

**All democracies are not the same:
Identifying the institutions that matter for growth
and convergence**

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October 15, 2003

First draft, to be revised

The analysis and conclusions of this paper are entirely those of the author and not those of the World Bank or its directors.

Abstract: Substantial research argues that elections and checks and balances within government are essential to ensure the security of property rights from opportunistic behavior by governments. The security of property rights is also essential for economic growth. However, researchers have uncovered no systematic relationship between democracy and growth, nor have they generated direct evidence of the relationship between political institutions and the security of property rights. The analysis here addresses these puzzles. The evidence presented here, that the persistence of competitive elections and the extent of voter information are as important as checks and balances and more important than elections themselves in the protection of property rights, introduce several new considerations into this debate. Above all, they emphasize that distortions in electoral markets are as or more important determinants of economic outcomes than formal democratic institutions themselves.

Many authors argue that universal suffrage, competitive elections and restraints on the executive branch are necessary for secure property rights, which in turn are important for economic growth (e.g., Acemoglu, et al., 2002). However, among countries endowed with these political institutions, the security of property rights and other measures of government and economic performance vary enormously. For example, the rule of law in half of all countries exhibiting either checks and balances or competitive elections in the 1990s was the same or worse as in the median country lacking either one or the other.¹ The sources of this varied performance remain a continuing puzzle, and of growing importance, since the number of countries holding competitive elections has doubled, from 53 to 101 between 1985 and 2000, and the number exhibiting some checks and balances has risen from 62 to 112.²

In contrast to the work on property rights and growth, the parallel literature on democracy and growth has not yielded persuasive evidence that democracy “causes” growth. This is puzzling not only because the richest countries in the world are democracies, but more specifically because the measures of democracy used in this literature are meant to capture some or all of the institutional features that researchers claim are key to the protection of property rights.³

A natural explanation for this puzzle is that the countries that are homogeneous with respect to some key institutions, such as elections and checks and balances, are

¹ The rule of law measure is from Political Risk Services’ *International Country Risk Guide* and the measures of checks and balances and competitive elections from the *Database on Political Institutions*. These are discussed below.

² Based on World Development Indicators PPP adjusted income per capita, and using the Database on Political Institutions variables *Executive Index of Electoral Competition (EIEC)* and *Legislative Index of Electoral Competition (LIEC)*, and *Tenure of System (tensys)* which are explained in more detail below. Democracies are defined as those countries with competitive elections for both the legislative and executive branches, $EIEC=LIEC=7$.

³ Przeworski and Limongi (1993) argue that this is not a puzzle – in fact, they argue, there is no *a priori* reason to expect that the poorer majority in a democracy would refrain from expropriating minorities. They point to Marx’ argument that capitalism and democracy are inherently incompatible, since democracy enables the poor to tax the rich, giving the rich an incentive to buy military intervention to overturn the democracy, an argument formalized by Acemoglu and Robinson (2001). Acemoglu, Johnson and Robinson (2002) argue elsewhere, however, that the franchise may be the only way that the rich elite can guarantee the property rights of the entrepreneurially-talented non-rich.

heterogeneous on other, relevant dimensions that have not been the focus of attention. The political economy literature contains a wealth of analyses on these other dimensions. Democracies can differ because of the precise institutional choices that countries make in implementing elections and “checks and balances”, the extent to which voters are informed, the ideological polarization of voters, and the pre-electoral credibility of the promises of political competitors. Dictatorships can differ on these dimensions, and also on the extent to which they rely on implicit popular support rather than ruthless suppression to remain in power.

The first question addressed by this paper is whether the influence of democracy on growth depends on which characteristics of democracies one takes into account. Several striking conclusions emerge. First, the lack of robustness of democracy indicators seems to be greatest for those democracy indicators that place greatest weight on whether elections occur. Second, other characteristics of democracies – such as whether they exhibit checks and balances, the ability of political competitors to make credible pre-electoral promises to voters, and whether voters are well-informed – have a strong effect on growth. Third, the instruments one chooses to control for endogeneity matter, for reasons that are consistent with theory. Those instruments that capture distant determinants of institutional choice, like colonial heritage, work best with purely institutional indicators of democracy. Those instruments that might influence the incentives of the political actors who operate these political institutions, such as distance from the equator and the years since independence or the founding of a country, work best for variables that reflect their reputation or the extent to which voters are informed. They work less well for institutional choice.

The second issue addressed below is the relationship between democracy, the security of property rights and economic growth or income. The literature evaluating the importance of secure property rights for growth typically justify the use of instruments for the security of property rights by reference to their connection to the underlying institutions that give rise to secure property rights. This is the case with urban population in 1700 in Acemoglu, Johnson and Robinson (2002) and latitude and language in Hall and Jones

(1999), for example. The implicit argument is the following: fundamental country characteristics (such as distance from the equator) influence unobserved institutions, which themselves guarantee the security of property rights. However, this argument provides an even stronger justification for using such instruments in democracy-growth regressions. Although the literature hints that those unobserved institutions are “democratic”, there are no direct tests of this. The evidence presented below shows that the same democratic characteristics that matter directly for growth seem to matter specifically through their effect on the security of property rights.

The final question addressed below is whether these arguments have implications for convergence and “catch-up” effects. Keefer and Knack (1997) demonstrate that poverty confers a catch-up advantage conditional on poor countries offering secure property rights to economic actors. As in the literature more generally, that analysis considers only briefly the institutional origins of secure property rights, and not at all in the context of convergence. The evidence suggests that some democratic institutions have a strong influence on convergence.

