Lessons from Strange Cases: 
Democracy, Development, and the Resource Curse in the U.S. States

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Abstract 
Both the theory and empirical work linking natural resource wealth to authoritarianism and underdevelopment, commonly referred to as the resource curse, suffer from a number of shortcomings. In this paper, we outline a number of those shortcomings and address them in a new empirical setting. Utilizing a new data set for the U.S. states spanning 73 years and case studies of Texas and Louisiana, we are able to more carefully examine both the inherently diachronic nature and comparative legs of the rentier state hypothesis than previous research. We provide evidence that natural resource dependence contributes to slower economic growth, poorer developmental performance, and less competitive politics. We draw implications from our intra-national findings for resource abundant countries across the world and suggest directions for future cross-national work.
INTRODUCTION

Few ideas in comparative politics evoke the consensus accorded the resource curse hypothesis. Such is the case despite the fact that the hypothesis is theoretically controversial and the data used in the empirical work linking mineral wealth to authoritarianism and underdevelopment suffers from several shortcomings. Our most important contribution to the discussion is to provide a new empirical setting to test the hypothesis which has, until now, only been tested on the data set from which it was developed. We employ data for the U.S. states spanning 73 years and discuss case studies of the resource abundant economies of Texas, Louisiana and California. This new empirical setting provides two key advantages. First, it allows us to more carefully examine the effects of natural resource income over a long time period more appropriate to a theoretical literature that posits a relationship between mineral wealth and macro-historical trends in democracy and development. Second, we are able to discharge a number of fairly standard hypotheses in the resource curse literature while emphasizing the promise of others. We argue that natural resource wealth, rather than directly contributing to authoritarianism and economic underdevelopment, preserves underlying political and economic dynamics present at the time natural resources become central to state economies.

Developed in the study of Middle East politics, the resource curse hypothesis is one of the few to have passed from there into the disciplinary mainstream. Originally formulated around the “rentier state” concept that first appeared in a study of Iranian politics under Muhammed Reza Shah, it was quickly adapted to explain the political structures and economic trajectories of oil-exporting countries from Latin America to the Persian Gulf. The resource curse hypothesis correlates the absence of democracy and economic development with the production of oil. Although the range of cases to which the resource curse concept applies has been limited, there are now many empirical studies pointing to its presence (Sachs and Warner 1995; Ross 2001; Smith 2004; Friedman 2006).

Aside from its importance to a handful of petro-states, the resource curse hypothesis is of great significance for our understanding of international trade. When the hypothesis is paired, as it
sometimes is implicitly, with the hypothesis of the so-called “developmental state”, important but largely unrecognized challenges to theories of trade emerge. The dominant theory of trade among economists is based on comparative advantage: products are envelopes for international trade in factors of production (Irwin 1996, Leamer 1984). Countries produce goods employing locally abundant factors of production. The theory of the developmental state, by contrast, suggests that governments can “get prices wrong” and so increase growth and the well-being of impoverished populations (Amsden 1992; Wade 1990; Collins, Bosworth and Rodrik 1996; Hawes and Liu 1991). One unconventional implication of the theory of the resource curse is therefore that governments that encourage production of at least one good for which their societies have a comparative advantage decrease the well-being of their populations. Where it was once asserted that comparative advantage and resource abundance were royal roads to development through the Smithian channel of “vent for surplus” (Haberler 1936; Kibritcioglu 2002), it is now regularly argued that comparative advantage and resource abundance are really roads to underdevelopment and authoritarian government. Thus, it matters very much that we understand whether resource abundance produces a true curse as we assess policies aimed at increasing human well-being through trade.

Despite the conventional resource curse finding, there are at least five unresolved issues with the hypothesis. First, there remains some disagreement about the strength (and even the existence) of the rentier effect in the empirical research. This disagreement is particularly telling in light of the historical experiences of countries like the U.S., Canada, and Australia where historians have emphasized the catalytic role of resource wealth for subsequent development. Because all the existing studies employ what is essentially the same data set, this does not appear to be a problem that can be resolved without finding a different body of evidence with which to test the hypothesis. Second, the resource curse does not seem to exist for commodities that seem to share similar characteristics such as ease of extraction, propensity for state ownership, and capital intensivity. In cross-national empirical work, reliance on some kinds of natural resources seem to have no impact on either democracy or development. Third, the effect itself appears to be absent beyond a certain income
threshold, and some suggest it only applies to Third World. Norway, for instance, is often held up as an exception. The problem is that the mechanisms adduced to explain the correlation are independent of income and, therefore, ought to still be at work. An effect, even if small, ought therefore to be observed. Fourth and particularly germane to this study, the widely used large-n, cross-national data allow for only crude tests of the resource curse hypothesis. Studies rely on a fairly short time-series (30 years or so) of data during an anomalous period in the history of natural resource markets (Wright and Czelusta 2003). There is some doubt that such a time-series is appropriate to undergird generalizable statements on the relationship between resource wealth, regime type, and development. There are, moreover, considerable gaps in the cross-national data that may be systematic and thereby affect the findings.

The most powerful test of any hypothesis is on a data set other than the one used in its original construction. We therefore explore the resource curse hypothesis in relationship to the experience of the American states over the 73 years between 1929 and 2002. This empirical setting has a number of advantages: exchange rates are not an issue (a common factor hypothesized to cause the resource curse); a relatively uniform set of rules governing data collection apply across the states; cultural differences between governments are not very great (or at least less than in cross-national settings); and the longer time-series (containing several international business cycles and various trends in resource dependence across time within states) allows for a more rigorous test of the hypothesis. We thus join a growing list of scholars who have used the diversity of a large, federal state to test hypotheses developed in studies of sovereign states in the international system. We believe that such approaches offer important methodological advantages and can begin to bridge the gap between studies of American politics as a sui generis undertaking and those of comparative politics (that is, the rest of the world).

Absent more detailed data and facing space constraints, we are unable to examine all of the many mechanisms hypothesized to underpin the resource curse in this paper. Instead, we limit ourselves to two goals: first, determining if there are political and economic resource curses and
estimating their magnitude; and second, using our large-n data and case evidence from the states to explore some of the most prominent hypotheses linking resource wealth to dysfunctional political and economic outcomes. To preview, we find considerable support for a resource curse with regard to politics, annual economic growth, and long-term development. Our empirical setting also provides the foundation for discounting a number of common hypotheses linking mineral wealth to poor outcomes. Our studies of Louisiana and Texas, on the other hand, suggest the value of focusing on the implications of resource abundance for government fiscal policy and the persistence of incumbent politicians in office under conditions that might otherwise result in their removal.

RENTIER STATES, DEMOCRACY AND DEVELOPMENT

The resource curse literature makes two claims: one about politics and one about economics. First, democratic institutions do not thrive in oil-exporting countries over the long term. The absence of democracy occurs because revenues from the sale of natural resources accrue directly to the state. Politics is therefore distributive and administrative rather than participatory and legislative. State elites have need neither to bargain with social elites nor to discover any significant information about society. Consequently, state and social institutions atrophy (especially those related to democratic debate). In some variants of the argument, mineral exports retard the emergence of democratic norms and institutions, while in other accounts they appear as a structural element that may to undermine existing elements of democratic norms and institutions.

