Do Good Institutions Lower the Benefit of Democratization?

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Abstract: Recent studies have reported positive associations between democratization and economic growth. They have also explored how these associations could differ across regions. However, might the effects of democratization upon growth also depend upon other factors such as institutions promoting law and order (or the lack thereof)? Using a panel specification, we employ a democratization-law and order interactive term to examine if the effects of democratization upon economic growth depend upon these other institutions. We find that the coefficient on the interaction term is negative. The positive effects of democratization diminish in countries where other institutions are strong. In fact, we find that democratization could even lower growth where the rule of law already prevails.

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1. Introduction

Many studies have considered associations between democracy (or democratization) and economic growth. Early studies often employed a cross-sectional data set but failed to reach consensus. Some studies found that democracies grow faster, others nondemocracies, and still others find no statistical difference between the two.[1] However, more recent work such as Papaioannou and Siourounis (2008a), Rodrik and Wacziarg (2005), Giavazzi and Tabellini (2005), and Persson (2005) employ panel techniques. They take a control-treatment approach where democratization is the treatment. They then compare outcomes between the two groups and generally find that democratization is associated with faster economic growth. These studies also sometimes consider why associations between democratization and economic growth could differ across countries. Giavazzi and Tabellini (2005) explore how the timing of democratization relative to economic reform impacts growth whereas Rodrik and Wacziarg (2005) consider if associations differ across regions.[2]

Of course, many other factors might also influence associations between democratization and economic growth. One such factor could be other institutions within a country that determine whether the rule of law is applied and followed. A long literature considers how such institutions benefit growth. See North (1981, 1990), Acemoglu, Johnson, and Robinsin (2001), and Hall and Jones (1999) for surveys. Consider two countries, one with strong economic institutions (country X) and the other with weak institutions (country Y). Both democratize but democratization does not affect

[1] Przeworski and Limongi (1993) and Papaioannou and Siourounis (2008a) provide more complete surveys of this empirical literature.

[2] Collier (2000) and Bluedorn (2001) find evidence that democracy is more positively associated with economic growth in ethnically diverse countries.

these economic institutions. That is, political reform occurs but reform along other dimensions is absent. Then, does democratization affect economic growth in country X and country Y similarly? If political institutions and economic institutions are separable, then the answer is "yes". The effect that democratization has upon economic growth does not depend upon the economic institutions in the country. However, if political and economic institutions are substitutes, then we would expect Y to grow faster (provided that democratization raises economic growth) since the stronger institutions in X diminish the growth effects from democratization. But X grows faster if the two are complements with their effects on growth reinforcing one another.

This is a different question than asking if political reform impacts economic institutions which then raises economic growth. Rivera-Batiz (2002) creates a model where corruption is lower in a democracy. Friedman (1962) argues that democracy and economic freedoms promote one another. However, the above examples with X and Y do not presume that democratization causes or does not cause changes in economic institutions. (This will be explored in greater detail below). Instead, this paper examines if the association between democratization and economic growth depends upon the existing economic institutions that determine the degree of law and order. Such an analysis can better help predict why the effects of democratization could differ across countries. In this paper, we examine if the effects of democratization upon economic growth depend upon institutions associated with the rule of law.

The remainder of the paper is organized as follows. Section 2 discusses democratization, economic institutions, and their interactions in greater detail. Section 3 presents the econometric model. Section 4 discusses the potential for democratization

and economic institutions to be endogenous and to what extent this could be a problem for the methodology of the previous section. Section 5 presents results and section 6 provides concluding discussion.

Section 2: Economic and Political Institutions

North (1990) defines institutions as the "rules of the game". They are "humanly devised constraints that shape human interaction" (p. 3). Such constraints can be formal laws that prohibit one from seizing others' property. An independent, impartial judiciary is generally viewed as the arbiter of property disputes or as the mechanism through which violators of private property are punished. But constraints can also be less formal. The fear of ostracism from a group can limit predatory behavior even in the absence of legal restrictions. Traditions mold behavior even if they are not codified as formal law. Even less formal constraints are one's own code of conduct that would discourage theft even if the probability of getting caught is zero. Such constraints, whether formal or informal, provide "property rights" within society as they protect individual property. Where property rights are well established, people have more incentive to invest and engage in productive activities since they reap the returns from these endeavors. Moreover, they have less incentive to engage in rent seeking because of the difficulty in expropriating others' wealth and so devote fewer resources to rent seeking. Those institutions that determine incentives for productive versus rent seeking activities, we denote as "economic institutions".

But we also consider political institutions and define these to be constraints on government actors, including government officials.[3] Such political constraints partially overlap with economic constraints, especially in cases where laws or constitutional provisions prohibit the government from seizing property without just compensation. But these also include other constraints on government that have little to do with property, at least directly. For example, a government official or legislator might be required to face periodic elections or to not interfere with a citizen's right to free speech. As with economic constraints, political constraints can be formal (e.g. constitutional provisions) or informal (e.g. a hesitancy to go against public opinion).

