

When Do Natural Resources Harm Fiscal Health? Evidence from the United States

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Do natural resources have harmful economic consequences? This question is central to the interdisciplinary “resource curse” literature, but important questions remain unanswered. At the same time, the discovery of new resource deposits around the world and technological developments that enable greater resource extraction make understanding the dynamics of the resource curse even more pressing. This article addresses these issues by focusing on the relationship between resource abundance and fiscal outcomes, which we argue more accurately reflects the causal mechanisms emphasized in existing research than aggregate economic outcomes like increases in gross domestic product per capita. We describe a variety of hypotheses linking resource abundance to fiscal health, including how political and institutional factors can either mitigate or exacerbate the effect of resource wealth, and test these arguments using state-level data from the United States encompassing the years 1992-2014. This focus on subnational variation helps minimize some of the limitations of the cross-country comparisons that have dominated the prior literature. Our regression results suggest that, contrary to the most pessimistic theories, resource wealth is often associated with stronger fiscal performance at the state level. However, a number of factors, including levels of political polarization, legislative term limits, and lower wage growth, negate these benefits.

Keywords: Economy and Development, Comparative Political Economy, United States, State and Local Politics, Resource Wealth, Natural Resource Management, Resource Dependence, State Fiscal Health, Fiscal Health of Governments, Political Polarization, The Resource Curse, Constitutional Issues, Political Institutions.

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Related Articles:

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Pocos temas en la economía política comparada han atraído tanta atención como la forma en que la riqueza de los recursos naturales da forma a los resultados políticos y económicos. Este documento aporta varias innovaciones a esta literatura. En primer lugar, reenfozamos el debate fuera del énfasis en los resultados económicos agregados, como el aumento del PIB per cápita, hacia la salud fiscal de los gobiernos. En segundo lugar, esbozamos una serie de argumentos teóricos que enfatizan los factores políticos e institucionales que mitigan o exacerbaban el efecto de la riqueza de recursos en la salud fiscal. En tercer lugar, superamos las limitaciones tradicionales de datos entre países para evaluar estas hipótesis utilizando datos de los Estados Unidos a nivel estatal. Nuestros resultados sugieren que, contrariamente a las teorías más pesimistas, la riqueza de recursos a menudo se asocia con un desempeño fiscal más sólido a nivel estatal. Sin embargo, una serie de factores, incluidos los niveles de polarización política, pueden negar estos beneficios

Palabras Clave: Economía y desarrollo, Estados Unidos, cuestiones constitucionales, instituciones políticas.

针对比较政治经济，能像自然资源财富如何影响政策和经济结果那样引起足够关注的话题并不多。本文对此提出了几项创新。第一，笔者重新聚焦于强调总体经济成果（例如人均GDP增长）和政府财政健康状况的辩论。第二，笔者概述了一系列理论观点，这些观点强调了能缓解或恶化“资源财富对财政健康状况产生的效果”的政治因素和制度因素。第三，笔者克服了传统跨国数据的限制，用美国国家级数据评价了这些假设。研究结果显示，与最悲观理论相反的是，资源财富时常和国家财政表现的增强有关。然而，一系列因素——包括政治两极化程度——可能会否认这些益处。

关键词: 经济与发展, 美国, 宪法议题, 政治制度.

A rich multidisciplinary literature has demonstrated that, when it comes to economic growth, an abundance of natural resources is more often a curse than a blessing. Such results seem paradoxical at first glance, given that resources provide an important source of wealth. Nevertheless, a number of studies from economics and political science have demonstrated that resource-reliant countries tend to experience slower rates of economic growth (Auty 1993; Robinson, Torvik, and Verdier 2006; Sachs and Warner 1995; Sala-i-Martin and Subramanian 2003). Critical components of this argument, however, remain disputed or untested in existing work.

For instance, Ross (2012, 198) argues that many earlier conclusions on the negative effects on economic growth were dependent on data from the 1970s and 1980s, decades that were particularly challenging for commodity exporters. Relatedly, Alexeev and Conrad (2009a) take issue with the implicit assumption of much current research that initial income in a country is unaffected by the presence of resource wealth. Once this connection is considered empirically, the authors find that oil wealth does not cause a decrease in institutional or economic outcomes. More recently, James (2015) argues that resource wealth is associated with slow growth in the resource sectors of the economy only, and not with economic performance more generally. van der Ploeg and Poelhekke (2017) and Brunnschweiler and Bulte (2008) highlight additional challenges in this literature, including how to measure resource abundance and endogeneity concerns. Clearly, more research is required to understand when and why resource abundance has negative economic consequences.

Understanding the resource curse also has important policy implications. New discoveries of natural resources, particularly oil, tend to be concentrated in the developing world where governments are least equipped to handle the challenges of such windfalls and translate them into equitable and sustainable growth strategies (Ross 2012, 10). At the same time, technological innovations such as hydraulic fracturing and horizontal drilling have upended traditional global energy markets while deepening the resource dependence of many countries, including the United States. For instance, Weber, Wang, and Chomas (2016) show that U.S. state revenue from oil and gas taxes doubled between 2003 and 2014. Other scholars are just beginning to understand the welfare, employment, and distributional impacts of this change (e.g., Hausman and Kellogg 2015; Weber 2012). In short, there are important public policy implications of learning how to manage resource wealth more effectively.

Our article contributes to this broad focus on the economic consequences of resource abundance, but we make several innovations to the existing literature. First, rather than study the overall levels of performance like rates of economic growth, we turn our focus to the fiscal health of the political units we study. As we point out in our review of the prior literature, much of the existing theoretical work on the resource curse emphasizes what we characterize as *public finance* transmission channels between resource dependence and negative economic

outcomes. These include increases in state spending, reductions in revenue collection, and a general failure to adopt countercyclical fiscal policies that could help manage the inherent volatility of revenue streams dominated by natural resources. We study these transmission channels directly by emphasizing how resource dependence influences various measures of fiscal health.

Second, we employ a subnational analysis strategy, focusing on variation in resource dependence and fiscal health of U.S. states. Studying the dynamics of the resource curse in this setting is not entirely novel. Papyrakis and Gerlagh (2007) and James and Aadland (2011) have shown that greater resource abundance leads to lower levels of economic growth at the U.S. state and county level, respectively. Goldberg, Wibbels, and Mvukiyehe (2008) also use evidence from the U.S. states to demonstrate that resource wealth tends to reduce political competition. We follow these approaches, which tend to emphasize how this unique setting minimizes some of the cross-country differences that are difficult to measure empirically and might influence the level of economic performance directly or alter the relationship between resources and such outcomes. While prior studies have examined the relationship between some of the factors we highlight and state fiscal outcomes or political competition (e.g., Day and Boeckelman 2012; Prier and Wagner 2009), we believe our study is the first to both analyze the resource curse in the U.S. states and focus directly on measures of fiscal health.

The article proceeds as follows. First, we briefly summarize prior research on whether resource wealth impacts economic performance, paying special attention to the theoretical arguments emphasizing public finance transmission channels of this effect. We derive a series of testable hypotheses that identify conditions that should magnify the negative effect of resource revenue on state fiscal health (including greater levels of political competition and the existence of term limits, which encourage policy makers to adopt shorter time horizons) and those that ought to mitigate it (such as the existence of institutional constraints on spending, including balanced budget amendments).

We then describe our research design, starting with the advantages and potential challenges of analyzing such questions in the context of the United States, and our measures of all concepts, including resource dependence and state fiscal health. We employ panel data regression analysis to test these hypotheses, and present a series of statistical results supplemented with substantive interpretation of the findings in the form of marginal effects. Contrary to the most pessimistic predictions from the literature, we find little evidence that resource reliance alone is a curse. For instance, we find no evidence that balanced budget amendments are necessary to mitigate the negative fiscal consequences of resource dependence. We also find no evidence that policy makers respond to increases in resource revenue by changing the debt structure or debt service burdens of their economies. Indeed, under a variety of common circumstances, resource revenue acts as a blessing by improving measures of state fiscal health.

Nevertheless, our results identify circumstances where this positive effect diminishes and others where increased resource revenue is associated with statistically worse fiscal outcomes. We conclude by discussing the implications of our findings and how future research can further clarify the mechanisms linking resource dependence to economic outcomes.

Volatility and the Role of Public Finance in the Resource Curse

Existing research on the economic impact of resource abundance is fragmented, with many studies emphasizing a sharp negative impact on economic growth while others suggest the impact is either illusory or dependent on specific measurement issues or model specifications.¹ How are scholars to make sense of this debate?

