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CONSTITUTIONS AND THE RESOURCE CURSE

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Constitutions and the resource curse[*]

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Abstract

Recent advances in the political economy literature suggests that constitutional arrangements determine a wide range of economic policy outcomes. In particular, it is argued that different forms of government (presidential versus parliamentary) induce more or less 'growth promoting' policies. However, effects on long run growth have proved harder to identify. We exploit the fact that natural resources are randomly distributed to identify differences in the long-term performance of economies with different constitutional forms. Existing theory suggests that the presence of vast natural resources should affect growth differently in countries with different constitutional designs. Empirically we find strong support for this hypothesis – constitutions indeed seem to matter for how natural resource abundance affects long run growth. In fact, the form of government matters more than democratic rule. We also find interaction effects of electoral rules (majority versus proportional voting) and resource abundance on growth, although these effects are less clear-cut and less robust.

Keywords: Growth. Political economy. Constitution. Resource curse. Institutions.
JEL: E61, F43, O13, P51, Q32

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1 Introduction

Recent contributions to the political economy literature demonstrate systematic effects of constitutional features, such as the electoral rules and the rules for legislation, on a wide range of economic policy outcomes, particularly fiscal policy and corruption (see, e.g., Persson and Tabellini, henceforth PT, 2003). Causal effects of constitutions on policies that are important for long run economic performance (so-called "growth promoting structural policies") have been harder to identify. Using within-country variation and instrumenting for constitutional features, Persson (2005) shows that reforms from non-democracy or presidential democracy into parliamentary democracy leads to more growth promoting trade and regulation policies. In turn, better "structural policies" has been shown to lead to higher long term growth (Hall and Jones, 1999; Acemoglu *et al.*, 2001; replicated by Persson, 2005).[1] There are, however, no patterns in the data suggesting any clear *direct* effects of constitutions on long term performance.

We suggest an indirect approach to test whether different constitutional forms foster different growth promoting policies. Exploiting the fact that natural resources are randomly distributed among countries provides us with a quasi-natural experiment designed to measure and compare differences in performance among countries with different types of constitutions.[2] We argue that if economic policies are determined by the constitutional arrangements we might expect countries with different constitutional arrangements to react differently to exogenous factors such as resource endowments. In particular, if natural resource abundance affects growth promoting policies differently in countries with different constitutional forms, this will be reflected in differences in long run growth.[3]

Using a cross-country sample of up to 90 countries from all continents, we empirically investigate whether different forms of government and electoral systems affect the impact of natural resource wealth on long-term economic performance. By including democracies as well as nondemocratic regimes in the sample, we can separate the effects of democratic rule as such, from the effects of constitutional form. We find strong evidence in favour of the hypothesis that constitutions matter for the resource curse. The particular forms of democracy matter even more than democratic rule in itself. Among democracies, presidential regimes suffer from the resource curse but parlia-

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[1] The term "structural policies" in the literature of Persson and Tabellini (PT, 2003; Persson 2005) loosely corresponds to what Acemoglu *et al.*, 2001 refer to as "economic institutions" e.g., trade and regulation policies. See Persson (2005) for a further discussion.

[2] A vast literature on the so-called resource curse (e.g., Sachs and Warner, 1995, 1997a, 1997b, 2001) shows that, on average, resource dependent economies have experienced lower average growth rates than countries less dependent on income from natural resources.

[3] Thus, the identifying assumptions would be that economic (budgetary) shocks only affects long term growth through their effects on economic policies, and that economic policies are determined by specific constitutional arrangements.

mentary regimes do not. In fact, it seems that the overall resource curse identified by Sachs and Warner (1995, 1997a, 1997b, 2001), henceforth SW, is mainly driven by presidential countries and nondemocratic regimes.[4] These results are robust to different sample selections (e.g., inclusion/exclusion of non-democracies in the sample), inclusion of geographical and colonial dummies, robust estimation procedures (the least absolute deviation regression method and the reweighted least squares regression method), inference from different growth periods, using different model specifications, and using instrumental variable methods, in which settler mortality is used to instrument constitutional form (as in Persson, 2005). Regarding electoral rules, we find suggestive evidence that countries with a proportional electoral formula are more prone to the resource curse than are countries with a majoritarian voting rule.

In section 2.1, we briefly review the literature on the resource curse. We then suggest in section 2.2 an intuitive and verbally formulated theoretical synthesis of the literature on the resource curse and of the literature on the economic effect of constitutions. This discussion will provide the basis for the hypotheses we take to the data. After these preliminaries, we formulate an empirical growth model in section 3. The empirical results are presented and discussed in section 4. Finally, in section 5, we sum up and conclude.

2 Theoretical preliminaries

2.1 The resource curse literature

The literature on the resource curse is primarily interested in explaining the paradoxical empirical pattern that countries rich in natural resources seem to be outperformed by countries with less, or no, natural resources in the long run (SW, 1995; 1997a; 1997b; 2001). The seminal theoretical literature on the resource curse focuses on the structural mechanisms of the so-called Dutch disease. The Dutch disease hypothesis suggests that abundance in natural resources induce factors of production to shift out of the sectors that are most important for growth so that long run economic development suffers (e.g., Matsuyama, 1992; SW, 1999; Torvik, 2001). Subsequently, the rent-seeking approach has gained increased attention. Rent-seeking models are based on the assumption that resource rents can be appropriated by groups or individual economic agents (e.g., Lane and Tornell, 1996; Tornell and Lane, 1999; Torvik, 2002.). In these models economic performance is hurt because rent-seeking behavior implies that productive resources are allocated inefficiently.

It now appears that there is little support for the Dutch disease explana-

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[4]In some regressions, we include exactly the same countries as SW (1995, 1997a), in order to compare our results with those of the previous literature.

tion, as it fails explain the diverging experience of different economies (Bulte *et al.,* 2004). An overview of different case studies in Auty (2001) demonstrates the diversity of different countries' experience. This critique also applies for the rent-seeking literature, with the exception of Mehlum *et al.* (2006) who show that the effect of natural resources on aggregate production may depend on the quality of institutions. Mehlum *et al.* demonstrates the implication of their theory by presenting a simple empirical growth study, based on the empirical studies by SW, suggesting that the quality of institutions indeed seems to be decisive for the resource curse. These findings are supported by Boschini *et al.,* (2004) who show that the impact of natural resources on economic growth is non-monotonic in institutional quality.

2.2 Constitutions, structural policies and the resource curse

The resource curse literature has indeed come a long way in establishing significant interactions effects of institutional quality and natural resource abundance on long-term economic performance. However, using measures of institutional quality, as in Boschini *et al.,* (2004) and in Mehlum *et al.* (2006), in cross-country growth regressions is problematic for, at least, two reasons. First, institutional performance indicators are likely to be endogenous to growth, resulting in serious econometric problems of simultaneity.[5] Second, it is unclear which aspects of institutional performance that are important for economic growth. By instrumenting for institutional quality Boschini *et al.,* (2004) propose a way around the first problem. The second problem, however, remains unsolved. We argue that using measures of institutional *design*, as opposed to measures of *performance*, is a step in the right direction. There are several reasons for this. First, the literature on the economic effect of constitutions shows that institutional design is a significant determinant of institutional performance (PT, 2003). Second, institutional designs rarely change, a property that political scientists often refer to as an "iron law". This property of inertia is useful because it provides the analysis with a source of cross-country variation that is less sensitive to economic performance. The properties of constitutions also provides a foundation for a better understanding of which aspects of institutions that are most essential to growth, and, as we investigate, which aspect of institutional design that interacts with natural resource abundance to affect long-term economic growth.

Why would we expect to observe interaction effects between institutional design and natural resource abundance on economic growth? The remainder of this section propose an intuitive and non-technical answer to this question.

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[5] The measures of institutional quality that are applied in the resource curse literature are subjecive indicators provided by Political Risk Services, Corruption Perceptions, and the World Bank Governance Indicators. Such indexes are indeed likely to be endogenous to economic development.

This will constitute the main motivation of this paper, and provide the basis for the hypotheses that we take to the data. In short, we argue that; as different institutional designs affect policymakers' incentives differently, so as to produce different policy outcomes that in turn affect long-term growth, incentives are also likely to be affected by the total amounts of rents available to the politicians. The rents available are in turn positively related to the abundance of natural resources. Thus, it is possible that natural resource abundance has a different impact on the policies, and consequently on the long-term growth, of countries with different institutional design. Our approach is thus a broad one – we simply explore some general, reduced-form empirical patterns that has not yet been explored. We do not consider the specific economic mechanisms at work.

An important aspect of a country's institutional arrangements is the design of the constitution. The constitution defines the formal rules of 'the political game', where the 'players' are politicians, parties and voters. Two of the most fundamental sets of rules are the electoral rules and the rules for legislation (PT, 2003). The comparative politics tradition in political science has focused on the political consequences of alternative constitutions. A basic insight from this research is that alternative constitutional features incorporate different combinations of two desirable attributes of a political system: accountability and representativeness (PT, 2003). The trade-off between accountability and representativeness in the electoral rules and in the forms of government are likely to be reflected in actual policy outcomes. Recent developments in the political economy literature have exploited these insights to analyze how the design of the constitution shapes economic fiscal policy outcomes. As we investigate long-term trends we are not primarily interested in specific policies. It may however be instructive for the line of argument to go through some of the basic insights and predictions from this literature.