Reviewing the democracy and growth literature

There are several hypotheses regarding the influence of democracy on growth. One core hypothesis in the literature is that democratic institutions, particularly enfranchisement and checks and balances, restrain expropriatory tendencies of government, enhancing investor confidence, thereby spurring growth, as in North and Weingast (1989) or Acemoglu, Johnson and Robinson (2002). Keefer and Knack (1997) offer some evidence that restraints on the executive, a subjective measure of checks and balances, are positively related to measures of the security of property rights. However, despite the fact that measures of democracy capture restraints on the executive and the competitiveness of elections, they tend not to be robust to controls for measurement error and endogeneity bias. Other hypotheses (reviewed in Przeworski and Limongi 1993) argue that democracies give rise to the potential for expropriation of the investments of the rich by the poor. These competing hypotheses are not clear about why the poor are

more apt to expropriate investment than a dictator (who could be rich or poor). In any case, however, these theoretically offsetting effects are typically advanced to explain the lack of robustness of the growth-democracy relationship.

There have been numerous attempts to assess this relationship, with mixed results. Several characteristics of these tests make it difficult to establish whether these results are a natural outcome of the theoretical ambiguity suggested in the literature, or limitations in the specifications, endogeneity controls and democracy variables employed in the tests themselves.

The coefficient on the democracy estimate clearly depends on the other variables that enter into the growth regression, so specification matters. Barro (1994) shows that democracy has a significant effect on growth only when the rule of law and education variables are not controlled for. However, substantial theory suggests that democracy precisely influences these variables, so this is not unreasonable. Rivera-Batiz (2002), for example, argues that democracy operates through the Hall and Jones (1999) index of social infrastructure, which rises the more secure are property rights and the more free is trade.

Second, controls for endogeneity tend to attenuate the democracy effect, so the choice of instrument matters. After employing a lagged value of democracy as an instrument for current values, Helliwell (1994) finds a negative relationship between democracy and growth, though his specification does not permit democracy to influence growth through either investment or schooling, which both enter into the equation. De Haan (1996) concludes, on the other hand, that the effects of democracy, whether positive or negative, are not robust to the use of instruments to control for endogeneity.

Tavares and Wacziarg (2001) adopt an elaborate econometric strategy for evaluating the channels through which democracy might affect growth, though they do not include the security of property rights among these. Their instrumental variables, which “determine” democracy but are uncorrelated with the error terms in the various “channel” equations,

range from ethnolinguistic fractionalization to whether a country was ever a colony to dummy variables capturing the predominant religion in a country. They find that the net effects of democracy are negative, here, primarily because democracy suppresses investment. This result is puzzling, since the effect of secure property rights – the channel through which others argue democracy exerts the strongest positive influence on growth – has been found to have a large effect on investment (Knack and Keefer 1995). One explanation for this puzzle is that the choice of democracy variable and the choice of instruments – the discussion below shows that the democracy – security of property rights – growth link is dependent on these. Using the same Freedom House variable to measure democracy, and using religious dummies and the gap between female and male school attainment, and controlling for school attainment, Svensson (1999) finds that democracy is weakly but positively associated with growth.

Third, the choice of democracy measure seems to matter. The most common measure of democracy is the Freedom House indicators of political freedoms and civil liberties, used in one form or another by most of the authors above. Another commonly used measure is taken from the Polity Database, the most recent version of which is Polity IV. All countries are scored in this database on both their autocratic and democratic characteristics. Gerring, Brandt and Bond (2003) use the difference between these in different growth regressions, finding no significant relationship between growth and democracy, but find a strong relationship between growth and the sum of a country's Polity score from 1900 to the year in which growth is measured. Though these measures acknowledge the multi-dimensionality of democracy, it is not clear how they weight different attributes of a democracy. For example, the fact of election may matter more in actual scores than the extent of restraints on the executive.

Przeworski, Alvarez, Cheibub and Limongi (2000) employ an objective measure of democracy that puts almost all weight on whether elections occur in a country and whether elections lead to a change of government. Using this clear and objective, but single dimensional measure of democracy, they find no difference in growth rates between democracies and dictatorships.

The political economy literature provides ample basis for regarding democracies as strongly heterogeneous across multiple dimensions that are not incorporated or are given unclear weights in existing democracy measures. In particular, the electoral relationship between voters and political competitors is subject to a number of distortions, which in the limit can completely undermine the ability of voters to hold politicians accountable for their actions. Both theory and empirical evidence underline the potential importance of these distortions.

A large literature has argued that voter information is critical to the effects of elections on incumbent behavior. Politicians have an incentive to spend resources to convince uninformed voters to vote for them, using commitments to special interests to finance such campaigns (Grossman and Helpman, Baron); alternatively, uninformed voters leave politicians free to underprovide services to them (Besley and Burgess, Stromberg). The empirical literature (e.g., Besley and Burgess on food relief in India) shows a strong connection between newspaper circulation and government policy. There is, from this literature, no reason to expect democracy in the presence of uninformed voters to have a strong effect on growth.

Voter polarization should matter as well. Given any set of democratic institutions, the ideological or other polarization of voters can have a significant impact on government decision making, though the direction of the impact (e.g., on the provision of public goods) depends on the particular electoral institutions in place and the distribution of voter preferences over the population (see, e.g., Persson and Tabellini 2000 and Keefer 2003). While some democracy-growth regressions taken ethnolinguistic fractionalization into account, most do not. Fractionalization, however, is not the same as polarization (as Keefer and Knack 2002 argue), since polarization is at its worst when two equally-sized groups confront each other, while fractionalization is at its highest in an atomized society in which every individual represents a different ethnic or linguistic group.