One explanation is that studies expecting to observe a direct impact of resource wealth on economic growth rates are too “reductionist” (Rosser 2006, 7). Many prior studies explain economic performance in terms of a country’s natural resource base with a relatively simplistic assumption that these endowments directly impact rates of economic growth or levels of income per capita. In contrast to this straightforward linkage, scholars are now recognizing that a number of political or social variables may condition the impact of resource abundance, both theoretically and empirically. For instance, Mehlum, Moene, and Torvik (2006) argue that high-quality institutions render the traditional link between resources and negative growth rates insignificant. Further attention to these sorts of moderating variables may help resolve some of the empirical debate.

The contrasting findings are also explained by the growing consensus that resource abundance affects the *volatility* of economic growth rates, rather than the level. This argument is most closely associated with van der Ploeg and Poelhekke (2009). These authors demonstrate that, to the extent that a resource curse exists, it is a reflection of the greater volatility exhibited by countries dependent on commodities. These conclusions fit with broader work by Blattman, Hwang, and Williamson (2007), who use data from an earlier historical period to demonstrate that countries specializing in price-volatile commodities receive less foreign investment and experience slower rates of economic growth. Recent papers by von Haldenwang and Ivanyina (2018) and van der Ploeg and Poelhekke (2017) continue to support this connection between natural resource abundance and both revenue vulnerability and economic volatility.

From a political-economy perspective, however, the focus on volatility leads to more questions than answers. Most notably, if the negative consequences of resources work through a volatility channel, why do so many governments

¹ van der Ploeg and Poelhekke (2017), Rosser (2006), and Frankel (2010) provide excellent overviews of this debate.

fail to take proactive steps that could manage it? After all, there are a number of effective countercyclical policies that governments can take that would mitigate the potential disruption from relying on revenue flows stemming from volatile resource stocks. However, most cross-country studies from the developing world demonstrate the opposite, namely that governments tend to respond to windfall revenues with excessive spending (Ross 2012, 215). Understanding why governments fail to manage volatile resource revenues is thus an important political-economy question in its own right and offers an important opportunity to clarify important puzzles on the relationship between resource abundance and economic performance.

Why specifically might governments fail to manage this volatility? Early literature in the field emphasized simple myopia on the part of policy makers who refused to believe that the boom in resource prices (and thus revenue) would be followed by a bust. In Karl's (1997) evocative phrase, leaders in oil-rich countries experience "petro-mania" that distorts their ability and willingness to plan for the future. More recently, a number of arguments identify factors that prevent governments from effectively managing the volatility of resource revenues. These tend to emphasize how policy makers respond to political pressures and institutional constraints when it comes to managing resource revenues and by extension how these factors explain the negative fiscal consequences of resource wealth. We refer to these as "public finance" arguments since they emphasize the connection between resource wealth and poor fiscal health as a root cause of the resource curse.

The first of these arguments emphasizes the role of uncertainty among policy makers. Ross (2012, 216), for instance, highlights the time consistency problem that plagues resource-dependent states. Specifically, he notes that while countercyclical policies provide long-term payoffs, those benefits only accrue to future policy makers, while the costs of such prudence are both borne today and thus attributed to current leaders. Moreover, such policy responses to the volatility problem are only effective if they are maintained over a long time span. Though an individual policy maker may favor an approach that saves and invests profits from resource booms for future bust times, their fear that a future replacement may abrogate these arrangements can distort their own policy preference. The net effect is that, in the absence of certainty over what future leaders will do, policy makers face little incentive for responsible fiscal behavior today. By contrast, this effect may be mitigated by leaders with longer time horizons or clearer expectations about their time in office.

Second, resource revenues may be used by incumbent governments to increase their odds of re-election. Resource revenues offer unique sources of financing for political patronage. When political competition is greater, these effects may intensify, as campaigns compete with one another to offer future benefits. Candidates who are willing to use resource wealth for patronage gain important electoral advantages. On net, this political competition may

lead to a sort of resource-fueled patronage which creates strong disincentives for current policy makers to tie their hands through the adoption of more responsible fiscal policies. Robinson, Torvik, and Verdier (2006), for instance, develop a formal model wherein politicians overextract resources relative to more efficient pathways, largely as a response to their own uncertainty about re-election. When competition is greater, uncertainty over re-election is stronger, and there may be larger incentives to use resource wealth for patronage and thus larger negative consequences for fiscal health. In a related paper, Khodr (2014) shows that this “distributive state” is at the heart of policy making in resource-abundant states. Relatedly, Liou and Musgrave (2016) argue that resource rents enable leaders to target members of their own winning coalition with rewards that would not be feasible in tax-reliant regimes. The general implication of these arguments, namely that resource wealth is associated with longer tenures for policy makers, both democratic and authoritarian, is supported by a large body of empirical research (e.g., Cuaresma, Oberhofer, and Raschky 2011; Goldberg, Wibbels, and Mvukiyehe 2008; Smith 2004).

Third, policy makers in resource-abundant states may not face sufficient institutional constraints on the fiscal policy-making process. This argument is rooted in the political science literature demonstrating that resource wealth is associated with diminished institutional quality and less accountability between leaders and citizens (Ross 2001). In these models, resource wealth inhibits the development of more democratic institutions, which reduces the constraints on individual leaders. The net effect is that resource wealth leads to the kinds of political institutions that are less likely to engage in the kinds of policy making that manages volatile revenue flows. In related work, Humphreys and Sandbu (2007) demonstrate that institutional constraints on decision making, such as checks and balances, reduce the likelihood that governments overspend resource surpluses.

Finally, policy makers may face pressures from citizens that discourage the adoption of countercyclical policies to manage resource volatility. Though much of the existing theoretical work emphasizes how leaders’ own incentives for re-election shape their behavior, they may also encounter a citizenry that prefers more immediate consumption of resource wealth through public spending or redistribution (Ross 2012, 219). Populations that are relatively disadvantaged economically may prefer pro-cyclical spending of resource revenues. Alternatively, populations that are sharply divided politically may push for immediate consumption for fear of being left out of the coalition of some future set of policy makers and leaders.

Taken together, these arguments offer a number of hypotheses linking increases in resource revenue to worse fiscal outcomes. For the sake of clarity, we restate them below in sequential order.

Hypothesis 1: When policy makers have longer time horizons, increases in resource dependence are less likely to lead to poor fiscal health.

Hypothesis 2: When political competition is greater, increases in resource dependence are more likely to lead to poor fiscal health.

Hypothesis 3: When policy makers face fewer institutional constraints in the public budgeting process, increases in resource dependence are more likely to lead to poor fiscal health.

Hypothesis 4a: When states are relatively disadvantaged economically, increases in resource dependence are more likely to lead to poor fiscal health.

Hypothesis 4b: When populations are more polarized politically, increases in resource dependence are more likely to lead to poor fiscal health.

Each hypothesis reflects a plausible theoretical connection between resource revenue and poor fiscal health, yet it is rare to find any empirical literature that tests these effects or adjudicates between them. This is likely explained by the absence of good data to measure the relevant concepts at the cross-national level, which is the focus for much extant literature.

As a partial remedy, we test these hypotheses using data from the 50 U.S. states. Studying variations in the U.S. states allows us to minimize many of the cross-country differences that are difficult to measure empirically and can shape economic performance and fiscal health directly, or otherwise impact the relationship between resource wealth and these outcomes. We follow a number of other scholars that have adopted this approach in the literature, including Papyrakis and Gerlagh (2007) and James and Aadland (2011) who focus on resource wealth and economic growth and Weber (2012) who studies natural gas development and labor markets. Additionally, Besley, Persson, and Sturm (2010) study the role of political competition and policy making for growth in the U.S. states, and Goldberg, Wibbels, and Mvukiyehe (2008) use evidence from the U.S. states to demonstrate that resource wealth tends to reduce the strength of political competition. As we outline below, restricting our analysis to the U.S. states enables clearer measurement of relevant concepts while still exhibiting large amounts of variation in key concepts, particularly a state's measure of resource reliance.

Nevertheless, there are some trade-offs to evaluating these hypotheses in the U.S. context. Most notably, the United States is unique when it comes to ownership structure of these assets; for instance, the United States is the only major oil-wealthy state with private ownership of this sector (Ross 2012, 34). While other mineral sectors retain some state ownership, particularly in the American west, private ownership still predominates (Murtazashvili 2017). As such, the

U.S. federal and state governments benefit from resource wealth indirectly, through taxation, royalties, or other downstream channels, including taxation on firms and employees in these sectors. This suggests that policy makers in the United States have less direct control over the size of resource revenues—for instance, they cannot unilaterally increase extraction rates and thus revenues when prices are high. More generally, research by Jones Luong and Weinthal (2006) suggests that private ownership of mineral resources facilitates the development of strong fiscal and regulatory institutions which themselves reduce the negative effects of resource ownership. How consequential are these issues when it comes to generalizing from this case?

