Natural Resource Authoritarianism

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Abstract

Natural resources directly impact a country's political fortunes. Extant scholarship has found that increasing economic reliance upon natural resources occasionally strengthens and sometimes erodes governance. We argue that part of this uncertainty is inherent to this common independent variable: economic reliance upon natural resources measured at the extraction or revenue-generating stage of the resource production process. At this point in the value chain, the existence and approximate value of a country's resource wealth has become common knowledge. If the market for natural resources and authoritarianism is in some sense 'efficient,' it is the discovery, and not the extraction or sale, of resources is the natural time-point for initial political impacts. In this paper, we use panel data of oil and natural gas field discovery coupled with cross-national and sub-national political outcomes. We show that such discoveries have a pronounced effect in lowering the levels of democracy. We further show that discoveries made in authoritarian countries leads to higher military expenditure and lower coup incidence. Taken together, we shed light on the political effects of natural resources and provide evidence to re-examine the existing scholarship on the natural resource curse.

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1 Introduction

How do natural resources help political leaders stay in power? Conventional wisdom suggests that politicians are able to treat rents from natural resources as substitutes for taxation (e.g. Mahdavy (1970) and Morrison (2007)). Consequently, they benefit from lower demands on their removal from office. Similar explanations are available in Boix (2003) where incumbent leaders use the rents to engage in broad redistributive policies and again benefit from lower inequality in society. Another strand of the literature suggests that politicians may target the windfall from natural resources towards opposition forces, either attempting to buy them off or engage in repressive measures (Acemoglu, Ticchi, and Vindigni (2010)). However, all such explanations make two key but implicit assumptions. First, it assumes that all political leaders face similar threats to their removal, irrespective of the type of polities they govern, and that institutional constraints do not play a role in their decisions. Second, it assumes that the primary source of threat for a political leader is from the general population that seeks their overthrow in the absence of some kind of redistribution. Both these assumptions, while plausible, mask a key facet for how politicians use natural resource rents to stay in office.

In this paper, we propose an alternative mechanism for how natural resource windfalls help incumbent leaders. First, we argue that political institutions play a key role in determining whether these rents help a politician stay in office. Specifically, we argue that the decision calculus of authoritarian leaders are different from their democratic counterparts when faced with questions of using such windfalls. Second, we argue that these decisions are dependent on the institutional structure because the primary threat to authoritarian leaders comes from the military in the form of a potential coup, rather than from the general population demanding lower taxation or more democratic freedoms. So, in order to stay in power, authoritarian leaders use rents from natural resources to buy off the military rather than engage in broad redistribution.

We test these arguments using data on oil discoveries around the world during the period 1945-2014. The use of oil discoveries, as opposed to the amount of oil reserves, is helpful because the timing of these discoveries is conditionally random. It also makes theoretical sense because the decision of political leaders begin to alter their attempts to stay in power based on when such

a discovery happens, rather than when the actual rents from the resource are collected. Using this data we present three key findings in this paper. First, we find that oil discovery lowers the level of institutionalized democracy and augments level of institutionalized autocracy across all polities, suggesting that there exists a 'natural resource curse'. Second, we find that there is a lower risk of an attempted coup after a discovery across all countries, but that this result is driven mainly in autocracies. Third, we find evidence that oil discoveries lead to an increase in military spending, but like with the previous result, this is driven primarily from autocracies. Taken together, these findings show that there are clear institutional differences between democracies and autocracies when it comes to how political leaders use natural resource rents. When discoveries are in autocracies, they are more likely to try and avoid coups by attempting to buy off the military.

2 Conceptual Framework

In this section, we situate our research on the literature surrounding the natural resource curse and theories of autocratic survival. We present a brief review in the main paper and a more complete one in section S1 in the Appendix. A wealth of natural resources has the potential to bring concomitant economic wealth, but is also recognized to bring many undesirable development outcomes. Research into the resource curse has portrayed this outcome as a paradox: countries with an abundance of oil, natural gas, and rare minerals are observed to have lower economic growth and less democracy along a host of metrics. The recent literature has shifted away from just investigating the average effects of resources and towards examining the role of natural resource wealth in strengthening autocratic rule (Ahmadov (2014), Mahdavy (1970)). In particular, Huntington (1991) specified and popularized this version of the resource curse: rents from oil and gas enable elites to keep taxes low, reducing incentive for the public to demand representation.

