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Lessons from Strange Cases

Democracy, Development, and the Resource Curse in the U.S. States

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The work linking natural resource wealth to authoritarianism and underdevelopment suffers from several shortcomings. In this article, the authors outline those shortcomings and address them in a new empirical setting. Using a new data set for the U.S. states spanning 73 years and case studies of Texas and Louisiana, the authors are able to more carefully examine both the diachronic nature and comparative legs of the resource curse hypothesis than previous research has. They provide evidence that natural resource dependence contributes to slower economic growth, poorer developmental performance, and less competitive politics. Using this empirical setting, they also begin parsing the mechanisms that might explain the negative association between resource wealth and political and economic development. They draw implications from intranational findings for resource abundant countries across the world and suggest directions for future cross-national and cross-state work.

Keywords: *resource curse; trade; development; mineral wealth; political competition*

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

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suffer 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 use data for the U.S. states spanning 73 years and discuss case studies of the resource abundant economies of Texas and Louisiana. 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 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. Given the relative data richness of the U.S. states, we suggest that they are an excellent setting in which future work could more carefully examine the causal mechanisms underpinning the resource curse. We believe that this form of verification and testing of hypotheses is an important contribution to a discipline that aspires to be cumulative and progressive. Given the large number of hypothetical causal statements about the resource curse in the literature, findings that distinguish clearly between them and that rule several of them out of the causal chain are precisely what scientific studies must, as a preliminary goal, accomplish.

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 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 (Ross, 2001b; Sachs & Warner, 1995; Smith, 2004).

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 is based on comparative advantage: Products are envelopes for international trade in factors of production (Leamer, 1984). Countries produce goods using 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). 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 (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 such as the United States, Canada, and Australia, where historians have emphasized the catalytic role of resource wealth for subsequent development. Because all the existing studies use what is essentially the same data set that begins in 1970, 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 beside oil 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 seems to have no impact on either democracy or development. Third, the resource curse effect itself appears to be absent beyond a certain income threshold, and some suggest it only applies to the developing 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, should 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 (Haber & Menaldo, 2007; Wright & 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 nation 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 (i.e., the rest of the world).

Absent of 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 article. 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, economic growth, and long-term development, although the scale of the political effects are modest. 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 do not need to bargain with social elites or 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, whereas in other accounts, they appear as a structural element that may 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 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 monarchies, 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 broad mechanisms are adduced for this negative outcome: fiscal profligacy and real exchange rate appreciation. In the exchange rate scenario (oftentimes referred to as the Dutch Disease), the resource boom causes an overvaluation of the domestic currency and makes imports cheaper and nonmineral exports more expensive, thus creating structural barriers to investment in nonmineral tradable goods and development more generally.[1] In light of recent evidence against the exchange rate

mechanism (Sala-I-Martin & Subramanian, 2003), 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 examined 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 share (usually more than 40%) of total 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 (Chaudhry, 1997; Crystal, 1990; Karl, 1997; Mahdavy, 1970).

The structure of the statistical studies has been different. The data sets available for scrutiny begin around 1970 (see, e.g., Sachs & Warner, 1995; Sala-I-Martin & Subramanian, 2003). These studies undertake analysis of natural resource–producing and nonresource–producing countries in an attempt to assess natural resource's impact on outcomes. Some authors have discovered a pronounced oil effect (Ross, 2001b; Sala-I-Martin & Subramanian, 2003; Smith, 2004), whereas other scholars have found none (Herb, 2005; Noland, 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 in cases such as Botswana, no clear effect exists (Sarraf & Jiwanji, 2001).

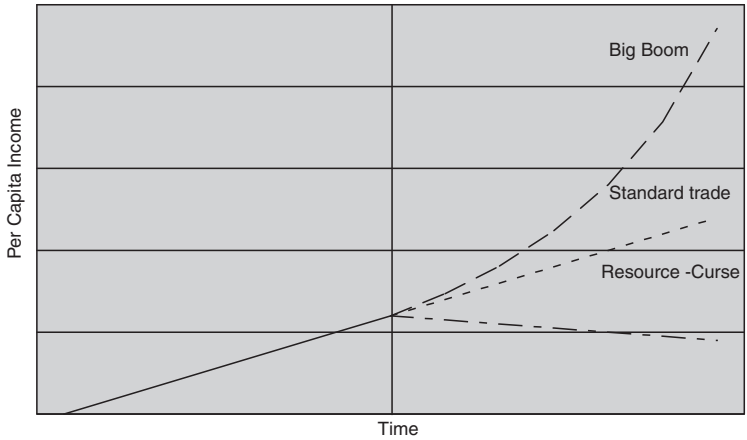
There are a number of limitations to these commonly relied on cross-national data sets. Most important, the time series is limited in its ability to test a theory of regime type and development. The cross-national time series for discussing oil rents is composed of about 30 annual observations from 1970 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 (Organization of the Petroleum Exporting Countries; 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 earlier in history. Second, the time frame usually used by social scientists in assessing economic development and the creation of viable democratic institutions is significantly longer (Haber & Menaldo, 2007). 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 or so). More directly to the point of the resource curse literature, when compared with the East Asian newly industrialized countries, many petro states entered the 1970s era of oil booms with illiterate populations, highly impoverished economies, and authoritarian and poorly institutionalized governing structures. It is not surprising 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.[2] 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 (as described further below).

