Unbundling Democracy: Tilly Trumps Schumpeter

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January 2013

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Abstract:

Much of the recent political economy and political science literature views democracy in one-dimensional terms, primarily in terms of political rights. This feature is particularly pronounced in the empirical literature. We expand on this view of democracy by incorporating the role of civil liberties, which are at the core of modern democracy, in two ways. First, we present a conceptual framework that identifies fundamental sources of potential differences in the evolution of political rights and civil liberties. Perhaps more importantly, we provide systematic, robust and varied empirical evidence on this differential evolution using cross-national panel data. Our two main results are: Civil liberties are far more persistent than political rights in affecting subsequent outcomes; Civil liberties are complementary to political rights in affecting subsequent outcomes, but the reverse is not the case. These two main results are robust to the addition of covariates, estimation techniques, and variations in our sample. In particular, these results are invariant to whether or not the modernization hypothesis holds or the political natural resource curse exists. More generally, our analysis can be framed as an implementation and comparison of two very different traditions in how democracy is viewed in the economics and political science literature: Schumpeter's narrow electoral democracy view and Tilly's broader liberal democracy view. The data support the latter.

JEL Code: P16; P00; P14; P59; O11

INTRODUCTION

Economists (and some political scientists) often view democracy in one-dimensional terms: the existence of political rights. Sometimes the latter are even more narrowly defined as the occurrence of free and fair elections. This general view among economists has a long tradition which can be traced back to Schumpeter (1942). For instance, his view is approvingly adopted by Acemoglu and Robinson (2006). Their third chapter titled 'What do we know about democracy?' reproduces Schumpeter's view that democracy is "… the institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people's vote (p. 48)." In his influential work, Samuel Huntington — a prominent political scientist—also subscribes to this view (1991, p.6).

Yet political scientists in general tend to recognize the limitations of this view. For instance, views of democracy tied solely to the holding of free elections are referred to as minimalist and they are contrasted to an alternative insisting on "…a more ample degree of protection of political and civil liberties," Plattner (2002, pp.56-57). Indeed, Coppedge et al (2011) survey the immense literature on the topic and argue that it can be classified into six key models of democracy: electoral, liberal, majoritarian, participatory, deliberative and egalitarian models. For our purposes, a useful way of characterizing an alternative due to its relative parsimony is through reliance on Tilly's view of democracy, which could be classified as liberal in terms of the previous six categories. This view can be summarized as "…a regime is democratic to the degree that political relations between the state and its citizens feature broad, equal, protected and mutually binding consultations" (Tilly 2007, p. 13). Moreover, he further states that, "…roughly speaking, political rights correspond to broad, equal, mutually binding consultations, whereas civil liberties refer especially to protection" (p.45).

Tilly's richer view of democracy provides a framework in which we can address the following issues. If political rights and civil liberties are independent dimensions of democracy, we would expect them not to play a role in explaining the evolution of one another. On the other hand, if they are substitutes for one another, we would expect one dimension to help in explaining the evolution of the other dimension with a negative or at least non-positive sign. If they are complementary factors, however, we would expect one dimension to help explain the

evolution of the other one with a positive or at least non-negative sign. For instance, civil liberties could impact the possibility of attaining political rights and/or vice versa. Furthermore, the existence of these two dimensions generates in principle a wide variety of possible patterns in the evolution of democracies by themselves or in combination with other factors.

Relying on Tilly's view, therefore, provides a very encompassing framework in which to look at democracy. It allows for the possibility of asymmetries in each dimension in which one dimension affects the other but not vice versa. Furthermore, one can easily include or exclude various explanatory factors that have been or can be identified or suggested as a relevant determinant of either dimension of democracy in any empirical setting. Finally, it yields as a special case the most widely used approach for the empirical analysis of democracy in the economics and political science literature: Namely the independent dimensions case. The latter case reduces to Schumpeter's view if we add the proviso that only political rights are relevant!

Schumpeter's view underlies almost all empirical attempts to explain democracy to date. While Tilly's view has not been implemented empirically with standard tools, perhaps due to his emphasis on analytical narratives, Tilly's own work suggests how to measure both political rights and civil liberties in his discussion of post-socialist democratization (2007, p. 45-49), i.e., Freedom House's measures (e.g., Piano and Puddington, 2006). Furthermore, the same measure of political rights Tilly relies on is used in almost all empirical studies of democracy that depart from Schumpeter's view either as a primary measure of political rights or as a robustness check on any other measure used as the principal measure.

Once we turn to empirical issues, both economists and political scientists have proceeded by focusing exclusively on political rights. This is especially true of the recent strand of empirical literature that focuses on explaining the role of income in determining democracy. Here the dependent variable is always democracy defined in terms of political rights. Acemoglu, Johnson, Robinson and Yared (2008, henceforth AJRY; 2009) provide a prominent example in economics and Przeworski, Alvarez, Cheibub and Limongi (2000, Ch.2) do the same in political science. Both of these contributions seek to assess the role of per capita income, if any, in explaining democracy defined in terms of political rights.

A large, increasingly specialized and rapidly growing literature addressing issues raised by AJRY and Przeworski et al (2000) continues to develop in the empirical area, both in economics and political science. The finding by AJRY that the level of per capita income has no impact on democracy in the long run once fixed effects and endogeneity are accounted for has attracted considerable attention. It rejects an important—if not the most important—component of Lipset's (1959) long standing modernization hypothesis, which has been also supported more recently by Huntington (1991) and others. In the economics literature, this finding has generated a strand of contributions focused on political rights but relying on the use of more advanced econometric methods and expanded data sets to reverse the conclusion, e.g., Benhabib, Corvalan and Spiegel (2011) and Che et al.(2012).

In the political science literature, one strand of empirical literature has emphasized the impact of development in terms of per capita income on democracy's stability, and its lack of effect in bringing democracy into existence or democratization (both are among Przeworski et al's (2000) main findings). Boix and Stokes (2003) challenged this second finding. More recently, Boix (2011) proposed and found empirical evidence in support of what he calls 'conditional modernization' theory. Namely, his panel data work supports the stability effect, the positive effect of income on democracy over the long-run (meaning going back into the beginning of the 19th century) and its lack of effect or amelioration of this effect in the short-run (meaning after World War II). His results are consistent with unpublished work by Treisman (2012) showing that the effects of per capita income on democracy arise only when one uses time intervals of ten years or longer in the context of fixed effects regressions. Once again, in all these contributions, democracy is measured exclusively in terms of political rights.

From our point of view, it does not matter what position one prefers or supports in this debate on whether or not income plays a role in determining democracy defined in terms of political rights. We ask and answer a different question: Namely, does it make any difference to the role of income, if any, in explaining the evolution of democracy, thus defined, whether or not political rights and civil liberties are complementary, independent or substitutes in this process? One of our contributions in this paper is to answer this question relying on the insights generated by the above contributions.

Mention should also be made of a somewhat related strand of literature in economics that assesses the impact of short-run aggregate shocks to the rate of economic growth on democracy measured in terms of political rights. For instance these shocks are weather and export revenues, Burke and Leigh (2010), within country variations in rainfall in sub-Saharan Africa, Bruckner and Ciccone (2011), and oil price shocks, Bruckner Ciccone and Tesei (2012). Restrictions on the number of countries, methodologies and focus on specific shocks limit their applicability and usefulness in the present context. Thus, we will not pursue these issues here. Nonetheless, it is worthwhile noting that similar questions arise in their context. For example, does the role of civil liberties as a potential complementary factor in the evolution of political rights modifies their results?

An early empirical contribution to the determinants of democratization in the economics literature, Barro (1999), is of interest for two reasons. First it considers civil liberties as an alternative to political rights, which he calls electoral rights. It notes the high partial and positive correlation between the two indices across countries and concludes a brief section on civil liberties as follows (p.177) "…the economic and social forces that promote electoral rights are similar to those that stimulate civil liberties." This conclusion would be unimpeachable if the two dimensions were independent factors in the evolution of democracy and political rights were the only relevant factor. One can argue that the literature in both political science and economics has implicitly adopted this view. We will show that this view is incorrect.

Second, this contribution provides an initial link to other variables that may influence democracy in an empirical setting. Barro relies on the economics and political science literature up to that point to identify potential determinants of democracy to include in his empirical analysis. For instance, he relies on Lipset's work to include GDP per capita, education and urbanization. He also relies on population as a measure of country size, which he views as endogenous following Alesina and Spolaore (1997). He also includes a dummy variable for oil exporting countries in his basic regression, albeit without much explicit justification. We expand on this issue below since it has been the source of considerable literature in both economics and political science since Barro's article. Finally, of the additional potential variables he considered, the proportion of Muslims stands out statistically.

A recent sensitivity analysis of the determinants of democracy by Hegre, Knutsen and Geelmuyden Rød (2012) corroborates the role of education and at least one other modernization indicator as a robust determinant of democracy although not necessarily as measured by Barro. It also confirms the negative role of resources (measured in terms of oil, but not necessarily as a dummy variable) and religion (measured in terms of the proportion of Muslims) on democracy. Population size, on the other hand, is not a robust determinant of democracy in their analysis. Democracy is measured as a binary variable capturing the probability of democratization in terms of political rights. This sensitivity analysis relies on a methodology adapted from the one used in economics with respect to growth regressions by Renelt and Levine (1992) and Sala-i-Martin (1997). It also relies on strong additional assumptions, such as the exogeneity of all explanatory variables. Nonetheless, for our purposes, it suggests the usefulness of revisiting Barro's original approach with current tools and insights.

In both economics and political science, recent attention has been placed on what may be called the political natural resource curse by analogy with the economic natural resource curse initially associated with Dutch Disease, e.g., see Torvik (2009) for an excellent survey of the latter curse. With respect to the former curse, political scientists have emphasized its positive impact on the stability of democracy and dictatorship while economists have emphasized its negative impact on democratization. Political scientists suggest a mechanism for a political resource curse to operate based on an idea highlighted by Acemoglu and Robinson (2006): Namely, elites promote democracy in terms of political rights as a means of preventing revolutions by the poor in the context of a class struggle over taxation. In this setting additional oil wealth (or other sources of non-earned income) can be shown to have a negative impact on democratization by promoting stability in both non-democratic and democratic regimes theoretically, Morrison (2007), and empirically, Morrison (2009).