One typical prediction of the literature on constitutions is that majority voting, combining small voting districts with plurality rule, tends to favor narrow spending programs. Transfers directed to pivotal minorities are more effective in winning elections than implementing broader fiscal programs under majoritarian systems. In the extreme case, with single-member districts, a winner-takes-all system and a plurality rule, a party needs only 25 percent of the national vote to win. By contrast, proportional representation based on large electoral districts is predicted to favor broader spending programs. The reason for this is that a party, or a politician, needs to maximize the total vote share to win the election, thus, discretionary "pork barreling" programs are ineffective. In addition, some of the literature predicts that majoritarian systems are associated with smaller overall government spending and taxes (PT, 2003).[6]

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[6] In Milesi-Ferretti *et.al.*, (2002) the reason for this association is a smaller district size,

When it comes to the legislative rules, presidential forms of government should be associated with less rent extraction and lower taxation than parliamentary forms of government because of the separation of powers argument. One intuition behind the rent extraction argument is that separation of powers leads to checks and balances among different offices and thereby constrain politicians from abusing their positions. In addition, since stronger accountability also restrains politicians from raising taxes, one would expect presidential regimes to be associated with lower overall taxation and government spending (Persson, Roland and Tabellini,1997, 2000).[7] According to the confidence requirement argument, presidential regimes are expected to implement more targeted programs at the expense of broad overall spending programs. In parliamentary regimes, the fear of government crises creates strong incentives to maintain party discipline (see, e.g., Shugart and Carey, 1992; Huber, 1996). Building on this idea, Persson, Roland and Tabellini, (2000) show that parliamentary governments pursue the joint interests of their voters and thus optimally creates broad spending programs. By contrast, presidential regimes, which are not constrained by a confidence requirement, are not dependent on a stable majority among the legislators and use the agenda setting powers to set different minorities against each other on various aspects of the legislative agenda. As a result, the model predicts the allocation of spending to target powerful minorities within the constituencies of powerful officeholders. There is more to the dynamics of this class of models than we have space for in this paper; PT (2000, 2003) provide a detailed review of the literature of the economic effects of constitutions. PT (2003) also present extensive empirical research on whether the theoretical predictions of the political economy literature are supported by the data.[8]

Persson (2005) argues that if constitutions do shape fiscal policy and other economic and institutional features, they are likely to be reflected also in the structural policies fostering economic development, including regulations to preserve property rights and non-protectionistic trade policies. Hence, the specific political arrangements – the *form* of democracy, rather

wheras in Austen-Smith (2000) the reason is plurality rule.

[7]In Persson, Roland and Tabellini (1997, 2000), the distinction between these forms of government centers on the rules for legislative bargaining. The bargaining between different legislative coalitions, inherent in parliamentary democracies, is disciplined by the threat of a government crisis. As such a crisis would result in the loss of valuable agenda-setting powers for the government, party discipline and stable legislative coalitions are promoted. In a presidential system, the executive cannot be brought down by the legislator, but is directly accountable to the voters. Thus, legislators have weaker incentives to stick together and vote on party or coalition lines. These differences create larger overall and broader spending programs in parliamentary regimes compared to presidential regimes.

[8]For a brief overview of this literature's main predictions and findings, see Persson (2002).

than democratic rule per se – may be one of the missing links between history, current policy and economic development. If the regulation of property rights and the trade regime are important for economic development, one would expect these regulations to be more conducive to growth when they apply to broad population groups rather than to small privileged groups. Another insight from the existing literature is that systematic effects of alternative democratic arrangements should be incorporated in many, not just single policy programs. Persson's analysis suggests that introducing parliamentary democracy in a previously nondemocratic regime or, equivalently, in a presidential democracy, improves *structural policy* so as to raise long-run productivity by almost 50%. At a minimum, these estimates indicate that the form of democracy is systematically correlated with structural policies.

In several recent papers, constitutions have been shown to influence corruption. Gerring and Thacker (2004) examine the impact of territorial sovereignty (unitary or federal) and the composition of the executive (parliamentary or presidential) on levels of perceived political corruption. They find evidence indicating that parliamentary forms of government help reduce corruption. Kunicova and Rose-Ackerman (2005) show that proportional representation (PR) systems are more susceptible to corrupt political rent seeking than are plurality systems. They also examine the interaction between electoral rules and presidentialism, and find that PR systems, particularly when combined with presidentialism, are associated with higher levels of corrupt political rent seeking. Empirically, their results confirm PT's basic findings that proportional elections are associated with higher corruption levels, but contradict PT's findings on presidential systems.

Given all these findings, it is reasonable to ask whether similar patterns can be found for the growth effect of the resource endowment. If the electoral system and the form of government shape a country's structural policies and the level of corruption, it is plausible that the electoral system and the form of government also affect the way countries respond to resource windfalls. A country's resource endowment might have important implications for politicians' opportunities to design policy. A larger government budget provides politicians with more resources which can be used to influence the outcome of elections and may also raise the value of being in power, which may, in turn, amplify the political incentives to distribute resources and political favors in an inefficient manner. Mehlum *et al.* (2006) assert that the variance of growth performance of resource-rich countries is primarily a result of how resource rents are distributed through institutional arrangements. If this is the case, and given that different forms of government create different incentives for distributing political favors, one would expect countries with different constitutions to respond differently to resource booms. Based on the insights from the theoretical literature, the notion that presidential systems to a larger degree direct political favors towards powerful minorities whereas structural programs in parliamentary systems targets broader

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measures, and based on empirical insights, suggesting that there is less corruption in parliamentary democracies, we might expect resource abundant parliamentary regimes to perform better in the long run than resource abundant presidential regimes.

3 Data and Econometric Model

We construct two data sets based on different data sources, one covering the period 1970–1990, the second covering the period 1990–2000. Our 1970–1990 data set includes information on 90 countries.[9] In this data set countries are classified as democratic or nondemocratic regimes on the basis of the definition used by PT (2003). Countries with an average value of less than 5 for the Gastil Index for the period 1972–1990 (corresponding to "partly free", according to the Freedom House) are treated as democracies.[10] We further separate our democracies into presidential democracies and parliamentary democracies, and into majoritarian and proportional electoral systems. Our constitutional variables are primarily from PT (2003) and Persson (2005). PT (2003) classify regimes as presidential if the confidence of the assembly is not needed for the executive to stay in power (even if an elected president is not the chief executive, or if there is no elected president). On the basis of this definition, most semipresidential and premier-presidential systems are classified as parliamentary regimes. PT (2003) classify regimes as majoritarian if all of the lower house is elected under plurality rule. Only legislative elections (for the lower house) are considered. Persson (2005) lists reform episodes, that is, exits from and entries into different forms of democracy for the period 1962-1998. We combine these two sources in order to classify countries according to their form of government and electoral system in 1970 (see Appendix 1 for details).

Our 1990–2000 data set includes information on 61 democracies.[11] This data set is also separated into presidential regimes and parliamentary regimes, and into majoritarian and proportional electoral systems. Our constitutional variables are identical to PT's (2003) classification (See PT (2003) for a pre-

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[9]These are the countries included in SW's (1997a) main sample, with the exception of Hong Kong which is not classified in the Gastil Index (a democracy index) for the whole sample period (1970-1990).

[10]For a precise definition, consult: <http://www.freedomhouse.org/research/freeworld/2000/>. Note, however, that all our main findings are robust to a narrower categorization (i.e., when countries with a Gastil Index of < 3.5 are treated as democracies), although this respecification reduces the number of democracies in the sample. Thus, the democracy threshold is not critical for estimating the economic effect of constitutions.

[11]To define democracy in the 1990–2000 data set, we rely on PT (2003). PT (2003) include a country as democracy if the GASTIL score is lower than an average of 5 for the 1990–1998 period. This rule permits 85 countries to be classified as democracies in PT (2003). We are able to utalize 61 out of these 85 countries due missing data on some of the relevant variables.

cise definition).

To compare our findings with the influential contributions of SW, and in particular SW (1995,1997a), we mainly use their model specification and control variables. SW (2001) show that their previous results (1995, 1997a) are robust to conditioning on previous growth rates rather than levels. For simplicity, we condition on initial levels in our specifications. Thus, we expect average (log of) economic growth in country i between time $t = 0$ and time $t = T$ (in this case 1970–1990 or 1990–2000), $\frac{1}{t}\left(y_T^i - y_0^i\right)$, to be determined to (the log of) initial income, y_0^i, and a vector of country specific structural characteristics, Z^i, as follows.

$$\frac{1}{t}\left(y_T^i - y_0^i\right) = \alpha_0 + \alpha_1 y_0^i + \mathbf{Z}^i \boldsymbol{\beta} + u_i \tag{1}$$

SW (1995, 1997a) suggest that that initial natural resource abundance should be included in $\mathbf{Z}^i$. Given the recent contributions in the political economy literature relating structural (growth promoting) policies to different constitutional arrangements, we investigate whether constitutional features are incorporated in $\mathbf{Z}^i$ as well. More importantly, however, we check whether there are any interaction effects between constitutional arrangements and natural resource abundance. If constitutional arrangements affect structural policies, as predicted by the political economy literature, and structural policies matter for how countries deal with natural resource wealth, one would expect to observe such interaction effects in the data. In particular, presidential regimes are expected to be associated with worse structural policies, in terms of growth, than parliamentary regimes. Thus, we expect presidential regimes with abundant natural resources to grow more slowly than resource abundant parliamentary regimes.

In our model, the vector of control variables comprises constitutional dummies and their interaction with natural resource abundance, in addition to the controls in SW's most robust specifications. In particular, we include dummies for the form of government (presidential versus parliamentary) and electoral rules (majoritarian versus proportional electoral system). In addition, we control for geographic location (continent), colonial history, and the most robust significant determinants of growth according to Sala-i-Martin (1997). In the 1990–2000 data set we construct variables using the same definitions as SW (1997a), but for different time periods.