Above and beyond the problems associated with the data, there is a noteworthy lack of theoretical agreement as to whether there 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 & Wantchekon, 2004; Ross, 2001b) to distorted economic development (Sachs & Warner, 1995) and civil war (Collier & Hoeffler, 2004). 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) explains: "To be resource 'rich' is contrasted with being resource 'poor', the less favorable implication of the latter being self-evident" (p. 1). Certainly, simple factoral and sectoral approaches to growth provide no basis for suspecting a consistent resource

Figure 1
Three Hypotheses on the Relationship Between Mineral Wealth and Per Capita Income Growth

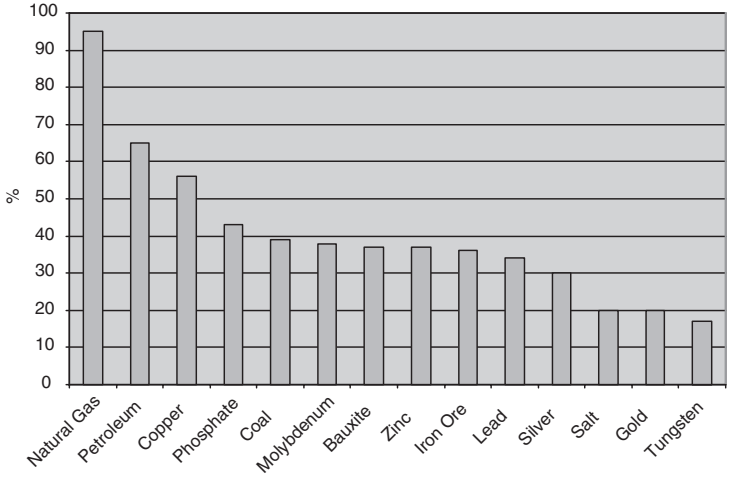


Note: The vertical line represents the point in time when a resource boom occurs.

curse; the impact of resource booms should be positive or negative depending on the factoral makeup of a country (or state within a federation for that matter).[3] Indeed, an entire class of open economy, "big bang" models suggests that a booming resource sector can produce a level of domestic demand sufficient to generate spillovers to other sectors, ultimately increasing returns to a wide range of economic activity (Krugman, 1991; Murphy, Shleifer, & Vishny, 1989). In short, the resource curse hypothesis is only one of three plausible theoretical accounts linking resource wealth and per capita income. Figure 1 shows these three potential responses to a mineral boom: In the big bang scenario, a resource boom contributes to an acceleration of the 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 does; and in the resource curse scenario, new found mineral wealth contributes to declining economic performance.[4]

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 (Davis, 1995; Delacroix, 1977) or can even foster long-term development (McLean, 2005; Pomeranz, 2000; Wright, 1990). Protagonists on this side of the debate point to the

Figure 2
U.S. Mineral Output as a Percentage of World Total, 1913



Source: Wright, 1990.

developmental foundations of easily extracted coal in early 19th-century Great Britain (Pomeranz, 2000) or the comparative per capita resource wealth of the United States and Australia in the latter decades of the 19th century (Wright, 1990). Indeed, Figure 2 reproduces Wright's data on the overwhelming dominance of the United States in international markets for many natural resources in the early 20th century. Within the United States, there is a substantial literature that cites abundant natural resources and the early high wage equilibrium established by the gold rush as the reason for California's remarkable economic growth (McLean, 2005; Walker, 2001). The resource curse literature provides little foundation for predicting the subsequent economic performance of either the United States as whole or California more specifically.

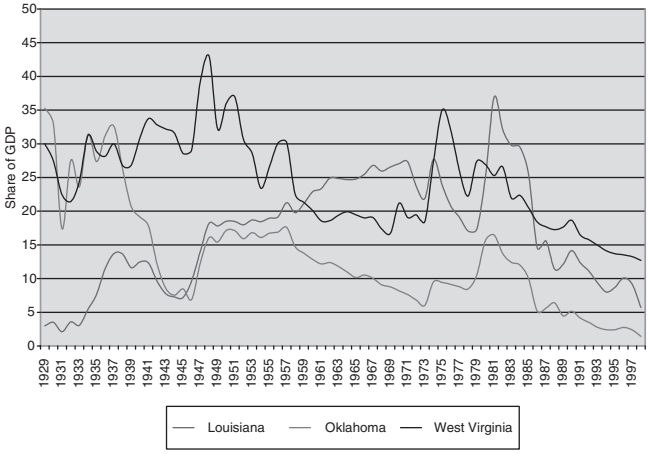
Given these apparent empirical anomalies and the theoretical conflict between standard models of trade and the resource curse hypothesis, more work must be done before we can feel secure in accepting or rejecting the hypothesis. Below, we focus first on assessing whether a form of the resource curse 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.