Huntington (1971) argues for the importance of “political institutionalization” for government performance, though he is unclear about how one might recognize a more institutionalized democracy. Keefer (2002) suggests a particular notion of institutionalization: the extent to which political competitors can make credible pre-electoral promises to voters without relying on personalized relationships or a history of previous personal interaction with voters. This argument embraces the well-recognized concern of observers in developing countries of the corrosive effect of “clientelism” on public policy, but provides a rationale (the need for credible commitment in political competition) to explain why clientelism is a problem in some countries rather than others.

The evidence in Keefer (2003) indicates that the performance of democracies with fewer continuous years of competitive elections is starkly different from that of older democracies: they are more corrupt, spend more on public investment, exhibit lower secondary school enrollment, rule of law and bureaucratic quality – relations that are robust to a variety of specifications and endogeneity controls. These policy differences can be best explained by the greater difficulties that competitors in younger democracies confront in making impersonal credible commitments to voters prior to elections. Gerring, Brandt and Bond (2003) show that a variable similar to the years of continuous elections (the sum of Polity IV democracy measures from 1900) has a significant positive effect on economic growth.

These sources of distortion in the voter-politician relationship are explored in the empirical work below. The estimates there suggest that the democratic characteristic that one emphasizes in exploring regime effects on economic development has a significant impact on results.

Econometric Issues

The growth literature has embraced a wide range of econometric approaches to the determinants of growth, ranging from ordinary least squares analysis of cross-section or panel data, to instrumental variables to generalized method of moments estimations. When instruments are time-invariant, however, and explanatory variables themselves vary little over time, the use of panel data can spuriously increase sample size and significance. A cross-section approach is therefore used here.

An alternative approach is to look at determinants of per capita income, as in Hall and Jones (1999) or Acemoglu, Johnson and Robinson (2002). Here the experiment is straightforward: income is an equilibrium outcome of long-term processes that one can use to examine the development effects of deep and slowly changing factors, such as institutions or a country's propensity to trade. The tests below use growth for two reasons. First, it is more demanding: there is a high correlation between income and democracy indicators. All of the results reported below are stronger using income per capita as the dependent variable rather than growth. Second, one objective of this paper is to consider the impact of democracy on the ability of countries to catch up. The standard approach to this question is to ask how the effect of initial income on growth changes under different institutional conditions.

Research on democracy and growth, on the one hand, and the security of property rights and growth, on the other, generally adopt one of the following specifications in addressing issues of endogeneity and measurement error in their respective investigations.

$$\text{Growth of income per capita}_i = \beta_1 + \beta_2 \ln(\text{initial income/capita})_i + \beta_3 (\text{democracy})_i + X_i' \beta_4 + \varepsilon_i.$$

$$\text{Democracy}_i = \gamma_1 + Y_i' \gamma_2 + \eta_i$$

or

Growth of income per capita $_i = \beta_1 + \beta_2 \ln(\text{initial income/capita})_i + (\text{security of property rights})_i \beta_3 + X_i \beta_4 + \varepsilon_i$.

Security $_{ij} = \alpha_1 + Z_{ij}' \alpha_2 + v_{ij}$

In these systems, Y and Z contain at least some elements not in X that are sufficient to identify the unique effect of democracy or the security of property rights on growth. However, both systems are reduced forms of more complex interactions. In the first, democratic institutions are presumed to influence policy and the security of property rights, which in turn influence growth. This intermediate stage is not tested. In the second, the identifying variables drawn from the determinants of the security of property rights (Z) are almost always variables that are assumed to shape the institutional heritage of a country, which in turn determines the security of property rights. These instruments range from distance from the equator to the mortality of early European settlers. Their link to the institutions that protect property rights is not directly examined.

A more structural system that encompasses both of the foregoing is:

Growth in income per capita $_i = \beta_1 + \beta_2 \ln(\text{initial income/capita})_i + (\text{policy and property rights})_i \beta_3 + X_i \beta_4 + \varepsilon_i$.

Policy $_{ij} = \alpha_1 + a_2 (\text{institutions})_{ij} + Z_{ij}' \alpha_3 + v_{ij}$

Institutions $_i = \gamma_1 + Y_i' \gamma_2 + \eta_i$

The variable “institutions” refers to the underlying political conditions that determine policies and the security of property rights, such as the various measures of democracy used in the literature, but not the security of property rights, which is more properly seen as the product of these more primitive institutional characteristics of countries.

Recent estimates of the effect of policy or the security of property rights on growth have almost always relied on the first and second equations to account for endogeneity or measurement error in the measures of the security of property rights. Acemoglu, Johnson

and Robinson (2002) estimate such a system (though they look at income rather than growth), assuming that $E\mathbf{Z}_i\varepsilon_i=0$ and using urban population in 1700 as the elements of \mathbf{Z} that serve to identify the equation. Hall and Jones estimate a similar system, again with output per worker as the dependent variable in the first equation, using latitude and predicted trade share as the instruments from \mathbf{Z} .⁴

However, the third equation enters implicitly in this work. The variables used to identify the system are always justified not because of their direct impact on the security of property rights, but rather because of their impact on the institutions that give rise to secure property rights. The instruments, then, are actually elements of \mathbf{Y} . However, although the literature uses these results to argue for the significance of institutions as determinants of economic growth, it generally omits explicit analysis of the third equation in the underlying system. It therefore provides less guidance on how to answer the question, “Which institutions?”

Instrumental variable estimates of the effect of secure property rights on growth or income can be exaggerated or understated depending on the biases introduced by the instruments themselves. First, the underlying institutions that give rise to secure property rights, and whose influence is captured by the instruments chosen, may also give rise to good outcomes on other dimensions that matter for growth. There are generally no controls for these other outcomes.⁵ Because of the influence of the institutional instruments on these policies, the error term in the growth equation is correlated with the predicted value of property rights from the second equation, potentially biasing the property rights coefficient upwards.