4 Results

Figure 1 shows the plot of average annual economic growth from 1970 to 1990 against resource abundance separately for parliamentary democracies and presidential democracies.

Figure 1

Growth 1970 – 1990 in Parliamentary democracies
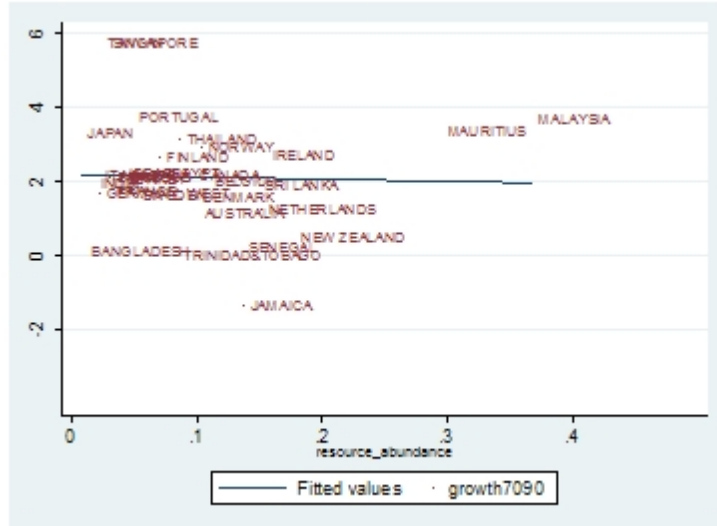
Growth 1970 - 1990 in Presidential Democracies
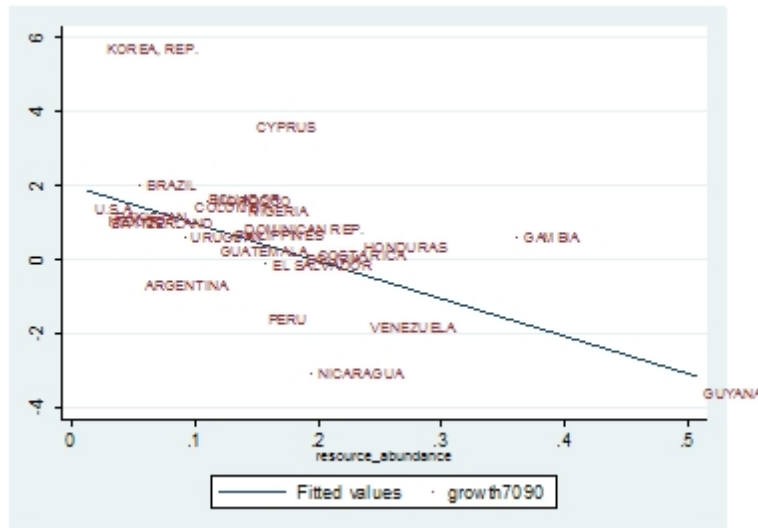
The group of parliamentary democracies comprises 33 countries, two of which are in the top 10 percent of natural resource abundant countries and six of which are in the bottom 10 percent. The group of presidential democracies comprises 25 countries, two of which are located in the top 10 percent of natural resource abundant countries and two of which are in the bottom 10 percent. Figure 1 suggests a negative relationship between initial natural resource abundance and growth only among presidential democracies – parliamentary democracies seem to avoid the curse.

In our sample, the measure of initial resource abundance, which is the

ratio of primary exports to GDP in 1970, ranges from 0.6% to 54%. We find all regime types represented among both resource rich countries and resource poor countries. Among the one-third of the countries with the most abundant natural resources, there are 6 parliamentary democracies, 9 presidential democracies and 15 nondemocratic regimes. Among the one-third of the countries least abundant in natural resources, there are 18 parliamentary democracies, 7 presidential democracies and 5 nondemocratic regimes. In the middle group, we find 9 parliamentary democracies, 9 presidential democracies and 12 nondemocratic regimes. Thus, there seems to be sufficient variation in resource abundance among all three categories of countries for statistical inference to be reliable.

To investigate whether this pattern holds when controlling for other factors that have been found to be important for growth, we use alternative model specifications. We begin by replicating the regression results of the main model specification in SW (1997a). SW exclude four outliers when estimating their main model specification. These countries are deemed to be outliers according to the procedure suggested by Belsley *et al.,* (1980). SW identify the four outliers regressing growth only on initial natural resource abundance and on the average degree of openness between 1970-1990. Note that the same countries will not necessarily be identified as outliers when additional controls for constitutional classification and its interaction with natural resource abundance are included. To estimate different specifications of the model on a consistent sample we address the problem of possible outliers by applying two different robust estimation techniques (discussed below).

Table 1, column (1), replicates the results in SW (1997a), without excluding outliers. Our results are consistent with those of SW in relation to convergence, and the effects on growth of openness, the rule of law index, investment and natural resource abundance. On average, countries that where abundant in natural resources 1970 experienced lower growth in the following two decades, with an estimated coefficient of -8.17 and a t-statistic of -6.71. The cross-country mean of natural resource abundance in our data is 0.13 with a standard deviation of 0.10.[12] The estimates in column (1) imply that a 10 percentage point increase (which corresponds to an increase of one standard deviation) in the ratio of exports of natural resources to GNP in 1970 is associated with a reduction in annual average growth the two following decades of 0.82 percentage points ($-8.17 * 0.10 = -0.82$).

In column (2), we include dummies for the form of government (with the excluded category being parliamentary democracy). Including controls for the type of government (presidential democracy, parliamentary democracy and nondemocratic regime) does not change the effects of convergence, openness, rule of law, investment and natural resource abundance. Presiden-

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[12]Thus, on average, about 13 percent of the gross national income (GNI) of the countries in the sample stems from exporting primary products.

tial democracies are associated with lower growth than are parliamentary democracies, given an estimated coefficient of -0.57 and a t-statistic of -1.84 (which implies a significance level of 7 percent).

So far, our estimates have added little to SW's findings. Column (3), however, provides new insights into the resource curse. In this regression, we include interaction terms between the form of government and resource abundance. The direct effect of resource abundance is no longer statistically or economically significant. This indicates that there is no significant resource curse in parliamentary democracies (our excluded category). Not surprisingly, nondemocratic regimes abundant in natural resources perform worse than resource abundant parliamentary democracies, with an estimated interaction coefficient of -6.21 and a t-statistic of -1.98. Perhaps more surprisingly, the performance of natural resource abundant presidential democracies is even worse. Comparing natural resource abundant democracies, presidential democracies perform much worse than parliamentary democracies, with an estimated interaction coefficient of -7.85 and a t-statistic of -2.69. Thus, among presidential democracies and nondemocratic regimes, higher natural resource abundance in 1970 is associated with lower growth in the following two decades, whereas, for parliamentary democracies, higher natural resource abundance in 1970 does not significantly affect subsequent growth. Finally, note that allowing interaction effects eliminate the separate effect of form of government.

In Table 2, we run the same regressions but, this time, nondemocratic regimes are excluded from the sample. Column (1) exhibits the same qualitative results relating to convergence (initial income), natural resource abundance, openness, investment, the rule of law, and changes in the external terms of trade. This indicates that the negative correlation between resource abundance and growth also applies among democracies. As in Table 1, including controls for the form of government does not significantly change the estimated effects of any of the other explanatory variables. In column (3), we include interaction terms between the form of government and resource abundance. Again, the direct effect of resource abundance is no longer significant, hence there is no resource curse in parliamentary democracies (our excluded category). Among resource abundant democracies, presidential regimes perform much worse than parliamentary regimes, with a highly significant estimated interaction coefficient of -8.02 (for which the level of significance is 0.7 percent).

One objection to our interpretation of the results, namely that the resource curse seems to be determined by constitutional features, might be that constitutional classifications are merely proxies for geographic location and/or colonial history, which then are the real determinants of the curse. For example, the widespread use of presidentialism in the Americas has led political scientists to dub the Americas as the continent of presidentialism. We investigated this objection by including dummy variables for previous

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colonial rulers, continent and added interaction terms with resource abundance to see if this could explain the diverging growth performance among resource rich countries. Including these controls indicates that the resource curse occurs regardless of colonial history and location (table not shown). In Table 3, we include additional controls to check whether our previous findings are robust to the inclusion of dummies for previous colonial rule and continent. The patterns evident in Tables 1 and 2 are confirmed. Presidential regimes suffer the most from being rich in natural resources, relative to both parliamentary democracies and nondemocratic regimes.

A potential limitation of OLS estimators in general is that they may be highly influenced by outliers located at leverage points. This limitation applies particularly in small samples. To make sure that our results are not driven by outliers, we reran our regressions by using two alternative estimation methods that are robust to the presence of outliers. First, we used LAD regression, which is a special case of quantile regression, or more specifically, median regression (table not shown).[13] Minimizing the sum of absolute deviations makes the regression less sensitive to outliers than does minimizing the squared deviations. Thus, LAD estimates represent the bulk of the observations better than OLS estimates, particularly in small samples. Second, we used a reweighted least squares technique (table not shown). Reweighted least squares is recommended by Rosseeuw and Leroy (1987), among others. Under this procedure OLS regression is applied, gross outliers are excluded and, then, observations with large residuals are iteratively downweighted.[14] Outliers are dropped if Cook's distance measure exceeds unity. On this criterion, no outliers were dropped in our regressions. Both estimation procedures suggest that outlying observations do not materially affect our results. The estimated coefficients and their p-values are similar to the OLS estimates. If anything, the effects appear stronger[15].