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 United States 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 does. Given the long-term nature of any argument that bears on the broad process of development, our data represent an important improvement over the 30-year window most resource curse research has focused on. Moreover, although 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 a reasonably steady reliance over decades. Figure 3 provides evidence of this in three cases. Although 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.

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 (Engerman & Sokoloff, 2000). 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.[5] 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.[6] Third, although the states show less variation on wealth than the world as a whole, U.S. developmental experiences vary considerably. In 2000, the wealthiest state in the country (Connecticut) had an income twice that of the poorest (Mississippi).[7] The disparities are even larger earlier in history—in 1929, the wealthiest state (New York) had 400% the per capita income of the poorest (South Carolina). Likewise, political conditions in the United States have

Figure 3
Natural Resource Dependence in Three States, 1929-2000



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% over the past 80 years.[8] At the same time, seven states have had average margins of victory in excess of 40% over the same time period.[9] Given the infrequency of partisan turnover in those seven cases, they exhibit a longevity that authoritarian states in the Third World might envy. Indeed, these are larger margins of victory than elected Hugo Chavez has 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

affect variation on developmental outcomes or the competitiveness of politics but that are often unmeasured 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 the 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 as affecting growth cross-nationally.[10] Although real prices do vary across states, the use of state-specific consumer price indices has no impact on our findings. That we find evidence of an economic resource curse despite a common currency across the states suggests that exchange rate effects are unlikely to be the primary mechanism underpinning the cross-national findings.

The following analysis uses 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 to 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 fixed effects models, a lagged dependent variable, and define the errors as clustering on the cross-sections. The results are robust to alternative specifications.[11]

There are a number of ways—none of them perfect—to measure our key independent variable: resource dependence. The most common measure in the resource curse literature is the value of mineral production divided by GDP. As such, we use annual oil and coal production as a share of state income as our measure of resource dependence.[12] A number of reasonable arguments have been made against such measures, ranging from concern with endogeneity to the rules governing the inclusion of some point-source resources in the numerator but not others. That the case, there are several reasons we use this measure. First, it facilitates comparisons with previous work. Second, although it would be ideal to measure natural resource reserves rather than production to avoid concern with endogeneity, there is no such data for the U.S. states over a long time series.[13] Likewise, although one might like to measure mineral-based revenues as a share of state revenue to capture their impact on the public budget, such data are only available for a handful of states over irregular periods of time. Third and finally, although most of the results bearing on the resource curse literature are drawn from oil-producing countries, the fundamental features of production and taxation in that sector bear similarities to other point-source

resources. Thus, although our inclusion of coal represents an improvement on standard practice, the inclusion of yet other point-source resources would be ideal. Alas, once again, we have been unable to find systematic data for other natural resources over a long time series. We have, however, checked our results using two alternative measures. First, we measure resource output as a share of the population in a manner consistent with Ross (2006). Such a measure responds to those who criticize the use of GDP in the denominator, because a high resource/GDP ratio could be the result of a high numerator or a low denominator. It is worth noting that a per capita measure suffers from its own problems. Most important, if resource abundance affects growth and growth has implications for birth rates (Przeworski, Alvarez, Cheibub, & Limongi, 2000), the numerator and the denominator of a resource per capita measure are not independent. Second, we have disaggregated our variable into its oil and coals components and rerun the analysis. Our results are quite robust when using these alternative measures of resource dependence.[14]

The Economic Resource Curse

Given ongoing debates about the appropriate measure of economic growth,[15] Table 1 reports the results for three different dependent variables: logged per capita income in 2002 (Model 1), the 10-year average of log annual differences of state per capita income (Model 2), and annual percentage change in state per capita income (Model 3). Per capita income in 2002 is a more direct assessment of long-term development, whereas the latter two assess medium-term and short-term economic growth, respectively. The empirical growth literature in economics typically uses the 10-year average measure, as it largely eliminates the short-term and ill-understood noise associated with fluctuations in the business cycle. The measure of resource dependence in Model 1 is the average for the entire period, whereas in Models 2 and 3, resource dependence is measured as the 10-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 (1997) evidence and theorization of a return to the mean in growth rates.[16] Model 1 also controls for factor endowments, access to external markets, and colonial heritage. In the context of the U.S. states, Engerman and Sokoloff (2000) argue that the key factoral determinant of long-term growth trajectories is the degree to which geographic and climatic conditions created the foundations for either plantation or smallholder