Economists have focused on democratization. For instance, a recent analysis of the political resource curse by Tsui (2011) focuses on oil while relying on political rights as his measure of democracy. He finds a negative effect of oil endowments, which can be justified as exogenous as well or better than any variable in this context, on democracy in a cross-section setting. The essential logic of his argument is that the rents from a resource like oil can be effectively controlled by the state. This feature enhances incentives for dictators to monopolize

control of the state and more generally for political leaders to limit political competition in order to protect their access to the oil rents.

From our point of view, however, it does not matter what position one takes on the existence of a political natural resource course or the impact of other determinants of democratization defined in terms of political rights. In both cases, we would raise the same question as before – Does it make any difference to the role of oil rents and other determinants of democracy whether or not political rights and civil liberties are complementary, independent or substitutes in the evolution of democracy thus defined? One of our contributions in this paper is to answer this question, building on insights generated by the literature cited above.

Up to this point we have stressed questions raised by Tilly's approach to democracy that impact and are impacted by the previous empirical literature. Nonetheless, from our point of view, it is also worth asking whether prior findings on the impact of income on democracy, the political resource curse, or other typical determinants of democracy are also relevant when we consider civil liberties as an essential dimension of democracy? Moreover, does it make any difference to this broader view of democracy whether or not political rights are complementary, independent or substitutes in explaining the evolution of civil liberties? An important contribution of this paper is to answer these questions in the same setting as the previous ones.

The plan of the paper is as follows. We indicate carefully what we mean by political rights and civil liberties in the next section. Here we also go beyond Tilly's work by identifying fundamental sources of differences in the potential evolution of these two dimensions of democracy at the conceptual level and two of their empirical implications. Subsequently, in Section II, we discuss the data underlying our empirical analysis and our emphasis on the use of balanced panels.

Section III focuses on analyzing the basic dynamics of unbundling democracy by observing the effects of civil liberties in explaining political rights, and vice versa, in the simplest possible setting. Using the most widely employed empirical techniques in both economics and political science (least squares), we identify important characteristics of these two dimensions in the evolution of democracy that continue to hold throughout the rest of the paper. In Section IV, we look at the impact on the results of applying a more sophisticated technique designed to

address an important econometric problem in dynamic settings, panel data bias. This technique, GMM, is applied to the same data set and empirical specifications. These two sections contain in many ways the most novel aspects of our empirical work. To wit, they show that civil liberties are neither substitutes nor independent factors in the evolution of democracy but essential complementary factors that can determine the evolution of political rights without being similarly affected by them.

Next, we focus on the "modernization" hypothesis in our unbundled view of democracy by extending the analysis in AJRY and incorporating some of the recent contributions with respect to data set extensions and estimation methods in Section V. From a substantive perspective, in section VI we consider the impact of the political resource curse and other potential determinants of democracy highlighted in the literature on our unbundled view of democracy. From a methodological perspective, this section serves as a robustness check on our earlier results by considering the effect of relying on unbalanced panels and including variables omitted from our earlier results. In both settings, our two main results on the role of civil liberties in the evolution of democracy continue to hold. A brief conclusion provides perspective and draws implications.

I. Conceptual Framework: Fundamental differences between Political Rights and civil Liberties.

Political rights are widely accepted as an essential dimension of democracy in recent political economy and political science literature. Their definition commonly revolves around the provision of free and fair elections. Most directly, they involve providing an electoral process with these characteristics at the executive, legislative and local level. One step removed is the provision of an environment free from intimidation and coercion for open and broad participation by citizens as voters, candidates and members of political parties. Finally, these rights also include the provision of mechanisms that link the policies undertaken to their control by elected leaders in transparent ways that lead to accountability. Freedom House's political

rights index is the empirical measure most directly linked to these features.[1] Table A1A reproduces the 3 categories and the 10 questions, scored on a scale of 0-4, used to construct this political rights index.

While civil liberties are in principle widely recognized as an essential element of democracy in terms of protection of individual rights, they tend to be neglected in practice, as indicated in the introduction. Hence, it is useful to discuss these in more detail. Osiatyński (2009, p.2) makes a distinction between individual rights, which he characterizes as emerging in the 18th century, and human rights, which he views as a 20th century concept. Individual rights have been recognized as essential characteristics of democracy over the last two hundred years, embedded as they are in many countries' constitutions. These individual rights are often referred to as first generation human rights. They usually include freedom of speech, freedom of assembly and a category that is much more difficult to describe. It is sometimes referred to as due process protection, equal treatment under the law or protection from arbitrary treatment by the state.

The concept of human rights, however, is somewhat broader and Osiatyński (2009, Ch.1) describes its evolution from the incorporation of an alternative tradition of collective rights or group rights in the 19th century through ideas of minority rights and finally leading to notions of social and economic security in the post-WWII period. This broader view of human rights is reflected in the UN Universal Declaration of Human Rights. One interpretation of this broader view of human rights is that it incorporates notions of human dignity and includes rights which are not necessarily individual in nature. As might be expected, this interpretation is not universally accepted, because it can be interpreted as implying that the state guarantees the entitlement of every individual to some minimum standard of living. Such a guarantee has not been met by any state (if the standard is defined liberally).

A narrower interpretation of additional human rights, however, has been adopted in the economics literature and referred to as "second generation human rights" by Kaufmann (2004)

[1] Alternative measures are also used empirically. The most prominent among them is the Polity IV index that captures balance of power aspects of democracy by measuring constraints on politicians and politically connected elites. We focus on the FH measure because it stresses positive aspects of political rights and it is done in similar style and intent as our measure of civil liberties.

and others. These additional human rights—which are also of post-WWII vintage—include, for instance, secure ownership rights and individual mobility (in the pursuit of economic betterment) with respect to location, education and employment. They have been viewed over the last several decades as part of the array of civil liberties to be provided and protected by a democratic government; for example, Freedom House includes them as part of its civil liberties index (see Piano and Puddington 2006). We include these narrower second generation human rights in our concept of civil liberties as an essential characteristic of democracy and we use the Freedom House measure of civil liberties in our empirical work.[2] Table A1B of the Appendix reproduces the 4 categories and the 15 questions, scored on a scale of 0-4, used to construct this civil liberties index.

With these clarifications as a preamble, we note some fundamental differences between these two dimensions of democracy relevant for its evolution. An important potential reason for the differential evolution of these two dimensions of democracy is the following fundamental difference. Citizens' enjoyment of political rights such as the right to vote or volunteer to campaign for someone yields utility only indirectly—that is, through the policies enacted by those for whom a citizen voted or campaigned. As a reflection of this, there is a substantial literature explaining why citizens bother to vote in the absence of a clearly defined self interested motivation to do so, e.g., Feddersen (2004). By contrast, citizens' enjoyment of civil liberties such as freedom of speech, assembly and choice of location usually yields utility directly. It follows that the former should matter to individuals less than the latter. Empirical implications directly relevant for the evolution of democracy arising from this fundamental difference are difficult to extract and, if testable, are likely to require micro data. Indirect ones, however, arise more easily as they underlie incentives behind the next two potential reasons for differences in the evolution of both political rights and civil liberties, which generate testable implications with aggregate data.

A second potential reason for the differential evolution of these two dimensions of democracy that can be captured directly in our empirical work is the following fundamental

[2] Just as in the case of political rights, there are alternative measures of some of these civil liberties, for example the Economic Freedom Index developed by Gwartney and Lawson (2008) on behalf of the Fraser Institute. We focus on the Freedom House measure for comparability with the political rights measure and because of its more extensive coverage of civil liberties.

difference. In a representative democracy, the exercise of political rights by voters or politicians often acts as a constraint imposed on politicians or on a small groups of agents in a discrete manner – that is, at particular times and in particular contexts. For instance, this would be the case for electoral supervision by competing parties or for separation of power conflicts between the executive and the legislature resolved by the judiciary. By contrast, the exercise of civil liberties by citizens requires constraints imposed on the state enhancing the activities of all agents in a continuous manner over time, space and individuals—that is, commitments to refrain from predation by protecting first and second generation human rights presumably apply all of the time and to all citizens, at least in modern times. An important empirical implication of their more continuous nature is that civil liberties should exhibit greater persistence than political rights in their impact on subsequent outcomes. Since civil liberties generate utility directly and political rights indirectly, the strength of the incentive toward persistence would be greater for the former than for the latter.

A third potential reason for the differential evolution of democracy in terms of political rights and civil liberties is the following fundamental difference. There are interactions in the production of these two dimensions of democracy that suggest precedence in time for some civil liberties relative to some political rights in specific settings. For instance, civil liberties like freedoms of association and speech are naturally crucial for the emergence of competitive political parties that take part in free and fair elections. Similarly, second generation human rights may also be important for the production of political rights if, for example, equitable access to education shapes the emergence of representative political leaders. As a result, one can think of some civil liberties as precursors to some political rights. These considerations imply that one would observe empirical relationships where the levels of civil liberties would play a role in determining subsequent levels of political rights. Once again the direct nature of the incentives for demanding civil liberties and the indirect nature of the ones for demanding political rights reinforce this tendency for asymmetric complementarity in their evolution.

Finally, citizens' enjoyment of political rights when acting in their role as politicians generate substantial rents as private goods that are concentrated in space, time and, of course, individuals, e.g., Keane and Merlo (2010) provide monetary estimates of these economic benefits in the US Congress. By contrast citizens' enjoyment of civil liberties generates substantial rents

for society from the provision of these civil liberties as public goods. These rents arise in two ways: indirectly through first generation human rights leading to innovations from knowledge creation and transmission, Aghion and Howitt (1998); and directly through second generation human rights leading to increased output from reductions of uncertainty and transaction costs and improved allocation of resources, which allow the operation of modern or 'socially contrived' markets at a high level of transactions, BenYishay and Betancourt (2010).