Up to this point, our analysis suggests that different regime types generate different growth effects of natural resource abundance. In particular, we have found that parliamentary democracies seem to respond differently to their resource endowments than do other countries. For the whole sample, the variables for initial income, natural resource abundance, openness and the investment rate have the most explanatory power for growth. A related

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[13] See, e.g., Greene (2003) for an introduction to LAD estimation and for a small sample Monte Carlo study showing the advantages of LAD estimation over OLS in the presence of outliers.

[14] This technique corresponds to the *rreg* command in STATA. The actual algorithm may be found in the STATA (2003) manual.

[15] The quantile regression result indicate that the interaction term between *pres* and r*esource abundance* is -8.385, wheras the robust regression result indicate an interaction term of -8.637 (both statistically significant at 1%). When only democrasies are included, the interaction term ranges from -7.488 (quantile regression) to -6.949 (robust regression), again significant at 1%. When interaction terms are included, the direct effect of resource abundance do not turn out significant in neither the quantile or the robust regressions.

question is whether the effects of these other variables also differ systematically between parliamentary democracies and other regime types. The summary statistics in Table A2 indicate that the three forms of government have different average values for the important determinants of growth. Initial income levels are higher in parliamentary democracies than in the other two regimes. The overall sample mean for this variable is 8.31 with a standard deviation of 0.90. This indicates that the deviation in the regime-type mean is less than one standard deviation of the overall sample mean for all three categories. The measure of natural resource abundance is also lower in parliamentary democracies than in the other two regimes. The overall sample mean of natural resource abundance is 0.13 with a standard deviation of 0.10. Hence, the deviation in the regime-type mean is less than one standard deviation of the overall sample mean for all three categories. Presidential democracies and nondemocratic regimes are less open than parliamentary democracies and the investment rate is lower but, again, the difference from the overall sample mean is less than one standard deviation.

In Table 4, we report the SW growth regression separately for parliamentary democracies and all other countries to investigate whether parliamentary democracies respond differently to the other explanatory variables, or whether the difference is primarily the growth effects of resource abundance. Table 4 shows that the estimated coefficients on the initial income level variable, the openness variable, the investment rate and the rule of law index are within in the same range when comparing parliamentary regimes to other countries. There is some deviation in the estimated effect of the growth in the external terms of trade. However, the *main difference* is in the estimated coefficient for the measure of natural resource abundance.

We now consider electoral systems. Table 5 reports the same model specification as in Tables 1 and 2, but compares different forms of electoral system. Columns (1) and (3) show that differences between electoral systems (majoritarian democracy, proportional democracy and no democracy) do not matter decisively for growth (note that proportional electoral rule is the excluded category). Majoritarian electoral systems perform better than proportional electoral systems with natural resources. The estimated interaction coefficient is 5.56 and the t-statistic is 1.99. However, majoritarian democracies remain adversely affected by natural resources given that the direct effect exceeds the additional effect of resource abundance, conditional on being a majoritarian democracy. That is, the direct effect of -9.36 and the interaction effect of 5.56 combine to generate a negative effect of -3.80. The same pattern is confirmed by including only democracies. Among democracies, majoritarian electoral systems perform better when there are natural resources, with an estimated interaction coefficient of 8.40, which is significant at the 0.9 percent significance level. As shown in Table 6, including controls for colonial rule and continental location does not change the qualitative results from Table 7.

Again we use LAD estimation and reweighted least squares to check the effect of outliers on the results (tables not shown). The quantile regression results for the full sample indicate that there is no significant difference in the growth effect of resource abundance between different electoral systems. Among democracies, the interaction effect is statistically significant (at 0.3 percent). The robust regressions confirm the pattern found in Table 5, but the estimated interaction coefficient (between majoritarian electoral systems and resource abundance) is lower in magnitude and less significant than the OLS estimates.

Throughout the paper, the number of observations has been limited by the rule of law index. One could argue that the 73 countries that do not have missing values of the rule of law index in our main regressions are not randomly selected, and that the statistical inference is limited to these countries. In Table A2 (in the Appendix) we report versions of the main regressions that include the average value of the Gastil Index rather than the rule of law index.[16] This gives us a total sample of 90 countries. As shown by Table A2, replacing the rule of law variable with the average value of the Gastil Index does not significantly affect the qualitative results already obtained. In fact, the estimated interaction coefficients are larger in absolute value in the extended sample. This confirms that there are statistically significant differences in the way different constitutions respond to natural resources.

Our results support the primary idea behind the paper, which is that the well-documented systematic effects of constitutions on different measures of economic policy may also extend to growth related policies (including measures of economic policy). However, can we interpret the estimates as reflecting a causal mechanism? This requires that the constitutional variables are exogenous with respect to economic performance. Although barely any reforms altering the PT (2003) classification of forms of government have occurred, this might not be sufficient for exogeneity. To deal with potential endogeneity problems, whether they are due to reverse causality and/or omitted variables, we apply an IV approach. As suggested by Persson (2005), we assume that Western colonization affects current policies, and thereby growth, only through the form of political institutions. Evidence of greater Western influence is consistent with observing the same type of political arrangements in former colonies as those observed in Western Europe; i.e., parliamentary democracies. Suppose, in line with Acemoglu *et al.*, (2001), that settler mortality is a good measure of Western influence. Given the validity of the identifying assumption that the influence on current policies operates only through the form of political institutions, settler mortality is

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[16] The correlation coefficient between the two variables is -0.72, which suggests that there is a reasonably close relationship between democratic and institutional quality. Thus, democratic quality may serve as a (weak) proxy for institutional quality, at least when data on institutional quality is not available.

a valid instrument for parliamentary democracy. To be consistent with the rest of the paper, we define a new dummy variable, *non_parl*. The *non_parl* dummy is equal to unity if the country is classified as either a presidential regime or a nondemocratic regime and is equal to zero if the country is classified as a parliamentary regime. We use *settler mortality* as an instrument for *non_parl*. To implement this method we apply Wooldridge's approach to instrumentation of the endogenous interaction terms by first predicting *non_parl* from the following regression.[17]

$$non\_parl = \alpha_0 + \alpha_1 lsettler + \mathbf{Z}^i \boldsymbol{\beta} + u_i. \tag{2}$$

Then, we use the interaction term of the predicted variable and *resource abundance* as an instrumental variable in the IV estimation. The results are reported in Table A3. As expected *a priori*, the likelihood of parliamentary democracy increases with Western influence, i.e., with lower values of *settler mortality*. Although there are data on settler mortality for only 44 countries in our main data set, the results from these 44 countries are similar to the OLS estimates in column 3. The difference between different forms of government is no longer significant, but the pattern is the same as that implied by the OLS estimates. The direct effect of initial resource abundance is neither economically nor statistically significant. As before, this implies that parliamentary regimes seem free of the resource curse. With only 44 countries, we have too few observations to further distinguish between democracies and nondemocratic regimes. Since the sample size is limited by the *rule of law* variable, one way of expanding the sample would be to use a different measure of institutional quality. SW (1997b) use an institutional quality index that is related to, but differs from, the rule of law index. This index is an unweighted average of five indexes based on data from Political Risk Services and is available for a larger number of countries than is the rule of law index. In columns (4) and (5) we report IV estimates for democracies only, using the quality of institution variable rather than the rule of law index. This provides a sample of 34 countries. In fact the estimated interaction effect is larger, when instrumented with settler mortality, compared with the OLS estimates.

One concern, which applies to the empirical literature on economic growth in general, is the basic concern of model specification. In particular, there is a significant degree of uncertainty attached to identifying which variables are robustly related to growth.[18] Among the most influential contributions addressing this question is Sala-i-Martin (1997). Sala-i-Martin choose a total of 62 variables from the growth literature and test their correlation

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[17]See Wooldridge (2002), Chapters 9 and 18.

[18]Levine and Renelt (1992) is the first contribution in the growth literature that systematically adress this question. They do so by applying Leamer's (1985) *extreme-bounds* test to identify robust empirical relations in the growth literature.

with the rate of economic growth. He choose three fixed variables (i.e., the variables that appear in all regressions) that are assumed to be "good" a priori.[19] These three variables include level of income in the beginning of the period, life expectancy and the primary school enrollment rate. Sala-i-Martin finds that 22 out of the remaining 59 tested variables appear to be significantly related to growth.[20]. The most "significant" variables include: regional variables; political variables; religious variables; variables describing market distortions and market performance; variables for types of investment; primary sector production variables; openness; type of economic organization; and former Spanish colonies. Table 7, 8 and 9 reports the results when we include the variables that emerges as the most robust correlates of growth according to Sala-i-Martin (1997).[21] As reported in the tables, we observe the exact same pattern as before, regarding the effects of natural resource abundance, constitutional forms and the interaction effects: on average there seems to be a resource curse; form of government and electoral rule is not significantly related to growth; presidential regimes and regimes with a proportional electoral rule which are abundant in natural resources performs significantly worse in the long run (1970-1990) than their resource-abundant counterparts[22].

Up to this point, we have investigated the heterogeneity in the long-term effects of resource abundance, by contrasting form of government and electoral systems. Of course, each form of government is combined with an electoral system. We now subdivide our constitutional classification into four separate groups to combine electoral systems and form of government (*parl_maj*, *parl_prop*, *pres_maj*, *pres_prop*) and interact them with resource abundance. The results are displayed in Table 10. Column (1) include the SW (1997) controls whereas Column (2) include the Sala-i-Martin (1997) controls. As seen from Table 10, the direct effect of resource abundance is not statistically significant (the excluded category being *parl_maj*).[23] Resource abundant presidential democracies with proportional electoral systems do worse than their resource abundant counterparts. The estimated effect of the interaction term between *pres_prop* and *resource abundance*

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[19] By this he mean that they have to be widely used in the literature, they have to be variables evaluated in the beginning of the period to avoid endogenity, and they have to be variables that are somewhat "robust" in the sense that they systematically seem to matter in all regressions run in the previous literature (Sala-i-Martin, (1997).