According to the rentier state versions of the resource curse, abundant and easily taxed mineral wealth provide leaders with the fiscal mechanisms to ensure that they remain in power. Because leaders of such states are able to maintain lower direct taxes on their citizens and mineral rights provide them with rents to lavish on key constituencies, they are expected to survive in office for long periods. Because a “long period” is ill-defined, we offer an analytic rather than a quantitative measure. It is generally accepted in the business-cycle literature on democracies that incumbents lose elections during periods when the economy either ceases to grow or experiences decline. The presence of state income generated as an external rent allows political elites to remain in power
without regard to the business cycle. The presence of a rentier-effect should, therefore, appear in a
democratic context and be evidenced by a party or governing elite retaining elective office across the
business cycle and for longer periods relative to politicians without access to mineral rents.

The experience of the American states in the 20th century does not include full-blown
dictatorships, the transformation of democracies into monar chies, the seizure of power by officials
through a coup, or refusals to recognize electoral defeat. Nevertheless, we understand the logic of the
resource curse argument to suggest that the flow of resources to political incumbents allows them far
greater scope to prolong their hold over power. The importance of distributive politics to retaining
office in democratic settings is well established, and corruption is not unknown. In fact, it would
seem peculiar if political incumbents refrained from using a flow of relatively free resources to
maintain their political power.

The second claim in the literature is that economic development in oil-exporting states is
stunted. Two possible mechanisms are adduced for this negative outcome: fiscal and real exchange
rate appreciation. In the exchange rate scenario, the resource boom causes an overvaluation of the
domestic currency, makes imports cheaper and non-mineral exports more expensive, thus creating
structural barriers to investment in non-mineral tradable goods and development more generally. In
light of recent evidence against the exchange rate mechanism (Sala-i-Martin and Subramanian 2003;
McMahon 1997), much contemporary work in political economy has emphasized the fiscal
mechanism. Here, the distribution of oils rents via government spending for political purposes results
in inefficient investments in everything from capital projects to public employment. To the degree
that the government is fundamentally distributive, it becomes more efficient for citizens to engage in
rent seeking behavior than to invest in risky undertakings in the market.

Researchers have attempted to empirically verify the resource curse hypothesis using both
case study and large n approaches. The structure of the case studies has been consistent since the first
enunciation of the rentier state hypothesis (Mahdavy 1970) and involves a historical narrative
examining whether the causal chain of the hypothesis can be verified. After laying out the underlying
causal logic, the author constructs a narrative sequence through which it can be argued that the political system became less democratic or representative after oil revenues attain a certain level (usually more than 40%) of commodity exports. Occasionally the narrative is accompanied by a time series of a relatively small number of elements that show, for example, that the growth of the service sector tracks the growth of oil revenues (Mahdavy 1970; Crystal 1990, Chaudhry 1997, Karl 1997).

The structure of the statistical studies has been different. The data sets available for scrutiny begin around 1970 (see, for instance, Sachs and Warner 1995 and Sal-I-Martin and Subramanian 2003). These studies undertake analysis of natural resource-producing and non-resource producing countries in an attempt to assess natural resource’s impact on outcomes. Some authors have discovered a pronounced oil effect (Sala-i-Martin and Subramanian 2003; Ross 2001; Smith 2004) while other scholars have found none (Noland 2005; Herb 2005). All students agree that there is at least one oil-exporter where the rentier state effect appears to be absent: Norway. When the analysis expands beyond oil to other, apparently similar natural resources such as diamonds or cases such as Botswana, no clear effect exists (Sarraf and Jimanji 2001).

There are a number of limitations to these commonly relied upon cross-national data sets. Most importantly, the time series is limited in its ability to test a theory of regime type and development. The cross-national time series for discussing oil rents is composed of about 30 annual observations from 1970 to 2000. There are three potential problems with this sample. First, this is an anomalous period in international commodity markets for several reasons: an international cartel (OPEC) became instrumental in affecting the market dynamics associated with one key commodity (oil), and as Jones Luong and Weinthal (2007) note, it is a period marked by widespread state ownership of resource wealth which contrasts with ownership patterns in earlier periods of history. Second, the time frame usually employed by social scientists in assessing the creation of viable democratic institutions is significantly longer. The East Asian experience with economic development suggests that short periods can be sufficient for economic development and the institution of political democracy, but even in these cases, researchers emphasize a time span on the
order of 40 years (from 1948 to 1990). More directly to the point of the resource curse literature, when compared with the East Asian NICs, many petro-states entered the 1970s era of oil booms with illiterate populations, highly impoverished economies, and poorly institutionalized governing structures. It seems unsurprising that impoverished societies with autocratic political structures did not create industrial economies or political democracies in the space of a single generation, even with the acquisition of massive financial wealth. Third, and finally, there are considerable gaps in the cross-national data that affect our confidence in the findings. As the number of relevant independent variables introduced to regressions increases, the number of cases that fall out of analysis climbs rapidly—a simple function of scanty cross-national data availability.\footnote{As Ross (2006) notes, such missingness in cross-national data can be systematic and has important implications for the robustness of findings—an issue of particular relevance for the resource curse hypothesis which runs contrary to standard economic theory and the historical experience of some countries (see below).}

Above and beyond the problems associated with the data, there is a noteworthy lack of theoretical agreement as to whether there is or should be a generalized resource curse. Current opinion tends to support the notion that abundant oil and minerals contribute to everything from authoritarian politics (Jensen and Wantchekon 2004; Ross 2001) to distorted economic development (Sachs and Warner 1995) to civil war (Collier and Hoeffler 2001). Empirical referents in these articles are to Latin American commodity producers, Middle East oil exporters, and African mineral producers.

There are, however, reasonable theoretical arguments to the contrary. One argument holds that resource abundance, be it a superior endowment of oil, coal, farmland, or whatever, can only be favorable to growth (Bardini 1997). As McLean (2005: 1) explains “To be resource ‘rich’ is contrasted with being resource ‘poor’, the less favorable implication of the latter being self-evident.”

\footnote{For example, in Ross’ (2001b) excellent, seminal article, the most basic model utilizes data for 2,183 observations from 113 countries out of a potential 3,752 country-years across 158 countries (58% of potential observations). In the most restrictive model, results are available for 426 observations across 48 countries (11% of potential observations).}
Certainly simple factorial and sectoral approaches to growth provide no basis for suspecting a consistent resource curse—the impact of resource booms should be positive or negative depending on the factorial makeup of a country (or state within a federation for that matter). Indeed, an entire class of open economy, “big bang” models suggests that a booming resource sector can generate a level of domestic demand sufficient to generate spillovers to other sectors and ultimately increasing returns to a wide range of economic activity (Murphy, Shleifer, and Vishny 1989; Krugman 1991). In short, as Figure 1 makes clear, the resource curse hypothesis is only one of three plausible theoretical accounts linking resource wealth and per capita income: In the big bang scenario, a resource boom contributes to a new, higher equilibrium growth rate; in the standard trade theory scenario, production and trade in mineral endowments contribute to growth in per capita income just as any other endowment; and in the resource curse scenario, new found mineral wealth contributes to declining economic performance.