In both cases, the rents generated through the enjoyment of civil liberties tend to be more dispersed in space, time and individuals to whom they accrue than the ones generated through political rights. Presumably this dispersion would make it more difficult for these rents to be appropriated by others, whether they be dictators or democratic politicians, than the ones generated by political rights. Incidentally, one can argue that the private rents available to democratic politicians are likely to be larger, the larger are the rents generated through the provision of civil liberties as ideal public goods, e.g., McGuire and Olson (1996). While these fundamental differences in the rents generated by political rights and civil liberties provide a fourth potential reason for the differential evolution of democracy, their empirical implications are not immediately obvious. Their impacts are likely to become observable in combination with other factors that facilitate or impede collective action, for example, levels of education, urbanization, or technological development.

II. DATA SOURCES

As our primary measures of the dimensions of democracy, we use the civil liberties (CL) and political rights (PR) data from Freedom House, which are available at annual intervals between 1973 and 2009[3]. We focus our investigation on effects at 5-year intervals. Both the CL and PR variables are measured on a 1-7 scale, with lower scores representing better conditions. To make our results more easily interpretable, we convert these measures onto a [0, 1] scale, with higher scores representing better conditions.

[3] Available online at http://www.freedomhouse.org

The Freedom House PR variable reflects three primary factors: (a) The fairness and freedom of the electoral process, (b) the ability of diverse individuals and groups to fully participate in the political process, including to gain power, and (c) the efficiency of the government in operating with accountability and with limited corruption and undue influence from the military, criminals, or other groups. Freedom House's CL measure, meanwhile, reflects four core dimensions: (a) Freedom of expression and belief, (b) rights to freely organize and associate with other individuals and groups, (c) law and order, supported by an independent judiciary and reflecting equal legal treatment of diverse populations, and (d) personal autonomy over property ownership as well as a variety of other rights, including the choice of residence, employment, marriage partners, and higher education institution. BenYishay and Betancourt (2010) discuss these sub-factors underlying the PR and CL variables in further detail and assess the relative influence of the sub-factors on long-run economic growth.

We construct our base sample by focusing on those countries in which the FH PR and CL data and income data are available in the 1970-2000 time period. We begin with the sample of countries for which FH data is available and impute the 1970 CL and PR values using the earliest observation in 1973.[4] We then restrict our data to those country-year observations with income data from the Penn World Tables [PWT] (version 6.3, benchmarked to 2005 PPP dollars). As noted by Benhabib et al. (2011), version 6.3 of the PWT includes many observations that were missing from previous versions (including version 6.1, used by AJRY).[5] Our data thus includes 915 observations in 175 countries over the reference time period.

For purposes of understanding the basic dynamic interactions of CL and PR, we limit our analysis to a balanced panel of 131 countries for which the full time series of CL and PR are available for the 1970-2000 period. Unbalanced panels can generate consistent estimates with

[4] AJRY also further supplement this data with data from Bollen (1990, 2001) for political rights in 1950, 1955, 1960, and 1965, obtaining 945 observations for these countries. Because comparable data are not available for CL for these early years, we restrict our sample to the years 1970-2000. When we replicate AJRY's estimation using this subsample, we find qualitatively similar results for the effects of GDP per capita on political rights. These results are reported in column 2 of Appendix Table A1.

[5] These new country-years observations are spread over 40 countries, and are quite different from those that AJRY use in their estimation: The levels of political and civil freedoms in these countries are much lower than those in the AJRY sample, and while their mean levels of income are comparable to those in the AJRY sample, their changes in income over this time period are significantly lower. When we replicate AJRY's estimation adding these new observations from version 6.3, we also find qualitatively similar results for the effects of GDP per capita on political rights (see column 3 of Appendix Table A1).

greater precision when the reason for the observations' exclusion is uncorrelated with the disturbance term in the regression of interest. However, in our case, countries that enter the sample mid-period are typically those that are newly independent and are likely to experience quite different dynamics in their PR and CL from previously existing countries. As a result, we focus on the balanced panel for purposes of estimating the basic dynamics. Summary statistics for this sample are shown in part A of Table 1.

When we revisit AJRY's results on income and democracy in Appendix Table A2, for example, we return to our initial sample. One of the instruments used in AJRY is the savings rate. We also make use of the updated PWT data on government and private consumption to calculate the national savings rate, data which are available for 866 observations for 162 countries in our sample.[6] We report summary statistics for the main variables in this initial sample in part B of Table 1.

For the analysis of other determinants of democracy in Section VI, we make use of several additional data sources. When examining the relationship between oil and democracy, we constructed a separate sample of country observations for which reliable oil reserve data are available. The data on oil reserves come from Dr. Colin Campbell at the Association for the Study of Peak Oil (ASPO), a non-profit organization gathering industrial data to study the dates and impact of the peak and decline of world oil. These data are a particularly useful source because they include oil discoveries and thus permit credible computation of real changes in oil reserves. The total oil reserves in this dataset are measured as the cumulative quantity of oil discoveries minus the cumulative quantity of oil production as of year *t*. Thus, changes in reserves in a given period reflect the net change in discoveries and production over that period. Cotet and Tsui (2010) describe these advantages of the ASPO data on reserves over other data sources in more detail.

For five former Soviet countries, we impute missing pre-1991 observations by fitting their post-1991 data on that of several comparator countries (Canada, Great Britain and Romania) and predicting the pre-1991 reserves based on these comparator observations (we

[6] AJRY relied on these data to obtain 2SLS estimates. We replicate their 2SLS estimation for PR with both their original sample of countries and our extended sample. Again the results are qualitatively similar, which can be seen in columns 4-6 of Appendix Table A1.

verify in a robustness check that these observations do not drive our results). We thus obtain data on oil reserves for 77 countries that have at least one period with positive reserves. Part C of Table 1 provides descriptive statistics for these countries. We impute oil reserves as 0 for all countries not included in the ASPO dataset. Thus, for our analysis of other determinants of democracy we start with the same set of 131 countries and 786 observations in our original balanced sample. For the full oil dataset, we re-scale the oil variable to be measured in 10 trillion barrels, for ease of interpreting coefficients.

We obtain data on educational attainment from the Barro and Lee (2010) dataset, which includes age-specific mean years of education at five year intervals between 1970 and 2000 (the complete dataset extends to 1950-2010). To construct the parental generations' educational attainment, we follow Barro and Lee (2010) and calculate the mean years of education for all those aged 40 to 75 (weighted by each cohort's population share). These data generate a reduced set of 708 observations in a balanced sample of 118 countries.

Finally, we add data on total population counts and the urban share of the population from the World Development Indicators. These data generate 768 observations in a balanced sample of 128 countries for the demographic variables. We also use the Muslim share of the population from the Pew Forum on Religion and Public Life to split the sample, which is explained in Section VI.

III. BASIC DYNAMICS OF UNBUNDLED DEMOCRACY: LEAST SQUARES RESULTS

Our conceptual framework highlights a variety of factors that may cause PR and CL to move jointly, sequentially, or independently of one another. We now turn to assessing the empirical evidence on these dynamics. We begin by examining the dynamic evolution of these two variables in simple terms, which are captured in Table 2. We first introduce persistence effects by themselves, controlling for year effects, in a balanced panel of 131 countries for the years 1975-2000 and present the results in columns (1) and (2). Our panel relies on 5 year intervals to capture longer term changes while retaining a time series dimension. These simple regressions

suggest strong persistence effects for both dimensions of democracy in terms of magnitude and a high level of statistical significance (0.1% or p=.001).

Columns 3 and 4 of Table 2 allow us to examine the effect of heterogeneity across countries in their dynamic evolution by introducing country fixed effects into each of the regressions. The latter effects capture the impact of any variables that vary across countries but remain fixed over time. The latter would include, for example, the lowest level of civil liberties or political rights during the period and the smallest and largest difference between both of them. What these columns reveal is that country fixed effects improve explanatory power, by 10% or more, and—not surprisingly—substantially reduce the magnitude of the impact of persistence effects for both political rights and civil liberties—a reduction of more than 50% in each case. The country fixed effects are statistically significant at the 1% level.

It is well known that the introduction of fixed effects biases the coefficients of lagged dependent variables towards zero, which is referred to as dynamic panel bias. Whatever the size of this bias, however, both persistence coefficients remain positive and are statistically significant at the 0.1% level after the introduction of fixed effects. Furthermore, the persistence coefficients with and without fixed effects provide weak evidence in favor of one of the two empirical implications identified in Section II: namely, stronger persistence effects for civil liberties than for political rights.

On the descriptive side, the differences in explanatory power between both equations suggest that lagged CL explain current CL somewhat better than lagged PR explain current PR with and without fixed effects. Moreover, the introduction of fixed effects (in columns 3 and 4) shows that between country variation represents a similar proportion of the unexplained variation by the persistence effect for political rights and for civil liberties ($1-R^2$ in columns 1 and 2), i.e., (.096/.280=.343) versus (.079/.231=.342).

By looking at outliers over the sample period, one observes that Panama in 1985, Honduras in 1975 and Ecuador in 1975 have the largest difference between civil liberties and political rights (i.e., CL – PR). If we look at the same information in 2000 (the final year in our sample), we find that the difference had disappeared in all three cases (in the case of Panama, PR had

actually improved beyond CL). In all three countries, however, political rights had improved substantially and civil liberties had remained the same (Honduras) or improved substantially.

On the other hand, we see a different dynamic when looking at the three outliers with the largest differences between PR and CL (i.e., PR – CL) over the sample period (India, Sri Lanka, and Syria). In two cases (India and Sri Lanka), political rights had remained unchanged by 2000; these rights had actually decreased in Syria. Over the same time period, civil liberties experienced no change in one case (Syria), a minor increase in another (Sri Lanka) and a substantial one in the third (India). Superficially, it seems better for democratic outcomes to start with higher levels of CL than of PR, which is consistent with the other empirical implication identified in Section II.