[20] See Sala-iMartin (1997) for method and specification.

[21] The Sala-i-Martin (1997) data is available at http://www.columbia.edu/~xs23/data.htm.

[22] Sala-i-Martin *et al.* (2004) find that the strongest evidence for growth is for the relative price of investments, primary school enrollment and the initial level of GDP per capita. Including the relative price of investment do not significantly change our results.

[23] When the three constitutional dummies are included (but not their interactions with resource abundance), the direct effect of resource abundance ranges between -7.35 and -3.70 (significant at the 1% level with the SW(1997) controls, and significant at the 10% level with the Sala-i-Martin (1997) controls .

ranges between -11.28 and -9.08 and is statistically significant at the 5% level.[24]

The final concern that we address is that our findings may rely on the specific dataset, and in particular on whether the patterns are evident also in more recent periods of growth. Tables 11-13 report the regression results of our main model specification for the growth period 1990-2000.[25] We find evidence for the same patterns concerning the growth interactions of constitutions and natural resources as in the 1970-1990 regressions. There is no evidence of a resource curse in parliamentary regimes (Table 11, column 3) and in regimes with majoritarian elections (Table 12, column 2). Presidential regimes and regimes with proportional electoral rules initially endowed with abundant natural resources, on the other hand, experience lower growth on average in the subsequent decade, 1990-2000. In the regressions reported in Table 13 (column 2), we reproduce the results for the 1970-1990 sample (Table 10), that the worst combination of constitutional regimes, when it comes to attracting the resource curse, is the combination of a presidential form of government and a proportional electoral system.

5   Conclusion

The empirical results of this paper suggest that economies' long-run abilities to deal with natural resource abundance depend largely on country specific constitutional arrangements. We find that the form of government seems to matter more than being nondemocratic in relation to whether a country is afflicted by the so-called resource curse. Revisiting the seminal growth analysis of Sachs and Warner (1995, 1997a), we found that the resource curse is explained by the poor performance of resource abundant presidential and nondemocratic regimes – there is no resource curse in democracies with a parliamentary form of government. This empirical finding is consistent with recent contributions to the political economy literature, which suggests that presidential regimes pursue inferior growth-promoting structural policies compared with parliamentary regimes. Interestingly, constitutions do not significantly affect growth directly, they simply have a negative interaction with resource abundance. We tentatively interpret this result as a budget constraint effect – the negative growth dynamics of presidential regimes, through inappropriate structural policies, seem to play a quantitatively significant role only when governments face a less rigid budget con-

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[24]As in the previous spesifications, the constitutional dummies turn out statistically insignificant when interaction terms between the constitutional variables and resource abundance are not included.

[25]As the SW dataset does not contain many of the variables required in the 1990's regressions, these had to be constructed. The data have been constructed in a similar way as possible to the SW data, in order to compare all our results (see Data Appendix for variable definitions).

straints. We also find patterns in the data that suggest that the electoral system may matter for the resource curse. Proportional electoral systems seem more likely to be afflicted by the resource curse. However, these effects are empirically less robust than the effects of the form of government.

Although the empirical evidence seems to be fairly robust, the underlying mechanisms are still unclear and require future research. In particular, theory should be developed to distinguish different potential interactions between natural resource abundance and different dimensions of a country's political institution.

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7   Appendix

7.1   Data appendix 1970-1990 sample

Using our definition of democracy we identify 58 countries as democracies. Some of these countries are not classified according to their constitutional form by PT (2003) or Persson (2005). These countries are Egypt, Morocco and Nigeria. In order to classify these countries according to their form of government we rely primarily on the *SYSTEM* variables in the World Bank DPI data set. The *SYSTEM* variable classifies countries as either Parliamentary, Assembly-elected President or Presidential systems. Systems with unelected executives, those scoring 2 or 3 on the Executive Index of Political Competitiveness, are classified as presidential. The Executive Index of Political Competitiveness scale is defined as follows:

1 if no legislature;

2 if unelected legislature;

3 if elected, one candidate;

4 if one party, multiple candidates;

5 if multiple parties are legal but only one party won seats;

6 if multiple parties did win seats but the largest party received more than 75 percent of the seats;

7 if largest party got less than 75 percent of the seats.

Systems with presidents who are elected directly or by an electoral college (whose only function is to elect the president), in cases where there is no prime minister, are also classified as presidential. In systems with both a prime minister and a president, the following factors are used to categorize the system:

a) Veto power: president can veto legislation and the parliament needs a supermajority to override the veto;

b) Appoint prime minister: president can appoint and dismiss the prime minister and/or other ministers;

c) Dissolve parliament: president can dissolve parliament and call for new elections;

d) Mentioning in sources: If the sources mention the president more often than the PM then this serves as an additional indicator to call the system presidential;

The system is presidential if (a) is true, or if (b) and (c) are true. If there is no information or ambiguous information on (a), (b), (c), then (d) applies.

Countries in which the legislature elects the chief executive are parliamentary, with the following exception: if that assembly or group cannot easily recall the president (if it needs a two-thirds majority to impeach, or must dissolve itself while forcing the president out) then the system is classified as an assembly-elected presidential system.

Two of the countries not classified by PT (Morocco and Nigeria) are classified as "presidential" according to the $SYSTEM$ variable, and we classify these countries as presidential ($pres = 1$) in our data, as this closely corresponds to the definition used by PT. Egypt is categorized as having a "strong president elected by assembly" according to the $SYSTEM$ variable. Egypt is categorized as parliamentary ($pres = 0$) in our data set because the assembly may recall the chief executive, either by a two-third majority or by dissolving itself; thus the chief executive is subject to a confidence requirement.

We use the International Institute for Democracy and Electoral Assistance (1997) to classify countries according to their electoral systems, and use the same approach as PT (2003). According to this definition, Morocco is classified as having a proportional electoral system ($maj = 0$), and Egypt and Nigeria are classified as having majoritarian electoral systems ($maj = 1$).

7.2 Variable definitions, 1970-1990 Sample.[26]

africa

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[26]Correspond to Table 1 through Table 10 and Table A1 through Table A3.

Geographic binary indicator for Africa. Source: Wacziarg (1996).

asiae

Geographic binary indicator for (East) Asia. Source: Wacziarg (1996).

avgastil7290

Average of indexes for civil liberties and political rights for the period 1972–1990, with each index measured on a 1 to 7 scale, which 1 represents the highest degree of freedom and 7 the lowest. Countries with combined averages for political rights and civil liberties score between 1.0 and 2.5 are classified as "free"; those scoring between 3.0 and 5.5 are "partly free"; and those that score between 5.5 and 7.0 are "not free". Source: Freedom House, Annual Survey of Freedom Country Ratings.[27]

change in tot

Average annual growth in the log of the external terms of trade between 1970 and 1990. The external terms of trade is the ratio of an export price index to an import price index. Source: SW (1997a).

civlibb

Index of civil liberties. Source: Sala-i-Martin (1997).

col_esp, *col_uk* and *col_oth*

Binary indicators for British, Spanish and Other colonizers. Source: Wacziarg (1996).

confuc

Fraction of Confucius. Source: Sala-i-Martin (1997).

dem

Dummy variable that is equal to 1 if the average of indexes for civil liberties and political rights for the period 1972–1990 is lower than 5 (corresponding to the definition "partly free" based on ratings for 2003). *Dem* = 1 if *avgastil7290* < 5, and is 0 otherwise.

dem_maj

Dummy variable for electoral system, equal to 1 if the country was classified as having a majoritarian electoral system in 1970 (conditional on the country being a democracy), and 0 otherwise. Source: PT (2003); Persson (2005); International Institute for Democracy and Electoral Assistance (1997).

dem_maj_ra

Interaction term between *dem_maj* and *resource abundance* (*resource abundance* from SW, 1997a).

dem_parl

Dummy variable for forms of government, equal to 1 if the county was non classified as a presidential regime in 1970 (conditional that the country is classified as democracy), and 0 otherwise. Source: PT (2003), Shugart and Carey (1992), World Bank DPI data set, and national sources.

dem_parl_ra

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[27]For a precise definition, see <http://www.freedomhouse.org/research/freeworld/2000/>

Interaction term between *dem_parl* and *resource abundance* (*resource abundance* from SW 1997a).

dem_pres

Dummy variable for forms of government, equal to 1 if the county was classified as a presidential regime in 1970 (conditional on the country being a democracy), and 0 otherwise. Only regimes in which the confidence of the assembly is not necessary for the executive (even if an elected president is not chief executive, or if there is no elected president) are classified presidential regimes. Most semi-presidential and premier-presidential systems are classified as parliamentary. Source: PT (2003), Shugart and Carey (1992), World Bank DPI data set, and national sources.

dem_pres_ra

Interaction term between *dem_pres* and *resource abundance* (*resource abundance* from SW 1997a).

dem_prop

Dummy variable for electoral system, equal to 1 if the country was classified as not having majoritarian electoral system in 1970 (conditional that the country is classified as democracy), and 0 otherwise. Source: PT (2003), Persson (2005), International Institute for Democracy and Electoral Assistance (1997).

dem_prop_ra

Interaction term between *dem_prop* and *resource abundance* (*resource abundance* from SW 1997a).