**Figure 1 Here**

Moreover, despite the empirical claims of many analysts in the tradition of the resource curse, there is evidence suggesting that resource dependence in general either has no impact on growth (Delacroix 1977; Davis 1995) or can even foster long-term development (McLean 2005; Pomeranz 2000; Wright 1990). Protagonists on this side of the debate point to the developmental foundations of easily extracted coal in early 19th century Great Britain (Pomeranz 2000) or the comparative per capita resource wealth of the U.S. and Australia in the latter decades of the 19th century (Wright 1990). Indeed, Figure 2 reproduces Wright’s (1990) data on the overwhelming dominance of the U.S. in international markets for many natural resources in the early 20th century. Within the U.S., there is

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2 A resource boom has two key effects—the reallocation of resources and increased incomes. Import-competing sectors benefit from the income effect as demand increases but are hurt by the higher wages associated with the reallocation of resources. For these sectors, the net impact is ambiguous. Non-booming traditional exports will be hurt by the rise in wages brought about by the boom sector and benefit little from the income effect. Nontradables, on the other hand, can adjust to higher wages with increased prices and will benefit from increased demand via the income effect of the boom. In this sectoral approach, the overall impact of a boom is positive when the economy is weighted to non-tradables and negative to the degree that it relies on non-boom exports.
a substantial literature citing abundant natural resources and the early high wage equilibrium established by the gold rush as the reason for California’s remarkable economic growth (Walker 2001; McLean 2005). The resource curse literature provides little foundation for predicting the subsequent economic performance of neither the U.S. as whole nor California more specifically.

Given these apparent empirical anomalies and the theoretical conflict between standard models of trade and the resource curse hypothesis, more work must be done before we can feel secure in accepting or rejecting the hypothesis. Below we focus first on assessing whether or not a form of the resource curse exists in the U.S. states. It does. We then move on to two brief case studies in an attempt to identify the key mechanisms through which the effect is manifest.

**Figure 2 Here**

**EVIDENCE FROM STRANGE CASES: THE U.S. STATES**

In the following analysis, we focus on the relationship between natural resource dependence, economic development, and partisan competition in the U.S from 1929 through 2002. A focus on the U.S. states has a number of advantages over the traditional approaches taken in the literature. First, it allows us to analyze a much longer time-series of data than any previous study. Given the long-term nature of any argument that bears on the broad process of ‘development’, our data represents an important improvement over the 30 year window most resource curse research has focused on. Moreover, while most currently resource-rich countries began the early 1970s with considerable natural resource wealth (thus limiting theoretically important time variation in resource dependence), our sample of U.S. states includes cases that begin the period with limited resource wealth and develop extensive dependence, others that begin with extensive dependence and see their resource wealth wane, and yet others that show reasonably steady reliance over decades. Figure 3 provides evidence of this in three cases. While West Virginia maintains a relatively high level of dependence through time, Oklahoma shows a fairly steady decline, and Louisiana shows a steady rise (until the 1990s). This variation allows us to analyze state-level trends in economic performance before, during and after resource booms. Our longer time-series also moves the research away from what many have
noted to be an anomalous period in the history of natural resource markets.

**Figure 3 Here**

Second, the U.S. states have at least as much variation in their resource abundance as does the world at large and show considerable diversity on various alternative hypotheses. Indeed, the American states show substantial diversity in natural resource dependence, levels of development, and experiences with electoral democracy (Coatsworth 1998; Engerman and Sokoloff 2001). Some states such as Alaska, West Virginia, and Wyoming would qualify as rentier states in the comparative literature, but a host of others (Connecticut, Massachusetts, Iowa) produce few or no natural resources. Indeed, mean resource dependence across the U.S. states is very similar to that across countries around the world and shows a higher standard deviation.

Third, although the states show less variation on wealth than the world as a whole, US developmental experiences vary considerably. In 2000, the wealthiest state in the country (Connecticut) had an income twice that of the poorest (Mississippi). The disparities are even larger earlier in history—in 1929, the wealthiest state (New York) had 400 percent the per capita income of the poorest (South Carolina). Likewise, political conditions in the US have also varied widely over time and space. Despite an overarching competitive democracy at the national level, electoral politics have ranged from the competitive to the hegemonic across the states. If we take the average margin of victory in gubernatorial elections as a proxy for the competitiveness of electoral politics, six states are highly competitive, with average victories of less than 10 percent over the last 80 years. At the same time, seven states have had average margins of victory in excess of 40 percent over the same time period. Given the infrequency of partisan turnover in such cases, they exhibit a longevity that authoritarian states in the Third World might

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3 One common cut-off for what qualifies as a rentier state is when natural resource revenues make up at least 40 percent of the budget. Using that as a lower bound and making reasonable assumptions about the translation of resources/GDP into resources/budget, Alaska, Louisiana, New Mexico, North Dakota, Oklahoma, Texas, West Virginia, and Wyoming all qualify as rentier states during some portion of our time series.

4 Smith’s (2004) data shows a cross-national mean dependence of 6.3 percent of GDP with a standard deviation of 12.9 in 1989. For the U.S. states in 1989, the average dependence was 4.3 percent with a standard deviation of 13.5.

5 In 2003 dollars, Connecticut’s per capita income was $44,347 in 2000 and Mississippi’s was $22,384.
envy. Indeed, these are larger margins of victory than elected presidents (including Hugo Chavez) have achieved in Venezuela—a quintessential rentier state. Diverse experiences with regards to natural resources, economic development and political competition aside, the U.S. states also provide considerable variation with regards to alternative explanations for these political and developmental outcomes. For example, the colonizing experiences, factor endowments, and transportation networks differ considerably across the states.

Finally, inherent to varying degrees in statistical comparative politics work is a considerable amount of unmeasured cross-national variation. By analyzing states within a federation, we control for legal practices, institutions of government, party systems, and cultural differences that might impact variation on developmental outcomes or the competitiveness of politics but that are often un- or poorly-measured in cross-national work. The challenges of cross-national data comparability are also likely to be muted by the fact that a single federal government has collected our data. On the economic side, our empirical context also has the important advantage of controlling for the complex and difficult to measure exchange rate effects that some suggest affect growth cross-nationally.  

The following analysis utilizes data collected from a variety of sources (see Appendix) on natural resource dependence, per capita income, the competitiveness of electoral politics, and several controls for each American state from 1929-2002, though in some models we only have data for the post-World War II era. We estimate two sets of models, one designed to assess the prevalence of an economic resource curse and the other focused on the political aspect of the resource curse literature. In cases where we conduct cross-sectional time-series analyses, we estimate random effects models with state fixed effects, a lagged dependent variable and define the errors as clustering on the cross-sections. The results are robust to alternative specifications.