Of course, both civil liberties and political rights vary during the sample period. Thus a fuller insight into the dynamics of their evolution suggests that we consider what happens when we introduce the possibilities of interactions into the regressions directly. Columns 5 and 6 allow us to look at their full effect by introducing them without the country fixed effects. The introduction of lagged civil liberties in the political rights equation (column 5) reduces the persistence effect of political rights in column 1 by 44%, while the introduction of lagged political rights (column 6) reduces the persistence effect of civil liberties in column 2 by 15%. This suggests that part of the reduction in the persistence effect in columns 3 and 4 has nothing to do with dynamic panel bias. Perhaps more importantly, the effect of lagged civil liberties on political rights is positive and marginally greater in magnitude than the persistence effect of political rights, whereas the persistence effect of civil liberties is 6 times larger than the effect of lagged political rights on civil liberties, which is also positive. All four coefficients are statistically significant at the 1% level.

Undoubtedly, these two dimensions of democracy seem to evolve in very different ways. First, the persistence effect of civil liberties is now much stronger than the persistence effect of political rights, which corroborates the first empirical implication identified in section II on a far stronger statistical basis. Supporting this, we find that the 95 % confidence interval on the PR persistence effect does not overlap with the 95% confidence interval on the bigger CL persistence effect. Second, civil liberties and political rights have (positive) complementary effects on each other. Furthermore, the complementary effect of CL (in column 5) is more than

twice the size of the complementary effect of PR (in column 6). Moreover, their 95% confidence intervals do not overlap either. This provides strong statistical corroboration for the second empirical implication identified in section II, namely that civil liberties play a role in determining subsequent levels of political rights.

While adding lagged civil liberties to the political rights equation increases the R^2 by 4%, adding political rights to the civil liberties equation increases the R^2 by only 0.5%. These descriptive differences in explanatory power between columns 5 and 6 and 1 and 2, respectively, generate a very different result than the introduction of fixed effects. To wit, the introduction of the complementary factors (5 and 6) shows that variations in lagged CL capture a much greater proportion of the unexplained variation by PR's persistence effect (.029/.280=.104) than variations in lagged PR capture of the unexplained variation by CL's persistence effect(.004/.231=.017). This result is substantially different than the introduction of fixed effects, which has an almost equivalent impact on the R^2 in both equations.

Finally, we can see the impact of the within-country variation in these two variables on each other by adding country fixed effects to the specification in columns 5 and 6. The results are presented in columns 7 and 8. First, the persistence effect of political rights is cut by two thirds and it is no longer statistically significant at the 1% level, although it remains so at the 5% level. Meanwhile the persistence effect of civil liberties, while cut by 56%, remains statistically significant at the 0.1 % level and substantial in magnitude, e.g., more than twice the size of the political rights persistence effect. Second, the impact of lagged civil liberties on political rights is greater than its own persistence effect, more than twice the magnitude of the political rights persistence effect as well as statistically significant at the 0.1% level. By contrast the impact of lagged political rights on civil liberties becomes insubstantial in magnitude and is not statistically significant even at the 10% level.

Summing up, our descriptive comparisons indicated that once both lagged CL and PR are included as regressors, fixed effects add the same amount of explanatory power in terms of R^2 to the regressions for both PR and CL (namely, 0.076). On the substantive side, civil liberties are far more powerful in improving democratic outcomes in both dimensions than political rights. Both CL's persistence effect and its complementary effect on PR are much stronger in magnitude and statistical significance than PR's persistence effect or its complementary effect on CL. Thus,

these two dimensions of democracy are complementary in their evolution and exhibit the two empirical implications identified in our conceptual framework. These results are novel as well as important. Are they due to dynamic panel bias?

IV. Basic Dynamics of Unbundled Democracy: Dynamic Panel Bias

A systematic way of exploring the role of dynamic panel bias is facilitated by the introduction of some notation. The results presented in Table 2 from OLS estimation for each democracy outcome variable can be summarized in terms of the more general specification in columns 7 and 8, (j =1, 2; $Democ_{i1t} = PR_{it}$, $Democ_{i2t} = CL_{it}$) as follows:

$$Democ_{ijt} = \alpha_j PR_{ijt-1} + \beta_j CL_{ijt-1} + \gamma_{ij} + \delta_{tj} + \epsilon_{ijt} \qquad (1)$$

where γ_{ij} is a country-specific fixed effect in the jth equation and δ_{tj} is a year-specific fixed effect.

Using lagged dependent variables as regressors introduces dynamic panel bias because those lags will themselves be correlated with previous observations' error terms (i.e., CL_{it-1} will be correlated with ϵ_{1it} for $s < t$). While this bias disappears as the number of periods increases (as $T \rightarrow \infty$), our sample includes only 5 periods. A starting point to address this issue is the instrumental variables (IV) approach proposed by Anderson-Hsiao (1982). This requires specification of the model in first differences and the use of two-period lags of PR and CL as instruments for the respective first differences. This leads to a consistent estimator through OLS estimation of the following first difference specification

$$\Delta Democ_{it,t-1} = \alpha_1 \Delta PR_{it-1,t-2} + \beta_1 \Delta CL_{it-1,t-2} + \Delta\delta_{t,t-1} + \Delta\epsilon_{1it,t-1} \qquad (2)$$

While consistent in the absence of second-order autocorrelation in levels, this estimator is inefficient. The Arellano and Bond (1991) difference Generalized Method of Moments estimator (DGMM) improves on the efficiency provided by the Anderson-Hsiao IV estimator by using available lags greater than two periods as instruments in the difference equations. Presence of first order serial correlation in the error terms of the levels equations, however, would also lead to invalid instruments in DGMM, as this correlation makes the two period lagged levels invalid

instruments for the one period lagged differences. One solution is to restrict the instrument set to only lags of PR and CL of three or more periods. We consider this procedure.

It has been noted in the literature that the DGMM estimator can also suffer from the problem of weak instruments. A proposed solution for this problem is to rely on system generalized method of moments (SGMM), Arellano and Bover (1995), by adding (stacking) the level equations and using first differences as instruments for the levels while still checking for serial correlation to ensure the validity of the instruments. This solution is valid provided the assumption of zero correlation between the deviations of the dynamically evolving variables from their long run means and fixed effects holds, Roodman (2009).

In any event, Table 3 presents the results of these alternative ways of correcting for dynamic panel bias for PR and CL. The assumption of no serial correlation in levels for two period lags, AR(2), is rejected at the 10% level in 3 of the 4 cases where it is relevant (columns 1, 2, and 4) and for three period lags, AR(3), in none of the 4 cases where it is relevant(columns 5, 6, 7 and 8). The assumption that all the instruments are valid (Hansen's J test, Hansen 1982) is rejected at the 10% level in 3 of the 6 cases where it is relevant (columns 3, 4 and 6) and the hypothesis that the subset of instruments for the differences (difference in Hansen J test) are valid is not rejected at the 10 % level in the two cases where it is relevant (columns 7, and 8). Thus, columns 7 and 8 provide the more reliable estimates econometrically.

What are the substantive implications of these results? After correcting for dynamic panel bias we confirm both empirical implications of our conceptual framework. First, the persistence effect of civil liberties is statistically significant at the 5% level, substantial in magnitude and almost ten times greater than the persistence effect of political rights. The latter is small in magnitude and not statistically significant at any reasonable level. Second, the complementary effect of civil liberties on political rights is statistically significant at the 1% level, substantial in magnitude and ten times greater than the complementary effect of political rights on civil liberties. The latter is small in magnitude and statistically insignificant at any reasonable level. More generally all of the other results corrected for dynamic panel bias in table 3 are consistent with both empirical implications of our conceptual framework. This is the case regardless of whether or not they suffer from second order serial correlation or fail to satisfy the over-identification restrictions.

V. DEMOCRACY AND INCOME

In this section, we explore the effects on our results of introducing per capita income as an explanatory variable for each dimension of democracy. If Lipset's view of modernization is correct and per capita income is an important determinant of either or both dimensions of democracy, our earlier results might suffer from an omitted variable bias if per capita income is correlated with either lagged CL or lagged PR. If the AJRY view is correct and per capita income has no effect on democracy, this variable should not have an effect on our results.

Table 4 presents the results of introducing per capita income into the regressions in Section III following the practice of both camps of lagging this variable one period. In the first half of Table 4, we see the results of doing so without fixed effects. Just as in the previous section, the two basic empirical implications of our conceptual framework are supported by the data. Columns 1 and 2 of this table show the same results as columns 5 and 6 of Table 2. Namely, the persistence effect of CL is stronger than that of PR and their 95 % confidence intervals do not overlap; similarly, the complementary effect of CL on PR is stronger than that of PR on CL and their 95% confidence intervals do not overlap. In these two regressions, per capita income has a positive and statistically significant effect on both dimensions of democracy at the 5% level, but our main empirical implications are unaffected.

The next two columns of Table 4 correct for the endogeneity of per capita income with 2SLS using the two-period lagged savings rate as an instrument, which is the same instrument as used by AJYR. Allowing for endogeneity, our two main empirical implications continue to hold the same as before in columns 3 and 4 of Table 4. The main change is that per capita income now becomes statistically insignificant at the 5 % level as a determinant of either dimension of democracy. Nonetheless, it remains statistically significant at the 10% level for PR. Incidentally, the literature on democracy and income often ignores this correction for the endogeneity of per capita income without fixed effects. It attributes the difficulties in establishing the impact of per capita income on democracy to fixed effects. Our results show that this difficulty exists even without fixed effects once endogeneity is accounted for in the estimation.

In the second half of Table 4, country fixed effects are introduced in both sets of regressions, which make them comparable to columns 7 and 8 of Table 2. Our two main

empirical implications continue to hold in both sets of regressions. First, the persistence effect of CL is stronger than that of PR substantively and statistically whether or not we correct for endogeneity. Indeed, at either the 0.1% or the 1% level of significance the persistence effect of PR is not significantly different from zero while the one for CL is and remains substantial in both cases. Second, the complementary effect of CL on PR is substantial and statistically significant at the 0.1% level in both sets of regressions. By contrast the complementary effect of PR on CL becomes insubstantial (1/5 or less than that of CL on PR) and statistically insignificant at any reasonable level of significance. Summing up, whether or not per capita income is included in the regressions makes no difference to our least squares results on the two main empirical implications of the conceptual framework.