Different types of political constraints can hold across different types of political regimes. For example, democratic systems often contain checks and balances that assign specific and distinct powers to different branches of government. Constraints on an executive that limit his powers are just one more specific example. Political constraints also include limitations spelled out in a Bill of Rights that place limits, for example, on a government's powers to limit speech, the press, assemblage, and the ability of the citizenry to petition government. Democratic governments must also be transparent to a large extent and this transparency can also constrain government malfeasance.

To what extent do economic institutions and political institutions coincide? Consider a strong democracy, presumably the type of political system where political

[3] Although we use similar terms, we take a different view than do Acemoglu and Johnson (2005) [AJ]. They consider economic institutions as ones pertaining specifically to enforcement of contracts whereas political institutions (which they call "property rights institutions") pertain to constraints on the government – constitutional or self-imposed – from appropriating private property. With AJ, property rights institutions can arise in both democratic and nondemocratic regimes. We, on the other hand, focus upon whether a regime is democratic or not in delineating political institutions. Moreover, we see economic institutions as more than constraints enabling the enforcement of contracts, but rather as a more general protection of private property although contract enforcement is one component. Seizures of property by criminal organizations, bandits, or mobs provide other examples of insecure property rights and examples where the government is not the predator.

constraints are most pronounced. Are these the same countries where economic constraints and property rights are best enforced? Not always. Yew of Singapore or Pinochet of Chile provide examples of authoritarians that pushed policies that largely protected private property even if their political systems were not classified as democratic. On the other hand, democratic governments might be too weak to protect private property from domestic predators (gangs or mafia) or external threats. Hoff and Stiglitz (2004) create a model where agents (perhaps even in a democracy) choose not to establish a rule of law to protect property. More generally, political and economic constraints do not always pertain to the same set of people. Political constraints focus on those in government. Economic institutions apply more broadly, forbidding certain actions across all individuals. Consequently, one need not imply the other.

But if strong economic institutions can be found with either strong or weak political institutions (and vice versa) then how might the two interact to affect economic outcomes like economic growth? Suppose, for example, that the benefits of strong political institutions and economic institutions overlap. This could occur if the political constraints of a democracy also provide some protection of property because they limit the scope of legislative powers or promote transparency that constrains the predatory behavior of government officials. In such a case, the benefits of democratization upon economic growth would be less where economic institutions are already strong compared to where they are weak. Instead, democratization could have the biggest effect on growth where property rights are nonexistent because the increased political constraints resulting from democratization provide at least some protection of property (if only from those in government) where none had existed previously. On the other hand, if the effects of the

two upon growth reinforce one another then the benefits of democratization should be highest where economic institutions are already strong. Perhaps the benefits of an independent judiciary can only be maximized under strong democratic forms of government; or, perhaps the benefits of strong property rights are greatest only in democracies where confidence is greatest that these strong property rights will be sustained. Finally, if the two have distinct impacts upon economic growth then the strength of one institution has no bearing on how the other impacts economic growth. In the methodology below, we consider these possibilities.

Section 3: Methodology

This section presents the empirical model in part A and then the data in part B.

A. Econometric Model

The model is similar to those in Papaioannou and Siourounis (2008a) [PS] and Giavazzi and Tabellini (2005) [GT]:

$$G_{i,t} = \alpha_i + \beta_t + \lambda X_{i,t} + \rho * LAW_{i,t} + \zeta * DEM_{i,t} + \theta * RULE_{i,t} * DEM_{i,t} + \varepsilon_{i,t} \quad (1)$$

where i subscripts denote the country and t subscripts denote the year. G is the growth rate of GDP per capita. The parameters α and β denote country and period fixed effects. LAW denotes "law and order" and captures the economic institutions of the country. $DEM_{i,t}$ denotes democracy and is discussed in part B. The key parameter to be estimated is θ. A negative value implies that the effects of democratization on growth are less

positive (more negative) in countries with strong economic institutions. Matrix X comprises other controls that will sometimes be included in (1) such as lagged growth rates or the degree of openness of the economy. These will be discussed below as needed. The residual has zero mean but not necessarily identical variance across countries. We also allow for arbitrary correlation over time and so calculate standard errors as in Arellano (1987).[4]

As in PS and GT, many other controls from the growth literature are absent. To the extent that these controls are invariant over time, they are captured by the fixed effects. Also similar to GT and PS, we initially exclude initial income or lagged growth in order to keep absent a lagged dependent variable on the right hand side. Nevertheless, we will later consider such robustness checks.

