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The Political Economy of the Natural Resource Curse: A Survey of Theory and Evidence*

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Former U.S. President William J. Clinton:

> *"With . . . [its] vast human and natural resources, a revitalized Nigeria can be the economic and political anchor of West Africa . . . ."*

From remarks on signing of a joint declaration with Nigerian President Obasanjo, August 26, 2000. (Obtained from CNN.com transcripts.)

Sheik Ahmed Yamani, former Oil Minister of Saudi Arabia:

> *"All in all, I wish we had discovered water."*

Cited in Ross, Michael. "The political economy of the resource curse." *World Politics* 1/1 (1999) 297–322.

* Professor of Economics, University of California-Santa Barbara and University Fellow, Resources for the Future. I am indebted to Katie Kimble for research assistance in preparing this review and to Antung Anthony Liu for carefully reading a preliminary version and offering editorial suggestions. Ragnar Torvik and Kevin Tsui deserve special thanks (and no attribution for errors) for numerous insightful comments and pointers to appropriate references. I also benefitted from comments by participants at the 17th Ulvön Conference on Environmental Economics, Umea, Sweden, June 2010.

Abstract

This survey focuses on political economy theories of the resource curse and scrutinizes how well, or poorly, these theories have been integrated with empirical work. One reason why this integration is important lies in the practical importance of pinning down the causal links involved in the resource curse. A second reason for focusing on integration of theory and empirics is that the resource curse is a potentially fruitful venue for testing political economy theories generally.

Contents

1

Introduction and Motivation

The preceding quotes illustrate both the optimism often expressed that natural resource abundance will lead to prosperity and the disappointment that too often accompanies the actual results. There is now abundant evidence that the populations inhabiting many resource rich countries are unusually poor, unhealthy, and politically oppressed. This is paradoxical. Both common sense and simple economics imply that natural resource abundance should confer benefits. Yet, Nigeria's per capita GDP in 2000 was 30% lower than in 1965, despite oil revenues of roughly $350 billion (1995$) during the intervening period.[1] Venezuela's terms of trade grew 13.7% per year during 1970–1990 due to its oil exports, but its output per capita fell by 1.4% per year.[2] Saudi Arabia's real GDP per capita was lower in 1999 than it was before the oil price increases of the 1970s. According to Gylfason (2001, p. 848), OPEC as a whole experienced per capita GNP *decreases* of 1.3% per

[1] The dollar figure represents oil revenues after payments to foreign companies, as reported by Sala-i-Martin and Subramanian (2003, p. 4). Information on income is from Heston et al. (2002).

[2] Information on Venezuela in this sentence and the next is from Lane and Tornell (1996, p. 216).

year during 1965–1998, while income increased at an average rate of 2.2% per year in all lower- and middle-income countries.

World Bank (2006, p. 43) statistics indicate that an unwillingness to save by resource rich countries is one aspect of the problem: genuine savings as a fraction of national income has a strong negative correlation with the share of income comprised of mineral rents. Circumstantial evidence also suggests that political jockeying for access to resource rents may be another common theme. During the oil price spike of 1979–1981, Venezuela's public spending on infrastructure and industrial policy, directed mainly to benefit political elites, jumped so sharply that the country actually ran a current account deficit. During the oil price run-up between 1970 the early 2000s, income in Nigeria became highly concentrated.[3] By 2000, the share of income held by the top 2% of the population equaled that of the bottom 55%, whereas it equaled the that of the bottom 17% in 1970. Over the same period the fraction of Nigerians who subsist on $1 per day or less rose from 26% to 70%.

Since some resource-rich countries have avoided this pattern and grown rapidly, including Botswana, Chile (after Pinochet), Malaysia, and Norway, some observers have expressed doubt over the robustness of broader statistical evidence supporting the curse.[4] From the evidence reviewed here, whether resource abundance is a curse or blessing appears to hinge on host country circumstances and on the particular resource involved; the generic label "curse" cannot be applied without qualification. Still, the notion that having more of *any* natural resource could be disadvantageous in *any* circumstance is sufficiently puzzling to invite further study — and the economics profession has responded to this invitation with uncommon vigor.

