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Does oil really curse democracy? A long-run time-series analysis of 127 countries

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ABSTRACT

The resource curse is a topic studied intensively in both economics and political science. Much of the focus is now on whether oil affects democratic institutions. We further the debate on this aspect through the use of both additional measures of democracy and multiple time-series estimation strategies. We find no robust long-run effect of oil abundance on any of the following measures of democracy: Polity, Polcon, Civil Liberties, or Political Rights, over the period 1974–2012. We use different country and period samples to respond to the findings of others suggesting that the effects of oil abundance may differ between Latin America, the Middle East, mature oil producers, or that they become significantly negative only post-1980. In each case we still do not find a robust relationship. We emphasize long-run effects not only because they match the slow pace of institutional change, but also because they are consistent even in the presence of reverse causality.

1. Introduction

The resource curse is a topic studied intensively in both economics and political science. The original discussion centered on why countries with large natural resource industries, seemed to have slower rates of GDP growth than other countries. More recently the debate has shifted to the effects of resource endowments on political institutions (and in particular democracy). Much of this debate derived from studies focusing on comparisons between countries with different amounts of natural resources or on the effects from annual changes in resource values within a country. While most of the between-country studies showed the effects of natural resource changes to have a negative relation with democratic institutions, they could not account for unobservable factors that concurrently affect democracy. Annual fluctuations in resource values within a country could also be due to changing institutional conditions (e.g., autocratic leaders can increase extraction rates to better deal with internal conflict). For these reasons it is not surprising that past studies often found support for the resource curse.

Thanks to the remarkable study of Haber and Menaldo (2011) (henceforth “HM”), fortunately attention began to turn to estimating long-run effects of changing oil values within countries and thus the use of time-series estimation methods. In contrast to many of the earlier

studies claiming negative effects, the evidence presented by HM suggested that oil abundance does not have long-run effects on democratic development. Not long after this, however, Anderson and Ross (henceforth “AR”) reevaluated the relationship using the same data and similar methodology, and showed that oil resources did have significant-negative long-run effects on democracy after 1980.

It is to this debate that this paper seeks to contribute. We test whether or not changing *oil abundance* (oil and gas value per capita) has long-run effects on within-country democratic development. Based on what we believe to be even stronger time-series estimation methods, our results lead us back to the conclusion of HM, that there are no long-run and robust effects of oil and gas on democracy. Moreover, our contributions include showing that this conclusion holds even when varying the particular time-series estimation method and when using several quite different aspects of democracy. In particular, whereas much of the existing literature within this debate has made use of a single measure of democracy (Polity), we extend the analysis to examine long-run relationships with different aspects of democracy, such as Political Constraints (Polcon), Civil Liberties, and Political Rights.

We believe it is important to evaluate different aspects of democracy for each of the following reasons. First, because the effects of oil could differ from one to another (e.g., does oil hinder the right to free speech more than voting access?). Second, because the importance of various

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channels (e.g., civil conflict) might well differ for different aspects of democracy. Third, as will be shown, the trends for different measures differ substantially from one to another. Lastly, using multiple measures increases the possibility of finding at least some significant long-run relationships. This is important because for some countries (e.g., the United States and Norway) change over time can only be detected by using constraints on the executive (Polcon), because these countries had reached the upper limit of the Polity index many years ago.

Another benefit of focusing on long-run effects is that they correspond more closely with the typically slow speed of institutional change. While oil price shocks may affect oil revenues and endowments in the short run, they may not be able to affect institutions that change only slowly. In the present analysis long-run effects are distinguished (and estimated separately) from short-run relations by using error correction and distributed lag models. Separately accounting for the short-run relations has the added benefit of accounting for any simultaneity bias (Chudik and Pesaran, 2013, p. 26; Pesaran, 2015).

The main results cast doubt on the existence of a resource curse on democratic institutions, irrespective of the specific measure of democracy. This conclusion is based on estimates from multiple time-series econometric models, and holds in both different time periods and different subsamples such as (a) countries in the Middle East and North Africa, (b) Latin America and Caribbean countries, and (c) among producers with different amounts of experience in the industry.

2. Background

The political variant of the resource-curse literature has a long history, however as noted above, appropriate time-series methods for estimating long-run relationships were not used until very recently. Early work by Barro (1998) showed that countries with substantial oil (measured by an oil dummy) had lower levels of democracy. Ross (2001) builds on Barro (1998) by showing not only a negative effect of oil on democracy but also support for three plausible causal mechanisms for how they are linked: i.e., increasing both rentierism and repression, and retarding modernization. Rentierism, in particular, has been studied extensively. It can be characterized by increasing natural resource revenues leading to productive activities being replaced by rent-seeking behavior, rent grabbing, and leaders locking out their rivals (Beblawi and Luciani, 1987; Mahdavi, 1970; Przeworski et al., 2000; Ross, 2012).² Failure to develop state institutions is another important explanation. By this rationale, governments in resource-rich countries do not develop the institutions necessary to tax their citizens (e.g., political rights), because they do not need to raise as much public revenues (Acemoglu and Robinson, 2006; Haber and Menaldo, 2011; Menaldo, 2013).