Table 1
Natural Resource Dependence, Development, and Growth

	Model 1: Per Capita Income	*SE*	Model 2: Ten-Year Average of Log Annual Differences	*SE*	Model 3: Annual % Growth	*SE*
Resource dependence	–.031**	.013	–.001*	.001	–.613***	.007
Per capita income (logged)[a]	.287***	.047	–.013*	.004	–6.606***	1.064
Slave population, 1860	.002	.001				
Access to markets	.029	.039				
Colonizing nation	.025	.029				
Capital stock			–.123	.152	–97.430***	33.417
Human capital			–.000	.000	.133***	.026
State spending			.000**	.000	.001**	.000
Lagged dependent variable					–.078	.062
N	50		248		2,671	
R^2	.60		.62		.06	

Note: The dependent variable in Model 1 is per capita state income in 2002. In Model 2, the dependent variable is the 10-year average of log annual differences for the decades of the 1950s, 1960s, 1970s, 1980s, and 1990s. In Model 3, the dependent variable is the annual percentage 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 1 year.

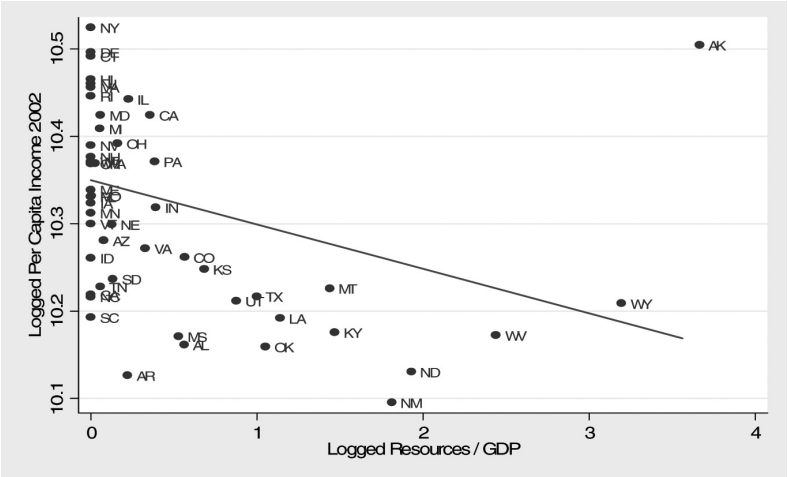
agriculture. Plantation agriculture led to slavery, extractive property rights institutions, exclusionary political institutions, inequality, and weak human capital development—all of which contributed to poor long-term development. Smallholder agriculture in the northeast, in contrast, led to more egalitarian property rights protections, earlier extension of the franchise, more widespread systems of public education, and ultimately, more rapid 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 (Mitchener & Mclean, 2003). Note that this measure significantly improves on the atheoretical standard practice of including a dummy for Southern states in statistical work on the United States. A second factor oft-associated with development is access to external markets (Hausmann, 2001). To control for market access, we include a dummy variable for states that have access to rivers, lakes, or an ocean on which to transport goods to and from foreign markets (Mitchener & Mclean, 2003). Finally, a prominent line of work suggests that colonial origins have implications for long-run developmental

trajectories (North, 1961). The 50 U.S. states had 8 different colonial experiences.[17] 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).[18]

Our findings are consistent—natural resource dependence has a negative impact on both levels of development and economic growth. 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 that probably results from the state's policy-based obstacles to labor mobility into the state. The resulting high per capita income is as much a function of a small numerator (population) as it is the size of the economy. 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% increase in natural resource dependence reduces annual growth by 1.4% 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% of the state economy (think Louisiana or West Virginia) would reduce the average state per capita income by $5,000 over the next decade when compared to a similar state without such resources. Unreported results suggest that these findings are quite robust to the time period under analysis, the use of a per capita resource endowment measure, the estimation procedure, and additional controls for which we have less data.[19] 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.

In another 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 include 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. Although considerable research makes the implicit suggestion that

Figure 4
Natural Resources and Per Capita Income



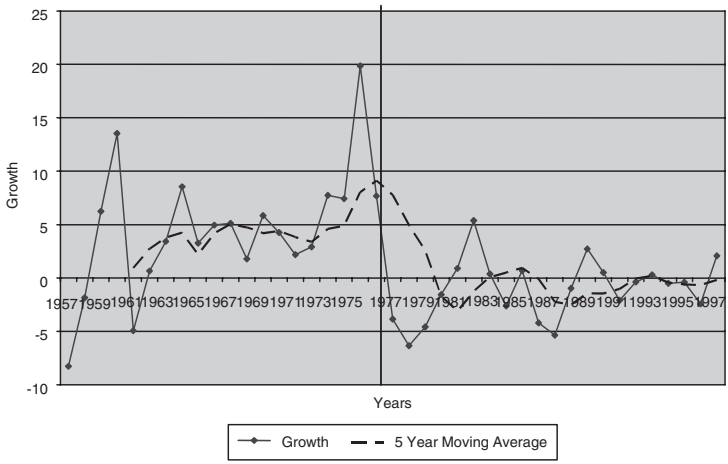
Note: The graph shows the relationship between the predicted value of GDP per capita (from Model 1 in Table 2) and logged natural resource dependence.

natural resources actually eliminate growth, others suggest that they reduce growth from some natural higher level but do not 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% of state income. 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 5-year trend growth before and after its oil boom in 1977.[20] Prior to the boom, trend growth was more than 5%. After the boom, it has hovered around 0%.[21] 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.