Though we take the unique (for this research agenda) setting seriously, three separate arguments suggest this is still a useful domain in which to evaluate this resource curse argument. First, a careful analysis of resource-wealthy states suggests that the “public vs. private ownership” distinction obscures considerable institutional variation. For instance, Jones Luong and Weinthal (2006) describe four separate common frameworks for oil-producing states, including state ownership with varying levels of foreign firm participation, domestic private ownership, and foreign ownership. Though one tenet of their argument is that scholars must take these institutional arrangements seriously, their work also suggests that the United States is not the only country that falls outside of the classic framework of state ownership for mineral rents.

Second, there is considerable evidence that the United States (and subnational state governments) earn sizeable revenues from these largely privately held resource bases, and thus are still subject to the impact of volatility in these revenue flows. For instance, recent work by Alexeev and Chernyavskiy (2014) compares the government share of net present value of oil extraction projects in Russia and the U.S. Their estimates suggest that while the Russian government earns nearly 85 percent of net present value, the U.S. government earns between 60 and 70 percent of net present value of oil deposits on federal land. Alexeev and Chernyavskiy further document the various royalty fees, severance taxes, and corporate income tax that private oil firms must pay to federal and state governments in the United States. In short, subnational governments in the United States still earn considerable revenue from their domestic natural resource bases, and thus represent a reasonable setting for evaluating this argument.

Finally, there is significant variation within the United States in terms of natural resource endowments. For example, wages in mining, quarrying, and oil and gas extraction industries in 2014 totaled \$2.4 billion in Wyoming, accounting for 18 percent of total wages in the state. However, only \$11 million in wages was paid in Maine in these resource sectors, accounting for .05 percent of total wages in the state.² At the same time, crucial sociopolitical, institutional, and

² These figures are based on our measurement of resource reliance, which is discussed in detail in the following section.

cultural elements that are likely endogenous to the fiscal outcomes we examine below are held constant (Alexeev and Conrad 2009b). The ability to reduce the impact of such differences is another advantage of our approach that helps offset the limitations implied by our focus on the United States. In short, we believe that our approach can still yield useful generalizations to other resource-wealthy polities. We discuss our research design in more depth in the following sections.

Measurement and Research Design

Each hypothesis identifies a factor that we expect to mitigate or exacerbate the impact of resource wealth on fiscal outcomes. Therefore, the appropriate methodological choice is to interact measures of each factor with a measure of resource dependence, and evaluate the joint effects on measures of state fiscal health. We first describe our measurement choices and then turn to a discussion of the research design and estimation approach.

Measures of Fiscal Health

Our outcome of interest is the fiscal health of a state government. This can be assessed across four dimensions of financial condition: revenue levels, expenditure levels, the balance between revenues and expenditures (otherwise known as the operating position), and debt utilization (Arnett 2014). Jacob and Hendrick (2013), Arnett (2014), and Kloha, Weissert, and Kleine (2005) provide a comprehensive overview of state fiscal health.

There is no single measure of fiscal health (Jacob and Hendrick 2013; Jimenez 2009). Some scholars resolve this measurement ambiguity by creating binary classifications of fiscally healthy versus unhealthy governments, using either an absolute standard or by comparing to peer governments. However, these approaches have a number of drawbacks. For starters, there is no consensus regarding how absolute benchmarks should be established, and arbitrary benchmarks will likely be either too lenient or too strict. Yet relying on relative measures to identify fiscal health is dependent on the overall health of the comparison governments (Honadle, Cigler, and Costa 2003); nonnormal distributions of fiscal health have the potential to skew benchmarks. Also, such approaches will, by definition, determine that some governments are always in poor fiscal health, even if all governments in consideration are actually fiscally healthy in absolute terms.

We avoid these drawbacks using multiple continuous measures of fiscal health. We do this by identifying six measures of fiscal health that are inspired by Kloha, Weissert, and Kleine (2005) and Brown (1993). These measures describe fiscal health across the four dimensions of fiscal health and are summarized in Table 1. Data are from the U.S. Census Bureau annual State Government Finances.

Revenue growth and tax effort measure revenue adequacy and efficiency, respectively, central components of revenue health. There is typically tension

Table 1. Measures of Fiscal Health

Fiscal Health Dimension	Variable	Measurement Details
Revenue	Revenue Growth	2-year growth rate of General Revenue/ Population <i>Larger values are preferred</i>
	Tax Effort	Total tax revenue/State personal wages (in \$1,000s) <i>Smaller values are preferred</i>
Expenditure	Operating Expenditures	Operating expenditures/Total expenditures <i>Smaller values are preferred</i>
Operating Position	Deficit Spending	(General expenditures – General revenues)/ General revenues <i>Smaller values are preferred</i>
Debt	Change in Debt Structure	Change in (Net outstanding debt/State personal wages) (in \$1,000s) <i>Smaller values are preferred</i>
	Debt Service Burden	Expenditures on long-term debt service/ General revenue <i>Smaller values are preferred</i>

between revenue adequacy and efficiency because increased revenues often accompany increased tax effort, yet both adequacy and efficiency are important to revenue health. Operating expenditures measure the extent to which spending focuses on current, operating expenditures over long-term expenditures such as capital projects. Deficit spending is normalized by general revenues and captures the balance between revenues and expenditures. The change in debt structure measures changes in the extent to which a state relies on debt financing, and debt service burden captures the impact of debt on the budget.

Resource Dependence

We expect changes in the prevalence of natural resources to impact public finances because of the size of this sector’s contribution to the state economy. Rather than the mere presence or abundance of natural resources, it is the economic activity resulting from the extraction of these resources that will influence state revenues. Furthermore, fiscal decisions are made at the margin, as policy makers respond to changing circumstances. We therefore measure resource reliance as the annual change in the percent of total state real wages from mining, quarrying, and oil and gas extraction. Wage data are taken from the Bureau of Labor Statistics Quarterly Census of Employment and Wages.

Independent Variables

Each hypothesis relies on a separate concept; we discuss the measurement of these independent variables sequentially.

Our first hypothesis addresses policy maker time horizons. We measure the time horizons of policy makers using a dummy variable marking state legislatures that have term limits. The existence of term limits should reduce the time horizons of individual policy makers, as it places a clear end date on their political power. We use data from the National Conference of State Legislatures to construct this variable.

The four-year moving average of the folded Ranney index is used to measure political competition. The Ranney index measures the share of state offices occupied by Democrats; this index is “folded” so that both noncompetitive extremes, solely Democratic or Republican control, receive a value of .5 and a perfectly competitive government receives a score of 1. We use data from Klarner (2013) for this variable.

We measure institutional constraints on the budgeting process with a dummy variable distinguishing states with balanced budget requirements. However, there is significant variation among the balanced budget requirements states have enacted. For example, states may enact a series of political and technical requirements that might address the proposed budget, the enacted budget, or expenditure limitations during budget execution (Hou and Smith 2006). Furthermore, not all requirements for a balanced budget are effective. We only consider the most stringent balanced budget requirements, the prohibition of carrying deficits over into the next fiscal year (or biennium in the case of biennial budgets), because these requirements are seen to have the greatest effect on budget outcomes (Hou and Smith 2010; Smith and Hou 2013).

Our final hypothesis involves two characteristics of state populations: economic conditions and political polarization. Percent growth in real per capita wages are used to capture economic disadvantage in a state. Consistent with our approach regarding measures of fiscal health, we use a continuous measure rather than simply classifying some states as being economically disadvantaged each year.

We measure political polarization within a state with a variable developed by Shor and McCarty (2011, 2015). Their measure uses roll call votes that allow spatial mapping of ideologies in each state legislative chamber. We apply the polarization measure for the lower chamber in each state. Larger values suggest greater polarization, or greater distance between the median legislators of each party.