ecorg

Degree of capitalism. Index of degree in which economies favor capitalist form of production. Source: Sala-i-Martin (1997).

eqinv

Equipment investment. Source: Sala-i-Martin (1997).

growth7090

Average annual growth in real GDP divided by the economically active population between the 1970 and 1990. Source: SW (1997a).

initial income70

Natural log of real GDP divided by the economically-active population in 1970. Source: SW (1997a)

institutional quality

An unweighted average of five indexes based on data from Political Risk Services. Source: SW (1997b).

invest7089

The logarithm of average investment to GDP ratio during the two decades. Source: SW (1997a).

laam

Geographic binary indicator for Latin America. Source: Wacziarg (1996).

lifee

Life Expectancy 1960. Source: Sala-i-Martin (1997).

mining

Fraction of GDP in Mining. Source: Sala-i-Martin (1997).

muslim

Fraction of Muslim. Source: Sala-i-Martin (1997).

non_dem

Dummy variable equal to 1 if the average of the indexes for civil liberties and political rights for the period 1972–1990 is higher than or equal to 5 (corresponding to the definition "not free", based on ratings for 2003). $non\_dem = 1$ if $avgastil7290 \geqslant 5$, and 0 otherwise.

non_dem_ra

Interaction term between *non_dem* and *resource abundance* (*resource abundance* from SW 1997a).

non_parl

Dummy variable for form of government, equal to 1 if the country is classified as non democracy or a presidential democracy, and 0 if the country is classified as a parliamentary democracy. Source: PT (2003), Shugart and Carey (1992), World Bank DPI data set, and national sources.

openness

Openness variable measuring the fraction of years between 1970 and 1990 that the country was integrated in the global economy. A country is integrated during a particular year if it maintained reasonably low tariffs and quotas, and did not have an excessively high black market exchange rate premium. Source: SW (1997a).

prot

Fraction of Protestant. Source: Sala-i-Martin (1997).

rerd

Exchange Rate Distortions. Source: Sala-i-Martin (1997).

resource abundance70

Share of exports of primary products in GNI in 1970. Primary products or natural resource exports are exports of "fuels" and "non-fuel primary products" from the World Data 1995 CD-ROM disk, produced by the World Bank. Non-fuel primary products correspond to SITC categories 0, 1, 2, 4 and 68. Fuels correspond to SITC category 3. Source: SW (1997a).

rule of law

The variable "reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implements laws and adjudicate disputes". Ranges from 0 (low) to 6 (high). Measured as of 1982. Source: SW (1997a).

safrica

Sub-Sahara African Dummy. Source: Sala-i-Martin (1997).

spain

Dummy variable for former Spanish colonies. Source: Sala-i-Martin (1997).

school Enrollment

Primary School Enrollment 1960. Source: Sala-i-Martin (1997).

settler mortality

Log of mortality rate among non-military settlers in Western European colonies in the early 1800s. Source: Acemoglu *et al.* (2001).

7.3 Variable definitions, 1990-2000 Sample.[28]

GROWTH9000

Average annual growth in real GDP divided by the economically active population between the 1990 and 2000. Exact calculation is

100*(1/10)*ln(*GDPEA00/GDPEA90).*

LGDPEA90

Natural log of real GDP divided by the economically-active population in 1990. The Real GDP data correspond to the series RGDPCH from the Penn World Tables Version 6.1 (see Heston, Summers and Aten 2002), and are in 1996 Constant Prices. The economically active population is defined as the number of people between the ages 15-64. The source for the population data is World Development Indicators database. Since the World Bank population data is given as percentage shares of total population, and the real gdp data is given in per-capita terms, the actual calculation is

ln(RGDPCH90*(100/pop15-64)). Note: This is the same calculation as SW (1997a).

LINVEST9099

Natural log of the ratio of real gross domestic investment to real GDP, averaged over the period 1990-1999. Penn World Tables Version 6.1

MAJ

Dummy variable for electoral system, equal to 1 if all the lower house in a country is elected under plurality rule, 0 otherwise. See PT (2003) for definition.

MAJ_RA

Interaction term between *MAJ* and *RESOURCE ABUNDANCE.*

PARL_PROP

Dummy variable. (1-*PRES*)*(1-*MAJ*)

PRES

Dummy variable for forms of government, equal to 1 in presidential regimes, 0 otherwise. See PT (2003) for definition.

PRES_MAJ

Dummy variable. *PRES * MAJ.*

PRES_PROP

Dummy variable. *PRES* *(1-*MAJ*)

PRES_RA

Interaction term between *PRES* and *RESOURCE ABUNDANCE.*

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[28]Correspond to Table 11, through Table 13.

RESOURCE ABUNDANCE80

Share of exports of primary products in GNI in 1980. Primary products or natural resource exports are exports of "fuels" and "non-fuel primary products" from the World Data 1995 CD-ROM disk, produced by the World Bank. Non-fuel primary products correspond to SITC categories 0, 1, 2, 4 and 68. Fuels correspond to SITC category 3. Source: SW (1997a).

RULE OF LAW

Point estimate of "Rule of Law", the fifth cluster of Kaufmann et al. (2005) governance indicators, measured in 1996. The indicator measure the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence. Ranges from -2.5 to 2.5 (higher values correspond to better outcomes). Source: Kaufmann et al. (2005). The data, as well as a web-based graphical interface, are available at:

www.worldbank.org/wbi/governance/govdata/. The Appendices and a synthesis of the paper are available at:

www.worldbank.org/wbi/governance/pubs/govmatters4.html.

YEARSOPEN

Index for openness to international trade in a country, complied by SW (1995), measuring the fraction of years during 1950-1994 that the economy in the country has been open. Ranges between 0 and 1. Source: PT (2003)

7.4 Countries included in our data set, and their constitutional classification

1970-1990 Data Set

	Maj	Prop
Pres	Cyprus, Gambia, Nigeria, Pakistan Philippines, U.S.A	Argentina, Bolivia, Brazil, Columbia, Costa Rica, Dominican Rep., Ecuador, El Salvador, Guatemala, Guyana, Honduras, Korea Rep., Mexico, Morocco, Nicaragua, Peru, Switzerland, Uruguay, Venezuela
Parl	Australia, Bangladesh, Canada, Egypt, France, India, Jamaica, Japan, Malaysia, Mauritius, New Zealand, Singapore, Sri Lanka, Thailand, Trinidad&Tobago, U.K	Austria, Belgium, Denmark, Finland, Germany West, Greece, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Senegal, Spain, Sweden, Taiwan, Turkey,

Non Democracy
Algeria, Ghana, Benin, Indonesia, Burkina Faso, Iran, Burundi, Cameroon, Central African Rep. Ivory Coast, Chad, Chile, China, Jordan, Kenya, Congo, Madagascar, Malawi, Mali, Mauritania, Gabon Syria, Paraguay, Togo, Tunisia, Rwanda, Sierra Leone, Uganda, South Africa, Zambia, Sudan, Zimbabwe

1990-2000 Data Set

	Maj	Prop
Pres	Chile, Gambia, Malawi, Pakistan, Philippines, Uganda, USA, Zimbawe	Argentina, Bolivia, Brazil, Columbia, Costa Rica, Dominican Rep., Ecuador, El Salvador, Guatemala, Honduras, Korea Rep., Mexico, Nicaragua, Paraguay, Peru, Sri Lanka, Switzerland, Uruguay, Venezuela
Parl	Australia, Bangladesh, Barbados, Canada, Egypt, France, India, Jamaica, Japan, Malaysia, Mauritius, Nepal,New Zealand, Thailand, Trinidad&Tobago, U.K	Austria, Belgium, Denmark, Finland, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Senegal, South Africa, Spain, Sweden, Turkey,

Table 1: Growth 1970-1990 with form of government and interactions with resource abundance. All countries included.

	(1)	(2)	(3)
initial income70	-1.776	-1.79	-1.781
	(0.206)***	(0.217)***	(0.209)***
resource abundance70	-8.167	-7.952	-2.836
	(1.217)***	(1.246)***	(2.258)
openness	1.534	1.329	1.244
	(0.388)***	(0.399)***	(0.389)***
invest7089	0.867	0.993	1.064
	(0.316)***	(0.320)***	(0.309)***
rule of law	0.383	0.333	0.315
	(0.103)***	(0.106)***	(0.108)***
change in tot	0.117	0.113	0.100
	(0.045)**	(0.047)**	(0.045)**
dem_pres		-0.57	0.131
		(0.310)*	(0.399)
non_dem		-0.452	0.112
		(0.370)	(0.568)
dem_pres_ra			-7.854
			(2.925)***
non_dem_ra			-6.205
			(3.139)*
Constant	13.067	13.337	12.774
	(1.590)***	(1.716)***	(1.663)***
Observations	73	73	73
Adjusted R-squared	0.73	0.73	0.76

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2: Growth 1970-1990 with form of government and interactions with resource abundance. Only democracies included.

	(1)	(2)	(3)
initial income70	-1.922	-1.906	-1.87
	(0.270)***	(0.264)***	(0.246)***
resource abundance70	-7.299	-7.214	-2.645
	(1.635)***	(1.593)***	(2.199)
openness	1.475	1.186	1.123
	(0.477)***	(0.490)**	(0.458)**
invest7089	0.838	1.058	1.194
	(0.416)**	(0.421)**	(0.396)***
rule of law	0.458	0.397	0.342
	(0.135)***	(0.135)***	(0.128)**
change in tot	0.038	0.041	0.035
	(0.072)	(0.070)	(0.065)
dem_pres		-0.601	0.111
		(0.319)*	(0.390)
dem_pres_ra			-8.022
			(2.843)***
Constant	14.08	13.915	13.114
	(2.109)***	(2.057)***	(1.941)***
Observations	55	55	55
Adjusted R-squared	0.73	0.74	0.77

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3: Growth 1970-1990 with form of government and interactions with resource abundance. Controlling for colonial power and continent.