There are a number of ways to measure our key independent variable—resource dependence.

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6 The states are Connecticut, Hawaii, Illinois, Indiana, Massachusetts, and New Mexico.
7 These cases are Georgia, Louisiana, Mississippi, South Carolina, Alabama, Arkansas, and Texas.
8 Given a uniform exchange rate across the U.S. states, we are able to control for much of this effect. State level real prices vary, but we found no evidence for a Dutch disease impact using state-level CPIs.
The most common measure in the resource curse literature is the value of mineral production divided by GDP. In order to facilitate comparisons with previous work, we use annual oil and coal production as a share of state income as our measure of resource dependence. That said, some have criticized the use of GDP in the denominator since a high resource/GDP ratio could be the result of a high numerator or a low denominator. An alternative measure, resource production per capita, suffers from its own problems. Most importantly, if resource abundance affects growth and growth has implications for birth rates (Przeworski et al 2000), the numerator and the denominator of a resource per capita measure are not independent. In any case, our results are robust when using this alternative measure of resource dependence.

*The Economic Resource Curse*

Much of the resource curse state literature focuses on “development”—typically measured as per capita income—but has had little to say about annual growth rates (see Sachs and Warner 1995 for an exception). This is odd since long term development must be a function of annual growth through time. We suspect two reasons for the lack of analyses of growth: first, the short and inadequate data time-series discussed above; and second, the conflict in the findings on growth and wealth. Indeed, while Sachs and Warner (1995) find a negative association between natural resources and annual growth, Gallup, Sachs and Millinger (1999) find a positive association between per capita income and deposits of natural resources. The disjuncture between strong developmental outcomes (i.e. wealthier societies) and weak growth underscores the shortcomings of focusing on a short time period.

Given this odd disjuncture in the empirical record and ongoing debates about the appropriate measure of economic growth, Table 1 reports the results for three different dependent variables: logged per capita income in 2002 (Model 1), the ten year average of log annual differences of state

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9 Focusing on either oil or coal separately has little impact on the results which are not very sensitive to the operationalization of the dependent variable.

10 See, for instance, Chatterjee and Shukayev’s (2006) critique of Ramey and Ramey’s (1995) use of average log differences, the standard in the growth literature. They recommend using annual percent change.
per capita income (Model 2), and annual percent change in state per capita income (Model 3). Per capita income in 2002 is a more direct assessment of long-term development while the latter two assess short- and medium-term economic growth. The measure of resource dependence in Model 1 is the average for the entire period, while in Models 2 and 3, resource dependence is measured as the ten year average and annual lag, respectively.

For the development and growth models we control for factors commonly emphasized in each body of research. All models control for lagged wealth following Barro’s (1989) evidence and theorization of a return to the mean in growth rates.\(^\text{11}\) Model 1 also controls for factor endowments, access to external markets, and colonial heritage. Research dating back to Stolper and Samuelson notes that factor endowments have important implications for development. In the context of the U.S. states, Engerman and Sokoloff (2000) argue that the key factorial determinant of long term growth trajectories is the degree to which geographic and climatic conditions created the foundations for either plantation or smallholder agriculture. Plantation agriculture led to slavery, extractive property rights institutions, exclusionary political institutions, inequality, and weak human capital development—all of which contributed to poor long-term development. Smallholder agriculture in the northeast, in contrast led to more egalitarian property rights protections, earlier extension of the franchise, more widespread systems of public education, and ultimately development. To control for this aspect of factor endowments, we introduce a measure of the percentage of the state population that was enslaved in 1860.\(^\text{12}\) Note that this measure significantly improves on the atheoretical standard practice of including a dummy for ‘southern states’ in statistical work on the U.S. A second factor oft-associated with development is access to external markets (Hausmann 2001; Acemoglu, Johnson and Robinson 2005). To control for market access, we include a dummy variable for states that have access to rivers, lakes, or an ocean upon which to transport goods to and from foreign

\(^{11}\) In Model 1 this is measured as the initial per capita income in 1929, though for Hawaii and Alaska it is per capita income in the year they achieve statehood. In model 2, income is measured as the initial level at the beginning of the 10 year period. In model 3, it is the one year lag of per capita income.

\(^{12}\) Data from Mitchener and Mclean (2003).
Finally, a prominent line of work suggests that colonial origins have implications for long-run developmental trajectories (North 1979). The 50 U.S. states had eight different colonial experiences. The most common theme running through the literature is the particularly negative implications of Spanish colonialism. As such, we create a dummy variable taking on a value of 1 for any state in which the Spanish were not involved. In the growth equations, Models 2 and 3 control for each state’s capital stock, human capital endowment and government spending consistent with standard models in the cross-national growth literature (see Barro 1997).

In contrast to the contradictory findings with regard to growth and development (wealth) in the cross-national setting, our findings are consistent—natural resource dependence has a negative impact on both. To give the reader a sense of the overall relationship between state wealth and resource endowments, Figure 4 plots the predicted state income generated by model 1 against logged resource dependence. Considerable variance in wealth across states with no resources aside, the figure shows a noteworthy downward slope as resource dependence climbs. Alaska appears as an outlier, a fact which probably results from the state’s policy-based obstacles to labor mobility into the state. The resulting high per capita income is partly a result of a very small population. Consistent with this account, Alaska is not an outlier in the growth models. Models 2 and 3 increase our confidence in the findings by spotlighting growth. Focusing on the easier to interpret coefficient in Model 3, the results suggest that a 10 percent increase in natural resource dependence reduces annual growth by 1.4 percent relative to a state with no natural resources. Lest the reader think these cuts in growth rates trivial, they imply that relying on natural resources to the tune of 30 percent of the state economy (think Louisiana or West Virginia) would reduce the average state per capita income by $5,000 over

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13 Data from Mitchener and Mclean (2003).
14 The eight different experiences were: colonized by the English alone, the French alone, the Spanish alone, the English and Dutch, the French and Spanish, the English and Spanish, the English, French and Spanish, and those that were not colonized (or rather were colonized by the U.S.).
15 Capital stock is measured on a per capita basis and is from Garofalo and Yamarik (2002). Human capital is measured as the share of the population with a high school diploma and comes from the U.S. Census. State spending is measured as a share of state income and comes from the Book of the States. The educational attainment data is reported by decade beginning in 1940. We interpolate the data for the intervening years. The
the next decade when compared to a similar state without such resources. Unreported results suggest that these findings are robust to additional controls for which we have less data, the time period under analysis, the use of a per capita resource endowment measure, and the estimation procedure. In short, we find substantial support for an economic resource curse in the context of the American states—a fact that lends credence to the cross-national resource curse literature.