⁴ Their social infrastructure variable is actually an index of openness and the security of property rights.

⁵ Hall and Jones (1999) argue that this is correct: the security of property rights and the “propensity” of countries to trade are the two fundamental indicators of output per worker and themselves determine all other relevant policies. As a theoretical matter, however, it cannot be the case that secure property rights, in and of themselves, “cause” low inflation, cost-effective government regulation, and optimal government spending on public goods. Rather, the argument must be that the underlying political and social institutions that secure property rights also ensure that governments pursue growth-promoting policies on these other dimensions, as well.

Although the coefficient values might be biased upwards, so also might the standard errors. This is the case if the elements of Y used as identifying instruments are weak predictors of institutions. However, standard errors could also be high if the hypothesized relationship between institutions and property rights is weak.

Estimates of the effects of democracy on growth usually employ the first and third equations (replacing “policy” in the first equation and “institutions” in the third equation with “democracy”), estimating the effect of democracy on growth directly. Such estimates generate “net” estimates of the effects of institutions (democracy) across all policy dimensions. The democracy-growth tests are therefore “better” tests of the effects of (democratic) institutions on growth than are the property rights-growth tests.

Instrumental variable estimates of democracy’s effect on growth are consistent to the extent that the omitted institutions variable operates only through the policy channel (or, alternatively, that Y and η are uncorrelated with ε) and that the omitted elements of Z are uncorrelated with ε . As it happens, however, these estimates are often insignificant. There are several possible explanations for this. First, the instruments taken from Y , such as distance from the equator or colonial origin, may be weak predictors of the democracy variable. In this case, greater consistency is purchased at the price of even greater inefficiency. Second, the particular democracy variable may exert only a weak influence on policy or property rights.⁶ In this case, the IV estimate correctly reveals the effect of democracy on growth to be weak. The second possibility is less likely the more objective is the measure of the particular institution in question and the less vulnerable it is to evaluator bias.

⁶ A strong OLS effect under these circumstances could be explained as a consequence of measurement error, such that η is correlated with growth (e.g., because of evaluator bias). When this bias is removed using instrumental variable estimation techniques, the democracy variable no longer appears significant.

Specification

The foregoing discussion suggests that there could be substantial variation in estimates of the relationships between democracy, property rights and economic growth depending on the relevant institutional theory that underlies the estimates, and the choice of instruments meant to capture the theory empirically. To evaluate these issues, the remainder of the paper relies on parsimonious specifications of growth and property rights equations:

$$\text{Growth in income per capita}_i = \beta_1 + \beta_2 \ln(\text{initial income/capita})_i + \beta_3 (\text{democracy indicators or property rights})_i + \varepsilon_i.$$

$$\text{Security of property rights}_i = \alpha_1 + \alpha_2 (\text{democracy})_j + \mathbf{Z}_{ij}'\boldsymbol{\alpha}_3 + v_{ij}$$

$$\text{Democracy}_i = \gamma_1 + \mathbf{Y}_i'\boldsymbol{\gamma}_2 + \eta_i$$

Several of the democracy indicators are only available from 1975 to 2000; this is the period over which growth is evaluated; the regressions are all cross-section. To minimize simple problems of reverse causation, the determinants of growth are limited to the 1975 values of the democracy variables; and the 1986 values of the security of property rights (the earliest available).

While it is unusual in the growth literature to have such a parsimonious specification, it is useful and valid here. First, there is little disagreement that institutions have a strong influence on a range of determinants of growth that often enter independently in growth regressions (evidence below shows this explicitly to be the case for education enrollment, for example). This specification allows the institutional variables to reflect these effects. Second, Hall and Jones (1999) employ such a specification when looking at the determinants of per capita income, arguing both that income is an equilibrium or long-run outcome and that social infrastructure is the fundamental determinant of income. Finally, many of the arguments below are robust to including other more exogenous variables, ethnolinguistic polarization, land area and total population.

For the parsimonious approach to be consistent, it must be the case that the variables X in the unrestricted growth equation are uncorrelated with the effects of democracy or the security of property rights, and that omitted variables Z and Y are uncorrelated with the error term ε . These assumptions are common in the literature and are maintained here.

The first set of regressions, reviewing the democracy – growth relationship using a variety of instruments and measures of democratic institutions, uses only the first and third equations; the second set of regressions, looking at the effects of property rights on growth, uses instruments from Y , but does not directly estimate the full system. The final set of regressions summarizes the results by estimating the full system.

Choice of instruments

The choice of instruments – those elements of Y that are not correlated with ε – are driven by the literature. In subsequent work, a more comprehensive set of instruments will be examined. The broad instrument set consists of distance from the equator (Hall and Jones 1999 use this to instrument for their index of social infrastructure); and colonial heritage and years since the creation or independence of a country (used frequently to instrument for the institutional choices of countries, as in Persson, Tabellini and Trebbi 2001). In all cases, the important point to emphasize is that each of these instruments has been introduced into the literature as a measure of underlying institutions rather than a direct estimate of property rights (i.e., these instruments come from Y and not Z). As a consequence, to the extent that they are valid instruments for property rights in growth equations, one would expect them also, logically, to be valid instruments for institutions of various kinds in the growth equations – and, in fact, they have also been used in this context.

All of the IV estimates below use three sets of these instruments: first, all of them; second, only time since independence and distance from the equator; and third, the dummy variables indicating a country's colonial heritage, if any. There are substantive reasons to believe that these instruments should affect different democracy indicators

differently. Colonial heritage might be expected to best predict formal democratic institutions, but not necessarily the incentives of the actors who run them. Latitude and years since independence, however, also are likely to predict the incentives of political actors to develop a reputation for good government or to respect the formal institutions; these features of democracy are more prominent in some democracy indicators than others.