Another cause of concern is that countries might only choose (or self-select into) democracy when the potential for benefits upon growth is high. Suppose only those countries where democracy would increase economic growth actually became democratic whereas countries that remained nondemocratic did so because no positive effects on growth from political change would arise. Then, examining what happened in one group to predict what would have happened in the other if those countries had followed a different path is inappropriate. We proceed with the analysis assuming that such a selection problem does not arise. Papaioannou and Siourounis (2008a), Rodrik and Wacziarg (2005), and Giavazzi and Tabellini (2005) make similar assumptions. Of course, implications from this study should be tempered due to this possibility.

[4] Bertrand et al. (2004) find that use of such standard errors adequately accounts for serial correlation in the residuals.

Finally, the model in (1) takes both LAW and DEM to be exogenous. Obviously, concerns arise as to whether these are appropriate assumptions. Section 4 addresses these endogeneity concerns at greater length.

Part B:

We use annual data from 1984 to 2007. Data for GDP per capita comes from version 6.3 of the Penn World Tables. LAW comes from the "law and order" variable of the Inter-Country Risk Guide (ICRG) put out by Political Risk Services.[5] We use ICRG data since the World Bank's World Governance Indicators only begins in 1996 and not annually until 2000. LAW is measured on a zero to six integer scale where higher values denote greater adherence to the rule of law. LAW not only captures the strength and impartiality of the legal system but also whether or not the law is popularly observed. We consider adherence to the rule of law as our institutional measure since we take it to be a good measure of the constraints that limit behavior in transacting as well as other social interactions. Laws dictate what people cannot legally do and a strong adherence to the rule of law signifies that these laws are enforced and uniformly applied. Observance of the law determines if these constraints are actually binding.[6]

The democracy variable, DEM, takes the value one if a country is democratic and zero otherwise. Data for DEM comes from Papaioannou and Siourounis (2008a,b). We do not use the political liberalization classification of GT since they do not distinguish

[5] ICRG data was first used in the economics literature by Knack and Keefer (1995) and Hall and Jones (1999).

[6] Glaeser et al. (2004) would not consider adherence to the rule of law to be an appropriate measure of these constraints because they argue that a nondemocratic leader could *choose* to enforce and apply the law uniformly. A large value in this index, then, would not represent a constraint upon leaders forcing them to act in such a manner but only as a policy choice. Therefore, it is not an appropriate measure of institutions. However, even in these cases such as with Yew in Singapore, the leader's choice does provide constraints on the vast majority of the populace and so we still consider it as an appropriate measure of institutions.

between full and partial democratizations. Barro (1996) finds differences between partial and full democratizations as to how they affect growth and we want to allow for such differences here. Moreover, GT consider some countries as democratizing, such as Ethiopia in 1993, that we find controversial. Obviously, not everyone will agree on the particulars of any specific categorization but we dispute fewer of the assignments in PS. From their classification, let DEM_F = 1 for a country that is fully democratic and zero otherwise whereas let DEM_P = 1 if a country is fully or partially democratic and zero otherwise. Therefore, the former is a subset of the latter. A country democratizes (either fully or partially) when DEM_F or DEM_P goes from zero to one.[7]

The classifications from PS stem from the Freedom House and Polity IV ratings. To be fully democratic, a country must be considered as such in both of these sources. Moreover, democratization is only considered to have taken place when the country does not later revert back to authoritarianism. That is, democratic reforms are defined to be permanent. Therefore, a disadvantage of this classification system is that it misses any effects from temporary democratizations. However, an advantage is that one can better interpret the coefficients on the DEM variable and interactive terms since they are not driven by movements away from democracy (that is, a movement from DEM equals one to DEM equals zero). Still, very few countries that democratized reverted back to authoritarianism during the sample period, and so we do not believe such concerns are

[7] Data in PS extend to 2003 but ours end in 2007. We extend their dataset by continuing their classifications for the additional years. Namely, a country fully democratizes if it receives an F in Freedom House and a polity score above 7 in the latter. Democratizations where a country becomes "partly free" according to Freedom House or have a polity score above zero are considered "partial democratizations". Our classification, however, slightly differs from that in PS. For a country to democratize according to PS, the resulting democracy must be sustained. Recent events cause past classifications to be reconsidered. For example, a military coup in Thailand in September 2006 removes Thailand from the set of democratizing countries in our sample. Nevertheless, our results are robust to Thailand's change in classification.

paramount. Nevertheless, to check robustness, we will also employ the integer measures of democracy from the Freedom House political rights index (DEM_FH) and the Polity measure of democracy and autocracy (DEM_PY).[8,9]

Section 4: Endogeneity Concerns

For the model in (1) to answer the questions we raise, two further conditions must be satisfied. The first is that democratization is not driven by economic growth nor do the two stem from some third factor. Instead, causality should run from democratization to growth so that the coefficients on the DEM terms in (1) actually do predict the effect of democratization upon growth. Second, to better understand how the rule of law influences this effect that democratization has upon growth, democratization should not systematically influence the rule of law. If it does, then the model of section 3 needs to formally account for this influence when examining the effect that democratization has upon economic growth.