**Table 1 and Figure 4 About Here**

In a final effort to generate insight into the economics of the resource curse, we use our long data series to examine the relationship between natural resource booms and trends in economic growth. As noted above, the cross-national data includes data for countries that vary little in their resource dependence through time, making it difficult to assess the dynamic impact of natural resource booms. On this point the resource curse literature is unclear. While considerable research makes the implicit suggestion that natural resources actually eliminate growth, others suggest that they reduce growth from some “natural” higher level but don’t necessarily eliminate it. To gain insight into this debate we look at three states for which we have a substantial time-series of growth data before resource booms begin—Alaska, Louisiana and West Virginia. For all three cases, we code a dummy variable for resource boom years when resource production exceeds 20 percent of GDP. In all three cases, boom years have a negative impact on growth in growth regressions. As Alaska represents the clearest case, we present data for it in Figure 5 which shows actual and five year trend growth before and after its oil boom in 1977. Prior to the boom, trend growth was over five percent. After the boom it hovers around zero. Note that in all three cases, mineral booms do not eliminate growth over the medium-term (or cause it to become negative), though growth does slow.

**Figure 5 About Here**

*The Political Resource Curse*

Table 3 turns to politics. We measure the competitiveness of the electoral environment with state spending data reported at mostly two year intervals from 1940 to 1982 and annually thereafter. We interpolate the missing data.
two indicators: the margin of victory in gubernatorial elections and the vote share of the incumbent governor. To reiterate, we are not claiming that resource dependence transform polities into one-party dictatorships. We are claiming that political incumbents in resource-abundant polities with fair and free elections manage to win by larger margins and preserve vote shares in the face of adverse circumstances in a way that politicians without access to mineral rents will not. Controls include the same slave state, colonial heritage, and wealth indicators noted above. Given the importance of growth in retrospective election models, we also introduce a control for state-level economic growth the year prior to the election.

Given the poor economic performance of resource dependent states noted above, the U.S. voting behavior and comparative literature on elections would suggest that such states should see significant political turnover. From research on elections in the U.S. states to those across established democracies to newer democracies in poorer regions of the world, weak economic growth is associated with declining electoral fortunes of incumbent governments. Something like this line of argument is present in one branch of the rentier state literature. For example, Chaudhry (1997) and Karl (1997) suggest that while resource wealth contributes to political stability during good times, governments dependent on such wealth are particularly vulnerable to instability in bad times. Others such as Smith (2004) argue that cheap government revenues resulting from easily taxed resource extraction should contribute to governmental stability even in bad times as leaders in such contexts have the resources to invest in patronage networks strong enough to survive economic downturns. This argument can explain the persistence of authoritarian regimes in oil-rich states long after the bust of the 1980s.

Table 3

Taken together, the results in Table 3 support Smith’s characterization of politics in rentier states, though the scale of the impact is relatively small. Turning first to electoral margins, each percent increase in natural resource dependence increases the margin of gubernatorial victory by

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16 Between 1976 and 1977, mineral dependence in Alaska jumped from 7 percent of state income to 26 percent.
about .15 percent. Put differently, a U.S. rentier state (defined as one in which resources constitute 20 of state product) is predicted to have gubernatorial victories 3 percent larger than a state without natural resources. Likewise, Model 2 shows a statistically significant, positive impact of resource abundance on incumbent vote shares. The scale of the effect is relatively small but that it appears at all after controlling for the lagged vote of the incumbent, the business cycle and state dummies suggests a consistent effect that would make a real difference in elections that are relatively close. As our case study evidence below suggests, politicians in resource-rich states have shown considerable skill in using mineral wealth to their advantage.

In summary, we find evidence that the resource curse holds across the U.S. states. As resource dependence mounts, annual growth slows, per capita income declines, and the competitiveness of state politics falls. Below we turn to two case studies to flesh out the factors underpinning the curse and emphasize the relevance of the American states’ experience for understanding the resource curse more generally.

DEVELOPING DETAILS I: ECONOMIC DISTRESS AND STATE SOVEREIGNTY

In this section of the paper we review the experience of US states with petroleum to establish two major points: First, that the U.S. states are comparable to nation-states with regard to the resource curse. Economic concerns with dependence on mineral wealth, for instance, were common in the U.S. and emerged in much of the early descriptive and analytic literature on oil production in the states. Moreover, for much of the 20th century US domestic oil policy viewed the states as sovereign actors rather than as subordinate political entities in a central government regulatory scheme. Indeed, the search for effective oil policy in the US was forged through the creation of innovative and unique constitutional structures which continue to exist and which resemble international institutions of consumers and producers more than they do any other form of federal policy making. As with the economic concerns associated with the resource curse, the case studies reveal that it was clear by the mid-20th century that state revenues derived from oil had a profound impact on the nature of domestic
political institutions. Second, we use the cases to explore the mechanisms underpinning the negative correlation in the resource curse literature between resource wealth and the democratic quality of politics. In doing so, we emphasize the behavior of politicians with access to the fiscal resources produced by easily taxed mineral wealth.

It is a historical accident that the concept of the rentier state was developed in the late 20th century to explain the political and economic trajectories of Middle Eastern and other third world energy producers. Many of the themes developed in the resource curse literature were a standard part of public policy debates in the United States during the first three decades of the 20th century: the association of oil production with misdirected investment, low growth, and spectacular waste as well as explicit calls to tax oil production to reduce or eliminate other tax burdens. The only theme not developed was the possibility that state control of oil revenues might lead to political corruption and decreased democracy. The absence of this theme was inextricably connected to the beliefs, at the time, that the major threat to democracy and sound economic policy was the influence of private business interests on the state, including private owners of oil.

Because so much has been written about the US as a petroleum importer in the last 20 years, it is necessary to recall that, for most of the 20th century, this was not the case. Between 1900 and 1930, the consumption of petroleum exploded in the United States, and it was all produced in the United States. The U.S. was the major producer, consumer, and exporter of petroleum globally and the new fuel re-shaped the American and global economies. Early observers of the industry noted a tendency to leave economic waste in its wake. One of them observed:

All industries but the oil industry have been neglected wherever oil has been discovered. The lure of quick fortunes has everywhere attracted men and capital from other industries. The steady and uninteresting operations of farming and merchandising, and even the professions…have suffered in comparison…men and capital much needed in other industries have poured into the oil fields…It is not only through speculation in leases that human energy has been wasted in the oil fields. Many capable and energetic people have been turned from productive labor by the “windfalls,” the unearned fortunes that abound in the oil fields. (Ise 1928: 205)

Ise identified a boom and bust cycle and noted the same social problems as contemporary analysts of
the resource curse: unequal income distribution, investment in rent-seeking activities, and misallocated capital.

Because the US oil industry developed in a market economy, observers such as Ise were acutely aware of the mechanisms that generated wasteful rent-seeking and spending, including conspicuous consumption. Lacking the perspective of contemporary social scientists, Ise expected the modern state to be immune to the same effect largely because he believed it had an infinite time horizon: “the government is the proper agency to hold most mineral resources, or perhaps all mineral resources. The government is the only agency that can afford to hold such resources indefinitely in the promotion of the general good” (Ise 1928: 497).

