections	0.58 (0.02)	0.83 (0.00)	1.01 (0.69)	1.09 (0.00)	0.56 (0.03)	0.86 (0.01)	1.03 (0.39)	1.12 (0.00)
Ethnic Tensions (<i>ICRG</i>)					1.02 (0.88)	1.11 (0.45)	1.33 (0.05)	2.23 (0.00)
Observations	3162	3162	3162	3162	1925	1925	1925	1925
Pseudo R-squared	0.41	0.41	0.41	0.41	0.44	0.44	0.44	0.44

Note: The coefficients are from a multinomial logit estimation, expressed as odds ratios. Robust z-statistics, adjusted for clustering, in parentheses. All right hand side political variables are objective measures from the Database of Political Institutions. Constant not reported.

Table 5: What distinguishes partial, factionalized democracies (All controls)?

Dependent variable: Goldstone, et al. (2010 forthcoming) 5-way regime type	Autocracy	Partial Autocracy	Partial Democracy	Democracy	Autocracy	Partial Autocracy	Partial Democracy	Democracy
Competitive elections, 0-1	13.2 (0.02)	2.49 (0.13)	0.68 (0.44)	0.31 (0.16)	18.4 (0.01)	3.50 (0.06)	0.87 (0.81)	0.43 (0.38)
Checks and balances	0.025 (0.00)	0.40 (0.00)	1.16 (0.15)	1.76 (0.00)	0.028 (0.00)	0.30 (0.00)	1.20 (0.12)	1.69 (0.01)
Age of largest government party when current country executive took power	0.98 (0.22)	0.98 (0.05)	1.01 (0.04)	1.02 (0.01)	0.98 (0.25)	0.97 (0.02)	1.01 (0.18)	1.02 (0.03)
Years of continuous competitive elections	0.55 (0.09)	0.87 (0.00)	1.01 (0.77)	1.13 (0.01)	0.59 (0.07)	0.87 (0.01)	1.01 (0.72)	1.11 (0.02)
Ethnic Tensions					0.92 (0.69)	0.95 (0.74)	1.25 (0.18)	1.39 (0.10)
Observations	2318	2318	2318	2318	1760	1760	1760	1760
Pseudo R-squared	0.54	0.54	0.54	0.54	0.59	0.59	0.59	0.59

Note: The coefficients are from a multinomial logit estimation, expressed as odds ratios. Robust z-statistics, adjusted for clustering, in parentheses. All right hand side political variables are objective measures from the Database of Political Institutions. Additional controls and constant not reported: percent of previous period's veto players replaced in current period; presidential, semi-presidential or parliamentary; continent dummies; real ppp-adjusted income/capita; total population; percent population rural. Of these, income is consistently significant: partial democracies are significantly richer than partial factionalized democracies.

Keefer (2008) concludes that countries with older, more institutionalized governing parties are less vulnerable to civil war. The results in Tables 4 and 5 suggest that they might also be less vulnerable to ethnic tensions, since the presence of both the ethnic tensions and party age variables reduces the significance of both. In fact, institutionalization of the largest government party, as proxied by the age of the party at the time of the last leadership change, is robustly associated with ethnic tensions.

Table 6 presents the results of four estimations of the correlates of the ICRG ethnic tensions variable. The first controls for the four DPI political variables and a measure of ethnic fractionalization from Alesina, et al. (2002). Among the four political variables, only the party age variable is significant: a one standard deviation increase in the party age variable is associated with a .15 standard deviation reduction in ethnic tensions (a positive coefficient). The effect is robust to the addition of a large number of controls, as in the second column, where the same single standard deviation increase in party age is associated with a .14 standard deviation reduction in tensions. The last two columns indicate that the effect is particularly strong in countries with competitive elections, but significant as well in countries that do not exhibit competitive elections.

What explains the strength of this association? Keefer (2008) and Gehlbach and Keefer (2009) argue that in countries where governing parties are not institutionalized, leaders cannot easily make credible commitments to followers and cannot, therefore, easily mobilize support. Under these circumstances, as Keefer and Vlaicu (2008) point out, they are more likely to resort to appeals to co-ethnics, since intra-ethnic promises are more credible than inter-ethnic.