In Table A3 of the Appendix we perform a sensitivity analysis that shows our main two empirical implications hold in a variety of alternative circumstances that also include lagged per capita income as an explanatory variable. These are: estimation with 3SLS; use of a shorter balanced panel (1980-2000); dropping observations due to outliers selected on the basis of Kennedy's DFBeta procedure (2008: Chapter 20); and, dropping savings rate outliers selected by eliminating observations outside the 5^{th} and 95^{th} percentile of values for the savings rate. Our two main empirical implications hold without exception in all these settings.

Finally we introduce lagged per capita income in the GMM estimations of Table 3 again using the two period lagged savings rate as an instrument for lagged per capita income. The results are presented in Table 5. Once again the more reliable results econometrically are the ones in columns 7 and 8. These results support our two main empirical implications as strongly as the corresponding ones in Table 3. Thus, whether or not per capita income is included in the GMM estimation makes no difference to our main results. Incidentally the pattern of the results with respect to per capita income is similar to what is found in the literature: Namely a negative coefficient with DGMM as in AJYR (2008) and a positive coefficient with SGMM as in Che et al (2012).

VI. Sensitivity Analysis

In this section we consider the sensitivity of our results to two very different issues. First, the extent to which our findings would differ if we were to rely on the unbalanced panels often

used in the literature. Second, the extent to which our findings would differ by incorporating the main variables, other than income and lagged values of PR & CL of course, used in prior literature as determinants of democracy. That is, the extent to which these variables are acting as possible omitted variables and biasing our results when left out of the estimation.

1. Unbalanced Panel Results: Democracy and Income Revisited

In Table 6, we present the least squares results analogous to Table 4 but relying on the unbalanced panel data set described in Section II. While there are some minor differences in details, the two main implications of our analysis continue to hold. For instance, among the minor differences are three coefficients in Table 4 that were statistically significant at the 5 or 10% level that become statistically insignificant in Table 6. Nevertheless, our two main results are not affected. The persistence effect of CL is substantially greater than the persistence effect of PR and statistically significant at the 0.1 % level in all four sets of regression in Table 6. Similarly, the complementarity effect of CL on PR exists and is statistically significant at the 0.1% level while the complementarity effect of PR on CL is much smaller in the two regressions without fixed effects and it does not exist at the 10% level in the two regressions with fixed effects. Incidentally, the R^2 in the corresponding OLS regressions differs between the two tables only in the third decimal!

In Table 7, we present the dynamic panel bias correction results analogous to Table 5 but relying on the unbalanced panel. There is a lot more variability in the results for each of the corresponding estimations in Tables 5 and 7 with respect to the magnitude and the statistical significance of coefficient estimates. Nevertheless, the same inferences as before can be drawn for our two main results based on the coefficients of the preferred estimations in both tables, i.e., SGMM with three lags as instruments. The persistence effect of CL is substantially greater than the persistence effect of PR and statistically significant at the 5% level in both tables. Similarly, the complementarity effect of CL on PR exists and is statistically significant at the 1% level while the complementarity effect of PR on CL does not exist at any reasonable level in both tables. Thus, our two main results are found in both the balanced and unbalanced panel and with both estimation methods.

Yet a word of caution is in order when using unbalanced panels. While the results on third order autocorrelation and on the Hansen J-test for the validity of restrictions are reasonably satisfied with SGMM estimation using the balanced panel for both equations (Table 5), these same tests raise doubts about the validity of the results with SGMM estimation using the unbalanced panel for the civil liberties equation (Table 7). More generally, however, the least square results are hardly affected by the use of the balanced or the unbalanced panel but GMM results can be substantially affected. In the latter case, the balanced panel results should inspire greater confidence.

2. Omitted Variable Bias: Other Potential Determinants of Democracy

In this section, we investigate the impact of other potential determinants of democracy on our earlier results. We rely on the prior literature discussed in the introduction for guidance on the choice of variables to consider, but we improve the data or the estimation procedure whenever feasible. Just as in previous sections, we begin with the least squares results. In contrast to those sections, however, we skip the usual OLS results and go directly to the ones that account for a variety of econometric problems associated with these new variables. These results, which also include country and time fixed effects just as before, are presented in Table 8.

Columns 1 and 2 of Table 8 present the results of adding to the 2SLS estimations in Section V (columns 7 and 8 of Table 4) the log of population. In order to account for both the potential endogeneity of this variable due to reverse causality with democratization as in Alesina and Spolaore (1997) and/or the effect of population momemtum as in Keyfitz (1971), we use population lagged three periods (i.e., 15 years) as an instrument. Our earlier results on the persistence and complementarity effects of civil liberties relative to political rights go through exactly as before, as can be seen through a comparison with the corresponding columns of Table 4. Moreover, population's impact on either dimension of democracy is statistically insignificant at any reasonable level.

Next, we consider the role of education on unbundled democracy while accounting for endogeneity by following Barro and Lee (2010) and using the average education of the parents' generation to instrument for education levels lagged one period. Columns 3 and 4 of Table 8 present these results. Once again, the earlier results on the persistence and complementarity of

civil liberties relative to political rights continue to hold just as before. Education, however, has a statistically insignificant impact on unbundled democracy at any reasonable level of significance. Adding the level of female education instrumented with average education of mothers yields the same results as above (these are not presented for brevity). We present the results of adding urbanization by itself, again using its three period lag as an instrument. Columns 5 and 6 present the results, which are the essentially the same as the ones for education. Thus, neither of these aspects of the modernization hypothesis affects our basic results on the persistence and complementarity of civil liberties relative to political rights.

Finally, we try to capture exogenous variation in natural resource wealth through our measurement of oil resources. Oil is one variable that makes the empirical impact of the economic natural resource curse most salient, (Mehlum, Moene and Torvik 2006). Furthermore, as noted in the introduction, it has been shown to generate a political natural resource case in the case of democratization when measured in terms of endowments. The general literature on democratization, however, has relied on oil exports (either in absolute value or relative to GDP) or dummy variables related to them, e.g., Barro (1999) or Benhabib,et.al (2011) and on oil rents, Hegre, et al (2012). Oil rents are defined as (price – cost)* production but the latter quantity in particular can be a source of reverse causality with respect to institutional variables such as democratization.

Use of data on quantity of oil reserves as a proxy for oil rents mitigates endogeneity problems, as changes in these reserves are primarily related to endowment changes through discoveries and can thus be viewed as exogenous. We use oil reserves lagged three five year periods (i.e., 15 years) because the lag between discovery and first production is often two to ten years long (Laherre 2003). In addition, these longer lags are useful given the inclusion of lagged values of the two dimensions of democracy in our regressions. Finally, the time fixed effects are likely to account for changes in global oil prices that affect contemporaneous oil rents.

Results are presented in the last two columns of Table 8. They show that the persistence and complementarity effects of civil liberties relative to political rights continue to hold just as before. Interestingly, the political resource curse on democratization through political rights found by Tsui (2011) holds in this setting at the 5% level of significance, but there is no such effect for civil liberties. Finally, in the appendix (table A4) we present comparable results using

OLS and one period lags for all the variables mentioned above, except for female education and oil reserves. We also present results for two OLS regressions with all the variables, including female education and oil reserves, at the same time in the last two columns. Our two main results on civil liberties relative to political rights also hold in all these OLS settings.

In Table 9, we consider the corresponding results to Table 8 while correcting for dynamic panel bias with SGMM. With respect to persistence and complementarity effects the overall results in the first two rows of Table 9 are very similar to what we found before, especially with respect to the complementarity effect. The latter is substantial and statistically significant, at least at the 10% level, in all four cases (columns 1, 3, 5 and 7). The complementarity effect for PR (columns 2, 4, 6 and 8) is always statistically insignificant at any reasonable level. The persistence effect for CL is always substantial in size, and statistically significant at the 5% level in two of the four cases (columns 2 and 4) whereas the persistence effect for PR is statistically insignificant at any reasonable level in all four cases (columns 1, 3, 5 and 7).

With respect to covariates, the results are slightly more varied than in Table 8: population is positive for PR and statistically significant at the 10 % level (column 1); education is also positive and statistically significant at the 1% level for CL (column 4); and urbanization is also positive and statistically significant at the 10% level for CL (column 6). Tests of over-identifying restrictions and auto correlation are all satisfied at reasonable levels, except perhaps for the Hansen J-test in column 3, which is close to but still below 10% for PR in the education regression. Note that, while we have the same 131 countries in both tables, Table 9 has far fewer observations than Table 8. For completeness, we present the results for the corresponding specifications with DGMM in table A5 of the Appendix. They are quite similar to those in Table 9 summarized above.

Last but not least we turn to the impact of the proportion of Muslims in the population on democratization. We were unable to obtain enough reliable data over time periods on this variable to perform exactly the same exercise as before. Instead we use the most reliable data source that included all of our 131 countries (the Pew Forum on Religion & Public Life[7]) to split

[7] Available at http://features.pewforum.org/muslim-population. We use the estimated Muslim population as a proportion of the total population in 1990 (the earliest available year).

the sample into a similar number of countries with a low proportion of Muslims (<2.5%) and a high proportion of Muslims (>= 2.5%) and re-estimated our basic results on these split samples. Table 10 presents the results in two parts. The first part shows the OLS results; the second part shows the SGMM results correcting for dynamic panel bias. Both sets of results confirm our earlier findings on the complementarity and persistence effect of civil liberties relative to political rights for both samples. As a check we also re-estimated our basic results for a much smaller sample with a higher cut-off for proportion of Muslims (>50%) and again the complementarity and persistence effects of civil liberties relative to political rights were very similar to earlier findings for both OLS and SGMM. These results are presented in table A6 of the Appendix.