Certain patterns in empirical results have directed the search for causal links to consider interactions with political institutions. First, resource abundance or a resource boom tends to be a curse when governance and the rule of law are weak initially, but not otherwise. Second, a curse is more likely to plague resources found in dense concentrations, while other resources seem largely immune. The conventional,

[3] Van der Ploeg (2011, pp. 367–368).
[4] Brunnschweiler and Bulte (2008) and Alexeev and Conrad (2009) are examples.

market-based explanations summarized shortly do not predict either of these regularities. They are roughly consistent with theories of how resource extraction and political systems interact, however. Some theories regard political institutions fixed and examine how institutions shape the way a country's economy responds to a resource windfall. Others treat resource windfalls as exogenous events that alter a country's political institutions, for example by altering property rights, democracy, political stability or friendliness to rent-seeking.[5]

This survey focuses on political economy theories of the resource curse and scrutinizes how well, or poorly, these theories have been integrated with empirical work.[6] One reason why this integration is important lies in the practical importance of pinning down the causal links involved in the resource curse. Simply verifying that resource abundance is empirically linked to slow growth is of little practical value. Policy makers in poor countries and in the international development community would need to know the transmission mechanism in order to do anything useful with the information. Telling countries to lock up their resource wealth is neither credible nor useful. On the one hand, if the resource curse is simply a statistical artifact and not a causal phenomenon, then leaving resources unexploited in order to avoid a growth slow-down will fail to have the desired effect and will succeed only in wasting a valuable opportunity. On the other hand, if the resource curse is real, and for example operates through political institutions, then understanding the mechanism may allow a country to reform its institutions and exploit its resource wealth while avoiding the curse.

[5] Bulte and Damania (2003, pp. 3–6) provide an efficient review of much of this literature and related work on economic growth, emphasizing theoretical contributions. Ross (1999) describes two other approaches to understanding the resource curse based on noneconomic reasoning. One stresses the role of cognitive malfunctions resulting from resource booms and another argues that resource booms enhance the political clout of private individuals who favor growth-impeding policies. He also reviews the rentier state theory, which contends that resource wealth frees rulers from the task of levying direct taxes and consequently makes them less accountable to the societies they govern.

[6] Stevens (2003) and Rosser (2006) have surveyed much of the early resource curse literature. The present review's emphasis on political economy theories and their testing differentiates it from recent reviews by Frankel (2010) and van der Ploeg (2011), both of which treat market-based explanations for the resource curse in detail.

A second reason for focusing on integration of theory and empirics is that the resource curse is a potentially fruitful venue for testing political economy theories generally. The presumed causal factor or outcome variable, depending on the direction of causation, is generally observable. In theories that attribute political outcomes to resource wealth, the causal factor is the arrival of a resource windfall and such windfalls can generally be documented. In theories that attribute resource extraction outcomes to political institutions, the outcome variables can generally be observed, for example, in exploration activity, production rates, nationalization events, etc. Often, one can pin down the arrival time of a resource windfall, as when a discovery is made or when a resource price jumps, enabling research designs that examine within-country behavior before and after an event while controlling for untreated observations.

The remainder of this section gives an overview of the broader economic literature on the resource curse, explaining how interest first arose and summarizing the market-based and political economy theories developed to explain it. After these preliminaries, the focus tightens to political economy research on the resource curse.