We first explain why we take DEM in (1) to be exogenous and not driven by economic growth. First, Papaioannou and Siourounis (2008a), Rodrik and Wacziarg (2005), and GT make a similar assumption, also treating democratization as exogenous and so our specification does not run counter to these. Therefore, our methodology is comparable to theirs, implying that our findings are comparable as well. Second, despite

[8] A problem, though, with the Freedom House and Polity measures regards its scale from one to seven where lower numbers denote more political freedoms. It is not clear how one should interpret this index. Does the 1-7 Freedom House categorization of political rights merely represent ordinal groupings? Or, can its increments be taken literally in that, for example, the move from 3 to 2 represents the same degree of movement towards democracy as a move from 4 to 3? If the Freedom House categorization is merely ordinal, then the direct use of these indices to measure change becomes more problematic.

[9] We rescale and invert the 1-7 political rights index to the range 0-6 where now higher values denote more political rights. The Polity measure uses a -10 to 10 scale where negative values denote autocracies and positive ones democracies.

the often reported finding of a positive correlation between democracy and income, Acemoglu et al. (2008) report that the association disappears once one controls for long-run historical factors that could have promoted both economic growth and democratization.[10] Equation (1) includes fixed effects and so thereby implicitly controls for long-run factors that could potentially influence both economic growth and political conditions. To see if income drives democracy in our sample, we run regressions similar to those in Acemoglu et al. (2008) where the Freedom House measure of political rights (the same measure they use) is regressed on its own lag and upon the lag of the log of GDP per capita. Column one of table 1 reports results without country specific fixed effects whereas column two includes these fixed effects. In neither specification is the coefficient on lagged income significant. Columns three and four redo these specifications but include five lags of each variable. This approach mirrors that in Acemoglu et al. (2008) when they use annual data and better accounts for the possible presence of serial correlation. To save space, we do not present the individual coefficient estimates but we do present p-values from F-tests taking the null hypothesis to be that the coefficients on the respective excluded variables are zero. In neither case is the null hypothesis that the coefficients on the lagged income variables are all zero rejected.

As further evidence, we consider an alternative specification. The remaining columns in table 1 consider the countries that were not fully democratic according to PS at the beginning of the sample period. Were the higher income *nondemocracies* in 1984 more likely to have become democratic by 1995 or 2006? Columns 5 and 6 report coefficient estimates of a probit model. The dependent variable is whether or not a country is fully democratic in year t (where t equals 1995 in column five and 2006 in

[10] Przeworski and Limongi (1997) also find that income does not cause democratization.

column six). From these columns, there is no strong association between income and democracy either for 11 or 22 years into the future. Therefore, we find no evidence that it was the higher income nondemocracies at the beginning of the sample period that later democratized. The results in Table 1, we believe, provide justification to treat democratization as exogenous to past growth.

The other concern is that democratization systematically influences the rule of law. According to PS, 16 countries fully democratized between 1984 and 2007.[11] These countries are listed in table 2 along with the year each democratized. Table 2 also shows what happened to the average value of the rule of law index before and after democratization occurred. In six of the sixteen cases, the rule of law index increased by more than a point. But in the other ten cases, the rule of law either fell or increased by no more than a point. The bottom panel of Table 2 compares rule of law measures between 1984 and 2006 for different sets of countries. For the entire sample, the rule of law index increased by an average of 1.26 during these 22 years. The median increase was one. For the countries that were not always democratic, rule of law increased by an average of 1.49 points. However, within this subset of countries that were nondemocratic in 1984, the rule of law increased slightly (but only slightly) more in countries that remained nondemocratic than in the ones that fully democratized after 1984. Therefore, we do not find any clear indication that democratization generally contributed to law and order.

Table 3 provides descriptive statistics regarding the rule of law. Panel A of the table shows similar results to those in panel B of Table 2, namely rule of law in the countries that became democratic does not appear to have behaved differently than that in

[11] We present full democratizations instead of partial democratizations since the former constitute less ambiguous cases of "democratization".

countries that remained nondemocratic. Panel B of Table 3 shows that the majority of the variance in LAW occurs across countries, not over time within the same country. Instead, the rule of law is somewhat stable within a country though changes do occur as shown in Table 2. This stability provides further evidence that democratization did not greatly influence the rule of law.