VII. Concluding Remarks

Summing up, we have shown that liberal democracy as construed by Tilly in terms of two dimensions, political rights and civil liberties, provides an encompassing framework for analyzing the evolution of democracy at both the conceptual and empirical level. At the conceptual level, it contains electoral democracy as construed by Schumpeter and his followers as a special case in which civil liberties and political rights are independent dimensions of democracy and only the latter matter. At the empirical level, we have shown that a framework based on liberal democracy overwhelmingly dominates a framework based on electoral democracy as a basis for analyzing the evolution of democracy.

Conceptually, the encompassing feature is grounded in the differentiation provided by the ability of civil liberties to provide citizens with satisfaction directly while political rights only do so indirectly. Empirically, this fundamental difference and other associated differences between civil liberties and political rights generate a setting where these two dimensions of unbundled democracy evolve in very different ways. First, the persistence effects of civil liberties on subsequent outcomes are substantial and statistically robust to the inclusion of political rights in the analysis. By contrast, the persistence effects of political rights on subsequent outcomes are far less substantial and most often disappear statistically when civil liberties are included in the analysis. Second, the complementarity effects of civil liberties on political rights are substantial

and robust, whereas the complementarity effects of political rights on civil liberties are non-existent substantively and statistically.

Our empirical results were obtained with the type of cross-country panel data employed to analyze these issues in the political economy and political science literature. Thus, one of the immediate implications of our analysis is to consider the extent to which similar results hold in a variety of other empirical settings. With respect to micro-oriented ones, it is useful to note that a fundamental feature of our analysis is a conceptual basis driven by differences between dimensions on whether they yield utility directly or indirectly to citizens. Hence, it makes sense to consider the design of laboratory and/or field experiments aimed at establishing the extent to which different individuals value civil liberties differently from political rights. A variant of this idea would be to design either type of experiment to evaluate the trade-offs that are made between political rights and civil liberties in different types of cultural or political settings.

A similar implication with respect to other types of data would be to search the historical literature in pursuit of events in which segments of the population acquired a particular aspect of civil liberties or of political rights. For instance, these events could be historical moments when the right to own property or the right to vote was acquired. If either historical data or specific surveys containing data on other political rights or civil liberties were available, one could investigate the impact of acquiring these particular aspects on other aspects of civil liberties or political rights.

While the above implications would address the extent to which the validity of our results holds in a wider range of settings, they would require a fair amount of effort and ingenuity in their implementation. Other implications for existing literature, however, provide contexts that are easier to implement as they would rely on more easily available data. We mention a few different ones below to illustrate the point.

By focusing on the democratization process, we have emphasized the differential role of political rights and civil liberties in the evolution of unbundled democracy. Nonetheless, similar differential roles arise with respect to the considerable literature on many other aspects of democracy. In all these cases, the omission of civil liberties from the empirical analysis generates the possibilities of substantially different results once they are included. To wit, this

consideration applies to the research on the duration and stability of democracy that has arisen after the work of Przeworski, Alvarez, Cheibub and Limogi (2000). It also applies to the literature on the impact of short-run aggregate shocks on democracy mentioned in the introduction.

More generally, the omission of civil liberties from empirical analysis also applies to issues of regime stability, e.g., Morrison (2009). Once political rights and civil liberties are viewed as taking on a range of values rather than as a binary condition such as being pregnant, it is easier to see why both might matter even in non-democracies. Writers focusing on democratization in countries undergoing a transition from socialism have also focused on political rights and structural reforms to the neglect of civil liberties. This is the case even among the more careful works relying on case studies, e.g., Haggard and Kaufman (2008).

Perhaps the most important policy implication of our analysis is that in promoting democracy, it makes more sense to emphasize the provision of civil liberties than anything else—including free and fair elections for—two reasons. First, our empirical findings suggest that at least some civil liberties are necessary for political rights but the reverse is not the case. Second, free and fair elections have little meaning in the absence of civil liberties; yet, they are usually the focus of most attention among policy makers. For instance, a recent study addressing the Arab Spring by Rand (Miller et al 2012) concludes their 300 plus page analysis with a section on policy implications (pp.335-41). While the policies discussed are sensible, the electoral process is given a priority that may not be warranted and several important aspects of civil liberties such as due process and security of property rights are ignored in these recommendations.

Last but not least, we note explicitly two complementary links between our approach and an important recent strand of literature, i.e., North, Wallis and Weingast (2009). First, these authors are up-front in their preface emphasizing the presentation of a conceptual framework rather than "…a formal model that generates explicit empirical tests…about social change (p.xii)." We also have a conceptual framework rather than a formal model, albeit a far more limited one. Nonetheless, we have paid a substantial amount of attention to the measurement of political rights and civil liberties and to extracting explicit empirical tests about social change involving

political rights and civil liberties. This aspect of our approach provides one complementary link with their work.

Second, in their view, societies' evolution toward democracy requires arriving at open social orders in which there is competition through the possibility of entry in both the economic and political realm. They spend most of their effort analyzing limited social orders and identifying what they call door-step conditions (Chapter 5) for limited access social orders to become open social orders. These door-step conditions are: Rule of Law for Elites; Perpetually Lived Organizations in the Private and Public Spheres; and Consolidated Control of the Military. High levels of political rights and especially of civil liberties provide mechanisms for attainment of these door-step conditions and generate another complementary link to their work.

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Table 1: Summary Statistics

Panel A: Basic Dynamics Sample

	Num countries	Num obs	Mean	SD	Min	Max
CL	131	786	0.499	0.321	0.00	1.00
PR	131	786	0.495	0.373	0.00	1.00

Panel B: Democracy and Income Sample

	Num countries	Num obs	Mean	SD	Min	Max
CL	175	915	0.510	0.320	0.00	1.00
PR	175	915	0.514	0.374	0.00	1.00
Ln GDP pc	175	915	8.485	1.153	5.03	11.31
Savings rate (t-2)	162	866	14.850	26.331	-243.30	85.74

Panel C: Democracy and Oil Sample

	Num countries	Num obs	Mean	SD	Min	Max
CL	77	409	0.493	0.323	0.00	1.00
PR	77	409	0.510	0.382	0.00	1.00
Total oil reserves	77	409	170,839	1,274,760	0.00	12,999,827
Per capita oil	77	409	0.377	1.635	0.00	19.48
Median age	77	409	24.125	6.930	14.40	41.30

Table 2: Unbundling Democracy, Least Squares

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fixed Effects?	No country FEs		With country FEs		No country FEs		With country FEs	
Dependent Variable	PR	CL	PR	CL	PR	CL	PR	CL
PR (t-1)	0.838***		0.348***		0.464***	0.122**	0.146*	0.0644
	(0.022)		(0.058)		(0.060)	(0.038)	(0.071)	(0.046)
CL (t-1)		0.861***		0.377***	0.471***	0.734***	0.351***	0.320***
		(0.017)		(0.046)	(0.064)	(0.043)	(0.079)	(0.051)
Country FE	N	N	Y	Y	N	N	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	786	786	786	786	786	786	786	786
R-squared	0.717	0.769	0.813	0.848	0.746	0.773	0.822	0.849
Num countries	131	131	131	131	131	131	131	131

Robust standard error clustered by country in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 3: Unbundling Democracy, GMM

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	IV		Difference GMM (2+ lags as instruments)		Difference GMM (3+ lags as instruments)		System GMM (3+ lags as instruments)	
Dependent Variable	PR	CL	PR	CL	PR	CL	PR	CL
PR (t-1)	0.371**	0.125	0.171	0.204	-0.363	0.0782	0.0697	0.0797
	(0.130)	(0.090)	(0.215)	(0.179)	(0.361)	(0.294)	(0.254)	(0.195)
CL (t-1)	0.229+	0.410***	0.511*	0.459*	1.053**	0.505	0.933**	0.600*
	(0.134)	(0.088)	(0.202)	(0.199)	(0.366)	(0.331)	(0.315)	(0.304)
Observations	655	655	655	655	524	524	524	524
Num countries	131	131	131	131	131	131	131	131
Num instruments			25	25	16	16	23	23
Lags as instruments	2	2	2+	2+	3+	3+	3+	3+
p-value for ...								
AR(2)	0.0988	0.0058	0.208	0.0320				
AR(3)					0.146	0.133	0.341	0.132
Hansen J			0.0356	0.0340	0.313	0.0677	0.256	0.262
Diff-in-Hansen (Lagged differences, null: difference subset is exogenous)							0.821	0.960

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1 . Robust two-step standard errors estimated with Windmiejer (2005) small-sample corrections in parentheses. Year fixed effects included in all specifications; country fixed effects excluded, following Roodman (2009).

Table 4: Democracy and Income, Least Squares

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fixed Effects	No Country FE				Country FE			
Estimation	OLS		2SLS		OLS		2SLS	
Dependent variable:	PR	CL	PR	CL	PR	CL	PR	CL
PR (t-1)	0.454***	0.111**	0.441***	0.116**	0.144*	0.0595	0.115	0.0509
	(0.061)	(0.038)	(0.061)	(0.038)	(0.071)	(0.045)	(0.079)	(0.047)
CL (t-1)	0.437***	0.693***	0.454***	0.720***	0.350***	0.318***	0.317***	0.290***
	(0.064)	(0.045)	(0.064)	(0.046)	(0.079)	(0.051)	(0.086)	(0.052)
Ln GDPpc (t-1)	0.0219*	0.0269**	0.0214+	0.00954	0.0226	0.0454+	0.305	0.0970
	(0.009)	(0.008)	(0.013)	(0.010)	(0.027)	(0.024)	(0.303)	(0.105)
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	786	786	757	757	786	786	757	757
Num countries	131	131	131	131	131	131	131	131
R-squared	0.749	0.779			0.822	0.850		

Robust standard error clustered by country in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Two-period lagged savings rate is used as an instrument for GDP per capita in columns 3,4, 7, and 8.