1.1 Market-based Theories of the Resource Curse

Sachs and Warner (1997, 2001) reported early cross-country evidence suggesting a resource curse. They related growth in per capita income to the importance of primary products in a country's exports, which they interpreted as natural resource abundance, controlling for initial income, openness to trade and the investment to GDP ratio.[7] The resource abundance effect was negative and substantial — seemingly a resource curse. A one standard deviation increase in the primary products export share reduced a country's predicted growth rate by 0.6 to 1.5 percentage points. Sachs and Warner (1997, 2001) emphasized the "Dutch disease" as an explanation, a market-based theory to

[7] Primary products include food, agricultural goods, fuels, and minerals, so the goods are heterogeneous. Further, the export share is both a flow variable, rather than abundance, and is clearly determined by economic behavior, that is, endogenous. These points have been emphasized by critics.

explain the poor economic performance of the Netherlands following the discovery of North Sea oil.[8] The Dutch disease theory postulates that a natural resource boom causes a country's exchange rate to appreciate, making its manufacturing exports less competitive. If manufacturing exports are the engine of growth and resource exports are not, as Dutch disease adherents claim, then a resource boom that crowds out manufacturing will retard growth.[9] Bulte et al. (2005) conclude that the Dutch disease theory has little empirical support, however, noting that terms of trade effects generally are not significant in economic growth regressions. They also emphasize the varied experiences of resource rich countries and the abundance of exceptions to the curse.

The Dutch disease is one of several conventional explanations based on a "crowding out" phenomenon, whereby a windfall diverts economic activity in counter-productive ways. In Gylfason's (2001) view a resource boom can cause a nation to regard its natural resource wealth, not human capital, as the key to its future and to neglect educational investment as a result.[10] Torvick (2002) sees the resource curse arising because a resource boom diverts entrepreneurial talent away from wealth creation which could modernize an economy, and toward seeking resource rents from the public sector.[11]

Early arguments for slow growth in resource intensive economies were structuralist in nature. One claimed a natural tendency for resource exporting countries to experience declining terms of trade and reduced ability to import the capital goods needed for modernization.[12] Subsequent empirical analysis failed to support this explanation.[13] Another structuralist explanation stressed volatility in natural resource

[8] This paragraph and the next introduce these arguments and briefly explain how they work, without commenting in any detail on evidence for or against them.

[9] van der Ploeg (2011) provides a detailed summary of Dutch disease theory and other market-based explanations for the resource curse. Different variants of the Dutch disease model are cited in Stevens (2003).

[10] Birdsall et al. (2001) also stress a link between resource abundance and low educational investments, but see the effect operating through a political channel.

[11] Torvik's (2002) model is actually based on a political economy argument. It is elaborated and extended in Mehlum et al. (2006a); this extension is discussed in detail later in this review.

[12] Stevens (2003) describes several of the leading market-based arguments and related empirical evidence.

[13] Bulte et al. (2005).

prices and argued that such volatility aggravates investor uncertainty and makes it difficult to follow prudent fiscal policies (Stevens, 2003).[14] In support of this explanation, van der Ploeg (2011) cites evidence from the empirical macroeconomics literature that exchange rate volatility is indeed bad for investment and growth.[15] Other structuralist explanations argue that a volatile exchange rate *directly* hinders exports and prospects for export-led growth (Gylfason et al., 1999).

1.2 Political Economy and the Resource Curse

The recent emphasis on political explanations stems partly from econometric findings that resource abundance is most likely to be a curse when the resource is concentrated rather than dispersed and when the host country's political institutions are initially weak. Over a decade earlier, however, evidence from Gelb's (1988) study of six oil exporters hinted that conventional economic arguments could not fully explain the growth performance of oil-rich states following the price shocks of the 1970s. The oil windfalls were mainly spent on investment, which conventional growth theory predicts should accelerate growth, yet growth in these countries lagged. Government and politics clearly had the potential to play important roles in these outcomes, as 80% of the windfalls accrued to national governments and the oil-financed investments were largely for public infrastructure that yielded meager returns. In short, decision-making by government was a significant factor.[16]

A substantial body of case study evidence linking the resource curse to politics gives additional motivation to explore political drivers. After surveying outcomes in six resource rich countries, Karl (1997) concludes that resource wealth and resource rent windfalls can alter the political climate in the host country, particularly if it starts from a weak institutional base. She finds that having wealth concentrated in minerals, with mineral rents accruing to the State, alters the framework for