The Political Resource Curse

The focus of Table 2 is on politics. We measure the competitiveness of the electoral environment with two indicators: the margin of victory in

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% to 26% of the state's income.

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. In light of 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

Table 2
Natural Resource Dependence and Electoral Competition, 1929-2002

	Model 1: Electoral Margin	*SE*	Model 2: Incumbent Vote Share	*SE*
Resource dependence	.142*	.078	.050*	.026
Economic growth	.109**	.051	.093***	.033
Per capita income	–3.768***	1.768	–1.322***	.770
Colonizer (1 = non-Spanish)	–12.933***	1.288	–1.557***	.402
Slave population, 1860	.285***	.040	.117***	.028
Winner's lagged vote	.737***	.077		
N	1,077		1,077	
R^2	.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 party's vote share.

state literature. For example, Chaudhry (1997) and Karl (1997) suggest that although 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.

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 and the results are more fragile than those on economic growth and development. Turning first to electoral margins, each percentage increase in natural resource dependence increases the margin of gubernatorial victory by about .15%. 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% 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 the fact 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.[22] Indeed, it is possible that these small total effects hide contradictory

Table 3
Natural Resources and Tax Effort

	Tax Effort	*SE*
Resource dependence	–.800***	.086
Economic growth	–.527*	.318
Per capita income	–26.46***	4.578
Deficits (per capita)	–.003*	.001
N	1,100	
R^2	.23	

Note: Dependent variable is the difference between actual taxation and tax capacity.
Source: Berry & Fording, 1997.

but important indirect effects of mineral wealth on political competition. Mineral wealth might negatively affect electoral competition by increasing inequality (Leamer, Maul, Rodriguez, & Schott, 1999) and increasing the asset specificity of the owners of capital (Boix, 2003), but it might also have a positive direct effect by accentuating the value of attaining office and capturing mineral rents. Although disentangling the precise causal mechanisms is beyond the scope of this article, our case study evidence below suggests that politicians in resource-rich states have shown considerable skill in using mineral wealth to their advantage. It is also the case that if we stray slightly from our focus on political competition and estimate a model for state-level corruption to capture the impact of resources on the quality of institutions, we find that natural resource dependence is associated with increased corruption.[23]

Putting aside the aspect of the comparative literature that has emphasized the affinity between natural resources and coercion (an argument that applies less clearly to our setting), there is some theoretical convergence as to the mechanisms governing the relationship between resource wealth and political competition. In one common account, cheap revenues accrue to the state from natural resource production. These resources allow officials to buy public support and build patronage networks, thereby stunting the development of a viable opposition and related democratic institutions. There are two steps in the causal chain: first, from natural resources to easy fiscal expansion and patronage networks; and second, from patronage to the capacity to survive under otherwise adverse circumstance—to insulate incumbents from the political business cycle.

Table 3 presents preliminary evidence on the first step. Although we do not have a direct measure of patronage networks, we do have a measure of

the extent to which states have to work to collect revenues. Using Berry and Fording's (1997) time-series measures of actual taxation and taxing capacity, we subtract the latter from the former and refer to this as "tax effort." A negative number implies that a state government does not have to try very hard to meet its revenue requirements. We estimate a simple model of tax effort, using resource dependence, lagged growth, and lagged deficits as independent variables. Lagged growth controls for the natural boom in revenues that occur during good times (a fundamental feature of state reliance on income elastic taxes), whereas the deficits measure assesses any incentives for increased tax effort resulting from prior fiscal shortfalls. As expected, natural resource dependence has a strong, negative impact on tax effort. A 30% increase in reliance on natural resources (the West Virginia effect) reduces tax effort by 20%. For sake of comparisons, the average score on the measure for the sample is –3.6. Note that this finding is not a function of a demand on the part of citizens in natural resource dependent states for smaller government. Indeed, the results from a simple model (not shown) for the size of government suggests that each 1% increase in resource dependence increases per capita spending by $3.43. Thus, rentier politicians in the states are spending a lot of easily raised revenues.