Table 5: Democracy & Income, GMM

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation	IV		Difference GMM		Difference GMM		System GMM	
Dependent	PR	CL	PR	CL	PR	CL	PR	CL
PR, t-1	-0.162	0.0321	0.130	0.149	-0.252	0.120	0.0732	0.0932
	(3.005)	(0.666)	(0.252)	(0.181)	(0.340)	(0.247)	(0.249)	(0.194)
CL, t-1	-0.861	0.221	0.171	0.0699	0.766+	0.144	0.925**	0.604*
	(6.202)	(1.376)	(0.308)	(0.297)	(0.442)	(0.347)	(0.304)	(0.292)
Ln GDP pc, t-1	-2.603	-0.453	-0.233	-0.218	-0.132	-0.166	0.0130	0.0104
	(14.474)	(3.229)	(0.191)	(0.161)	(0.142)	(0.105)	(0.025)	(0.019)
Time FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	655	655	655	655	524	524	524	524
Num countries	131	131	131	131	131	131	131	131
Num instruments			26	26	17	17	24	24
p-values for...								
AR(2)	0.862	0.643	0.624	0.289				
AR(3)					0.126	0.233	0.346	0.140
Hansen J-test			0.0845	0.106	0.421	0.338	0.236	0.198
Diff-in-Hansen (Lagged differences)							0.846	0.920

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1 . Robust two-step standard errors estimated with Windmiejer (2005) small-sample corrections in parentheses. Year fixed effects included in all specifications; country fixed effects excluded, following Roodman (2009). Two-period lagged savings rate instruments for GDP pc.

Table 6: Democracy & Income, Unbalanced Panel Least Squares

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Country Fixed Effects	No country FE				Country FE			
Estimation	OLS		2SLS		OLS		2SLS	
Dependent variable	PR	CL	PR	CL	PR	CL	PR	CL
PR, t-1	0.459***	0.119**	0.437***	0.116**	0.103	0.0420	0.0896	0.0390
	(0.057)	(0.037)	(0.057)	(0.036)	(0.068)	(0.045)	(0.072)	(0.046)
CL, t-1	0.433***	0.681***	0.470***	0.713***	0.393***	0.332***	0.369***	0.310***
	(0.059)	(0.043)	(0.060)	(0.044)	(0.076)	(0.051)	(0.080)	(0.052)
Ln GDP pc, t-1	0.0222**	0.0276***	0.0141	0.00966	0.0181	0.0387	0.191	0.0548
	(0.008)	(0.007)	(0.011)	(0.009)	(0.029)	(0.024)	(0.247)	(0.110)
Observations	915	915	866	866	915	915	866	866
R-squared	0.743	0.771			0.822	0.844		
Num countries	178	178	165	165	178	178	165	165

Robust standard error clustered by country in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Two-period lagged savings rate is used as an instrument for GDP per capita in columns 3,4, 7, and 8.

Table 7: Democracy & Income, Unbalanced Panel GMM

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation	IV		DGMM		DGMM		SGMM	
Dependent	PR	CL	PR	CL	PR	CL	PR	CL
PR, t-1	-1.416	-0.244	0.145	0.0555	-0.446	0.0402	-0.264	-0.0834
	(21.331)	(4.465)	(0.228)	(0.202)	(0.391)	(0.309)	(0.373)	(0.256)
CL, t-1	-2.869	-0.158	0.422	0.291	1.230**	0.317	1.279**	0.786*
	(40.416)	(8.463)	(0.279)	(0.323)	(0.448)	(0.410)	(0.426)	(0.326)
Ln GDP pc, t-1	-7.307	-1.474	-0.112	-0.142	-0.0695	-0.171*	0.00933	0.0185
	(89.924)	(18.833)	(0.127)	(0.127)	(0.101)	(0.072)	(0.020)	(0.019)
Observations	737	737	737	737	575	575	575	575
Num countries	162	162	162	162	152	152	152	152
Num instruments			26	26	17	17	24	24
p-values for...								
AR(2)	0.939	0.824	0.350	0.197			0.937	0.0636
AR(3)					0.183	0.202	0.279	0.0970
Hansen J-test			0.00972	0.0243	0.0604	0.0936	0.123	0.0326
Diff-in-Hansen (Lagged diffs)							0.938	0.651

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Robust two-step standard errors estimated with Windmiejer (2005) small-sample corrections in parentheses. Year fixed effects included in all specifications; country fixed effects excluded, following Roodman (2009). Two-period lagged savings rate is used as an instrument for GDP per capita.

Table 8: Determinants of Democracy, Least Squares

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation	2SLS		2SLS		2SLS		OLS	
Dependent Variable	PR	CL	PR	CL	PR	CL	PR	CL
PR, t-1	0.116	0.0510	0.123	0.0420	0.129+	0.0490	0.146*	0.0644
	(0.077)	(0.047)	(0.076)	(0.057)	(0.071)	(0.044)	(0.071)	(0.046)
CL, t-1	0.319***	0.290***	0.370***	0.333***	0.360***	0.323***	0.346***	0.317***
	(0.084)	(0.052)	(0.094)	(0.063)	(0.081)	(0.052)	(0.079)	(0.051)
Ln GDP pc, t-1	0.315	0.0973						
	(0.334)	(0.116)						
Ln Pop, t-1	0.0841	0.00221						
	(0.289)	(0.118)						
Ave. Yrs. School, t-1			0.159	0.133				
			(0.223)	(0.190)				
Urbanization, t-1					-0.00197	0.00185		
					(0.003)	(0.003)		
Oil reserves, t-3							-3.974*	-1.970
							(1.584)	(1.475)
Country Dummies	Y	Y	Y	Y	Y	Y	Y	Y
Year Dummies	Y	Y	Y	Y	Y	Y	Y	Y
Observations	757	757	708	708	768	768	786	786
Num countries	131	131	118	118	128	128	131	131
R-squared							0.823	0.849
Instruments used:	Savings rate (t-2), LnPop (t-3)		Ave Yrs School Parents (t-3)		Urbaniz. (t-3)		-	-

Robust standard error clustered by country in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 9: Determinants of Democracy, SGMM

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	PR	CL	PR	CL	PR	CL	PR	CL
PR, t-1	-0.0604	0.0971	0.195	0.0318	0.0779	0.0891	0.175	0.212
	(0.298)	(0.219)	(0.243)	(0.156)	(0.244)	(0.182)	(0.312)	(0.197)
CL, t-1	1.014**	0.616*	0.571+	0.509*	0.791*	0.443	0.747*	0.362
	(0.347)	(0.301)	(0.329)	(0.259)	(0.387)	(0.336)	(0.364)	(0.308)
Ln GDP pc, t-1	0.0214	0.00948						
	(0.025)	(0.019)						
Ln Pop, t-1	0.0179+	-0.00488						
	(0.010)	(0.009)						
Ave. Yrs. School, t-1			0.0289	0.0422**				
			(0.026)	(0.016)				
Urbanization, t-1					0.00146	0.00266+		
					(0.002)	(0.001)		
Oil reserves, t-3							-2.039	-1.592
							(3.831)	(3.579)
Observations	524	524	472	472	512	512	524	524
Num countries	131	131	118	118	128	128	131	131
Num instruments	25	25	24	24	24	24	20	20
Hansen J (p-value)	0.329	0.189	0.0943	0.195	0.207	0.290	0.415	0.636
Diff-in-Hansen (p-value)	0.928	0.921	0.481	0.514	0.585	0.792	0.297	0.370
AR(3) (p-value)	0.296	0.146	0.898	0.199	0.357	0.183	0.893	0.852
Num lags >=	3	3	3	3	3	3	3	3
Instruments for Endogenous Variables	Savings rate (t-2), LnPop (t-3)		Ave Yrs School Parents (t-3)		Urbaniz. (t-3)		-	-

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Robust two-step standard errors estimated with Windmiejer (2005) small-sample corrections in parentheses. Year fixed effects included in all specifications; country fixed effects excluded, following Roodman (2009).

Table 10: Splitting Sample by Muslim Share of Population

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation	OLS				SGMM			
Subsample: Muslim share	< 2.5%	< 2.5%	>=2.5%	>=2.5%	< 2.5%	< 2.5%	>=2.5%	>=2.5%
Dependent variable	PR	CL	PR	CL	PR	CL	PR	CL
PR, t-1	0.201+	-0.00163	0.0770	0.116	0.521*	0.172	0.0267	-0.139
	(0.109)	(0.057)	(0.089)	(0.073)	(0.230)	(0.181)	(0.410)	(0.229)
CL, t-1	0.338**	0.367***	0.397***	0.282***	0.445+	0.690**	0.873+	0.777**
	(0.115)	(0.068)	(0.100)	(0.077)	(0.260)	(0.228)	(0.470)	(0.263)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	N	N	N	N
Observations	390	390	396	396	260	260	264	264
R-squared	0.856	0.869	0.702	0.733				
Num countries	65	65	66	66	65	65	66	66
Num instruments					23	23	23	23
Hansen J p-value					0.459	0.109	0.133	0.324
Diff-in-Hansen p-value					0.147	0.0961	0.486	0.121
AR(3) p-value					0.203	0.197	0.650	0.284
Lags >=					3	3	3	3

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Robust standard errors clustered by country in parentheses in columns 1-4. Robust two-step standard errors estimated with Windmiejer (2005) small-sample corrections in parentheses in columns 5-8. Country fixed effects excluded in columns 5-8 following Roodman (2009).