Table 6: Institutionalized parties and ethnic tensions

Dependent variable: Ethnic tensions (<i>ICRG</i>)	Whole Sample	Whole Sample	Democracies Only	Non-democracies only
Competitive elections, 0-1	0.17 (0.35)	0.14 (0.42)		
Checks and balances	-0.055 (0.27)	0.019 (0.63)	-0.0089 (0.83)	0.059 (0.57)
Age of largest government party when current country executive took power	0.0058 (0.02)	0.0054 (0.01)	0.0056 (0.01)	0.011 (0.10)
Years of continuous competitive elections	0.0054 (0.30)	-0.014 (0.14)	-0.0067 (0.34)	
Alesina ethnic fractionalization	-2.41 (0.00)	-2.71 (0.00)	-3.15 (0.00)	-2.53 (0.00)
Percent of previous period's veto players replaced in current period		0.00015 (0.88)	0.00026 (0.80)	-0.31 (0.10)
Presidential, Semi-presidential, Parliamentary, 0 - 2		-0.22 (0.06)	-0.20 (0.20)	-0.098 (0.49)
Real, ppp-adjusted income/capita, 10,000 dollars		0.079 (0.48)	0.075 (0.67)	-0.0052 (0.97)
Total population, 10 millions		-0.0019 (0.59)	-0.0031 (0.71)	0.00043 (0.91)
Percent population rural		-0.0090 (0.13)	-0.0023 (0.73)	-0.020 (0.01)
Observations	2696	2470	1396	1074
R-squared	0.27	0.42	0.51	0.28

Note: Robust *p*-values, adjusted for clustering, in parentheses. Right hand side political variables are from the Database of Political Institutions. Continent dummies and constant not reported. Democracies are countries with competitive executive and legislative elections: the legislative and executive indices of electoral competitiveness from the DPI both equal seven. Non-democracies are countries where at least one of the indices is less than seven.

In principle, intra-ethnic appeals could coalesce around an institutionalized political party. However, the hallmark of an institutionalized party is leadership transition. Since any co-ethnic can make ethnic appeals, those passed over for leadership have a strong incentive to start their own party, leading to party instability, rather than institutionalization. The inability to form institutionalized political parties in a multi-ethnic setting promotes ethnic tensions.

The findings in Tables 4 – 6, then, suggest that the Polity coding of factionalization does not capture an intrinsic characteristic of political regimes, but rather an outcome (ethnic tension), to which some regimes are more vulnerable. The comparison of Polity categories with objective political measures helps to identify what specific regime characteristics make ethnic tensions more likely, enriching the interpretation of results linking particular regime types to conflict.

Objective and subjective characterizations of regime transitions

Epstein, et al. (2006) revisit modernization theory and the question of whether income drives democratization. Przeworski, et al. (2000), employing a dichotomous regime classification, argue that income has no effect on the transition to democracy, but does affect democratic duration. Epstein, et al. (2006) investigate whether this finding emerges because the dichotomous classification suppresses within-regime heterogeneity. They distinguish partial democracies (those scoring between 1 and 7 on the *POLITY* measure) from full autocracies (-10 to 0) and full democracies (greater than 8-10). Using this trichotomous classification and similar estimation procedures to those of Przeworski, et al. (2000), they find that income is significantly associated with transitions to democracy.

Epstein, et al. (2006) acknowledge that the precise characteristics of partial democracy that drive this result are unclear and require further investigation. The

specifications in Tables 4 and 5 offer a starting point for such an investigation. In particular, two questions are important. First, what are the objective political factors that distinguish partial democracies from full autocracies and democracies, as derived from the Polity coding? And second, since the debate surrounding democratic transitions concerns the conditions under which countries experience large changes in the way they are governed, what are the objective differences between regime types in the trichotomous classification?

Table 7 reports the results of this exercise, again using a multinomial logit. The first two columns report the results of the sparse specification, as in the first two columns of Table 4 (ignoring ethnic tensions). The last two columns report the results of the full specification, as in the first two columns of Table 5. The specification in Table 7 is, in the end, simply a re-estimation, and confirmation, of the estimates in Tables 1 and 2, using a trichotomized version of the *POLITY* variable rather than the continuous variable. The results in the two sets of tables are, correspondingly, similar.

Partial democracies, on all objective political criteria, lie between countries coded as fully democratic and fully autocratic. Across all specifications, partial democracies exhibit significantly more political checks and balances compared to autocracies, but significantly fewer than democracies (competitive elections are no different, but these are embedded to a certain degree in the checks and balances measure). They also lie between the full regime types with regard to the proxies for the capacity of citizens to act collectively against leaders. Partial democracies exhibit significantly fewer years of continuous competitive elections than democracies and significant more years than autocracies. They exhibit significantly older government parties than autocracies and younger than democracies (though this last difference is significant only with fewer controls).

All three regime types include sizable fractions of both countries that have competitive elections and of those that lack them. If one confines the comparison of the regime types to each of these groups, it is still the case that partial democracies are located between the other two. For example, the average years of competitive elections among democracies coded by DPI as having competitive elections is 31; the average for partial democracies, coded by DPI as having competitive elections, is 6.7. The average for autocracies, coded by DPI as having competitive elections, is 4.1. Whether looking only at countries with competitive elections or those without, partial democracies lie between the other two groups with respect to the age of the government party and political checks and balances.