Control Variables

We also control for a variety of political and economic factors likely to impact state fiscal health. These include controls for partisan control of the governor’s office and of the legislature. Because biennial budgets alter the time

Table 2. Summary Statistics

	Count	Mean	SD	Min	Max
% Growth in per capita revenue	1,147	.05	.07	−.34	.67
Tax effort	1,147	.13	.04	.06	.58
% Current expenditures	1,147	.87	.13	.38	.97
Deficit %	1,147	−.01	.06	−.42	.39
Change in debt/total wages	1,147	−.00	.02	−.12	.09
Debt service burden	1,077	.07	.05	.00	.42
Change in resource reliance	1,147	.00	.00	−.09	.09
Term limits	1,147	.21	.41	.00	1.00
Folded Ranney	977	.88	.09	.64	1.00
Balanced budget requirement	1,147	.14	.35	.00	1.00
% Growth in per capita wages	1,147	.01	.04	−.29	.46
Polarization	828	1.41	.48	.18	3.10
Wage growth	1,147	.02	.04	−.28	.47
GOP governor	1,147	.53	.50	.00	1.00
Dem legislature	1,147	.41	.49	.00	1.00
GOP legislature	1,147	.36	.48	.00	1.00
Biennial budgets	1,147	.37	.48	.00	1.00
Growth in population (1,000s)	1,147	58.18	88.10	−273.96	607.81
Corruption rank	1,147	25.47	14.44	1.00	50.00

Note: All independent variables except Balanced Budget Requirement and Corruption Rank are time-variant and are lagged in our models.

horizon of the budget process, controlling for such budgets is important when considering the time horizons of policy makers. We also control for population growth and the annual growth rate in total wages in each state. All financial data were deflated using the gross domestic product price index from the Bureau of Economic Analysis.

Corruption has been singled out as a significant factor in the resource curse, so we also control for state-level corruption. Cordis and Milyo (2016) develop corruption rankings for all states, and we use their rankings that are based on the number of convictions of government officials relative to total government employment in each state.

All time-variant independent variables are lagged one year. This is necessary because the current year's budget is largely the result of the budget process in the preceding year, either through budget adoption or modification in the case of

the second year of a biennial state budget. Descriptive statistics for all variables are reported in Table 2.

Our methodological approach is to interact each independent variable corresponding to a specific hypothesis with our measure for resource dependence, and then use these as regressors in separate regression models for each measure of fiscal health. Our data are a panel of all 50 U.S. states from 1992 to 2014. However, the folded Ranney index is not available after 2011, and the political polarization measure is not available prior to 1997. Therefore, in order to maximize the time frame of our analysis, our first model excludes these two variables. We follow this model up with two alternative specifications: the political competition model using the folded Ranney index covering the years 1992-2011; and the political polarization model covering the years 1997-2014. This approach maximizes the time frame and data observations included in each model while also providing a robustness check of sensitivity to model specification. All models include both random state effects and fixed year effects, allowing the inclusion of time-invariant independent variables. A unit root test (Im, Pesaran, and Shin 2003) finds that each of the variables in our models are stationary.

Results

Tables 3 through 4 report estimated regression coefficients for each dimension of fiscal health: revenue health, expenditure health, operating position, and debt utilization. Three models, corresponding to the different time periods described above, are reported for each fiscal health dimension.

In order to see the mitigating or exacerbating effects of the key variables on resource dependence, we calculate marginal effects for each of the models. We calculated marginal effects for each interacted variable at values across the full range of the other variables. This produces many points at which we calculate marginal effects, most of which are not statistically significant. However, the statistically significant marginal effects occur in clear patterns across the models in our analysis. We report all of the statistically significant marginal effects for the long panel model in this section, along with marginal effects from the other models that test our hypotheses on political competition and political polarization. Interestingly, rather than strictly a resource curse, we observe a resource blessing under a number of conditions. The factors determining whether or not a resource blessing is observed allow an evaluation of our hypotheses and provide policy guidance for governments in resource rich economies.

When evaluating our first hypothesis, we see that longer time horizons for policy makers do matter to the relationship between resource dependence and state fiscal health. While term limits themselves are not seen to directly affect fiscal health, it is the role of term limits in the marginal effect of resource dependence on fiscal health that is our focus.

Table 3. Estimated Coefficients for Revenue Health Models

	Revenue Growth			Tax Effort		
	Long Panel	Political Competition	Political Polarization	Long Panel	Political Competition	Political Polarization
Change in resource reliance	1.818** (.569)	14.604 (11.248)	4.364 (3.899)	.221 (.139)	6.780 (3.482)	1.504 (1.125)
Term limits	-.000 (.004)	.003 (.004)	.000 (.004)	-.000 (.003)	.001 (.003)	.000 (.003)
Change in resource reliance * Term limits	-1.120 (1.656)	-1.147 (1.398)	-.541 (1.389)	-.423 (.286)	-.327 (.365)	-.709 (.407)
Folded Ranney		-.034 (.039)			-.010 (.022)	
Change in resource reliance * Folded Ranney		-14.031 (11.972)			-7.191 (3.870)	
Balanced budget requirement	-.003 (.003)	-.000 (.003)	-.000 (.004)	-.014* (.007)	-.015* (.007)	-.016* (.008)
Change in resource reliance * Balanced budget requirement	-.767 (2.120)	-2.349 (2.371)	1.861 (2.872)	-1.117 (.649)	-1.458 (.812)	-.303 (1.123)
% Growth in per capita wages	1.081** (.323)	1.190** (.341)	.990* (.402)	-.528 (.271)	-.402* (.181)	-.186 (.320)
Change in resource reliance * % Growth in per capita wages	32.214** (11.888)	43.513 (33.799)	20.764 (10.968)	13.499** (3.064)	17.552 (10.723)	13.531** (4.265)
Polarization			-.003 (.005)			-.014 (.010)
Change in resource reliance * Polarization			-1.898 (3.025)			-1.048 (.855)
Wage growth	-.784* (.314)	-.911** (.341)	-.613 (.354)	.565* (.273)	.436* (.187)	.223 (.311)
GOP governor	-.000 (.005)	.001 (.006)	.001 (.008)	.005 (.004)	.006 (.005)	.004 (.005)
Dem legislature	.007 (.004)	.005 (.005)	.009 (.005)	.005 (.003)	.004 (.004)	.003 (.004)
GOP legislature	-.003 (.005)	-.003 (.007)	-.005 (.006)	-.008 (.004)	-.007 (.004)	-.007 (.005)
Biennial budgets	.000 (.003)	-.001 (.004)	.001 (.004)	.009 (.005)	.009 (.005)	.007 (.006)

(Continued)

Table 3. (Continued)

	Revenue Growth		Tax Effort	
	Long Panel	Political Competition	Long Panel	Political Competition
Growth in population (1,000s)	.000 (.000)	-.000 (.000)	-.000 (.000)	-.000 (.000)
Corruption rank	-.000 (.000)	-.000 (.000)	.000 (.000)	.000 (.000)
Constant	.103** (.015)	.134** (.040)	.113** (.009)	.126** (.020)
Observations	1,147	977	1,147	977
States	50	49	50	49
Overall R-squared	.304	.237	.150	.159
rho	.000	.000	.701	.656

Notes: Standard errors in parentheses.
Random state effects, fixed year effects; time-variant independent variables are lagged.
* $p < .05$; ** $p < .01$.

Table 4. Estimated Coefficients for Expenditure Health Models

	Operating Expenditures		
	Long Panel	Political Competition	Political Polarization
Change in Resource reliance	-.084 (.092)	-4.224** (1.389)	1.281 (1.335)
Term limits	-.004 (.004)	-.003 (.003)	-.005 (.006)
Change in Resource reliance * Term limits	1.005** (.347)	.882** (.233)	.903* (.376)
Folded Ranney		.029 (.020)	
Change in Resource reliance * Folded Ranney		4.378** (1.462)	
Balanced budget requirement	-.008 (.008)	-.009 (.010)	-.010 (.009)
Change in Resource reliance * Balanced budget requirement	-.723 (1.292)	-1.576** (.507)	.654 (1.595)
% Growth in per capita wages	.248 (.286)	.476** (.115)	.195 (.339)
Change in Resource reliance * % Growth in per capita wages	-6.450 (3.342)	2.130 (6.152)	-6.640 (4.062)
Polarization			-.002 (.009)
Change in Resource reliance * Polarization			-1.022 (1.043)
Wage growth	-.264 (.284)	-.466** (.112)	-.225 (.335)
GOP governor	.001 (.003)	.001 (.002)	.000 (.003)
Dem legislature	-.004 (.004)	.002 (.002)	-.005 (.005)
GOP legislature	-.004 (.003)	.001 (.002)	-.004 (.004)
Biennial budgets	-.004 (.005)	-.003 (.004)	-.001 (.006)
Growth in population (1,000s)	.000* (.000)	.000* (.000)	.000 (.000)
Corruption rank	-.000 (.000)	-.000* (.000)	-.000 (.000)
Constant	.926** (.009)	.903** (.022)	
Observations	1,147	977	828
States	50	49	49
Overall R-squared	.952	.219	.957
rho	.164	.488	.184

Notes: Standard errors in parentheses.
Random state effects, fixed year effects; time-variant independent variables are lagged.
* $p < .05$; ** $p < .01$.