[FOR ONLINE PUBLICATION]

Appendix

Table A1A: Freedom House Political Rights Categories

FH Political Rights Category	Sub-Issues
A. Electoral Process	1. Is the head of the state and/or head of government or other chief authority elected through free and fair elections?
	2. Are the legislative representatives elected through free and fair elections?
	3. Are there fair electoral laws, equal campaigning opportunities, fair polling and honest tabulation of ballots?
B. Political Pluralism and Participation	1. Do the people have the right to organize in different political parties or other competitive political groupings of their choice, and is the system open to the rise and fall of these competing parties or groupings?
	2. Is there a significant opposition vote, de facto opposition power, and a realistic possibility for the opposition to increase its support or gain power through elections?
	3. Are the people's political choices free from domination by the military, foreign powers, totalitarian parties, religious hierarchies, economic oligarchies, or any other powerful group?
	4. Do cultural, ethnic, religious and other minority groups have reasonable self-determination, self-government, autonomy, or participation through informal consensus in the decision-making process.
C. Functioning of Government	1. Do freely elected representatives determine the policies of the government?
	2. Is the government free from pervasive corruption?
	3. Is the government accountable to the electorate between elections, and does it operate with openness and transparency?

Table A1B: Freedom House Civil Liberties Categories

FH Civil Liberties Category	Sub-Issues
D. Freedom of Expression and Belief	1. Are there free and independent media and other forms of cultural expression?
	2. Are religious institutions and communities free to practice their faith and express themselves in public and private?
	3. Is there academic freedom and is the educational system free of extensive political indoctrination?
	4. Is there open and free private discussion?
E. Associational and Organizational Rights	1. Is there freedom of assembly, demonstration, and open public discussion?
	2. Is there freedom for nongovernmental organizations?
	3. Are there free trade unions and peasant organizations or equivalents, and is there effective collective bargaining?
F. Rule of Law	1. Is there an independent judiciary?
	2. Does the rule of law prevail in civil and criminal matters? Are police under direct civilian control?
	3. Is there protection from political terror, unjustified imprisonment, exile, or torture, whether by groups that support or oppose the system? Is there freedom from war and insurgencies?
	4. Do laws, policies, and practices guarantee equal treatment of various segments of the population?
G. Personal Autonomy and Individual Rights	1. Does the state control travel or choice of residence, employment, or institution of higher education?
	2. Do citizens have the right to own property and establish private businesses? Is private business activity unduly influenced by government officials, the security forces, political parties/organizations, or organized crime?
	3. Are there personal social freedoms, including gender equality, choice of marriage partners, and size of family?
	4. Is there equality of opportunity and the absence of economic exploitation?

Table A2: Replicating AJRY results in CL and PWT 6.3 Sample

	Replicate AJRY Table 2 Col 2 (OLS)			Replicate AJRY Table 5 Col 5 (2SLS)		
	AJRY Subsample	Subsample with CL data post-1970	Subsample with CL post-1970 using PWT 6.3 data	AJRY Subsample	Subsample with CL data post-1970	Subsample with CL post-1970 using PWT 6.3 data
	(1)	(2)	(3)	(4)	(5)	(6)
PR, t-1	0.379***	0.333***	0.342***	0.363***	0.336***	0.309***
	(0.0509)	(0.0644)	(0.0534)	(0.0563)	(0.0653)	(0.0642)
Ln GDPpc, t-1	0.0104	-0.0314	0.0289	-0.0205	-0.0867	0.177
	(0.0345)	(0.0472)	(0.0309)	(0.0814)	(0.101)	(0.259)
Country FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Observations	945	718	890	891	691	849
R-squared	0.796	0.804	0.811	-	-	-

Table A3: Robustness Checks for Democracy & Income

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Estimation	3SLS, No FE		3SLS, FE		OLS		OLS		2SLS	
Sample	Full sample				Only countries fully observed 1980-2000		Dropping observations based on DFBeta		Dropping savings rate outliers	
Dep. Var.	PR	CL	PR	CL	PR	CL	PR	CL	PR	CL
PR, t-1	0.441***	0.113**	0.131**	0.0544	0.0432	0.0515	0.133+	0.0634	0.147+	0.0632
	(0.044)	(0.036)	(0.047)	(0.036)	(0.070)	(0.055)	(0.075)	(0.045)	(0.077)	(0.049)
CL, t-1	0.455***	0.688***	0.341***	0.295***	0.418***	0.273***	0.424***	0.365***	0.277***	0.285***
	(0.054)	(0.044)	(0.059)	(0.046)	(0.088)	(0.064)	(0.079)	(0.050)	(0.082)	(0.054)
Ln GDPpc,	0.0213+	0.0129	0.300+	0.0959	0.0284	0.0424	0.0140	0.0319+	0.316	0.103
t-1	(0.013)	(0.010)	(0.155)	(0.112)	(0.035)	(0.032)	(0.023)	(0.019)	(0.317)	(0.108)
Country FE	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	757	757	757	757	742	742	737	739	736	736
N. Countries	131	131	131	131	150	150	131	131	127	127
R-squared					0.820	0.843	0.868	0.882		

Robust standard error clustered by country in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Two-period lagged savings rate is used as an instrument for GDP per capita in columns 1, 2, 3, 4, 9, and 10.

Table A4: Determinants of Democracy, OLS

Dependent Variables	(1) PR	(2) CL	(3) PR	(4) CL	(7) PR	(8) CL	(9) PR	(10) CL	(11) PR	(12) CL
PR, t-1	0.145*	0.0602	0.134+	0.0505	0.129+	0.0491	0.146*	0.0644	0.116	0.0329
	(0.071)	(0.045)	(0.075)	(0.048)	(0.071)	(0.044)	(0.071)	(0.046)	(0.075)	(0.045)
CL, t-1	0.339***	0.313***	0.379***	0.340***	0.358***	0.322***	0.346***	0.317***	0.361***	0.325***
	(0.078)	(0.051)	(0.085)	(0.055)	(0.081)	(0.052)	(0.079)	(0.051)	(0.087)	(0.056)
Ln GDP pc, t-1	0.00760	0.0383+							0.00700	0.0348
	(0.027)	(0.023)							(0.027)	(0.023)
Ln Pop, t-1	-0.148*	-0.0704							-0.118	-0.0595
	(0.061)	(0.052)							(0.075)	(0.070)
Ave. Yrs. School, t-1			-0.0218	-0.0102					-0.00388	-0.0178
			(0.017)	(0.015)					(0.042)	(0.044)
Ave. Yrs. School (Female), t-1									-0.0163	-0.000265
									(0.042)	(0.043)
Urbanization, t-1					-0.000528	0.00199			0.00247	0.00382
					(0.002)	(0.002)			(0.002)	(0.002)
Oil reserves, t-3							-3.974*	-1.970	-2.105	-1.046
							(1.584)	(1.475)	(1.662)	(1.748)
Country Dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year Dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	786	786	708	708	768	768	786	786	696	696
Num countries	131	131	118	118	128	128	131	131	116	116
R-squared	0.824	0.851	0.820	0.845	0.824	0.853	0.823	0.849	0.826	0.852

Robust standard error clustered by country in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1.

Table A5: Determinants of Democracy, DGMM

Dependent Variable	(1) PR	(2) CL	(3) PR	(4) CL	(7) PR	(8) CL	(9) PR	(10) CL	(13) PR	(14) CL
PR, t-1	-0.401	0.0566	-0.203	0.00427	-0.503	0.00672	0.175	0.212	-0.217	0.0878
	(0.340)	(0.197)	(0.331)	(0.217)	(0.312)	(0.229)	(0.312)	(0.197)	(0.332)	(0.259)
CL, t-1	0.829+	0.0533	0.982*	0.541*	0.922*	0.255	0.747*	0.362	0.836*	0.435
	(0.435)	(0.297)	(0.400)	(0.265)	(0.372)	(0.323)	(0.364)	(0.308)	(0.415)	(0.350)
Ln GDP pc, t-1	-0.151	0.0218							-0.191	-0.0729
	(0.211)	(0.137)							(0.168)	(0.090)
Ln Pop, t-1	0.110	0.553*							-0.467	0.120
	(0.338)	(0.236)							(0.348)	(0.221)
Ave. Yrs. School, t-1			0.0137	0.0582					0.00563	0.0141
			(0.051)	(0.044)					(0.209)	(0.187)
Ave. Yrs. School (Female), t-1									0.0374	-0.00383
									(0.187)	(0.134)
Urbanization, t-1					0.0259	0.0232+			0.00732	-0.00733
					(0.021)	(0.012)			(0.020)	(0.012)
Oil reserves, t-3							-2.039	-1.592	-17.42	-2.020
							(3.831)	(3.579)	(20.237)	(11.735)
Observations	524	524	472	472	512	512	524	524	464	464
Num countries	131	131	118	118	128	128	131	131	116	116
Num instruments	18	18	17	17	17	17	20	20	22	22
Hansen J	0.447	0.862	0.207	0.160	0.761	0.636	0.415	0.636	0.379	0.188
AR(3)	0.0839	0.390	0.570	0.179	0.0635	0.194	0.893	0.852	0.398	0.406
Num lags >=	3	3	3	3	3	3	3	3	3	3
Instruments for Endogenous Variables	Savings rate (t-2), LnPop (t-3)		Ave Yrs School Parents (t-3)		Urbaniz. (t-3)		-		All	

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Robust two-step standard errors estimated with Windmiejer (2005) small-sample corrections in parentheses. Year fixed effects included in all specifications; country fixed effects excluded, following Roodman (2009).

Table A6: Muslim majority subsample

	(1)	(2)	(3)	(4)
Estimation	OLS		DGMM (Lags >= 3 periods)	
Subsample: Muslim share	>=50%	>=50%	>=50%	>=50%
Dependent variable	PR	CL	PR	CL
PR, t-1	-0.0165	0.0292	0.0277	0.197
	(0.115)	(0.079)	(0.402)	(0.216)
CL, t-1	0.597**	0.386**	0.358	0.0496
	(0.170)	(0.122)	(0.622)	(0.266)
Country dummies	Y	Y	Y	Y
Year dummies	Y	Y	N	N
Observations	204	204	136	136
R-squared	0.604	0.686		
Num countries	34	34	34	34
Num instruments			16	16
Hansen J			0.133	0.745
Diff-in-Hansen			0.278	0.828
AR(3)			0.380	0.0990
Lags >=			3	3

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1. Robust standard errors clustered by country in columns 1-2. Robust two-step standard errors estimated with Windmiejer (2005) small-sample corrections in columns 3-4.