Measuring democracy

Six different measures of democracy or of the attributes of democratic societies are evaluated here. The Freedom House indicators of civil and political liberties, which reflect whether countries embrace a wide range of “democratic” norms, ranging from freedom of assembly and speech to the existence of competitive elections and human rights more generally. Freedom House scores are based on expert evaluations of country conditions. As is typical, the estimates here use the sum of the political freedom and civil liberties indicators.

The Polity indicators are subjective assessments of a narrower range of phenomena, including whether elections are competitive and whether there are restraints on the executive. Both indicators reflect *outcomes* of the political process, rather than the formal rules of political decision making: countries could exhibit both elections and checks and balances on paper, but these may in practice not operate to restrain arbitrary government behavior. Similarly, countries could fail to exhibit formal checks and balances, but informal restraints on the executive branch would raise country scores on the Polity democracy indicators. The Polity scores permit countries to have both democratic and autocratic characteristics. Again as is common practice, therefore, the variable used here is the democratic score less the autocratic score.

Four other indicators of democratic characteristics are considered here that are all new to the debate about democracy and economic development. All are objective. Two of these reflect the two criteria that are most prominent in the construction of the Polity IV

democracy indicator. The *checks* indicator from the *Database of Political Institutions* (Beck, et al. 2001) measures how many political actors can veto proposed legislation. Beginning from a value of one (meaning that there is only one veto player and no checks and balances), this variable increments by one if countries have potentially competitive elections of the executive; by one in presidential systems if the legislature and presidency are controlled by different parties; in parliamentary systems, the value is incremented by the number of parties in the government coalition whose departure would cause the government to lose a majority; and in all systems by one for each party supporting the government in the legislature whose with an ideological stance strongly differing from that of the executive's party (see the *DPI* codebook for more details). The key to this variable is that it captures the two essential ingredients identified by Acemoglu, Johnson and Robinson (2002) for secure property rights: elections and checks on the executive branch.

The *DPI* also contains variables assessing the competitiveness of elections. The Executive Index of Electoral Competitiveness (*EIEC*) is used here. This reaches its highest score (7) when multiple parties can and do compete for executive election, and no party gets more than 75 percent of the vote. A six means that one party receives more than 75 percent of the vote; a five that only one party ran for office though others could have, and so on until one, indicating no elections were held. Since most scholars would agree that only the most competitive category of *EIEC* is a reasonable approximation to elections, a dummy variable is used in the regressions here, equally one when *EIEC* is 7, and 0 otherwise.

EIEC and *checks* are objective measures of formal institutions that are widely agreed, particularly in the case of elections, to be key identifying characteristics of democracy. However, there is a large literature in political economy that examines the conditions under which democracies perform well or poorly – or, more precisely, the extent to which politicians make decisions in the social interest or in the interest of narrow groups in society. These include the credibility of pre-electoral promises and the extent of voter

information about politician types or actions. The effect of variables representing these concepts is also examined below.

From the DPI one can calculate one how many years a country has continuously held competitive elections (where both the Executive and Legislative Indices of Competitive Elections equal seven). The value of this variable (*persistence of competitive elections*) in 1975 is used in the regressions below.⁷ As argued earlier, Keefer (2002, 2003) presents evidence that this variable proxies the extent to which politicians can make credible pre-electoral promises to large numbers of voters. Finally, a large literature has argued that voter information is critical to the effects of elections on incumbent behavior. Following the empirical research in this literature (see, e.g., Adserà, et al. forthcoming), *newspaper circulation* from the *World Development Indicators* is therefore used as a proxy for the extent of voter information and its effect on growth.

Democracy and growth

The effect of these democracy variables on growth, using the different instrument sets, are summarized in Table 1. Significant results are in bold. Only the institutional variable is reported. There are a number of interesting conclusions to be drawn here. First, although Polity IV and Freedom House indicators are highly significant in OLS regressions, they are not robust to different instrument sets used to control for endogeneity. This is consistent with results in the literature, particularly the weakness of these two indicators in IV estimations. The conclusion one could draw from such results is that OLS results are driven by evaluator bias or reverse causality (high growth countries score higher on democracy indicators). Each of these biases, however, when taken into account through IV techniques, should *reduce* the estimated coefficient of democracy. Instead, the estimated coefficients, though much less significant, are actually higher in the instrumental variable estimates. Instead, as Hall and Jones (1999) argue, it

⁷ The 1975 value of this variable in the DPI is actually taken from Clague, et al. (1996); values subsequent to 1975 are updated according to the methodology explained in the text. The use of values of *persistence* averaged over the 1975 – 2000 period does not change the results reported below.

is more likely that the Polity IV and Freedom House indicators inaccurately assess the true institutional (democratic) environment in countries. Since such errors are negatively correlated with measured institutions, the estimated OLS democracy coefficient is biased downwards in growth regressions. Such mismeasurement can occur for several reasons. The most important is that some aspects of democracy promote growth while others may not; the construction of the Polity IV and Freedom House indicators puts excessive weight on the former and insufficient weight on the latter.