Table 5. Estimated Coefficients for Operating Position Models

	Deficit Spending		
	Long Panel	Political Competition	Political Polarization
Change in Resource reliance	-.220 (.652)	-15.814** (4.422)	-2.652 (3.530)
Term limits	.001 (.008)	-.001 (.007)	.000 (.011)
Change in Resource reliance * Term limits	-.711 (.610)	-.607 (.760)	-.947 (.940)
Folded Ranney		.009 (.037)	
Change in Resource reliance * Folded Ranney		17.045** (4.356)	
Balanced budget requirement	.010 (.013)	.009 (.015)	.010 (.014)
Change in Resource reliance * Balanced budget requirement	-2.671 (1.693)	-1.733 (2.430)	-4.142 (2.409)
% Growth in per capita wages	.563 (.615)	.351 (.436)	-.223 (.546)
Change in Resource reliance * % Growth in per capita wages	-37.500** (11.792)	-47.316 (28.517)	-33.598* (13.739)
Polarization			.030** (.011)
Change in Resource reliance * Polarization			1.966 (2.492)
Wage growth	-.610 (.606)	-.389 (.430)	.157 (.546)
GOP governor	-.011* (.004)	-.010* (.005)	-.008 (.005)
Dem legislature	-.008 (.006)	-.006 (.006)	-.006 (.007)
GOP legislature	-.001 (.007)	-.006 (.006)	-.002 (.007)
Biennial budgets	-.023* (.011)	-.018 (.011)	-.020 (.010)
Growth in population (1,000s)	.000* (.000)	.000* (.000)	.000 (.000)
Corruption rank	-.000 (.000)	-.001 (.000)	-.000 (.000)
Constant	.030 (.017)	.017 (.036)	-.021 (.027)
Observations	1,147	977	828
States	50	49	49
Overall R-squared	.194	.220	.262
rho	.299	.228	.312

Notes: Standard errors in parentheses.
Random state effects, Fixed year effects; Time-variant independent variables are lagged.
p* < .05; *p* < .01.

Table 6. Estimated Coefficients for Debt Utilization Models

	Change in Debt Structure			Debt Service Burden		
	Long Panel	Political Competition	Political Polarization	Long Panel	Political Competition	Political Polarization
Change in Resource reliance	-.006 (.126)	-.218 (1.508)	-.011 (.755)	.054 (.148)	-1.989 (3.089)	.364 (1.757)
Term limits	-.001 (.001)	-.001 (.001)	-.001 (.001)	.002 (.005)	.001 (.005)	.003 (.005)
Change in Resource reliance * Term limits	.425 (.272)	.697 (.357)	.323 (.254)	-.362 (.880)	-.170 (.728)	-.088 (.942)
Folded Ranney		.004 (.006)			-.060* (.026)	
Change in Resource reliance * Folded Ranney		.322 (1.518)			2.311 (3.224)	
Balanced budget requirement	-.001 (.002)	-.001 (.002)	.001 (.001)	.003 (.014)	.002 (.014)	.000 (.013)
Change in Resource reliance * Balanced budget requirement	-.278 (.931)	-.512 (1.364)	-.064 (.649)	.412 (2.320)	-.627 (1.940)	.585 (2.496)
% Growth in per capita wages	.240* (.106)	.215* (.099)	.185** (.056)	-.071 (.248)	-.239 (.277)	-.107 (.271)
Change in Resource reliance * % Growth in per capita wages	-3.426 (3.392)	-9.025 (10.331)	-.731 (2.954)	-7.560 (6.122)	-16.300 (10.957)	-8.719 (4.716)
Polarization			.002 (.001)			.008 (.009)
Change in Resource reliance * Polarization			-.118 (.563)			-.184 (1.368)
Wage growth	-.221* (.099)	-.198* (.092)	-.198** (.048)	.085 (.236)	.246 (.266)	.117 (.261)
GOP governor	.000 (.001)	.001 (.001)	-.001 (.001)	-.006 (.003)	-.008* (.003)	-.002 (.004)
Dem legislature	.001 (.001)	.001 (.001)	-.001 (.001)	-.004 (.003)	-.007* (.003)	-.003 (.004)
GOP legislature	.000 (.001)	.000 (.001)	-.000 (.001)	.001 (.003)	-.005 (.004)	-.002 (.003)
Biennial budgets	-.001 (.001)	-.001 (.001)	-.003** (.001)	.009 (.007)	.008 (.008)	.009 (.008)
Growth in population (1,000s)	.000** (.000)	.000** (.000)	.000 (.000)	-.000** (.000)	-.000** (.000)	-.000** (.000)
Corruption rank	-.000* (.000)	-.000* (.000)	-.000 (.000)	.001** (.000)	.001* (.000)	.001* (.000)
Constant	.004 (.003)	.000 (.007)		.070** (.010)	.127** (.024)	
Observations	1,147	977	828	1,077	977	770
States	50	49	49	50	49	49
Overall R-squared	.170	.146	.208	.290	.207	.268
rho	.022	.000	.000	.485	.543	.495

Notes: Standard errors in parentheses.
Random state effects, fixed year effects; time-variant independent variables are lagged.
* $p < .05$; ** $p < .01$.

In some instances, term limits—or, more specifically, their absence—lead to a sharp resource blessing. For instance, in states without term limits or balanced budget requirements (both of which are modal conditions within the sample), increased resource reliance tends to actually boost growth in per capita revenue at moderate to high levels of per capita wage growth as seen in Figure 1. In other words, policy makers with longer time horizons are better able to translate increases in resource revenue into higher levels of per capita revenue. Similarly, Figure 2 demonstrates that for states without term limits or balanced budget requirements, increased resource revenue is associated with improved current expenditure health, at least when real per capita wage growth is high. When term limits are present, however, and wage growth is low, increased resource revenue is indeed a curse. Figure 2 shows that the marginal effect of increased resource reliance on the current expenditure measure in these circumstances is positive. This implies that policy makers with short time horizons tend to respond to increases in resource reliance with greater short-term spending. From a political perspective, this is unsurprising, given that it occurs only when wages have been declining. Nevertheless, it is important evidence in support of our first hypothesis.

Figure 1.
Term Limits: Marginal effects of Resource Reliance on Percent Growth in Per Capita Revenue and on Tax Effort, Long Panel Model with No Term Limits or Strict Balanced Budget Requirement (95% Confidence Intervals)