Without reviewing the extensive literature on federalism or the history of federalism and regulation in the United States, the oil industry occupies a nearly unique place in American political development. In the 1930s the structure of the domestic oil market resembled that of global oil markets in the 1960s (and again in the 1980s): there were a small number of major producing states (three) whose major concern was to prevent competition from driving down the price of oil and thereby reducing tax revenues as well as creating economic dislocation. The response of the producing states, as with OPEC, was to create a regulatory cartel to prevent the movement of oil in ways that undercut desired prices. In the absence of congressional regulation, sovereign states relied on a rarely-used constitutional mechanism: they created a compact with the consent of Congress as envisaged in Article One. The Interstate Oil Compact was signed in 1935 by the governors of Oklahoma and Texas to coordinate the “the police powers of the several states to promote the maximum ultimate recovery of oil and gas” through commission decisions in which voting was weighted in ratio to member production (Duerbeck 1936: 108). The choice of a compact was deliberate: “to preserve ‘the sovereign rights of the States’ and to prevent the entering wedge of Federal domination in the internal business affairs of the states (Duerbeck 1936: 108).” In short, the American states look a lot like contemporary accounts of many mineral economies: economic decisions were driven by the prospect of huge returns in oil, rent-seeking was prevalent, and state
governments colluded with private firms and each other to maximize the rents they might extract from the oil industry.

DEVELOPING DETAILS II: CASE STUDIES

The aggregate statistics presented above are suggestive, but fail to pin down the underlying mechanisms between natural resources and electoral politics. Here we explore those mechanisms in greater detail using brief case studies of Texas and Louisiana. Both states have experienced ups and downs in their reliance on oil over the last seven decades. It has long been understood by students of both states that fiscal policies and electoral politics are driven by the availability of oil wealth. In a variety of ways, the flow of revenues related to oil transformed the politics, regulatory practices, and budgets in each of them. The politics of each state was dominated for decades by decisions about how governments could maximize oil rents and how to spend the resulting incomes. Both states receive income from oil on state-owned lands (royalties and severance taxes) and from taxing oil produced on privately-owned land (property and income taxes).

TEXAS

For most of the 20th century, Texas was responsible for close to half of oil production in the US (Katzman and Osborn) and was, by any account, the dominant force in global oil production. Not long after the beginning of oil production, legal conflicts emerged over state regulation of hours and work conditions in oil fields as well as the definition of property rights to the fields themselves. Property rights were originally understood in American jurisprudence through the law of capture, whereby subsoil resources were presumed to be the property of those who owned the plots above them. This concept of property was extremely inefficient because it encouraged competition to deplete the pressure within fields. In the short term, owners pumped too much oil and the glut could drive prices. Over the medium and long term significant quantities of oil remained unavailable in the ground because the depleted pressure made it uneconomical to bring it to the surface. Both the state government and the large companies suffered the loss of revenue due at first to low prices and later to
oil that could not be extracted.

Oil production, transmission, and distribution were (and are) taxed directly and local politics at the state and even the school district level are affected by oil prices. Given the attractiveness of taxing oil, it should not be surprising that the state government became embroiled in attempts to redress overproduction by regulating property rights in the earliest period of oil production. By the 1930s independent producers and state government officials in Texas had a common interest in ensuring that the price of crude oil did not become ‘artificially’ low. As such, the state government intervened to transform property rights during this period, and it did so explicitly in order to increase state revenues. In other words, the power of the state over private rights to property was increased in order to secure income from rents. When Governor Dan Moody signed the Common Purchaser Act in 1930 to implement rationing and limit well spacing and slant drilling, he understood that he was putting into place a law to reduce production and prop up prices.

Yet the chief political rationale for changing property rights was based on a promise by the state to re-distribute revenues from oil. Moody claimed that “artificially low oil prices injured the public interest by decreasing tax revenues and royalties in the public school fund.”\textsuperscript{17} Despite Moody’s attempts, the conflict over oil field property rights and the taxation of oil continued throughout the 1930s. As one oil company attorney noted, without regulation thousands of wells would shut down with the consequent “bankruptcy of producers, the loss of millions of dollars in revenues of the state, and the consequent increase of taxes on other sources in order that the public schools, higher institutions of learning, elementary institutions and the departments of state may continue to function.”\textsuperscript{18} That the government in an electoral democracy should engage in redistributive politics is not surprising, but the explicitness with which this occurred clarifies the degree to which politicians were attuned to rent-seeking. In the American context, this rent-seeking was closely aligned with the defense of the interests of larger domestic firms against the

\textsuperscript{17} Malvais 1996: 47.
\textsuperscript{18} Malvais 1996: 86.
encroachment of smaller ones.

The following 70 years of Texas history are replete with public sector booms and busts associated with the price and production of oil. It comes as little surprise therefore to know that “if one word could capture the essence of Texas, it would be petroleum and rightly so” and that the primary impact is through the provision of services without requiring additional taxes on the population at large (Katzman and Osborn 129). Income from 50 million acres of public land has provided an endowment for the public schools and colleges since 1900 and these produced significant revenues after the oil discoveries of the 1920s and 1930s (Katzman and Osborn 132). Though Key did not note its source, the boom of the 1920s that allowed “free-spending government to meet the needs…of folks plain and poor” was rooted in oil (Key 1949: 265). Similarly, the state budget increased well over 65 percent in real terms during the decade of the 1970s as the oil shock worked its way into the public sector coffers and enabled “politicians to expand more funds on government programs without raising taxes” (Champagne and Harpham 1987: 7). During this period, resource-based revenues accounted for one third of all state aid to the K-12 system and financed all the growth in state aid to public education.19 Throughout recent decades, the state has been about 50 percent more reliant on taxing natural resources than the overall state economy is on the production of those natural resources. As in several accounts in the comparative rentier state literature, politicians seem to show a deep appreciation for the cheap rents available through natural resource taxation.

The role of Texas in federal and national politics is also driven in large part by oil. Federal-state conflict over oil revenues was resolved by the passage of the Submerged Lands Act in 1953 which recognized state jurisdiction over tidelands (Katzman and Osborn 133). Some students of Texas politics assert that Texas lies at the core of US politics because it is an oil exporter and that it is ruled by crony capitalists (Bryce 2004).20 Indeed, the resource curse literature would lead one expect

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19 In 1978 direct taxes on oil and gas production amounted to about 27 percent of taxes and the ambiguous category “land income or royalties” added another 5 percent. Taxes on motor fuels paid by consumers at the pump added further revenue.
20 V.O. Key suggested that the Dixiecrat movement of 1948 that split the Democratic Party might have been
the decades of resource wealth to be associated with political consolidation and one party dominance, while lean years should be associated with the decline of patronage networks and a slow increase in the competitiveness of politics. Figure 6 shows the relationship between resource dependence and the competitiveness of politics in Texas over the last 70 years. The trend, represented by the dotted line, is toward a more diversified economy less dependent on oil and more competitive electoral politics.