In particular, as the third row of Table 1 demonstrates, if one isolates the effect of elections *per se*, there is no significant effect at all on subsequent growth. One might argue that elections in one year might be expected to have little effect on growth ten or fifteen years later, as is assumed in the estimation. However, the same claim can be made of the other democracy indicators, all of which are measured in 1975. Furthermore, average *EIEC* scores over the period 1975 – 2000 are only slightly more significant as determinants of growth over the same period.⁸ Elections, however, are the cornerstone of most characterizations of democracy. To the extent that they receive significant weight in the subjective Freedom House and Polity IV indicators, these indicators are not robust indicators of growth.⁹

Although elections themselves seem to be unimportant for growth, the last three rows of Table 1 support the hypothesis that three other characteristics of democratic regimes are strongly related to growth. These are each objective indicators. *Checks*, consistent with arguments by North and Weingast, Keefer and Knack and Acemoglu, Johnson and Robinson, is strongly associated with growth – but is only robust to IV estimations that use colonial heritage as instruments, not the specification that uses only *latitude* and *years since independence*. On the other hand, *persistence* is highly significant only when the instrument set contains these two variables, but is not significant in the third column, where the instrument set is exclusively the colonial heritage dummies.

⁸ The OLS coefficient is nearly significant; the others are not.

⁹ In fact, a one standard deviation increase in the *EIEC* dummy in 1975 is associated with a one-third standard deviation increase in the Polity and Freedom House 1975 values, even controlling for *checks*.

Table 1: The effect of democracy on growth (1975 – 2000) – parsimonious specification
(p-statistics in parentheses)

	OLS	Instrumental Variables Estimates		
		All instruments	Only latitude and years since independence	Only colonial heritage dummies
Polity IV	.0008 (.02)	.0008 (.27)	.0017 (.34)	.001 (.16)
Freedom House	.0014 (.04)	.0028 (.14)	.012 (.27)	.0037 (.11)
EIEC	.0065 (.135)	.019 (.235)	.035 (.16)	.014 (.50)
Checks	.0035 (.003)	.0078 (.01)	.01 (.26)	.0087 (.008)
Persistence	.0002 (.14)	.0006 (.04)	.0007 (.01)	.0006 (.17)
Newspaper circulation	.00006 (0.0)	.0001 (.002)	.0001 (.016)	.0001 (.003)

N.B. All specifications include the log of initial income per capita and a constant, not reported. Robust standard errors are used to calculate *p*-statistics.

This pattern of results is revealing about the democracy/growth relationship. Colonial heritage says something about the formal institutions that a country receives; checks are determined in large part by the institutions of government: whether there are elections, and whether there is a presidential or parliamentary system. These are the natural endowment of colonial heritage. On the other hand, underlying country characteristics, such as those described by latitude, and the opportunity for political competitors to form reputations, as might be captured by years since independence, are important regardless of the formal institutions, and therefore need have no *a priori* relationship to colonial heritage.

Newspaper circulation is significant in all specifications, regardless of the instrument set. Like all the results here, one should not read from Table 1 that a one standard deviation

increase in newspaper circulation would increase growth by 0.5 standard deviations (as the OLS regression would suggest). Instead, one should compare these results to other institutional indicators to get a sense of the many dimensions of political competition that are likely to matter for growth above and beyond elections.

Table 2 presents results that control, additionally, for average ethnolinguistic polarization over the period, average population and land area.¹⁰ These variables are relatively exogenous to government policy (though less so in the case of population), they affect market size and the potential for growth, and at the same time they are likely to mediate the influence of the institutional indicators. Democracy under conditions of social polarization has different effects than when voters are not polarized, and preference divergences across large countries are likely to be greater than in smaller countries.

Most of these variables are not significant in any growth regression (ethnolinguistic polarization, for example, is only significant in the regressions with newspaper circulation, but not close to significant in the others). Their inclusion does improve the precision of two of the Freedom House and one of the EIEC regressions. However, of the nine Polity IV, Freedom House and EIEC regressions, in six the institutional coefficients remain insignificant. Table 2 is therefore supportive of the discussion surrounding Table 1, which argues that where voters are polarized or uninformed, where political competitors are not credible, or where electoral and political institutions force voters to compete for the attention of policy makers rather than the reverse, political incentives to pursue growth-promoting public policy are weaker.

¹⁰ Ethnolinguistic polarization is a transformation of ethnolinguistic fractionalization discussed in Keefer and Knack (2002). Fractionalization is the probability that any two random people do not belong to the same ethnic or linguistic group. Polarization assigns the highest values to countries where this value is closest to one-half and the lowest values where this value is close to one or to zero.

Table 2: The effect of democracy on growth (1975 – 2000) with more controls
(*p*-statistics in parentheses)

	Instrumental Variables Estimates		
	All instruments	Only latitude and years since independence	Only colonial heritage dummies
Polity IV	.0008 (.27)	.0002 (.90)	.001 (.16)
Freedom House	.003 (.06)	.0005 (.95)	.0036 (.04)
EIEC	.005 (.07)	-.002 (.76)	.004 (.14)
Checks	.0077 (.02)	-.0004 (.96)	.0067 (.04)
Persistence	.0005 (.07)	.0005 (.10)	.0006 (.10)
Newspaper circulation	.0001 (.003)	.0001 (.06)	.0002 (.000)

N.B. All specifications as in Table 1, adding total population, land area, and ethnic polarization. Robust standard errors are used to calculate *p*-statistics.

Three IV estimations of the effects of EIEC and Freedom House are significant in Table 2, where none were significant in Table 1. This is also consistent with the arguments here. In the first stage regressions (not reported), population is a significant predictor of EIEC and average polarization is a significant – but positive – predictor of the Freedom House variable. To the extent that these instruments condition the functioning of democratic institutions, this is precisely the result that one would expect. The positive sign of the variable is most likely an indication that Freedom House evaluations take into account the difficulties presented by social polarization. The evaluations therefore appear to give more polarized countries the “benefit of the doubt”: Freedom House scores and polarization are correlated at 0.58. Removing this source of noise in the evaluations improves the precision of the Freedom House evaluations.