Table 4 regresses LAW upon its own lag as well as upon the lags of GDP and DEM_F. The first two columns only contain the first lags of these variables. Columns three and four contain the first two lags of each variable to better account for the presence of serial correlation.[12] Values in columns three and four denote p-values from F-tests of the null hypothesis that each lagged coefficient of a variable is zero. These results do not provide strong evidence that democratization leads to changes in the rule of law. Not only are they not statistically significant but they are also small in magnitude. The coefficient of 0.015 on DEM_F(-1) in column one suggests that democratization raises LAW by 0.015 points whereas LAW spans values from zero to six. We take this as further evidence that democratization does not drive the rule of law.[13]

[12] We do not include five lags because data for LAW only begins in 1984 and so we would lose over 20% of our sample if included all five lags. Testing for first order serial correlation in columns three and four (while not assuming that RULE, GDP, and DEM_F are exogenous), the p-values are 0.17 and 0.16, respectively. Therefore, we do not reject the null hypothesis of no first-order serial correlation when only two lags are employed.

[13] Eicher and Schreiber (2010) use democratization as an instrument for economic reform for the transition countries of Eastern Europe and the former Soviet Union, claiming that democratization caused these reforms, including promotion of what we call "economic institutions". This view contrasts with ours. However, Eicher and Schreiber (2010) only apply this assumption to transition countries, stating that measures such as rule of law are much more stable for other countries. Moreover, given the ICRG data we use, very few transition countries are in our sample. For those that are included, a robustness check (described below) shows that these few transition countries in our sample are not driving results.

Section 5: Results

Panel A of Table 5 produces the coefficient estimates for the baseline specifications. Column one considers DEM_F as the measure of democracy. Not surprisingly, the coefficient on LAW is positive and statistically significant. The coefficient upon DEM_F is also positive, statistically significant, and large in magnitude. What is also interesting is the negative coefficient on the DEM_F – LAW interactive term. To see how the effects of democratization compare across countries, panel B of Table 5 considers three hypothetical countries. These three countries are all initially nondemocracies. Country A democratizes but has little adherence to the rule of law (LAW = 0). For country A and using the coefficient estimates from the top panel of the table, growth increases by 2.79 percentage points. Now consider some country B with some adherence to the rule of law (LAW = 3) that democratizes. Democratization raises growth by only 0.15 (= 2.79 – 3*0.88) percentage points. Finally, consider a country C where the rule of law is strictly enforced (RULE = 6) that democratizes. Democratization now results in a fall of growth of 2.49 percentage points. These are large differences in outcomes and shows that the effects of democratization upon economic growth can be quite diverse across differing economic institutions. Moreover, the negative effect of democratization upon growth where law and order prevail is also interesting. Perhaps the great political changes brought about by becoming democratic create greater uncertainty, including to what extent law and order will continue to prevail. This uncertainty, then, could have negative effects upon economic growth.

Column two considers a less strict definition of democracy with DEM_P replacing DEM_F. The coefficient on the democracy – rule of law interaction term

decreases in magnitude but only slightly. Column three replaces DEM_P with the (rescaled) Freedom House measure, DEM_FH. Given the integer scale, calculating the effects of democratization upon growth becomes more difficult, but consider a move on our inverted Freedom House scale from one to five using the same changes for LAW. The economic magnitudes show the same pattern but are slightly higher than using the dummies from PS. Column four considers the Polity measure of democracy. The coefficient on the interactive term is negative but not statistically significant. However, the economic magnitudes again show the same as we consider a hypothetical move on the Polity index from -7 to 7. Moreover, the coefficients both upon DEM_PY and upon DEM_PY*LAW are statistically significant when restricting the sample to developing countries (those with less than 67% of the concurrent U.S. income level.)[14]

Column 5 replaces LAW with investment profile (INV_PROF), also from ICRG in order to ensure that results are not driven by the specific variable we use to account for economic institutions. Investment profile is measured on a 0 to 12 integer scale with higher values denoting less investment risk due to government expropriation or obstacles in repatriating profits. Although investment profile applies most directly to foreign direct investment within a country, we presume that threats to domestic investment are correlated.[15] The results in column 5 mirror previous ones.

Columns 6 and 7 remove countries from the sample. Column 6 removes countries that where always democratic from the sample and so the control group is restricted to those countries who were always autocratic. Column 7 removes high-income

[14] The coefficient on DEM_PY is 0.118, significant at the 10% level, and that upon DEM_PY*LAW is -0.048, significant at the 5% level.

[15] Past research has focused on the risk of expropriation to measure property rights and institutional quality. The investment profile measure contains expropriation risk as one of its components.

observations, defined to be countries that had income per capita levels above 67% of the concurrent U.S. level. Results are robust to both of these changes in sample.