[14] Sachs and Warner (1997) allowed for the effect of export price volatility in their empirical analysis but did not find a negative effect on growth.
[15] van der Ploeg and Poelhekke (2009) report evidence linking slow growth and low investment to unanticipated volatility in output.
[16] See Gelb (1988), Sections 3 and 5.

decision-making and the locus of authority in government and influences the types of institutions and policies adopted. Mineral resources tend to be concentrated in space and the European colonists who first exploited them found that they could extract rents by controlling only specific mining and export sites, without extending civil authority and the rule of law to the countryside (Karl, 1997, pp. 60–61). In the case of Venezuela the dominance of oil in the economy and its control by the state after nationalization promoted a rent-seeking culture and a patron-client system of governance. A secondary effect was that those with entrepreneurial talent were enticed away from wealth creation and into rent-seeking. A hardwood timber price boom in Southeast Asia had a similar effect on governance in the Philippines, in Indonesia and in the Malay states of Sarawak and Sabah (Ross, 2001). Timber became a dominant economic force in all three countries and political elites altered institutions to acquire greater control over resource rents. Corruption increased and political power became more concentrated as elites channeled these newly created rents to political supporters.

Recently, evidence of a different kind of resource curse has emerged — a link from natural resource wealth to political instability and armed conflict. The presumed motivation for such a link is twofold: resource wealth may be captured by rebels and used to finance a rebellion, and the possibility of controlling resource wealth if the rebellion succeeds strengthens the case for initiating a conflict. A detailed treatment of theoretical work on this phenomenon is outside the scope of the present survey. Empirical evidence is briefly reviewed in Section 5.[17]

The remainder of this review examines theories and empirical evidence on the link between political conditions and perverse responses to resource booms. Certain aspects of the strategy taken in this review should be noted at the outset. Most of the discussion is directed to detailed examination of a handful of political economy models and to empirical evidence directly linked to these contributions. The review does not dwell on descriptions of a large body of purely empirical contributions unless they provide evidence that bears on the tenability

[17] Ross (2006) surveys much of this work. Collier and Hoeffler (1998, 2004) have made key empirical contributions and van der Ploeg and Rohner (2010) provide a model of resource-based conflict.

of a particular political economy theory. Among the purely empirical studies reviewed, some are discussed in greater detail than others. One particular genre of empirical work, based on cross-country cross-sectional data and using the ratio of primary product exports to GDP as a measure of resource abundance, is described only summarily.[18]

The following section draws together some common threads from the broader political economy literature and identifies the degree to which political power is concentrated as a key determinant of government performance in the models reviewed subsequently. Political economy theories of the resource curse based on rent-seeking are reviewed in Section 3; these models treat policy outcomes as the result of competing private interests without actually incorporating political institutions. Section 4 reviews political economy theories that incorporate institutions explicitly. Reviews of theoretical work emphasize the empirical implications of individual models and empirical evidence on these implications. For expositional reasons empirical work linked to specific theoretical models is reviewed along with the model discussions rather than in a separate section. Papers offering general empirical findings without developing new theory are covered in Section 5. Conclusions are presented in Section 6 and focus on strengths and weaknesses of the existing literature, whether empirical analysis has successfully corroborated or refuted predictions from theoretical analysis, opportunities for future empirical research, and the question of whether or not the resource curse is a "real" phenomenon.[19]

[18] In recent years this voluminous body of work has come under criticism for reasons outlined in Section 5.

[19] Certain political economy aspects of resource use are excluded in order to keep the discussion focused. These include the effect of political instability on resource use and the effect governance has on whether resources are managed to deliver broadly dispersed benefits or concentrated payoffs to politically powerful groups. The former question is addressed on Bohn and Deacon (2000) and Deacon (1994); for a review, see Deacon and Mueller (2006).

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