The results in Tables 1 and 2 suggest that ambiguous or negative findings in the literature about the role of democracy and growth may be due to misspecification of the specific dimensions of democratic institutions and political competition that matter for growth.

The security of property rights and growth

Most arguments regarding the sources of secure property rights point to the importance of underlying political institutions. This hypothesis has not been thoroughly tested although, as was emphasized earlier, the instruments for secure property rights almost surely influence property rights indirectly, through their effect on the underlying institutions that secure property rights. Which institutions are these? One way to answer this question is to test whether the security of property rights predicted on the basis of a particular institution, explains growth. The evidence in Tables 3 and 4 provides support for the hypothesis that some characteristics of democracy, but not all, provide this security.

Knack and Keefer (1995) showed that a set of indicators that plausibly measure the security of property rights in countries are strongly associated with growth. These indicators, from Political Risk Services, *International Country Risk Guide*, were found in subsequent work (e.g., Acemoglu, Johnson and Robinson (2002) and Hall and Jones 1999) to be robust to a variety of controls for endogeneity, all of which link back to the fundamental institutional characteristics of countries.

Table 3: Predicted democracy, predicted property rights and growth (1975 – 2000): parsimonious specification
(*p*-statistics in parentheses)

	Instrumental Variables Estimates		
	All instruments	Only latitude and years since independence	Only colonial heritage dummies
Polity IV	.0009 (.29)	.0017 (.10)	.0014 (.26)
Freedom House	.0012 (.285)	.0025 (.027)	.0024 (.38)
EIEC	.0026 (.19)	.0004 (.84)	.0042 (.45)
Checks	.0014 (.01)	.002 (.05)	.0015 (.009)
Persistence	.0013 (.126)	.002 (.06)	.0007 (.41)
Newspaper circulation	.0029 (.001)	.0025 (.027)	.0033 (.000)

N.B The coefficients are the estimated effect of the security of property rights on growth. The IV estimates use the predicted value of the democracy variable (based on the specified instrument set) as instruments for the security of property rights. The controls are as in Table 1: all specifications include the log of initial income per capita and a constant. Robust standard errors are used to calculate *p*-statistics.

The following system is estimated to track the influence of democracy on growth through the property rights channel:

$$\text{Growth in income per capita}_i = \beta_1 + \beta_2 \ln(\text{initial income/capita})_i + \beta_3 (\text{property rights})_i + \varepsilon_i.$$

$$\text{Security of property rights}_i = \alpha_1 + \alpha_2 (\text{democracy})_j + \mathbf{Z}_{ij}'\alpha_3 + v_{ij}$$

$$\text{Democracy}_i = \gamma_1 + \mathbf{Y}_i'\gamma_2 + \eta_i$$

Table 3 uses the same growth specification as Table 1; democracy is estimated as a function of initial income per capita and the usual instruments. The predicted value of democracy from these estimations is then used as an instrument for the security of property rights in a two-stage least squares estimation of the growth equation. The

assumption here is that the predicted value of democracy only affects growth through its effect on the security of property rights. The literature provides ample justification for this assumption, however, since the instruments used here, and upon which the democracy prediction is based, are all considered exogenous to growth.

The results in Table 3 show that the indicators of democracy that have little direct effect on growth also have no effect when operating through the property rights channel. Polity IV is insignificant; Freedom House is significant in one specification – though precisely the specification that was least significant in the earlier regressions. Checks and balances and newspaper circulation, however, are significant in all specifications, while the years of continuing elections is significant in the latitude and years since independence specification, as before.

These results provide additional support for the arguments of North and Weingast, Keefer and Knack and Acemoglu, Johnson and Robinson that checks and balances are important for economic growth because of their positive effect on the security of property rights. This is not to say that elections are irrelevant – the *checks* indicator incorporates election criteria as well as the number of veto players. These results do underline, though, that elections are an insufficient characteristic of democracies to ensure growth.

The last two rows of Table 3, however, underline that factors other than checks and balances, the focus of attention in the literature, may be of great importance. Property rights are insecure when, as in Keefer 2003, average citizens are exposed to the arbitrary threat of expropriation. Uninformed voters exacerbate this problem, since they cannot easily hold politicians to account for expropriatory actions or violations of the rule of law. Moreover, politician appeals to special interests to finance efforts to win over uninformed voters can include the expropriation of members of the general public to satisfy special interest demands. A similar effect emerges when politicians cannot make credible pre-electoral promises. Because challengers, in particular, cannot make credible promises, voters have no leverage over incumbents and cannot, in particular, hold incumbents to a

high standard with respect to the protection of property rights. These distortions in electoral markets are captured in the last two rows of Table 3 (and all the tables here).

Table 4: Predicted democracy, predicted property rights and growth (1975 – 2000): adding controls

(p-statistics in parentheses)

	Instrumental Variables Estimates		
	All instruments	Only latitude and years since independence	Only colonial heritage dummies
Polity IV	.0007 (.32)	.0003 (.83)	.001 (.23)
Freedom House	.001 (.21)	-.0003 (.87)	.003 (.26)
EIEC	.004 (.32)	-.0002 (.89)	.007 (.64)
Checks	.0015 (.027)	.0002 (.91)	.0016 (.075)
Persistence	.001 (.21)	.0017 (.15)	.0006 (.47)
Newspaper circulation	.0027 (.036)	.003 (.11)	.0027 (.032)

N.B. The estimation is as in Table 3, controlling additionally for total population, land area, and ethnic polarization in all stages of each estimation. Robust standard errors are used to calculate *p*-statistics.