	All countries		Democracies	
initial income70	-1.527***	(0.262)	-1.558***	(0.331)
resource abundance70	-2.533	(2.277)	-2.754	(2.323)
openness	1.274***	(0.400)	1.138**	(0.498)
invest7089	0.751**	(0.320)	1.002**	(0.443)
rule of law	0.368***	(0.104)	0.413***	(0.126)
change in tot	0.080	(0.050)	0.003	(0.077)
dem_pres	0.246	(0.432)	0.212	(0.442)
dem_pres_ra	-6.947**	(2.894)	-6.569**	(2.922)
non_dem	0.245	(0.548)		
non_dem_ra	-6.361**	(3.072)		
col_esp	0.401	(0.469)	0.330	(0.497)
col_uk	0.465	(1.034)	0.444	(0.858)
col_oth	1.034***	(0.288)	0.858**	(0.326)
asiae	0.245	(0.503)	0.344	(0.580)
laam	-0.188	(0.544)	-0.094	(0.571)
africa	0.005	(0.712)	0.728	(0.878)
Constant	10.674***	(2.498)	10.073***	(3.115)
Observations	73		55	
Adjusted R-squared	0.792		0.798	

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4: Growth 1970-1990. Parliamentary democracies and all other countries estimated separately.

	Parliamentary dem. (1)	All other countries (2)
initial income70	-1.871	-1.830
	(0.301)***	(0.268)***
resource abundance70	-3.586	-9.730
	(2.215)	(1.543)***
openness	1.267	1.218
	(0.592)**	(0.552)**
invest7089	1.121	0.938
	(0.434)**	(0.445)**
rule of law	0.300	0.341
	(0.152)*	(0.146)**
change in tot	0.323	0.102
	(0.184)*	(0.051)*
Constant	13.592	13.578
	(2.338)***	(2.073)***
Observations	32	41
Adjusted R-squared	0.66	0.72

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5: Growth 1970-1990 with electoral systems and interactions with resource abundance.

	All countries		Democracies	
	(1)	(2)	(3)	(4)
initial income70	-1.785	-1.762	-1.907	-1.833
	(0.224)***	(0.222)***	(0.275)***	(0.260)***
resource abundance70	-8.045	-9.360	-7.287	-9.958
	(1.276)***	(1.796)***	(1.649)***	(1.832)***
openness	1.524	1.460	1.466	1.408
	(0.394)***	(0.392)***	(0.482)***	(0.453)***
invest7089	0.886	0.790	0.870	0.736
	(0.323)***	(0.322)**	(0.427)**	(0.403)*
rule of law	0.378	0.392	0.450	0.438
	(0.106)***	(0.110)***	(0.137)***	(0.129)***
change in tot	0.119	0.120	0.038	0.015
	(0.048)**	(0.048)**	(0.073)	(0.069)
dem_maj	0.135	-0.395	0.116	-0.687
	(0.279)	(0.383)	(0.284)	(0.398)*
non_dem	-0.039	-0.091		
	(0.338)	(0.590)		
dem_maj_ra		5.558		8.401
		(2.787)*		(3.086)***
non_dem_ra		0.519		
		(2.929)		
Constant	13.065	13.270	13.842	13.938
	(1.804)***	(1.777)***	(2.206)***	(2.070)***
Observations	73	73	55	55
Adjusted R-squared	0.72	0.73	0.72	0.75

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6: Growth 1970-1990 with electoral system and interactions with re-source abundance. Controlling for colonial power and continent.

	All countries		Democracies	
initial income70	-1.466***	(0.268)	-1.375***	(0.327)
resource abundance70	-8.225***	(1.758)	-9.011***	(1.765)
openness	1.274***	(0.411)	1.263**	(0.481)
invest7089	0.518	(0.329)	0.607	(0.418)
rule of law	0.451***	(0.103)	0.480***	(0.119)
change in tot	0.095*	(0.051)	-0.011	(0.075)
dem_maj	-0.706*	(0.375)	-1.102***	(0.397)
dem_maj_ra	4.617*	(2.708)	6.058**	(2.880)
non_dem	-0.134	(0.534)		
non_dem_ra	-0.700	(2.954)		
col_esp	0.345	(0.465)	0.305	(0.472)
col_uk	0.661*	(0.334)	0.876**	(0.388)
col_oth	1.013***	(0.297)	0.713**	(0.327)
asiae	0.471	(0.538)	0.774	(0.601)
laam	-0.305	(0.537)	-0.199	(0.531)
africa	-0.019	(0.722)	0.920	(0.827)
Constant	10.905***	(2.612)	9.728***	(3.051)
Observations	73		55	
Adjusted R-squared	0.783		0.809	

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7: Growth 1970-1990 including the most robust significant determinants of growth according to Sala-i-Martin (1997). All countries included.

	(1)	(2)	(3)
initial income70	-2.296***	-2.291***	-2.334***
resource abundance70	-4.591***	-4.570***	-0.569
lifee	0.090***	0.096***	0.085***
school enrollment	1.925*	1.895*	1.861*
safrica	0.077	0.228	-0.182
laam	-0.361	-0.423	-0.731
civlibb	-0.081	-0.003	-0.057
confuc	4.783***	4.181**	3.988**
muslim	1.616***	1.571***	1.247**
rerd	-0.002	-0.002	0.000
eqinv	15.083***	15.485***	18.746***
mining	3.685	4.082	3.888
sopen	1.652***	1.684***	1.422***
ecorg	0.085	0.086	0.053
spain	0.447	0.376	0.683
dem_pres		0.185	0.828
non_dem		-0.274	0.382
dem_pres_ra			-7.905*
non_dem_ra			-5.956*
Constant	13.049***	12.416***	13.297***
Observations	73	73	73
Adjusted R-squared	0.746	0.741	0.753

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 8: Growth 1970-1990 including the most robust significant determinants of growth according to Sala-i-Martin (1997). Only democracies included.

	(1)	(2)	(3)
initial income70	-2.001***	-2.052***	-2.043***
resource abundance70	-3.915*	-3.754*	-1.332
lifee	0.055	0.062	0.051
school enrollment	2.439	2.247	2.572*
safrica	1.337*	1.465*	1.104
laam	-0.008	-0.013	-0.236
civlibb	-0.064	-0.076	-0.105
confuc	4.345**	4.100**	3.550**
muslim	1.625**	1.611**	1.514*
rerd	-0.009	-0.010*	0.005
eqinv	17.038***	18.236***	20.354***
mining	2.316	2.453	1.751
sopen	2.195***	2.271***	2.114***
ecorg	-0.117	-0.137	-0.262
spain	0.273	0.121	0.473
dem_pres		0.324	0.880*
dem_pres_ra			-7.441*
Constant	12.963***	13.227***	13.475***
Observations	54	54	54
Adjusted R-squared	0.783	0.782	0.793

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 9: Growth 1970-1990 including the most robust significant determinants of growth according to Sala-i-Martin (1997). Electoral Systems.

	All Countries		Democracies	
	(1)	(2)	(3)	(4)
initial income70	-2.286***	-2.272***	-2.030***	-1.966***
resource abundance70	-4.568***	-5.283*	-3.858*	-8.590***
lifee	0.094***	0.094***	0.054	0.045
school enrollment	1.884*	1.127	2.339	1.469
safrica	0.193	-0.145	1.363*	0.947
laam	-0.418	-0.546	-0.058	-0.033
civlibb	0.011	-0.040	-0.055	-0.215
confuc	4.169**	4.489**	4.195**	4.611***
muslim	1.532***	1.257**	1.501*	1.431*
rerd	-0.002	-0.002	-0.010*	-0.008
eqinv	15.081***	17.611***	17.300***	21.067***
mining	4.351	4.528	3.177	0.737
sopen	1.656***	1.455***	2.168***	1.989***
ecorg	0.095	0.096	-0.080	-0.195
spain	0.383	0.469	0.195	0.521
dem_maj	-0.133	-0.527	-0.172	-0.809*
non_dem	-0.464	-0.106		
dem_maj_ra		4.469		9.334**
non_dem_ra		-1.042		
Constant	12.597***	13.377***	13.431***	15.064***
Observations	73	73	54	54
Adjusted R-squared	0.740	0.744	0.779	0.798

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 10: Growth 1970-1990 combining form of government and electoral system.

	(1)	(2)
resource abundance70	-1.834	-1.105
	(2.691)	(3.080)
parl_prop	0.354	0.595
	(0.559)	(0.545)
pres_maj	0.120	0.303
	(0.849)	(0.802)
pres_prop	0.340	1.415
	(0.498)	(0.646)**
parl_prop_ra	-3.177	-7.118
	(5.795)	(5.729)
pres_maj_ra	-11.791	-0.966
	(9.349)	(7.939)
pres_prop_ra	-9.077	-11.285
	(3.251)***	(5.375)**
Constant	13.439	14.482
	(2.039)***	(3.218)***
Observations	55	54
Adjusted R-squared	0.758	0.786

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables. Column (1) include the same controls as Table 1 (*initial income70, openness, invest7089, rule of law,* and *change in tot*), whereas column (2) include the same controls as Table 5 (*initial income70, lifee, school enrollment, safrica, laam, civlibb, confuc, muslim, rerd, eqinv, miningm, sopen, ecorg,* and *spain*).
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 11: Growth 1990-2000. Form of Government. Only Democracies included.