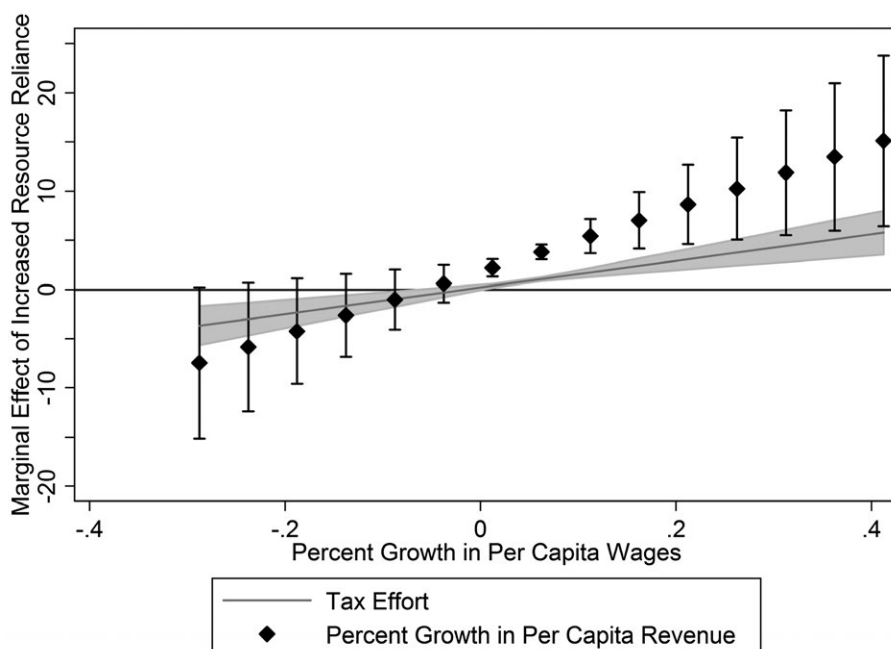
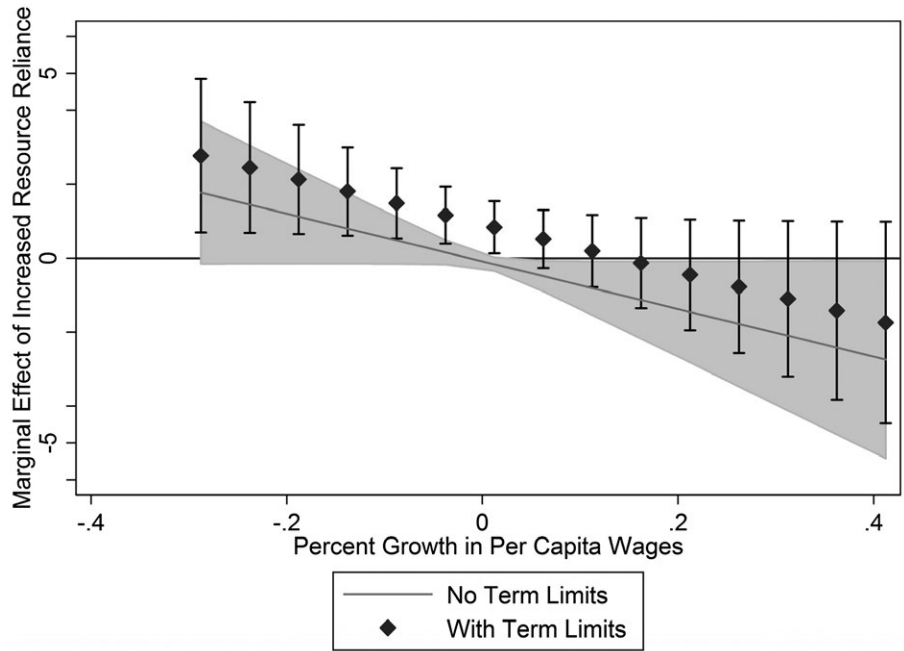


Figure 2.
Term Limits: Marginal Effects of Resource Reliance on Current Expenditure Health,
Long Panel Model with No Strict Balanced Budget Requirement (95% Confidence
Intervals)



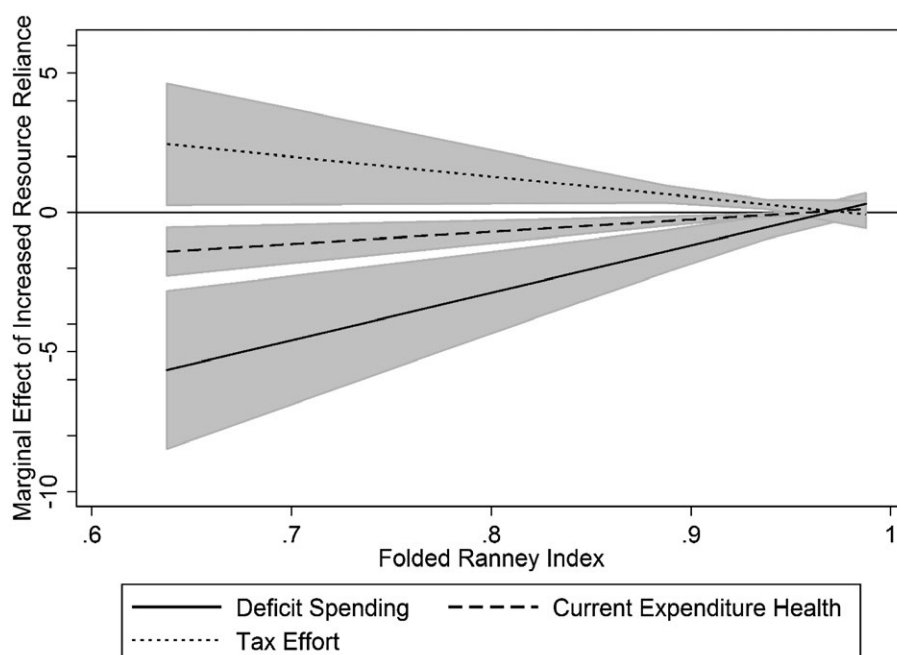
Though we rely on the regression results to evaluate our hypotheses generally, it is important to note that specific states also accord to these findings. For instance, from 1999 to 2010, Michigan had low wage growth, term limits, and no strict balanced budget requirement. During that period, resource reliance in the state increased, and operating expenditures generally accounted for a greater portion of total expenditures over time as the state persisted in these conditions.

We do observe an increase in tax effort in the absence of term limits and balanced budget constraints when real per capita wage growth is high, but a decrease in tax effort in this case when per capita wage growth is low. This is seen in Figure 1. Policy makers with longer time horizons appear to match tax effort to economic growth in the economy when experiencing increased resource reliance. North Dakota, which has characteristics consistent with the conditions in Figure 1 between 2007 and 2014 along with high wage growth, fits this broad pattern. During this period, the boom in shale gas production caused North Dakota to experience a large increase in resource reliance along with a significant increase in tax effort; by 2014, tax effort in North Dakota was above the 99th percentile in our dataset. Furthermore, while higher tax effort indicates worse fiscal health because a higher tax effort indicates reduced capacity to raise additional revenue in the future if necessary, a higher tax effort can be consistent

with revenue growth, lower deficits, and current expenditure health. In other words, in a growing economy without term limits, policy makers respond to increases in resource reliance by increasing tax effort, while simultaneously improving other measures of fiscal health. Importantly, our results suggest that policy makers adopt this approach instead of increasing overall debt burdens; the marginal effects are not significant in those models. This observation also occurs in analysis of our other hypotheses that follow.

Our second hypothesis states that resource dependence will have worse consequences for fiscal health when there is greater political competition. Our results suggest a modified version, namely that lower levels of competition are associated with a resource blessing, while higher levels of competition cause this blessing to disappear. For instance, Figure 3 demonstrates that for states with low to moderate levels of political competition, an increase in resource reliance is associated with reduced deficit spending and current expenditures. However, as political competition increases, these impacts are reduced in magnitude, until they are not statistically significant at high levels of the Ranney index. There is little evidence that competition makes the impact of resource reliance on these measures of fiscal health worse, though it is clear that only states with less

Figure 3.
Political Competition: Marginal Effects of Resource Reliance on Deficit Spending, Current Expenditure Health, and Tax Effort, No Term Limits or Strict Balanced Budget Requirement, at the Median Per Capita Wage Growth (95% Confidence Intervals)



political competition are able to use increases in resource reliance to improve these measures of fiscal health.

For a concrete example, compare the fiscal health of North Dakota in 1994, when the state fit the criteria in Figure 3 and had relatively high political competition, with its fiscal health in 2010 when the state also fit the Figure 3 criteria but Republican control over the legislative and executive branches had reduced political competition. In 2010, North Dakota experienced an increase in resource reliance of two percentage points, which was one of the highest annual increases in our dataset; in that year, its deficit ratio was less than half of what it was in 1994, and its operating expenditure measure also decreased compared to 1994.

Consistent with our discussion of term limits, we see low to moderate political competition in the presence of increasing resource reliance associated with greater tax effort. This marginal effect is also included in Figure 3, graphing the marginal effect of no term limits or balanced budget requirements at median per capita wage growth on tax effort.