What do these comparisons with DPI imply for the interpretation of the results in Epstein, et al. (2003)? The distance between the average objective characteristics of full autocracies and partial democracies, and of partial and full democracies, as in Epstein, et al. (2006) is less than the distance between regime types in a dichotomous setting, as in Przeworski, et al. (2000). In this sense, Epstein, et al. (2006) are analyzing a different problem than Przeworski, et al. (2000). The latter investigate exclusively large shifts in the objective characteristics of regime type and find income is not associated with movements towards democratization; the former analyze less dramatic shifts and find that income is relevant to shifts toward democratization. These results are not mutually exclusive. Research that examines the fiscal response of countries to banking crises, for example, typically defines a threshold set of characteristics that a banking sector must meet before it is judged to be in crisis. Movements below that threshold may also be interesting, but not necessarily for the question at hand. The relevant issue is therefore not which of these conclusions is “correct”, since they do not contradict each other.

Instead, the more interesting issue is the magnitude of the changes in objective regime characteristics that are sufficient to trigger shifts in across the three Polity-based regime types. The results in Table 7 suggest that, in fact, small changes in underlying, objective political characteristics of countries are sufficient to generate substantial movement between the three Polity categories. For example, only a one year increase in the years of continuous competitive elections increases the odds of a country being coded as a partial democracy rather than an autocracy by 14 percent (1.00 - .86).

This is not surprising, since large fractions of observations within each regime type are very similar, with respect to objective criteria, to observations in adjoining regime types, particularly in the case of autocracies and partial democracies. This implies that movements between groups are consistent with small changes in underlying objective characteristics that may not be consequential (e.g., for public policy). With respect to income, for example, which is relevant in investigations of the effect of income of regime change, both autocracies and partial democracies are much poorer than full democracies (50 – 70 percent poorer), while partial democracies are only 20 percent poorer than full autocracies (both differences are significant in the regressions in Table 7).

With regard to political characteristics, similarities between the autocratic and partially democratic categories can best be seen by focusing separately on observations that exhibit and do not exhibit competitive elections. More than 10 percent of the autocracies and 2/3 of the partial democracies exhibit competitive elections, as judged by DPI. The years of continuous competitive elections are nearly the same for the autocracies and partial democracies, but much larger for the full democracies; so also is income per capita. The age of the largest government party is approximately 1/3 of a standard deviation higher in partial democracies with competitive elections than in autocracies with competitive elections; it is

approximately 2/3 of a standard deviation lower than in full democracies with competitive elections.

Table 7: What distinguishes partial democracies?

Dependent variable: Epstein, et al. (2006) trichotomous regime type	Autocracy	democracy	autocracy	democracy
Competitive elections, 0-1	1.56 (0.46)	0.78 (0.62)	1.93 (0.31)	0.63 (0.34)
Checks and balances	0.19 (0.00)	1.39 (0.01)	0.21 (0.00)	1.42 (0.01)
Age of largest government party when current country executive took power	0.97 (0.00)	1.01 (0.23)	0.97 (0.00)	1.01 (0.19)
Years of continuous competitive elections	0.86 (0.00)	1.10 (0.00)	0.87 (0.00)	1.07 (0.01)
Percent of previous period's veto players replaced in current period			1.00 (0.03)	1.00 (0.88)
Presidential, Semi-presidential, Parliamentary, 0 – 2			0.53 (0.01)	1.41 (0.28)
Real, <i>ppp</i> -adjusted income/capita, 10,000 dollars			10.2 (0.00)	4.24 (0.07)
Total population, 10 millions			1.05 (0.00)	1.04 (0.01)
Percent population rural			1.03 (0.07)	1.00 (0.81)
Observations	3162	3162	2318	2318
Pseudo R-squared	0.55	0.55	0.62	0.62

Note: The coefficients are from a multinomial logit estimation, expressed as odds ratios. The omitted (comparison) observations are countries classified as partial democracies. Robust *z*-statistics, adjusted for clustering, in parentheses. All right hand side political variables are objective measures from the Database of Political Institutions. Continent dummies estimated, but not reported, in last two specifications.

One can also look at those autocracy observations (more than half) and partial democracy observations (approximately one-fourth) that exhibit no competitive elections and a governing party older than the leader's years in office. Comparing these two large groups of observations indicates that average incomes are nearly identical and low (around \$3,250 per capita); the age of the government party is nearly the same (20.5 years older than the leader's tenure in the autocracy; 22.4 years older in the partial democracy). The main

difference appears to be the presence of legislative elections; the DPI coding of checks allows these to be considered as a check on the non-competitively elected executive (as long as multiple parties contest the legislative elections). Such legislatures rarely have decisive authority; nevertheless, their presence gives partial democracies an average checks rating of 2.3 compared to 1.1 for the autocracies. The introduction of such a legislature is naturally a reasonable focus of investigation. However, it remains an open question whether it constitutes a significant step towards democratization; scholars might reasonably disagree about whether the fact that income gains are associated with the introduction of such legislatures is evidence that income drives democratization.