Given this theory, and its consequences on the political development of resource-rich states, many cross-sectional and panel analyses have assessed the effects of resource development, sales, and revenue on measures of democratic development. In diverse temporal and geographic settings, this literature finds mixed results. Early analyses of the resource curse were case study comparisons, with no cross-section or panel studies conducted until the early 2000s. Ross (2001) takes the first cross-national approach to evaluating the political resource curse, and finds a statistically significant

negative correlation between a country's fuel exports and its political institutions. While the above literature found negative effects of resources on democracy, several studies have dissented. For example, Herb (2005) does not find that rents from natural resources have a negative effect on multiple scores of democracy.

Importantly, the above cross-national analyses use a common independent variable of natural resource reliance. Instead, we focus on the exogenous timing of petroleum discoveries and use a dataset of oil and gas discoveries rather than a resource-production metric. The crux of this difference is the plausible exogeneity of the timing of field discoveries. Contrast this to the endogeneity in export metrics: exports depend on domestic consumption of relevant goods, and there is a vast literature on income and spending effects on democracy. Furthermore, it is difficult to control for levels of income without introducing further endogeneity, as pre-existing and elsewhere-existing oil wealth is often built into prior measures of income.

In studying the oil curse, the unobserved variable of interest is oil wealth, the total capital value of future oil production. "Discovery" acts as partial observation of this value, and "production" acts as its partial realization. For political, economic, and geologic reasons, the shape of the extraction curve over time is unpredictable. Therefore production or exports in any given year does not account for a nation's total oil wealth, which is rather a function of remaining reserves. Of the two, the timing, size, and quality of field discovery is plausibly more exogenous than the exploitation of the same field. Tsui (2010) makes the first methodological case for estimation using oil discovery data over production data. Based on the argument for exogenous variation of initial oil endowments sketched above, he uses a novel database of oil discoveries over time to estimate the impact of oil on democracy. Notably, these data allow for construction of a "peak discovery year" for each country in his sample, as domestic discoveries are often found concentrated within a small time period. Prior to this period, income can be assumed independent of oil wealth (as there are not yet observations which would allow for a high estimation of a country's oil wealth), enabling initial income to be fixed without the endogeneity problem. Furthermore, these industrial-quality data make adjustments for oil quality, which can be differentiated in multiple dimensions, and includes measures of the costs of oil exploration and extraction.

3 Research Design

Our research design involves the combination of different datasets at the country-year level. The source of our main dependent variables is V-DEM, a dataset that offers various measures related of democracy around the world. We merge this data with oil discovery data from Horn's Giant Oil and Gas Fields of the World (Cust, Mihalyi, and Rivera-Ballesteros (2021)). We obtain information on different types of coups from Coup D'état Project (Peyton et al., 2020) , and military spending from the SIPRI Military Expenditure Database (*SIPRI Military Expenditure Database*, 2021). In this section, we describe each of these data sources in detail and also present the estimation strategy used in the analysis.

3.1 Data

We primarily use oil discovery data from Horn's Giant Oil and Gas Fields of the World (Cust, Mihalyi, and Rivera-Ballesteros, 2021), a dataset that contains the discovered oil and gas fields with more than 500 million barrels of recoverable oil (or gas equivalent). This dataset is useful for our purposes because it records the discovery year, helping us identify the precise timing when knowledge of future oil revenues were made available to a country's leader. In addition, it also contains information on the size of the discovery that allows us to estimate whether the amount of future oil has bearing on a leader's decision calculus. Some of these fields, particularly in the Persian Gulf were discovered in the early 20th century, for which precise discovery year is unavailable. However, for more recently discovered fields, the dataset provides detailed data on year of discovery and year of first production is provided. Almost every part of the world witnessed an oil or gas discovery over the decades; our dataset has a total of 538 discoveries that are distributed well across countries and over time. Figure S1 in the Appendix presents a map of oil and gas discoveries from Horn's dataset by decade, and Figure S2 in the Appendix presents the distribution of them by year. Taken together, this data gives us sufficient spatial and temporal variation needed to estimate the effect of a discovery. Moreover, all of our estimations include country and year fixed effects, helping to alleviate concerns that any country-specific or year-specific characteristics may influence our results.