The results in Table 4 begin to explore the second step in the causal chain—from easy revenues to the strength of incumbent politicians. The table reports results from a two-stage least squares test using natural resource dependence as a predictor of tax effort. The dependent variable is the gap between the winner's and loser's vote shares. Panel A reports results from regressions that enter per capita income and economic growth as exogenous regressors in the first and second stages, whereas Panel B reports the corresponding first stage, which also includes per capita deficits as an exogenous regressor. The results are again suggestive. The negative coefficient on tax effort suggests that as tax effort declines (i.e., the gap between actual and potential effort becomes more negative), electoral margins climb. Put differently, natural resource dependence seems to generate easy revenues, which in turn reduces the competitiveness of electoral politics.

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.

Table 4
Two-Stage Model for Natural Resources, Tax Effort, and Electoral Competition, 1929-2002

	Dependent Variable: Electoral Margin	*SE*
Panel A: Stage 2 Results		
Tax effort	–.641**	.277
Economic growth	–.005	.347
Per capita income	–8.108*	3.569
Slave population in 1860	.330**	.137
Colonizer (1 = non-Spanish)	–6.005	7.853
Panel B: Stage 1 Results		
Natural resources	–1.282***	.262
Deficits per capita	–.005**	.002
N	456	
R^2	.10	

Note: The dependent variable in Model 1 is the difference between the winner's vote share and the runner up's vote share. "Tax Effort" is defined as the difference between actual tax effort and tax capacity. This is estimated using two-stage least squares.

Developing Details I: Economic Distress and State Sovereignty

In this section of the article, we review the experience of U.S. 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 United States and emerged in much of the early descriptive and analytic literature on oil production in the states. Moreover, for much of the 20th century, U.S. 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 United States was forged through the creation of innovative and unique constitutional structures that continue to exist and that 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.[24] 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 belief, 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 United States as a petroleum importer in the past 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, most of which was produced inside the country. The United States was the major producer, consumer, and exporter of petroleum globally, and the new fuel reshaped the American and global economies. Early observers of the industry noted a tendency to leave economic waste in its wake. One of them observed as follows:

> 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, p. 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 U.S. oil industry developed in a market economy, observers such as Ise (1928) 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, p. 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 1. The Interstate Oil Compact was signed in 1935 by the governors of Oklahoma and Texas to coordinate "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, p. 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, p. 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 past 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 United States (Katzman & Osborn, 1987) 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 down. 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 to low prices at first and later to oil that could not be extracted (Childs, 1991, p. 303; Isser, 2001, pp. 100-101; Weaver, 1986, pp. 33, 67).

The model of the state in the literature on the rentier state is not wholly applicable to the political economy of the American states, because ownership of the subsoil resource is, nearly uniquely, in private hands in the United States.[25] As we look at particular cases within the United States, we see a far more complex set of interests attempting to affect state policy: small private landowners, investors in small wells, in addition to extremely large firms, pipeline firms (that provide transportation but can engage in discrimination), as well as several layers of government interested capturing rents. We believe a closer look at the case studies shows the complex ways in which the desire to capture control of the relevant policies by interest groups can lead to greater competition for political office as well as the possibility of manipulating resource rents to remain in office.

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.[26] 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. They did so under the cover of limiting physical waste, but they also understood that this would also increase state revenues.[27] In other words, the power of the state over private rights to property was increased 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 redistribute revenues from oil, as when Moody claimed that "artificially low oil prices injured the public interest by decreasing tax revenues and royalties in the public school fund" (Malavis, 1996, p. 47). 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" (Malavis, 1996, p. 86). 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 encroachment of smaller ones.

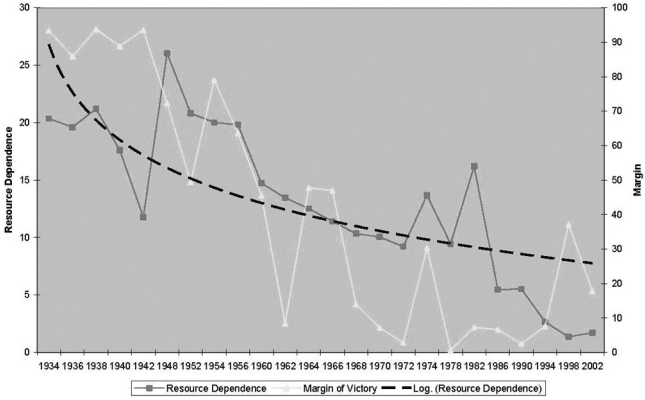
The following 70 years of Texas history are replete with public sector booms and busts associated with the price and production of oil. It comes as little surprise, therefore, to know that "if one word could capture the essence of Texas, it would be *petroleum* and rightly so" (Katzman & Osborn, 1987, p. 129) and that the primary impact is through the provision of services without requiring additional taxes on the population at large. 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 & Osborn, 1987, p. 132). Although Key (1949) 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 (p. 265). Similarly, the state budget increased well over 65% 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 & Harpham, 1987, p. 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.[28] Throughout recent decades, the state has been about 50% 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 & Osborn, 1987, p. 133). Some students of Texas politics assert that Texas lies at the core of U.S. politics, and Key (1949, p. 331) suggests that the Dixiecrat movement of 1948 that split the Democracy Party might have resulted as much from the tidelands issue as race. Indeed, the resource curse literature would lead one to expect the decades of resource wealth to be associated with political consolidation and one party dominance, whereas 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 past 70 years. The trend, represented by the dotted line, is toward a more diversified economy less dependent on oil and more competitive electoral politics.