Table 6 conducts more robustness checks by utilizing empirical specifications more similar to others examining how democratization raises economic growth with a panel of countries. The first column considers the specification from GT. They include OPEN in the specification to control for the possibility that economic liberalizations accompanying democratizations are the true catalyst for higher growth. OPEN comes from Wacziarg and Welch (2008) and is binary, equaling one if the country follows open trade policies and zero otherwise. As in GT, we only set OPEN equal to one when an economic liberalization is never undone and so only consider permanent liberalizations. Like GT, we assume that openness is correlated with more general economic liberalizations. As in GT, we also include a democracy-social origin interactive term to control for the possibility that democratization had different effects in Eastern Europe and the former Soviet states. Our results change little. Column 2 removes these same former socialist states from the original specification. Coefficient estimates now increase in magnitude. Column 3 considers an empirical specification from PS. Not only do they include two lags of the growth rate but also regional trends to account for dynamic heterogeneity across global regions. Columns 4, 5, and 6 also stem from PS. They include various controls into the specification including the investment share (INV), the share of government purchases in GDP (GOV), and the trade share (TRADE).[16] For each, we follow PS and include for each control variable its two-year lagged value and

[16] All of these variables come from version 6.3 of the Penn World Tables.

the contemporaneous and one-year lag of its first difference. As before, the results on our key variables change little.[17]

Finally, we again address endogeneity concerns by using the system-GMM estimator from Arellano & Bover (1995) and Blundell & Bond (1998) which improves on the Arellano & Bond (1991) difference GMM estimator. In the case of persistent explanatory variables (which is likely to be the case for our variables), Bond, Hoeffler and Temple (2001) suggest that the first-differenced GMM estimator can produce biased coefficients since the lagged levels of these variables serve as weak instruments. Alternatively, the Blundell & Bond (1998) system GMM performs estimation in both first differences and levels which obtains more moment conditions thereby increasing efficiency.[18] See Blundell & Bond (1998), Hauk and Wacziarg (2009) and Roodman (2006) for further details. The natural log of GDP per capita is now the dependent variable. Its lag, democracy, the rule of law, and their interaction fall on the right hand side. For both system- and difference-estimation, income, democracy, and the rule of law are all assumed to be endogenous. We use the second (in some specifications) as well as the second and third lags (in others) of these variables as instruments. Estimation is also performed using robust standard errors that allow for heteroskedasticity and serial correlation within countries. The coefficient estimates imply findings that are consistent with those above. Democratization raises growth but less so in countries where the rule of law prevails.

[17] Like PS, we do not employ GMM difference estimation. GT also do not employ difference GMM estimation when they include lagged income on the right hand side. Nickell (1981) shows that biases from the inclusion of lagged dependent variables on the right hand side are small when the time dimension goes to infinity. Judson and Owen (1999) report that biases on these right hand side variables are less than 3% when using more than 20 periods. We have over 20 years of data for all of our countries.

[18] A critical assumption, however, of system-GMM is that the fixed effects are not correlated with changes in the endogenous variables.

Section 6: Conclusion

The above results show that the positive association between democratization and economic growth weakens in countries with strong economic institutions. This is obviously not to suggest that countries should then weaken their economic institutions so as to augment the benefits of political reform. But it does imply that the benefits of democratization differ across countries. Namely, these results show that the effects of democratization can be quite different across countries depending upon the characteristics of other institutions within the country. Not taking account of these differences can then lead to misleading findings as to the benefits of democratization. We find that the benefits to democratization are highest where economic institutions such as law and order are weakest. In fact, we even find evidence that democratization lowers growth where law and order already prevail. We speculated that the uncertainty caused by changing political regimes and whether law and order would continue to prevail explains this finding although future work can, hopefully, provide more evidence for or against this conjecture. Moreover, finding other characteristics that could influence how democratization affects economic growth is also warranted.[19]

Better understanding differences across countries is important for sustaining democratic reforms (which we believe are beneficial in their own right). If growth outcomes following democratic change fail to meet expectations then support for democracy could wane. By identifying cases where material benefits could be quite low, we hope that this scenario is averted in that expectations are kept in check. Furthermore, the poorest countries often lack institutions to promote productive activities and are less

[19] For example, Collier (2000) and Bluedorn (2001) consider how the effects of democracy upon economic growth could differ depending upon the degree of ethnic diversity.

likely to be democratic. Since these are the countries where democratic change can have the greatest effects on growth, we hope that such knowledge can help spur reform in these countries. To some extent, this finding differs from the arguments of Zakaria (2004). He argues that for many poor, nondemocratic countries, long-run outcomes are best pursued by a (relatively) benevolent dictator promoting pro-growth policies. Democratization only then follows once incomes have sufficiently increased. Our results do not directly speak to this conjecture but we do find that the benefits of democratization are highest where institutional environments are least advantageous for economic growth. Perhaps long-run benefits could be increased if democratization is pushed earlier instead of later.

Finally, the results of this paper can also help understand past findings. Rodrik and Wacziarg (2005) and Sylwester (2009) find that democratization in sub-Saharan Africa increases economic growth more than it does in other regions. Perhaps this finding stems from the weaker economic institutions commonly found in many of these countries.[20] Unfortunately, date for RULE is not available for Benin or Cape Verde. These countries also made strong democratic reforms in the early 1990's and so one would want to include these countries in any study examining this issue further, another area we leave for future research.