Our main dependent variables in this paper are a measure of the level of democracy/autocracy from the Polity IV Project (Marshall and Gurr, 2020). Specifically, we use the revised version from V-DEM that allows for the "use of the Polity regime measure in time-series analyses". The variable ranges between -10 and 10, with -10 signifying a total autocracy and +10 signifying a total democracy. Two related institutional measures that we also use are institutionalized democracy and autocracy. Ranging between 0-10, an institutionalized democracy takes the competitiveness of political participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive into account. Similarly, an institutionalized autocracy measures the extent to which the country restricts or suppresses competitive political participation and the extent to which the selection of the chief executive happens from within a political elite. To test the mechanism of the likelihood of coups, we use data from the Coup D'état Project (Peyton et al., 2020). This data is useful for our purposes since it is able to distinguish between coups that we realized, coups that were attempted or just conspiracy against a country's government. This distinction is helpful since we can estimate whether autocrats are able to hold-off coups after the discovery of a natural resource and knowledge of future revenue streams. In order to measure military spending, we use data from SIPRI (*SIPRI Military Expenditure Database*, 2021), which identifies a country's spending on the military , an 'input' measure that is better than measuring military capability or military security.

The estimation equation that we use is as follows:

$$Y_{it} == \beta_0 + \beta_1 * \text{Oil Discovery}_{it} + \beta_2 * X_{it} + \alpha_i + \gamma_t + \epsilon_{it} \tag{1}$$

where Y_{it} is the level of democracy, the likelihood of a coup or the level of military expenditure in country i in year t, Oil Discovery is either an indicator for a discovery (or a continuous measure of the amount of expected oil/gas from the discovery) in country i in year t; X_i is a matrix of control variables that includes including the log of GDP, log of population, and a national measure of natural resource reliance, α_i and γ_t are country and year fixed effects. Lastly ϵ_{it} is the error term. The coefficient of interest is β_1, which captures the effect of an oil discovery on our dependent variables.

4 Results

We present our results in three stages. We first show that the discovery of natural resources lowers the levels of democracy and augments the levels of autocracy. Second, we show that the discovery also leads to a decrease in the likelihood of attempted coups, a result primarily driven by autocratic countries. We further show that the discovery is also associated with an decrease in a potential coup is driven by an increase in military expenditure.

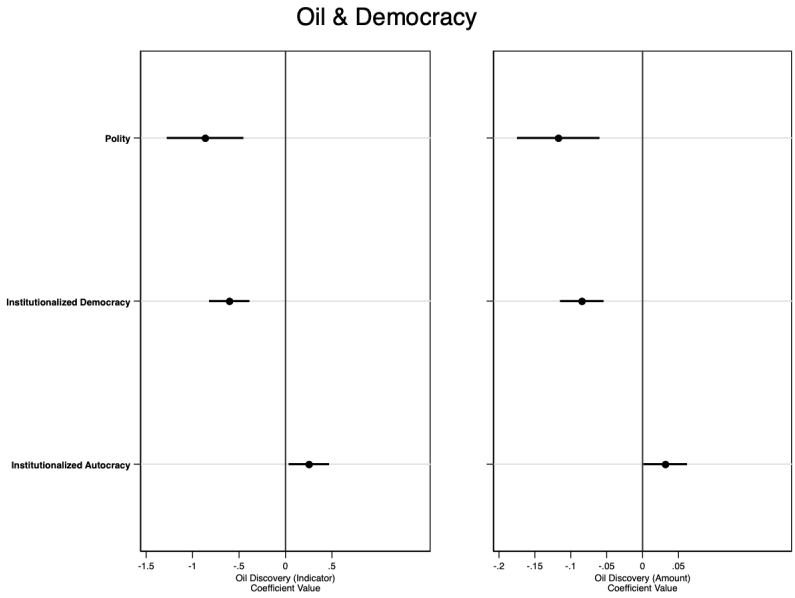

Figure 1: Oil Discovery & Democracy. The left panel uses an indicator for oil discovery in a country-year and the right panel uses the amount of oil discovered (in one million barrels of oil equivalents). All models include country and year fixed effects.