Texas politics in the 20th century have, of course, been driven by many issues other than oil. The extension of the vote to the Black population, the end of the poll tax, and the emergence of the Republican Party as the dominant party of the White population are all important features in Texas and in the rest of the South. Oil politics, however, have also played a substantive role in Texas politics, and the emergence of Republican majorities in Texas after the 1950s is partially the result of campaign contributions by entrepreneurs from the oil sector. This, again, suggests to us that substantively, as well as statistically, there is a fine balance in resource-rich states

Figure 6
Resource Dependence and Margin of Electoral Victory in 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 R^2 is .45.

between political incumbents and those who seek to gain additional leverage over regulation of the resource.

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 extralegal 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 Kurtz and Peoples (1992), 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" (p. 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 (Long, 1964, p. 41). 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. 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, p. 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 office in the United States.

Long won election to the Louisiana Railroad Commission, whence he began a long struggle to tax Standard Oil (Key, 1949, p. 158). By 1921, Long had brought the state legislature to the point of enacting a 3% 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, p. 64). This struggle continued until 1929, when as governor, Long was able to impose a 5 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, p. 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, p. 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 & Peoples, 1992, p. 9). In 1934, Long (then a U.S. 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 &

Bertrand, 1949).[29] 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, Hodding Carter (as cited in Kurtz & Peoples, 1992) wrote "And now with Governor Earl Long, Louisiana returns to 'normalcy.' Louisiana is a Caribbean republic again" (p. 129). Into the 1980s, Louisiana politics were dominated by oil, for in the words of Laborde (1985), "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" (p. 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, p. 610).

Although the Long brothers are closely associated with the clientelistic use of oil rents, they were not alone in Louisiana in using them. Leander Perez cemented his legendary power in the 1920s in Plaquemines Parish with legislation that allowed local government divisions to capture resource rents so that he could both increase public works projects and lower taxes (Jeansonne, 1977). 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 & Peoples, 1992, p. 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. 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 & Peoples, 1992, p. 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. 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 bang of investment and consumption that can provide for a broad-based economic takeoff.

Although 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 other 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 & Jones-Luong, 2002). Because 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.

We believe that our results show that democracies respond to resource abundance in ways that are broadly congruent with the resource curse literature. One important distinction between democracies and authoritarian states is, however, that in the former, there are many more and regular channels within which to compete for political power. These channels allow various producing and consuming interests to compete in ways that may, as in Texas, prove to closely balance each other. It thus comes as no surprise to us that Norway has not become less competitive in the years since the discovery and export of oil. In fact, in Norway (as in Texas), oil may have made politics slightly more competitive on balance.[30] Parsing out the potential divergent causal mechanisms linking resource wealth to political outcomes remains an important research frontier.

Indeed, the robustness of empirical findings aside, there is widespread disagreement as to the causal mechanisms behind the correlation between resource reliance and political and economic outcomes. 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 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, and so forth. 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 and Values

Minerals Yearbook (prepared by the staff of the Bureau of Mines, 1932-present). Washington, DC: Government Printing Office.
Mineral Resources of the United States (1882-1931). Washington, DC: Government Printing Office.
United States Geological Survey Web site: http://minerals.usgs.gov/minerals/pubs/myb.html
U.S. Department of Energy (1977 to present): http://www.eia.doe.gov/
History of U.S. Oil Production, 1859 to 1998

(continued)

Appendix (continued)

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

U.S. Census Bureau. (various years). *Historical Statistics of the United States: Colonial Times to 1970–Bicentennial Edition*. Washington, DC: Department of Commerce.

Electoral Data

Glashan, Roy R. (1979). *American governors and gubernatorial elections, 1775-1978*. Westport: Meckler Books.
Glashan, Roy R. (1998). *Gubernatorial elections, 1787-1997*. Washington, DC: Congressional Quarterly.
Council of State Governments. (various years). *The book of the states*. Lexington, KY: Author.
National Governors Association Web site: http://www.nga.org/

Consumer Price Index Deflator

Economic History Services Web site: http://www.eh.net/hmit/

Notes

1. The term *dutch disease* is used to characterize the decline of the manufacturing sector in the Netherlands after a natural gas boom in the 1960s.