In recent years there have been numerous empirical papers trying to evaluate the validity of the resource curse on democracy. One branch attempts to integrate the relationships of oil and other natural resources with both growth and democracy, but usually viewing the effects of democracy as mediating the effects on growth (Acemoglu et al., 2008; Al-Ubaydli, 2012; Cassidy, 2018). In these studies, it is usually that a lack of democracy early in a country's development of the oil sector that has negative effects on both economic growth and the subsequent path of democratic institutions. This issue, which we discuss further in Section 3.2.1, nicely illustrates why it is important to evaluate long-run relationship between oil and democracy within countries.

Another shortcoming in many of the studies is that the importance of oil is measured in terms of *oil dependence* as opposed to *oil abundance*, which we believe to be the more appropriate measure. Oil dependence is measured by oil extraction values relative to GDP or perhaps exports

whereas oil abundance relates to oil extraction values in per capita terms. Dependence is a problematic measure because the introduction of GDP or exports in the denominator introduces potential endogeneity based on the growth version of the natural resource curse. Much of past literature, while informative, addresses distinct questions because they focus on oil dependence, short-run relations, or growth. An important example that focuses both on oil dependence and relatively short-run effects is Brückner et al. (2012). In it the authors advance a fairly convincing story, estimating positive and causal effects of oil on democracy. However, their measure is constructed using oil exports as a percentage of GDP (dependence) to scale world oil price shocks, and using oil price shocks, necessarily forces them to focus on short-run responses to oil.³

Other characteristics of the rapidly growing literature on the political resource curse are that much of it focuses on different country samples (e.g. Sub Saharan Africa by Jensen and Wantchekon (2004), Latin America and MENA by Dunning (2008), different time periods, and that different studies use quite different methods. This has prompted Ahmadov (2014) to conduct a meta-regression analysis on the basis of data taken from 29 existing publicly available studies on the relation between oil and democracy. After controlling for the many different methodological differences, time periods, and country coverage, Ahmadov (2014) finds the overall effect of oil on democracy to be small, negative, and significant, but with considerable heterogeneity across regions, being somewhat more negative among countries of the Middle East and North Africa, but positive and highly significant in Latin America. These findings suggest the importance of examining differences in regions, time periods and estimation methods in the long-run analysis to be presented below.

3. Data

3.1. Variables, data, and sample coverage

We use oil abundance as our main explanatory variable. Oil is used in contrast to all mineral resources because oil resources are more likely to negatively affect democracy (e.g., Ross, 2001) and because the literature has generally focused on oil. However, we distinguish our analysis from much of the earlier literature by using oil abundance in contrast to oil dependence. As indicated above, we deem abundance to be a considerably better measure than dependence because abundance is less dependent on institutional conditions affecting total exports and GDP (Alexeev and Conrad, 2009). Abundance is measured here as the quantity of extracted oil and gas multiplied by the unit price and divided by the population (oil and gas value per capita). This measure is obtained from data prepared by Ross and Mahdavi (2015), which are considered to be superior to the oil rents data obtained from the World Development Indicators for multiple reasons identified by Mohtadi et al. (2015).⁴ One of these is that they are obtained from multiple sources, including the World Development Indicators, instead of only one, thereby allowing for greater sample coverage since there are bound to be missing data in any single one such source. For purposes of estimation, the measure we use is the per capita values of real oil and gas value in natural log terms (henceforth “O&G Value”).

Our measures of democracy include Polity, Civil Liberties, Political Rights, and Polcon. Polity is the most frequently used measure in the

³ Their paper is also conceptually distinct. They show that oil shocks affect political institutions but that the relationship is mediated by GDP growth. As discussed above, the original literature had instead believed the mechanism to be that greater oil resources hindered political institutional development and primarily through weak institutions, negatively affected growth.

⁴ The rents data from the World Development Indicators are nationally reported, and as such could be biased by institutional characteristics, and because the cost component is generally estimated at one point in time, changes in rents over time are not likely to be accurate. (Mohtadi et al., 2015).

² Another explanation for the rent-seeking link between oil abundance and lower levels of income and welfare is that the rents from natural resources are likely to divert entrepreneurs from productive activities into rent-seeking ones (Torvik, 2002).

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