Figure 1 presents the impact of an oil discovery on levels of democracy within a country. Overall, it shows that an oil discovery leads to lower levels of democracy and higher levels of autocracy, supporting the case that there exists a natural resource curse. The left panel of Figure 1 shows that when we consider oil discovery as an indicator variable, the levels of the Polity Index decreases the following year. In line with this finding, the levels of institutionalized democracy also decreases whereas the levels of institutionalized autocracy increases. the right panel of Figure 1 supports these findings when we consider the amount of oil discovered: the greater the amount of oil in a

discovery, the lower the levels of democracy. It is useful to note that these results include country and year fixed effects accounting for any country or year specific characteristics that could skew our findings.

Why does the level of authoritarianism go up after the discovery of a natural resource like oil? We argue that oil discovery and the prospect of future rents incentivizes incumbent regimes to placate any threats from military coups. Figures 2 and 3 show that oil discovery leads to a decrease in the number of attempted coups in all countries. However, it does not lead to a significant decrease in the number of realized coups and conspiracies – this is clear evidence that incumbent regimes are able to anticipate the threat of coups after an oil discovery and move to stave them off. This finding is robust to whether we use an indicator for oil discovery or the amount of oil discovered.

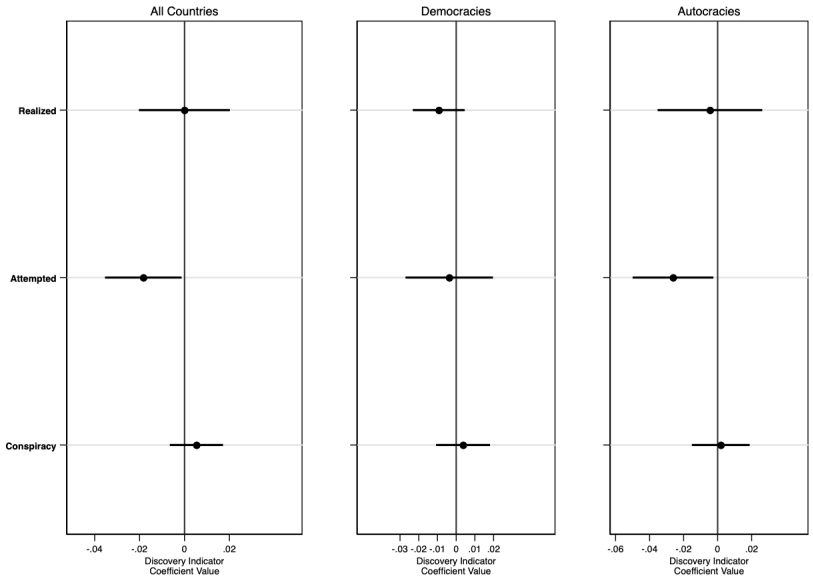

Figure 2: Oil Discovery & Coups. All models use an indicator for oil discovery in a country-year and include country and year fixed effects.

We next disaggregate whether the reduced threat of coups depend on the type of regime. The middle and right panels of Figures 2 and 3 also show that the the lower chance of attempted coups is driven primarily by autocracies. This supports the argument that autocratic regimes are ones that tend to take decisive action against a military coup in the event of an oil discovery. This makes sense because democracies have institutions that are able to deal with military coups whereas autocracies

rely on shoring up their power after a discovery.