The closeness of autocracies and partial democracies is empirically relevant for the investigation of democratization. Shifts between the autocracy and partial democracy categories appear to constitute a large fraction of the total regime shifts that Epstein, et al. (2006) investigate. For example, of the 56 shifts that Epstein, et al. (2006) record between only two categories, 37 are between partial democracy and autocracy. Since income differences between these groups are small, correspondingly small changes in income are sufficient to drive small changes in underlying political institutions and modes of competition.

Identifying objective correlates of Polity provides a better understanding of regime transitions. First, what is actually changing when regimes transition? Tables 1 and 2 and Table 7 make clear that it is not only formal institutions of elections and political checks and balances, but also the ability of citizens to act collectively to hold governments to account. Second, what changes are meaningful? Intuitively, it is reasonable to expect movements between the three broad regime categories investigated Epstein, et al. (2006) to involve large underlying changes in political institutions and modes of political competition. The

comparison with objective DPI measures indicate, instead, that relatively small movements in the DPI measures are sufficient to trigger large shifts in Polity, particularly between autocracies and partial democracies.

Conclusion

Research on the measurement of such concepts as the security of property rights distinguishes formal institutions (or formal rules or *de jure* rules and institutions) that are meant to insulate property from arbitrary expropriation by government or other private actors, and the degree to which these are enforced (sometimes couched in terms of informal or *de facto* rules). The distinction between *de jure* rules and their enforcement is also key to the political economy literature and the measurement of political institutions.

Glaeser, et al. (2004), for example, argue that tests of institutions should rely on objective measures of formal (or *de jure*) rules, such as rules governing the independence of the judiciary. Woodruff (2006) and Voigt (no date) argue that this ignores enforcement (or *de facto* or informal) institutions. Woodruff argues that all of the subjective institutional measures that are significantly associated with economic outcomes (such as International Country Risk Guide's measures of expropriation risk or the rule of law) embody elements of both the formal rules and their enforcement. However, he is pessimistic that *de facto* or enforcement institutions can be isolated in national level data and recommends that the future institutional research agenda emphasize micro-level empirical settings. Voigt is more optimistic, but agrees that no measures of enforcement yet exist.

The analysis here supports the arguments of Woodruff and Voigt that enforcement of rules is central to any argument about institutions, but demonstrates that measurement of enforcement is more immediately feasible than they anticipate. Prior research points to specific objective political characteristics of countries that are associated with the ability of

citizens to act collectively to enforce the commitments of political decision makers. The analysis here shows that Polity, a subjective measure of how regimes function, is significantly related to these variables.

The results also influence how researchers think about addressing endogeneity issues in the analysis of institutions. Acemoglu, Johnson and Robinson (2001) argue, for example, that incentives of colonists to extract rents (as proxied by settler mortality) reduced their incentives to establish political institutions conducive to secure property rights. Glaeser, et al. (2004) argue that this same feature of colonial rule would have influenced the human capital of colonists: those with a comparative advantage in extracting rents quickly would not have had the same human capital as those who intended to establish farming and manufacturing operations in a colony. These theories are in conflict with each other if the causal chain runs either from formal institutions or human capital during the colonial era to current property rights. However, if the causal chain begins instead with colonial circumstances that affect the ability of colonists to organize collectively to sanction leaders who violate the rules, it is plausible that both arguments might be correct: human capital differences between high and low rent settings, and incentives to establish formal institutions in high and low rent settings, would both influence the incentives and ability of colonists to overcome collective action problems. More importantly, even if formal institutions change frequently (which Glaeser et al. 2004 take as *prima facie* evidence that institutions cannot be responsible for long-run growth), the ability of citizens to act collectively – and differences across countries in that ability – are unlikely to exhibit similar rates of change.

The main argument of this paper is that Polity captures key regime characteristics that research and Polity coding do not tend to take into account. However, it is also true that the foregoing arguments take a stand on what those regime characteristics mean: the

answer to the question “*Quis custodiet ipsos custodes?*” ultimately rests with the ability of groups to mobilize for collective action. Earlier research suggests that the years of continuous competitive elections and the age of the largest government party at the last leadership transition both relate to this ability. They are both highly correlated with Polity variables, consistent with the fact that Polity coders aim to capture how political institutions actually work – and the critical role that enforcement plays in how institutions actually work. The analysis and examples here suggest that future research can use existing data to probe deeper hypotheses about the origins of well-functioning polities by explicitly taking enforcement and collective action into account and by exploiting the comparison of objective and subjective data sources to more precisely test these hypotheses.

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