[20] See Englebert (2000) for a survey of economic institutions in Africa.

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Table 1:

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel Regressions				Probit Regressions	
Dep. Var.	DEM_FH	DEM_FH	DEM_FH	DEM_FH	DEM_{1995}	DEM_{2006}
Constant	0.063	1.174***			-2.107	-1.552
	(0.066)	(0.436)			(1.270)	(1.183)
GDP(-1)	0.010	-0.061	[0.35]	[0.47]		
	(0.009)	(0.049)				
DEM_FH(-1)	0.966***	0.818***	[0.00]	[0.00]		
	(0.006)	(0.017)				
GDP_{1984}					0.151	0.111
					(0.151)	(0.141)
Country Fixed Effects	No	Yes	No	Yes	Not App.	Not App.
R^2	0.95	0.96	0.96	0.96	0.01	0.01
# countries	119	119	119	119	76	76
# obs.	2850	2850	2846	2846	76	76

Standard errors are in parentheses. *** and ** denotes significance at the 1% and 5% levels, respectively. Coefficient estimates for country and period fixed effects omitted to ease presentation. Five lags of GDP and DEM_FH are included in the columns (3) and (4) but not presented. Values in [*] denote p-values from F-tests that coefficients for excluded lags are zero.

Table 2

Panel A

		LAW	
Country	Year Fully Democratized	Before Democ.	After Democ.
Bulgaria	1991	5.00	4.34
Chile	1990	4.00	4.80
El Salvador	1994	1.24	2.83
Ghana	1996	2.16	2.34
Guyana	1992	1.00	3.23
Hungary	1990	5.00	4.89
Mali	1992	2.00	3.00
Mexico	1997	3.08	2.37
Mongolia	1993	1.79	4.00
Panama	1994	2.00	3.00
Philippines	1987	1.00	2.59
Poland	1990	4.00	4.73
Romania	1990	2.00	4.28
Senegal	2000	2.29	3.00
South Africa	1994	2.00	2.58
South Korea	1988	2.81	4.10

Panel B

	Difference in LAW (2007 Value minus 1984 Value)	
Sample	Mean	Median
All countries	1.22	1.00
Always Democratic	0.83	0.00
Not Always Democratic (NAD)	1.43	1.15
NAD but democratized	0.87	1.00
NAD but did not democratize	1.63	1.42

LAW denotes the law and order index from ICRG.

Table 3: Law and Order (LAW) over Time

Panel A

Sample	Mean	Median	Std. Deviation
All Countries	3.62	3.96	1.54
Always Dem	4.48	5.00	1.54
Not Always Dem (NAD)	3.13	3.00	1.31
NAD and stayed Nondem.	3.14	3.00	1.34
NAD but fully democratized	3.11	3.00	1.22

Panel B

Average of Within Country Standard Deviations	0.74
Standard Deviation of Within Country Averages	1.31

Table 4: Regressions with LAW as dependent variable				
	(1)	(2)	(3)	(4)
	One Lag		Two Lags	
Constant	0.518***	0.725*	0.633***	0.888***
	(0.032)	(0.039)	(0.420)	(0.378)
LAW	0.862***	0.863***	[0.00]	[0.00]
	(0.008)	(0.008)		
DEM_F	0.015	0.015	[0.96]	[0.96]
	(0.040)	(0.041)		
GDP		-0.024		[0.11]
		(0.045)		
R^2	0.95	0.95	0.96	0.96
# Countries	119	119	119	119
# Observations	2704	2704	2585	2585

Standard errors are in parentheses. *** and * denotes significance at the 1% and 10% levels, respectively. Coefficient estimates for country and period fixed effects omitted to ease presentation. One lag of the right hand side variables are included in columns 1 and 2. Two lags of the right hand side variables are included in columns 3 and 4. Values in [*] denote p-values from F-tests that coefficients for excluded lags are zero.

Table 5: Panel Regressions and Effects, 1984-2007

Panel A: Coefficient Estimates

	(1)	(2)	(3)	(4)	(5)[a]	(6)[b]	(7)[c]
DEM_F	2.793***				2.789***	2.791***	2.545
	(0.986)				(0.994)	(1.045)	(1.762)
DEM_P		3.122***					
		(0.990)					
DEM_FH			1.471***				
			(0.519)				
DEM_PY				0.105			
				(0.073)			
LAW	0.698***	0.688***	1.396***	0.138		0.670**	0.617**
	(0.245)	(0.260)	(0.364)	(0.258)		(0.264)	(0.291)
DEM_F*LAW	-0.883***	-0.729**	-0.356***	-0.036		-0.947***	-0.901*
	(0.279)	(0.290)	(0.106)	(0.024)		(0.292)	(0.506)
INV_PROF					0.590***		
					(0.153)		
DEM_F*INV_PROF					-0.455***		
					(0.148)		
R^2	0.12	0.12	0.12	0.14	0.12	0.12	0.11
# countries	119	119	119	113	119	101	76
# obs.	2822	2822	2822	2555	2855	2271	1802