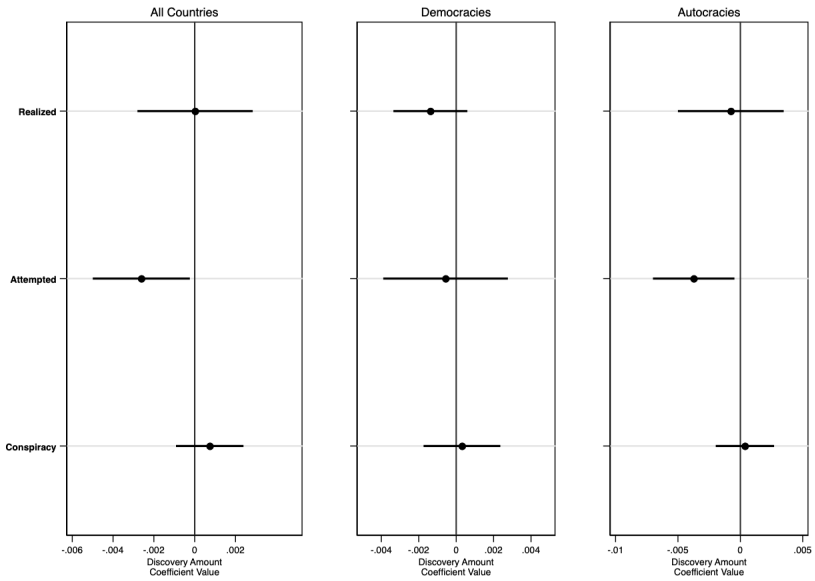

Figure 3: Oil Discovery & Coups. All models use the amount of oil discovered (in one million barrels of oil equivalents) and include country and year fixed effects.

How do autocratic regimes keep the threat of a military coup in check after a discovery? We argue that they are able to buy off a coup threat by increasing military spending. In Figure 4, we show that an oil discovery leads to an increase in military spending in all countries, but this effect is driven again by autocracies. This result is robust to measuring an oil discovery as an indicator or as the amount of expected oil. This suggests that autocratic leaders try and buy off the military elites to prevent any potential coup. This will help them stay in power when the actual natural resource rents roll in.

5 Conclusion

Natural resources present political leaders with an opportunity to stay in power. They can use rents from these resources to cushion the budgetary needs of the country, pay off opposition politicians and activists or even just lower tax rates for everyone. The notion that these rents are substitutes for taxation is dominant in the literature, and while these redistributive tendencies could exist in some countries, it misses out on a key mechanism through which leaders stay in power. In this

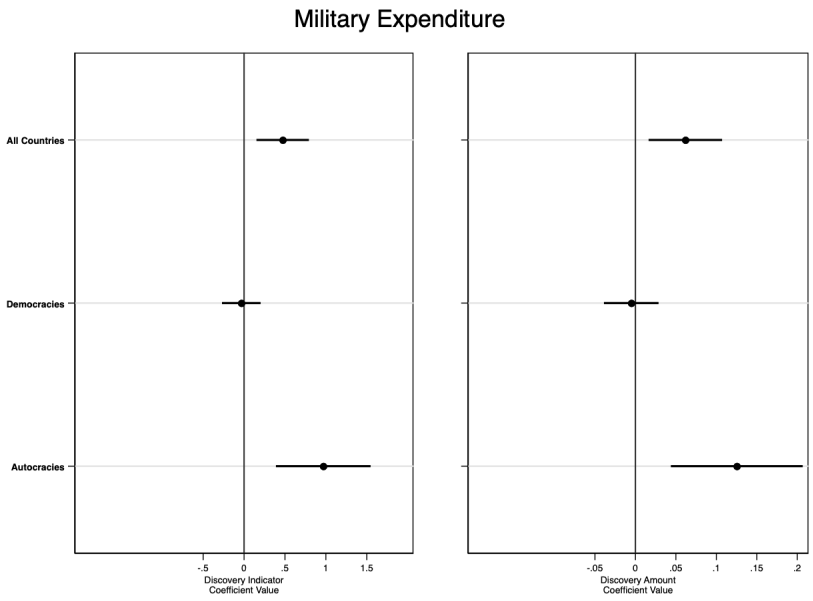

Figure 4: Oil Discovery & Military Spending. The left panel uses an indicator for oil discovery in a country-year and the right panel uses the amount of oil discovered (in one million barrels of oil equivalents). All models include country and year fixed effects.

paper, we have argued that the political institutions of the country matter when attempting to understand the natural resource curse. Specifically, democratic countries have checks-and-balances in place that allow for such resource rents to be used in a manner dictated by the constitution. Authoritarian countries, on the other hand, do not have these constraints and hence are able to use these rents to stay in power. Moreover, we have argued that the main threat to authoritarian countries comes not from opposition politicians or democracy activists, but from the military which can launch a coup and dispose the leader. We have shown that an authoritarian leader can use natural resource rents to lower the chances of a coup by attempting to 'buy off' the military.

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