**Figure 6 Here**

**LOUISIANA**

If one wanted to make a case that petroleum rents can fuel an authoritarian regime even in the United States, Louisiana would be the perfect case. Governor Huey Long’s name was nearly synonymous in the early 20th century with the politics of redistribution, populism, and extra-legal authoritarian governance (Holloway 1941). Certainly in Louisiana taxing oil was intimately involved with populist politics for much of the 20th century and is especially identified with the populist governments of Earl and Huey Long. In the words of one study, Huey Long “swelled the state’s coffers through increased severance taxes, mineral leases and royalties….the revenues generated enabled him to avoid directly taxing property, sales, and income, thereby placing himself in an impregnable position” (Kurtz and Peoples 6).

The Longs were quite straightforward about seeking state control over oil rents to enhance their own power through fiscal policies. Huey Long’s first attempt to use the power of the state to regulate the oil industry was, according to his autobiography, the result of his ownership of stock in small Louisiana oil companies. He had been paid legal fees in stock and suffered to lose financially if the Standard Oil Company was able to use its power over the pipelines to control prices and volumes of oil pumped from Louisiana (Long 1964: 41). His political career began, as did the Organization of Petroleum Exporting States, in an attempt to prevent Standard Oil from driving down the price of oil (Long 1964: 46). A more finely-grained account of Long’s rise to prominence suggests that, as in Texas, the redistribution of oil rents was an explicit and viable strategy in the search for elective power based on the tidelands issue rather than race (Key 331).
Long won election to the Louisiana Railroad Commission whence he began a long struggle to tax Standard Oil (Key 1949: 158). By 1921 Long had brought the state legislature to the point of enacting a 3 percent severance tax on oil (Long 1964). The subsequent conflict with Standard Oil (nearly resulting in impeachment) ended in Long’s favor when in 1922 he succeeded in having the severance tax enacted. Long, then chairman of the State Public Service Commission and a legislator from North Louisiana defended the severance tax against its opponents as a way to shift the tax burden from property owners to Standard Oil and its “plunder-grabbing policy” (Long 1964: 64). This struggle continued until 1929 when, as Governor, Long was able to impose a five cents a barrel tax on oil produced in the state as an end run around Standard Oil’s success in winning a Federal court order against the severance tax. Five cents a barrel was “a rather insignificant tax but sufficient to yield the schools nearly $5,000 per day or more than $1,500,000 per year which they badly needed” (Long 1964: 123).

Oil as both a populist issue and as a source of revenue were crucial to the creation of a system of control that “more nearly matched the power of a South American dictator than that of any other American state boss” (Key 1949: 156). Beyond the flow of resources into the state treasury, the oil and gas industry “offered untold opportunities for graft” both through the threat of increased taxes levied openly and in the willingness of administrative officials to overlook legal violations for both the export of oil and for exemptions from penalties and requisite payments (Kurtz and Peoples 9). In 1934, Long (then a US Senator) had the state legislature force Standard Oil of New Jersey to purchase Louisiana crude oil instead of Mexican crude by threatening it with a significant licensing tax (Banta 1986).

It was clear to early observers that the Long “dictatorship” over Louisiana politics was due to its ability to distribute services to the population at large and their support for the “export” of oil and gas (Heberle and Bertrand 1949). The Long political machine was notorious for its corruption but its collapse was not due to internal factors. Rather it was due to aggressive federal intervention in the
form of indictments against key members of Long’s supporters for offenses that included kickbacks, the illegal export of oil (so-called “hot oil”), and the use of official positions to enhance the profits of oil companies in which officials held stock (Holloway 1941). It is not surprising that with the election of Earl Long as governor in 1948 that Hodding Carter wrote “And now with Governor Earl Long, Louisiana returns to ‘normalcy.’ Louisiana is a Caribbean republic again” (cited in Kurtz and Peoples 129). Into the 1980s Louisiana politics were dominated by oil, for in the words of Laborde “the Louisiana governor’s office remains one of the most powerful in the nation….He who governs has had say-so over oil rights, and the taxation thereof. Louisiana is a naturally rich state in which politics is the arbiter for sharing the wealth” (Laborde 1985: 596). Louisiana’s “reputation for high severance taxes…generated an ‘anticorporate stigma’ that inhibited the industrial development of Louisiana well into the 1950s” (Banta 1986: 610).

Although the Long brothers are closely associated with the clientelistic use of oil rents, they were not alone in using them. In the years after World War II, Governor Jimmie Davis “with the state treasury overflowing with revenues from oil and gas severance taxes…substantially increased spending on health and education, as well as on drainage” (Kurtz and Peoples 121). During the boom years of the 1940s and 1950s severance taxes on the oil and gas industries became the major source of state revenues (Kurtz and Peoples 132). Indeed, during the booming energy markets of the 1970s “the state actually reduced such traditional and essentially more stable revenue sources such as the sales and income taxes, and it abolished the property tax altogether…” (Kurtz and Peoples 269).

Conclusion

The value of the exercise we have undertaken here is to explore the resource curse literature in a novel empirical setting, something that is difficult to come by in comparative politics. At the outset, we had no idea what to expect and had no particular beliefs about the state of democracy in Texas, Louisiana or the other American states. All told, our findings provide considerable new evidence in support of the resource curse hypothesis. Working under the assumption that political
elites under any regime type would prefer to stay in power, we hypothesize that even in democracies
incumbents would seek to find ways to use oil rents to prolong their stay in office. On balance we
find that oil rents appear to be politically conservative: they allow political elites to maintain control
over the levers of power and they tend to allow economic and social structures that have been in place
to remain so. Thus, oil production does appear to be undemocratic if by that one means the
opposition is less likely to come to power. We also find that resource wealth reduces economic
growth, though we do not find evidence that it actually makes economies shrink as is sometimes
implied in the resource curse literature. We find no evidence that mineral booms generate the bigang of investment and consumption that can provide for a broad-based economic takeoff.

Though our primary goal has not been to examine the precise mechanisms whereby natural
resources contribute to uncompetitive politics and poor growth performance, our empirical context
and case studies do allow us to make some preliminary inferences with regards to several common
hypotheses in the resource curse literature. First, the popular Dutch disease argument whereby
resource booms generate real exchange rate appreciation that lead to poor economic performance
seems very unlikely to explain our findings. Because all the American states share the same currency
and real prices vary relatively little among them, it is more plausible that the shortfall in economic
growth arises from some source. Second, some have argued that it is the tendency for mineral wealth
to be publicly owned that generates the negative relationship between resource endowments and poor
economic and political outcomes (Weinthal and Jones-Luong 2002). Since oil and coal are for the
most part privately held and developed in the U.S. states, this hypothesis also seems unlikely to
explain our findings. Indeed, our case studies suggest that American state governments behaved (in
collusion with private mineral firms) in much the same manner as international rentier states in an
attempt to maximize the rents they might attract from the sector. Third, our cases do suggest
considerable support for the mechanism recommended by the rentier hypothesis, whereby mineral
rents provide cheap revenues that incumbent politicians use to purchase clientelistic support while
keeping direct taxes on citizens low. It is this combination of low taxes and extensive public outlays
that seems to contribute to politicians’ persistence in office, though it would require more detailed analysis of state taxing and spending policies to have confidence in this finding.