We find starker evidence of a resource curse when examining the impact on current expenditures. Figure 4 graphs the marginal effects of resource reliance in the presence of term limits and no balanced budget requirements and at median per capita wage growth, although this result holds across low to high levels of per capita wage growth. Here the evidence suggests that high levels of competition,

Figure 4.
Political Competition: Marginal Effects of Resource Reliance on Current Expenditure Health, with Term Limits and No Strict Balanced Budget Requirement, at the Median Per Capita Wage Growth (95% Confidence Intervals)

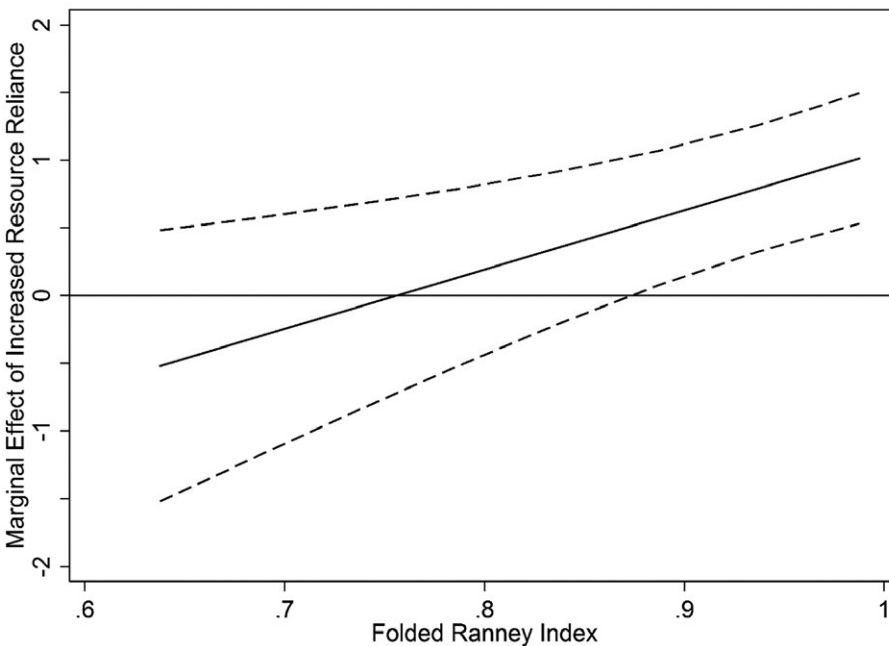
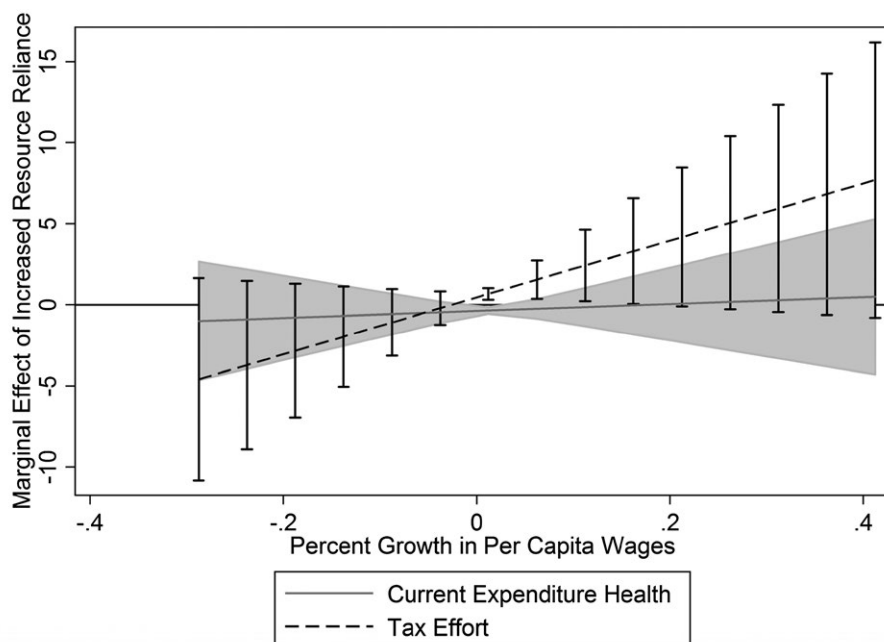


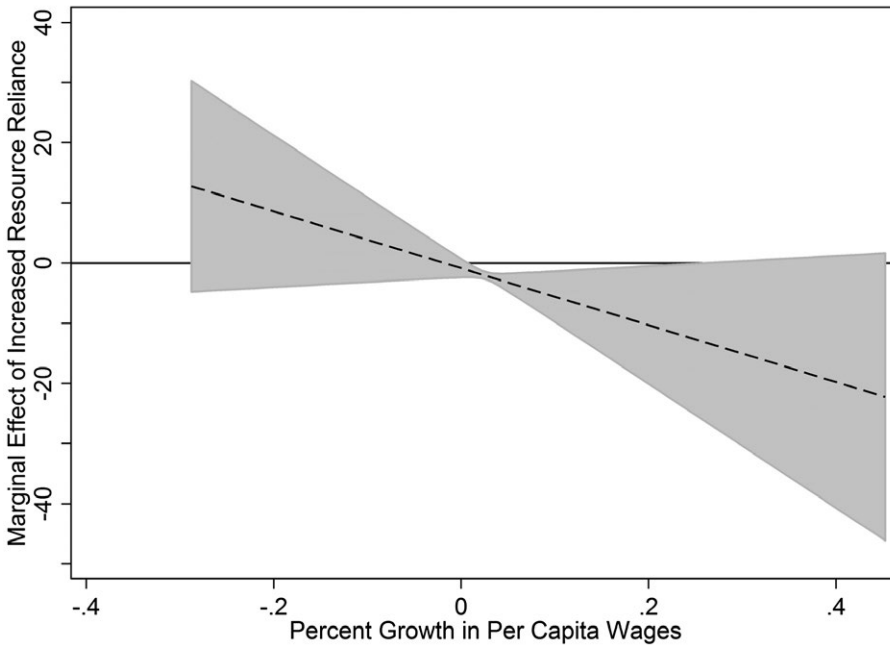
Figure 5.
Economic Disadvantage: Marginal Effects of Resource Reliance on Current
Expenditure Health and Tax Effort, Long Panel Model with No Term Limits or Strict
Balanced Budget Requirement (95% Confidence Intervals)



combined with short time horizons imposed by term limits, lead to large positive impacts on state's operating expenditures. As existing theory expects, the combination of short time horizons, no balanced budget requirements, and high levels of political competition creates an environment where policy makers respond to increased resource reliance with larger current expenditures in the budget. This is illustrated when comparing current expenditures in Colorado and Florida in 2007. Each of these states had characteristics consistent with Figure 4 in that year, and Colorado had high political competition while Florida had low political competition. In the presence of increasing resource reliance in each state that year, the operating position measure in Colorado was above the 75th percentile, while it was below the 25th percentile in Florida.

We now consider institutional constraints in the form of strict balanced budget requirements more carefully. While balanced budget requirements are directly associated with lower tax effort, statistically significant marginal effects on tax effort and growth rate in per capita revenue are only observed in the absence of balanced budget requirements, and statistically significant resource blessing marginal effects on deficit spending and current expenditure health are seen regardless of whether or not balanced budget requirements are present. However, the resource blessing on deficit spending in Figure 3 is observed for a

Figure 6.
Economic Disadvantage: Marginal Effects of Resource Reliance on Deficit Spending,
Long Panel Model with No Term Limits or Strict Balanced Budget Requirement (95%
Confidence Intervals)

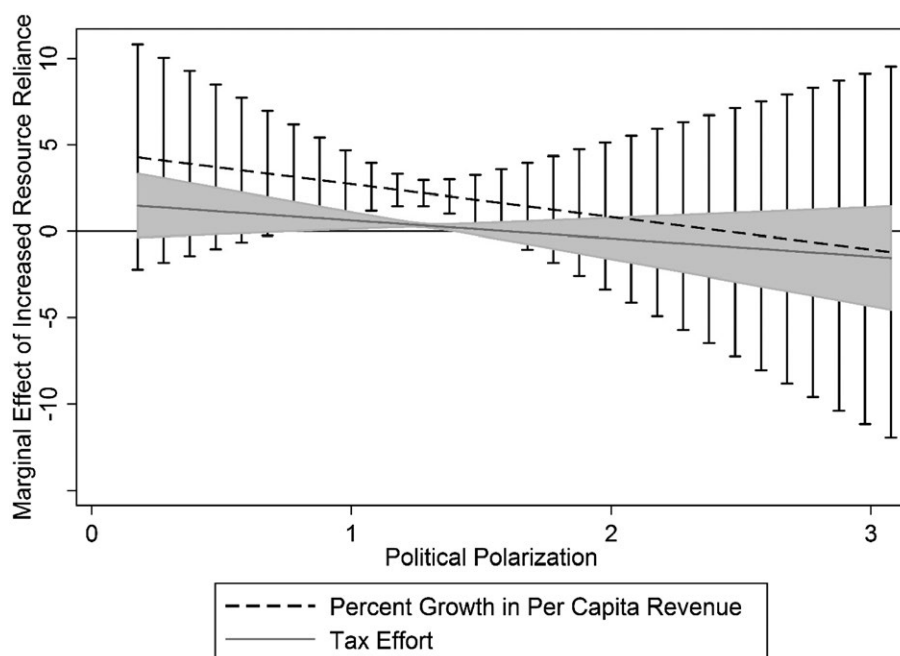


greater range of per capita wage growth in the presence of a budget constraint, indicating a positive impact of this institutional constraint on fiscal health in the presence of lower per capita wage growth. Moreover, the resource curse observed in Figure 2 for current expenditure health only occurs when term limits are combined with an absence of balanced budget requirements.