2. For example, in Ross' (2001a) excellent, seminal article, the most basic model uses 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).

3. 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. Nonbooming 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 nontradables and negative to the degree that it relies on nonboom exports.

4. The resource curse literature is unclear as to whether a mineral boom is expected to contribute to negative growth or simply a flattening of the previous growth trend.

5. One common cutoff for what qualifies as a rentier state is when natural resource revenues make up at least 40% of the budget. Using that as a lower bound and making reasonable assumptions about the translation of resources divided by GDP into resources divided by 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.

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

7. In 2003 dollars, Connecticut's per capita income was $44,347 in 2000 and Mississippi's was $22,384.

8. The states are Connecticut, Hawaii, Illinois, Indiana, Massachusetts, and New Mexico.

9. These cases are Georgia, Louisiana, Mississippi, South Carolina, Alabama, Arkansas, and Texas.

10. 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 consumer price indices. Of course, exchange rate policies may affect growth, but we believe that this is analytically and empirically separable from resource abundance.

11. To be precise, we ran 98 growth models including and excluding independent variables for which we have longer and shorter time series using seven different estimation techniques—panel corrected standard errors with and without a lagged dependent variables, panel-corrected standard errors with and without fixed effects, a random effects model with a lagged dependent variable, ordinary least squares (OLS) with a lagged dependent variable, and OLS with a lagged dependent variable and year dummies. In 85 models, the coefficient on the resource dependence measure was negative and significant (typically at .01). In 11 other models, the coefficient was negative but insignificant (though nearly so in 5 of them). In two models, the coefficient was positive but insignificant. It is worth noting that the models including year effects control for any exogenous shock that might affect the federation as a whole (shifts in the business cycle, wars, etc.).

12. 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.

13. Nor is there likely to be such a measurement, because oil reserves are only measured relative to existing technology and price rather than as a potential physical quantity.

14. Where it is relevant, we report differences in the appropriate endnote. As a general matter, in robustness tests the per capita measure had a negative coefficient in about the same share of models as the measure we work with below (98%, see Endnote 10), though it was significant at slightly lower rates (65% of the models rather than 85% of the models).

15. 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 percentage changes.

16. 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.

17. The eight different experiences were as follows: 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 United States).

18. Capital stock is measured on a per capita basis and is from Garfalo 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 Bureau (various years). State spending is measured as a share of state income and comes from the Council of State Governments. The educational attainment data is reported by decade beginning in 1940. We interpolate the data for the intervening years. The state spending data is reported at mostly 2-year intervals from 1940 to 1982 and annually thereafter. We interpolate the missing data.

19. See Endnote 10. Extreme bound analysis of these three models produce minimum and maximum estimates of the natural resource beta that are negative and significant. Note that when oil and coal are run separately, the coal results are less consistent than those for oil. Coal's coefficient is negative in all model specifications, but in some of the alternative model specifications, the coefficient is insignificant.

20. Between 1976 and 1977, mineral dependence in Alaska jumped from 7% of state income to 26%.

21. One might argue that Alaska's performance simply mirrors that of the country as a whole. That our large-N results hold up in the presence of year dummies suggests the negative effect on growth is present even after controlling for nationwide dynamics.

22. Note that although the results are robust to the inclusion of year dummies, they are fragile in the face of alternative measures of the key independent variable. Although the results are robust to a measure of oil dependence, the results are null for coal producers alone. Likewise, the results disappear when one moves from a logged to unlogged measure of resource dependence.

23. We estimate a model consistent with Alt and Lassen (2003), who use the corruption data reported by Boylan and Long (2002).

24. See, for example, the letter from the head of the U.S. Geological Survey to the Secretary of the Interior protesting overproduction and excessively low prices causing waste in 1909 cited in California State Council of Defense Council (1917, p. 40). On early Texas tax history as it bears on natural resources, see Isser, 2001.

25. The sole exception is the Austro-Hungarian province of Galicia.

26. Taxes specifically on oil as opposed to lower and more general taxes on real property appear to date from the 1910 oil boom in Oklahoma (Hidy, 1950, p. 89).

27. See Rister (1949, p. 320) on Texas Governor Ross Sterling. Before becoming governor, Sterling was president of Humble Oil and Refining and was clearly well placed to understand the fiscal and broader economic impact of cheap oil.

28. In 1978, direct taxes on oil and gas production amounted to about 27% of taxes, and the ambiguous category "land income or royalties" added another 5%. Taxes on motor fuels paid by consumers at the pump added further revenue.

29. By one estimate, the oil industry paid half the State of Louisiana's taxes in 1947 (Rister, 1949, p. 399). On Huey Long as an exceptionally successful machine boss whose rule was based on clientelism but not coercion, see Williams, 1967.

30. In Norway, with oil exports reaching new heights by 1980, the dominant Labor Party lost an election for the first time in nearly 50 years.

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