The estimations in Table 4, as in Table 2, add controls for ethnolinguistic polarization, population and land area in the democracy equation and the growth equation. *Checks* and *newspaper circulation* remain significant in most specifications. *Persistence* loses significance, but coefficient magnitudes are largely unchanged from Table 3. Although these variables are objective, attenuation of significance in this more elaborate, three-stage estimation is not particularly surprising since the security of property rights index is subjective.

The effects of democratic institutions on “catch-up”

The final issue considered here is whether the effects of democratic institutions on growth extend to the ability of poor countries to “catch up.” Keefer and Knack (1997) show that the security of property rights has a significant impact on this ability: poor countries with secure property rights grow several percentage points per year more rapidly than poor countries that lack them. Table 5 provides some evidence that this is true as well for some aspects of democracy.

The specification in Table 5 is the same as in Table 1, with the addition of an interaction term, the product of initial income per capita and the different institutional variables. Evidence for convergence exists when the coefficient on initial per capita income is negative: poorer countries grow faster. A negative coefficient on the interaction term indicates that in the presence of “better” institutions, the convergence effect is greater. The significance of the linear terms in Table 5 is conditional on the value of the other linear terms. Hence, only the significant interaction terms are highlighted in bold.

Consistent with each of the foregoing sections, elections, *per se*, and the two traditional subjective measures of democracy exhibit no significant impact on convergence. In addition, checks and balances seem to have little effect. However, the persistence of elections and newspaper circulation are both significantly and robustly associated with faster catch-up. In a more elaborate specification, with additional controls as in Table 2, the newspaper circulation results continue to be significant. Only the OLS estimation of the *persistence* equations is significant, however.

Table 5: The effect of democracy on convergence (1975 – 2000)
(*p*-statistics in parentheses)

		OLS	Instrumental Variables Estimates		
			All instruments	Only latitude and years since independence	Only colonial heritage dummies
Polity IV	Initial polity	.002 (.414)	.0028 (.21)	.004 (.25)	.003 (.211)
	Initial GDP/capita	-.0001 (.97)	.0006 (.90)	-.005 (.54)	-.002 (.64)
	Polity * GDP	-.0001 (.64)	-.0003 (.37)	-.0003 (.44)	-.0002 (.52)
Freedom House	Initial FH	.004 (.49)	.0063 (.102)	.022 (.013)	.0045 (.25)
	Initial GDP/capita	.002 (.77)	.0008 (.93)	-.029 (.063)	-.005 (.62)
	FH * GDP	-.0003 (.67)	-.0005 (.39)	-.0009 (.14)	-.0001 (.86)
EIEC	Initial EIEC	.007 (.22)	.005 (.44)	-.0009 (.93)	-.001 (.89)
	Initial GDP/capita	.0035 (.487)	-.002 (.72)	.008 (.52)	-.008 (.32)
	EIEC * GDP	-.0007 (.40)	-.00006 (.95)	-.0002 (.88)	.0009 (.46)
Checks	Initial checks	.008 (.36)	.0227 (.089)	.024 (.16)	.011 (.42)
	Initial GDP/capita	.002 (.63)	.0014 (.76)	-.003 (.70)	-.003 (.54)
	Checks * GDP	-.0006 (.59)	-.002 (.24)	-.0016 (.35)	-.0003 (.85)
Persistence	Initial persistence	.0034 (.000)	.0055 (.001)	.0054 (.012)	.0036 (.026)
	Initial GDP/capita	.0051 (.038)	.0019 (.59)	-.001 (.67)	.0004 (.94)
	Persistence * GDP	-.00038 (.000)	-.00059 (.002)	-.00056 (.022)	-.00036 (.049)
Newspaper circulation	Initial newspaper	.00068 (.000)	.00053 (.000)	.00039 (.01)	.0003 (.008)
	Initial GDP/capita	-.0006 (.81)	-.0068 (.037)	-.0073 (.12)	-.0070 (.037)
	Newspaper * GDP	-.00007 (.001)	-.00005 (.003)	-.00003 (.043)	-.00002 (.096)

N.B. All specifications include the log of initial income per capita and a constant, not reported. Robust standard errors are used to calculate *p*-statistics. The *p*-statistic for the linear terms is valid only at the point where the other linear term is zero. Only significant interaction coefficients are highlighted in bold.

Conclusion

The analysis in this paper addresses three questions raised by the literature on property rights, democracy and growth. First, can we distinguish the effects of different democratic attributes on growth? Second, is there support for the contention in the literature that democracy-like institutions give rise to the secure property rights that are important for economic growth and development? And third, are democratic institutions helpful in accelerating the convergence process?

The findings here are fairly stark. First, the usual subjective measures of democracy have little influence on growth, neither directly nor indirectly. One explanation for this is that these indicators may overweight the role of elections in democracy. However, an objective indicator of elections from the DPI, like the earlier work by Przeworski, et al. (2000) using a variable that they constructed, shows no systematic relationship to growth, either.

Instead, key variables that mediate the democracy-property rights-growth relationship are formal institutions that go beyond elections to include political checks and balances that constrain government decision making. They are measures of the distortions in electoral markets, such as the level of voter information and the credibility of pre-electoral promises, rather than the presence of elections themselves. These variables are strong predictors of growth, with an influence that also operates indirectly both through the security of property rights and through their effects on convergence.

Although striking, the results are preliminary in several senses. First, other instruments are common in this literature and need to be taken into account. Second, the proper role of other policy and exogenous variables should continue to be examined. For example, do ethnic polarization, land and population belong in the growth equation, or are they properly considered instruments themselves? Finally, more rigorous tests of the quality

of the instruments in each of these regressions are required, a task that will be undertaken in future versions of this paper.

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