Indeed, the robustness of empirical findings aside, there is widespread disagreement as to the causal mechanisms behind the correlation. Our reading of the resource curse literature produces a list of at least a dozen hypotheses supposed to account for the negative impact of mineral wealth. There are a number of good reasons for this disagreement, ranging from the methodological difficulty of testing alternative hypotheses cross-nationally, the dearth of cross-national data on the relevant hypotheses, the difficulty of aggregating the findings on case studies of diverse countries around the world, etc. Given our limited understanding of the causal processes at work and the international importance of resource wealth for everything from economic development to civil war, the American states likely represent an excellent laboratory for future work.
Appendix: Data and Sources

Coal and Oil Productions & Values


United States Geological Survey (USGS) website
http://minerals.usgs.gov/minerals/pubs/myb.html


History of U.S. Oil Production, 1859 – 1998
http://www.hubbertpeak.com/us/ok/oklahoma.xls

American Petroleum Institute: http://api-ec.api.org/frontpage.cfm

State of Utah natural Resources, Utah Energy Office
http://www.energy.utah.gov/data/oilpetrol.htm

Income Data:

U.S. Department of Commerce, Bureau of Economic Analysis (per capita income)
http://www.bea.doc.gov/

Population:


Electoral data


National Governors Association website: http://www.nga.org/

CPI Deflator

Economic History Services website: http://www.eh.net/hmit/
References


Friedman, Thomas. 2006. “The First Law of Petropolitics.” *Foreign Policy*


Table 1: Natural Resource Dependence, Development and Growth

<table>
<thead>
<tr>
<th></th>
<th>Model 1: Per Capita Income</th>
<th>Model 2: Ten Year Average Growth</th>
<th>Model 3: Annual % Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Dependence</td>
<td>-.031**</td>
<td>-.001*</td>
<td>-.613***</td>
</tr>
<tr>
<td></td>
<td>(.013)</td>
<td>(.001)</td>
<td>(.007)</td>
</tr>
<tr>
<td>Per Capita Income (logged)</td>
<td>.287***</td>
<td>-.013*</td>
<td>-6.606***</td>
</tr>
<tr>
<td></td>
<td>(.047)</td>
<td>(.004)</td>
<td>(1.064)</td>
</tr>
<tr>
<td>Slave Population, 1860</td>
<td>.002</td>
<td>.029</td>
<td>.025</td>
</tr>
<tr>
<td></td>
<td>(.001)</td>
<td>(.001)</td>
<td>(.029)</td>
</tr>
<tr>
<td>Access to Markets</td>
<td>.029</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colonizing Nation</td>
<td>.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.029)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Stock</td>
<td></td>
<td>-.123</td>
<td>-97.430***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.152)</td>
<td>(33.417)</td>
</tr>
<tr>
<td>Human Capital</td>
<td>-.000</td>
<td></td>
<td>.133***</td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td>(.026)</td>
</tr>
<tr>
<td>State Spending</td>
<td>.000**</td>
<td></td>
<td>.001**</td>
</tr>
<tr>
<td></td>
<td>(.000)</td>
<td></td>
<td>(.000)</td>
</tr>
<tr>
<td>Lagged DV</td>
<td></td>
<td></td>
<td>-.078</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.062)</td>
</tr>
</tbody>
</table>

N= 50  248  2671
R-squared .60 .62 .06

Note: Dependent variable in Model 1 is annual growth in real per capita state income. In Model 2 the dependent variable is the 10 year average growth for the decades of the 1950s, 1960s, 1970s, 1980s and 1990s. In model 3 the dependent variable is annual percent change in per capita income. In models 2 and 3, logged per capita income is measured at the beginning of the time period. All models include state dummies.

\( a \) In model 1, per capita income is the initial per capita income in 1929 for all states except Hawaii and Alaska. In those two cases, initial per capita income is for their first year as states. In model 2 per capita income is for the initial year of the 10 year period. In model 3, per capita income is lagged one year.
## Table 2: Natural Resource Dependence and Electoral Competition, 1929-2002

<table>
<thead>
<tr>
<th></th>
<th>Model 1: Electoral Margin</th>
<th>Model 2: Incumbent Vote Share</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resource Dependence</strong></td>
<td>.142*</td>
<td>.050*</td>
</tr>
<tr>
<td></td>
<td>(.078)</td>
<td>(.026)</td>
</tr>
<tr>
<td><strong>Economic Growth</strong></td>
<td>.109**</td>
<td>.093***</td>
</tr>
<tr>
<td></td>
<td>(.051)</td>
<td>(.033)</td>
</tr>
<tr>
<td><strong>Per Capita Income</strong></td>
<td>-3.768***</td>
<td>-1.322***</td>
</tr>
<tr>
<td></td>
<td>(1.768)</td>
<td>(.770)</td>
</tr>
<tr>
<td><strong>Colonizer (non-Spanish= 1)</strong></td>
<td>-12.933***</td>
<td>-1.557***</td>
</tr>
<tr>
<td></td>
<td>(1.288)</td>
<td>(.402)</td>
</tr>
<tr>
<td><strong>Slave Population, 1860</strong></td>
<td>.285***</td>
<td>.117***</td>
</tr>
<tr>
<td></td>
<td>(.040)</td>
<td>(.028)</td>
</tr>
<tr>
<td><strong>Winner’s Lagged Vote</strong></td>
<td>.737***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.077)</td>
<td></td>
</tr>
</tbody>
</table>

| N=                     | 1077                      | 1077                          |
| R2                     | .59                       | .66                           |

Note: The dependent variable in Model 1 is the difference between the winner’s vote share and the runner up’s vote share. The dependent variable in Model 2 is the incumbent’s vote share.
Figure 1: Three Theories of the Relationship between Mineral Wealth and Per Capita Income Growth

Note: The vertical line represents the point in time when a resource boom occurs.
Figure 2: U.S. Mineral Output as % of World Total, 1913
Figure 3: Natural Resource Dependence in Three States, 1929-2000
Figure 4: Natural Resources and Per Capita Income

Note: The graph shows the relationship between the predicted value of GDP per capita (from Model 1 in Table 2) and logged natural resource dependence.
Figure 5: Trend and Actual Economic Growth in Alaska before and after its Oil Boom

Note: The bold vertical line represents the first year of Alaska’s oil boom. Between 1976 and 1977, mineral dependence in Alaska jumped from 7 percent of state income to 26 percent.
Figure 6:

Resource Dependence and Margin of Electoral Victory, Texas 1930-2000

Note: The dashed line represents log detrended natural resource dependence. The margin of victory is the difference between the winner’s and second place finisher’s vote shares in gubernatorial elections. The bivariate regression of victory margin on resource dependence yields a coefficient of 3.4 that is significant at the .001 level. The R2 is .45.