	(1)	(2)	(3)
LGDPEA90	-0.905	-0.913	-1.031
	(0.407)**	(0.411)**	(0.409)**
LINVEST9099	0.075	0.090	0.052
	(0.586)	(0.595)	(0.584)
YEARSOPEN	0.279	0.258	0.319
	(0.376)	(0.391)	(0.385)
RESOURCE ABUNDANCE 80	0.183	0.188	2.913
	(2.175)	(2.194)	(2.639)
RULE OF LAW	1.218	1.190	1.156
	(0.390)***	(0.413)***	(0.405)***
PRES		-0.116	0.847
		(0.513)	(0.742)
PRES_RA			-8.014
			(4.541)*
Constant	8.847	8.954	9.885
	(3.678)**	(3.740)**	(3.706)**
Adjusted R-squared	0.136	0.120	0.154
Observations	61	61	61

Dependent variable is average annual growth in real GDP divided by the economically active population between 1990 and 2000 (*GROWTH9000*). See Section 7.2 (Variable Definitions) for a precise definition of variables.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 12: Growth 1990-2000. Electoral system. Only Democracies included.

	(1)	(2)
LGDPEA90	-0.855	-0.893
	(0.435)*	(0.428)**
LINVEST9099	0.104	0.126
	(0.597)	(0.587)
YEARSOPEN	0.259	0.375
	(0.383)	(0.383)
RESOURCE ABUNDANCE80	0.142	-3.821
	(2.196)	(1.113)
RULE OF LAW	1.174	1.113
	(0.413)***	(0.408)***
MAJ	0.160	-0.828
	(0.463)	(0.739)
MAJ_RA		7.251
		(4.270)*
Constant	8.283	9.050
	(4.052)**	(4.008)**
Adjusted R-squared	0.136	0.120
Observations	61	61

Dependent variable is average annual growth in real GDP divided by the
economically active population between 1990 and 299 (*GROWTH9000*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
* Significant at 10%; ** significant at 5%; *** significant at 1%..

Table 13: Growth 1990-2000. Combinding Electoral system and form og government. Only Democracies included.

	(1)	(2)
LGDPEA90	-1.005	-0.953
	(0.473)**	(0.499)*
LINVEST9099	-0.003	0.123
	(0.620)	(0.622)
YEARSOPEN	0.179	0.351
	(0.405)	(0.403)
RESOURCE ABUNDANCE80	-0.109	-2.910
	(2.241)	(3.195)
RULE OF LAW	1.355	1.130
	(0.487)***	(0.507)**
PARL_PROP	-0.451	-0.141
	(0.594)	(0.924)
PRES_MAJ	-0.620	-0.983
	(0.813)	(1.324)
PRES_PROP	-0.190	1.320
	(0.643)	(0.983)
PARL_PROP_RA		-0.682
		(6.355)
PRES_MAJ_RA		2.967
		(8.550)
PRES_PROP_RA		-10.911
		(5.294)**
Constant	10.280	9.048
	(4.465)**	(4.736)*
Adjusted R-squared	0.101	0.142
Observations	61	61

Dependent variable is average annual growth in real GDP divided by the economically active population between 1990 and 299 (*GROWTH9000*). See Section 7.2 (Variable Definitions) for a precise definition of variables.
* Significant at 10%; ** significant at 5%; *** significant at 1%

Table A1a. Summary Statistics

Variable	Obs	Mean	Std Dev	Min	Max
growth7090	90	1.13	1.87	-3.64	5.77
initial income70	90	8.31	0.90	6.43	9.95
resource abundance70	90	0.13	0.10	0.01	0.54
openness	90	0.37	0.44	0.00	1.00
invest7089	90	2.66	0.70	0.31	3.58
rule of law	73	3.16	2.05	0.00	6.00
change in tot	90	-0.32	2.77	-6.46	7.97

Table A1b. Summary Statistics. Parliamentary Dem.

Variable	Obs	Mean	Std Dev	Min	Max
growth7090	33	2.15	1.44	-1.35	5.77
initial income70	33	8.91	0.74	7.27	9.75
resource abundance70	33	0.09	0.08	0.01	0.37
openness	33	0.73	0.43	0.00	1.00
invest7089	33	2.97	0.57	1.14	3.58
rule of law	32	4.50	1.93	1.00	6.00
change in tot	33	-0.25	0.96	2.75	1.73

Table A1c. Summary Statistics. Presidential Dem.

Variable	Obs	Mean	Std Dev	Min	Max
growth7090	25	0.57	1.90	-3.64	5.71
initial income70	25	8.81	0.71	7.17	9.95
resource abundance70	25	0.14	0.11	0.01	0.51
openness	25	0.27	0.36	0.00	1.00
invest7089	25	2.76	0.39	1.80	3.36
rule of law	23	2.39	1.76	0.00	6.00
change in tot	25	-0.71	2.69	-3.61	5.95

Table A1d. Summary Statistics. Non Dem.

Variable	Obs	Mean	Std Dev	Min	Max
growth7090	32	0.52	1.82	-2.40	4.56
initial income	32	7.62	0.68	6.43	9.16
resource abundance	32	0.16	0.11	0.02	0.54
openness	32	0.09	0.24	0.00	1.00
investment	32	2.25	0.83	0.31	3.34
rule of law	18	1.78	1.11	1.00	5.00
change in tot	32	-0.08	3.90	6.46	7.98

Table A1e. Summary Statistics. Maj. Dem.

Variable	Obs	Mean	Std Dev	Min	Max
growth7090	22	1.84	1.56	-1.35	5.77
initial income70	22	8.55	0.93	7.17	9.95
resource abundance70	22	0.11	0.11	0.01	0.37
openness	22	0.55	0.46	0.00	1.00
invest7089	22	2.76	0.63	1.14	3.58
rule of law	19	3.68	2.24	1.00	6.00
change in tot	22	-0.55	1.97	-3.18	5.95

Table A1f Summary Statistics. Prop. Dem.

Variable	Obs	Mean	Std Dev	Min	Max
growth7090	36	1.24	1.95	-3.64	5.77
initial income70	36	8.78	0.64	7.67	9.89
resource abundance70	36	0.11	0.09	0.02	0.51
openness	36	0.52	0.46	0.00	1.00
invest7089	36	2.95	0.40	1.63	3.52
rule of law	36	3.58	2.05	0.00	6.00
change in tot	36	-0.38	1.89	-3.61	5.37

Table A2. Gastil index included rather than the rule of law index.

	Form of government		Electoral system	
	(1)	(2)	(3)	(4)
initial income70	-1.465	-1.569	-1.384	-1.249
	(0.227)***	(0.325)***	(0.234)***	(0.333)***
resource abundance70	-1.755	-1.884	-10.379	-11.640
	(2.265)	(2.267)	(1.836)***	(1.925)***
openness	1.981	2.201	2.251	2.304
	(0.369)***	(0.445)***	(0.353)***	(0.424)***
invest7089	1.383	1.143	1.269	1.016
	(0.220)***	(0.401)***	(0.223)***	(0.397)**
avgastil7290	0.050	0.011	0.035	0.064
	(0.142)	(0.166)	(0.142)	(0.165)
change in tot	0.053	0.015	0.073	0.032
	(0.044)	(0.073)	(0.045)	(0.073)
non_dem	-0.651		-0.883	
	(0.572)		(0.573)	
non_dem_ra	-4.261		4.649	
	(2.937)		(2.590)*	
dem_pres	0.097	0.139		
	(0.438)	(0.440)		
dem_pres_ra	-8.318	-8.413		
	(2.935)***	(2.934)***		
dem_maj			-0.222	-0.582
			(0.391)	(0.414)
dem_maj_ra			6.467	9.477
			(2.423)***	(2.886)***
Constant	9.716	11.285	9.536	9.114
	(2.219)***	(2.969)***	(2.306)***	(3.103)***
Observations	90	58	90	58
Adjusted R^2	0.71	0.70	0.69	0.70

Dependent variable is average annual growth in real GDP divided by the economically active population between 1970 and 1990 (*growth7090*).
See Section 7.2 (Variable Definitions) for a precise definition of variables.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table A3. Instrumental-variable approach.

Dep. var.	All countries			Democracies		
	(1)	(2)	(3)	(4)	(5)	(6)
	1. Stage	2. Stage	OLS	1. Stage	2. Stage	OLS
	Non_parl	growth7090	growth7090	Non_parl	growth7090	growth7090
lsettler	0.18			0.19		
	(0.08)**			(0.10)*		
*ra*70		-1.28	-2.81		0.90	-3.19
		(6.03)	(2.24)		(4.97)	(2.20)
non_parl.		-1.69	0.11		-0.10	0.37
		(2.03)	(0.37)		(1.91)	(0.39)
non_parl_ra		-6.36	-6.85		-10.12	-6.20
		(7.40)	(2.60)***		(5.93)*	(2.75)**
Observations	44	44	73	34	34	57

Second stage (column 2) includes *initial income70, resource abundance70, invest7089, openness, rule of law* and change in tot, in addition to the ones shown in Table A3. First stage (column 1) includes the same exogenous second-stage variables as column 2 and instrument as shown in column (1). Second stage (column 5) includes *initial income70, resource abundance70, invest7089, openness, institutional quality* and change in tot, in addition to the ones shown in Table A3. First stage (column 4) includes the same exogenous second-stage variables as column 5 and instrument as shown in column (4). Column (3) and (6) represent the corresponding OLS regressions.
The numbers in parentheses are standard errors.
* Significant at 10%; ** significant at 5%; *** significant at 1%.