Panel B: Estimated Effects of Democratization upon Growth for Different Values of LAW

LAW = 0	2.79***	3.12***	5.88***	1.54	2.79**	2.79**	2.55
LAW = 3	0.15	0.93	1.56	-0.14	0.09	-0.06	-0.15
LAW = 6	-2.49**	-1.26	-2.76***	-1.82	-2.61**	-2.91**	-2.85*

White period standard errors in parentheses
*** and ** denotes significance at the 1% and 5% levels, respectively
Coefficient estimates for country and period fixed effects omitted to ease presentation.
Wald Coefficient Tests used to determine statistical significance in Panel B
[a]In Column 6 of Panel B, LAW is replaced with INV_PROF = 0, 6, and 12, respectively.
[b]High income countries removed. [c]

Table 6: Panel Regressions and Effects, Alternative Samples, 1984-2007

Panel A: Coefficient Estimates

	(1)	(2)[a]	(3)	(4)	(5)	(6)
DEM_F	2.027**	3.260***	2.079**	1.800*	2.146*	2.057*
	(0.981)	(0.979)	(1.027)	(0.988)	(1.100)	(1.050)
LAW	0.756***	0.947***	0.667**	0.652**	0.703***	
	(0.264)	(0.253)	(0.260)	(0.260)	(0.266)	
OPEN	1.852***					
	(0.521)					
DEM*LAW	-0.937***	-1.181***	-0.795***	-0.734***	-0.811***	-0.796***
	(0.290)	(0.301)	(0.282)	(0.277)	(0.292)	(0.279)
DEM*SOC	1.272					
	(0.804)					
G(-1)			0.077	0.071	0.073	0.075
			(0.056)	(0.060)	(0.060)	(0.056)
G(-2)			-0.005			
			(0.046)			
INV(-2)				0.011		
				(0.035)		
GOV(-2)					0.048	
					(0.059)	
TRADE(-2)						0.005
						(0.012)
Regional Trends	NO	NO	YES	YES	YES	YES
R^2	0.15	0.11	0.13	0.14	0.13	0.13
# countries	119	110	119	119	119	119
# obs.	2822	2610	2822	2822	2822	2822

Panel B: Estimated Effects of Democratization upon Growth for Different Values of LAW

LAW = 0	2.03**	3.26***	2.08**	1.80*	2.15**	2.06*
LAW = 3	-0.79	-0.28	-0.32	-0.40	-0.28	-0.18
LAW = 6	-3.61**	-3.82***	-2.72**	-2.60**	-2.72**	-2.74**

White period standard errors in parentheses
*** and ** denotes significance at the 1% and 5% levels, respectively
Coefficient estimates for country and period fixed effects omitted to ease presentation.
Wald Coefficient Tests used to determine statistical significance in Panel B
[a]Former Eastern Bloc countries removed from sample.
Coefficient estimates of regional trends not presented. Also not presented are the contemporaneous and one-year lags of the first differences of INV, GOV, and TRADE.

Table 7: Dynamic GMM Estimation, 1984 - 2007

	Panel A: Coefficient Estimates			
	sys-GMM	sys-GMM	diff-GMM	diff-GMM
GDP (-1)	0.998***	0.998***	1.03***	1.01***
	(0.007)	(0.004)	(0.002)	(0.001)
LAW	0.02***	0.02***	0.013***	0.015***
	(0.005)	(0.005)	(0.000)	(0.000)
DEM_F	0.062***	0.062***	0.080***	0.090***
	(0.027)	(0.021)	(0.007)	(0.001)
LAW * DEM_F	-0.017***	-0.017***	-0.011***	-0.015***
	(0.006)	(0.006)	(0.000)	(0.000)
Lags of Instruments Included	2	2,3	2	2,3
Period Effects	YES	YES	YES	YES
# of Countries	119	119	119	119
# of Observations	2726	2726	2607	2607
Sargan Test (p-value)	0.78	0.98	0.22	0.85
AR(2) Test (p-value)	0.45	0.45	0.48	0.48
Panel B: Estimated Effects of Democratization upon GDP for Different Values of LAW				
LAW = 0	0.062***	0.062***	0.080***	0.090***
LAW = 3	0.009	0.009	0.047**	0.045**
LAW = 6	-0.040**	-0.040**	0.014	0.00

White period standard errors in parentheses
*** and ** denotes significance at the 1% and 5% levels, respectively