Both findings are consistent with our third hypothesis; this institutional constraint ensures that a resource blessing is possible in terms of deficit spending even in circumstances where policy makers might feel greater pressure to spend this revenue, while its absence (when combined with term limits) provides incentives and opportunities for policy makers to use increase resource revenue to boost current expenditures. Note that we used a technical criterion to identify this budgeting constraint: prohibiting the carryover of deficits between fiscal years. The finding of a resource curse in the absence of technical budgeting constraints only in the presence of term limits suggests that a political context is important for avoiding a resource curse.

Finally, we consider economic disadvantage and political polarization. Figures 5 6 present the marginal effects of increases in resource reliance on current expenditures, tax effort, and deficit spending, respectively. While there is some evidence that supports the hypotheses that these effects will be particularly

Figure 7.
Political Polarization: Marginal Effects of Resource Reliance on Percent Growth in Per Capita Revenue and Tax Effort, No Term Limits or Strict Balanced Budget Requirement, at the Median Per Capita Wage Growth (95% Confidence Intervals)



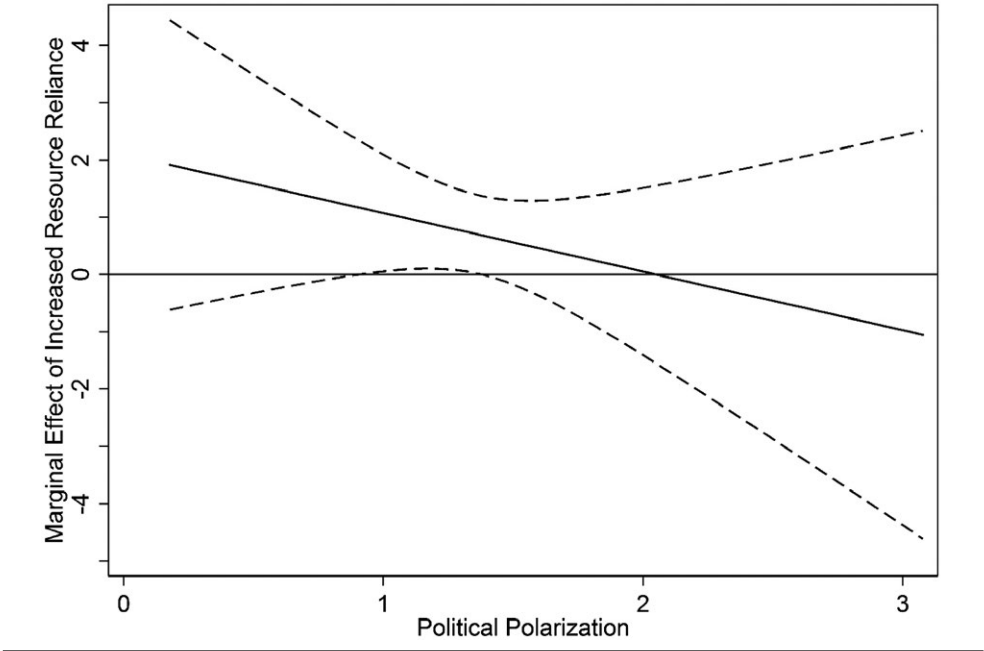
harmful to fiscal health when wage growth is low—for instance, the positive marginal effect on the left side of Figure 6—they are for the most part statistically insignificant. Only at very moderate levels of wage growth is increased resource reliance associated with improved deficit spending (Figure 6) or lower levels of current expenditures (Figure 5). Once again, we see greater tax effort at similar moderate levels of per capita wage growth when resource reliance increases.

These results suggests that while resource reliance is not the universal curse to fiscal health that early theories posited, it only improves fiscal health under certain circumstances. In other common settings, such as states with lower per capita wages, states see no benefits to resource wealth when it comes to these fiscal outcomes.

Turning to our last hypothesis, political polarization plays a role in the relationship between resource dependence and fiscal health. In the absence of term limits and balanced budget requirements, moderate political polarization is associated with a resource blessing; we see a positive effect on the percentage growth in per capita revenue regardless of per capita wage growth. However, as Figure 7 demonstrates, as polarization increases, the marginal effect decreases in magnitude until it is no longer distinguishable from zero. This can be illustrated

by comparing the revenue growth rate in Iowa between 2009, when Iowa experienced moderate polarization with increased resource reliance and 2014, when Iowa experienced high polarization and resource reliance growth similar to that in 2009; in both years, Iowa had characteristics matching the conditions in Figure 7. Iowa saw a very high revenue growth rate in 2009, reaching almost the 90th percentile in our dataset, while the state experienced a decline in per capita revenue in 2014. Somewhat conversely, that same moderate level of polarization is associated with a resource curse when it comes to current expenditure health, as seen in Figure 8. While this effect is the same across all values of per capita wage growth, it is only present when term limits are in effect and there is no strict balanced budget requirement. This suggests that short time horizons and a lack of institutional budgetary constraints can encourage emphasis on short-term spending when legislative agendas do not face the obstacle of high polarization in the presence of increasing resource reliance. Also, consistent with our previous discussion, we see greater tax effort at moderate polarization in the presence of increasing resource reliance when there are no term limits or strict balanced budget requirements and per capita wage growth is moderate to high. The resource blessing of growth in per capita revenue appears to be tied to an increase in tax effort.

Figure 8.
Political Polarization: Marginal Effects of Resource Reliance on Current Expenditure Health, with Term Limits but No Strict Balanced Budget Requirement, at the Median Per Capita Wage Growth (95% Confidence Intervals)



Collectively, these results suggest that resource reliance has a complicated relationship with fiscal health. In some instances, resource-reliant states display some of the classic symptoms identified by early resource curse scholars. In other circumstances, increased resource reliance leads to better fiscal outcomes. Perhaps most importantly, our results suggest that many of these effects are themselves dependent on moderating institutional and political factors. The fact that fiscal resource blessings are so easily attenuated by increases in polarization or political competition, for instance, is powerful evidence that scholars must take seriously the contingent and complicated nature of the resource curse.

Before concluding, it is important to note that our measures of debt health are unaffected by changes in resource reliance. While states respond to changes in resource reliance, these fiscal responses do not lead to a change in the debt structure or debt service burden. This is consistent with our findings of increased tax effort; fiscal responses to increases in resource reliance appear to be tied to changes in tax revenue rather than debt financing. This approach is advantageous when resource sectors of a state's economy experience volatility; while state revenue streams will be affected by downturns in resource related economic activity, such downturns do not leave the legacy cost of increased debt commitments.

Conclusion

Many current theories emphasize the pernicious effect of resource wealth on public finance. We have argued that, given this focus, empirically testing these specific arguments holds great promise in helping to resolve a number of current debates in the study of the resource curse. These arguments are not unidirectional; some political and institutional factors may exacerbate the presumed negative effect of resource wealth on fiscal outcomes, while others have the potential to mitigate them. We evaluated these arguments by exploiting state-level variation in resource reliance and fiscal health in the United States. Focusing only on the variation between U.S. states helps control for the kinds of cultural, institutional, and sociopolitical differences that exist between countries and potentially confound any conclusions about the economic and political consequences of resource dependence. Moreover, existing research suggests that the legal infrastructure of private resource ownership in the United States does not prevent states from earning revenue from such endowments. To the contrary, many states in our sample are indeed quite resource reliant, as measured by the share of state wages from extractive industries.

Our regression results tended to cast doubt on the most pessimistic of theories linking resource wealth with poor fiscal outcomes. To the contrary, under many common circumstances, such combinations of factors were actually associated with greater fiscal health, such as reduced deficit spending and operating expenditures and increased tax revenue growth. All of these results suggest that, at least in this context, resource dependence need not be a curse in terms of public finance.

However, our results also suggest that these resource blessings have limitations. The absence of term limits and institutional constraints like balanced budget requirements, along with higher levels of political competition and polarization, for instance, render these effects statistically insignificant, or worse, transform fiscal blessings into curses. That the positive effect of resource reliance is so dependent on economic and political configurations suggests that there may be large negative effects in other settings. For instance, resource-wealthy societies that are polarized along religious or ethnic cleavages may be even more likely to experience worse fiscal health than those whose main axis of competition is ideological polarization. The same may be the true for countries without strong formal or informal institutions limiting the size and efficacy of patronage when it comes to incumbent re-election. We encourage future work to continue exploring these relationships in other settings.

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