Natural Resources and Dictatorships: Can Oil and Gas Improve Bad Institutions?

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Abstract

In this paper, we address the natural resources curse. Previous literature indicates dictatorships benefit from oil and gas. Whilst there is plenty of empirical evidence in this direction, we argue that not every aspect of dictatorships is worst under oil and gas production as it is expected that countries that depend on exportations try to have better regulation and juridical stability to maximize rents as well. A game-theoretical formal model is used to show that a country with centralized decision on a single agent may benefit from delegating power (via institutions) to make its contracts more trustable, thus being more credible in the international market. The international market, therefore, works as an incentive to better institutions. An empirical consequence of this consists of countries with naturally bad institutions having a strong interest in delegating power to respect constraints in the international commodity market. Variables related to rule of law and regulations are used as dependent variables in an empirical test of the proposed theory and the model is confirmed for both oil and gas.

Keywords: Institutions, Natural Resources Curse, Rule of Law

1. Introduction

Democracies and dictatorships are fundamentally different. Along with the obvious and definitional dissimilarities, there are disparities on non-political institutions. Gandhi (2008) argues
even dictatorships have heterogeneity on how they respond to elites and population, with consequences to economic growth. How institutions under dictatorship are designed may impair or lead to better economic outcomes.

In this paper, we argue this difference in institutions may lead to non-linearities in the natural resources curse. The presence of oil and gas may lead to better institutions in dictatorships, whilst the impact of oil in general may not be so positive as documented in the previous literature. We posit dictatorships may have constraints to be dealt with when negotiating oil prices, being this an element to discipline their economic institutions.

Sattler (2013) argues left-wing governments are punished by financial markets, but how much they are punished is defined by the constraints institutions place on leaders: the more they are constrained, the less they are punished. Campello (2015) argues these constraints limit left-wing policies in Latin America, with less integrated countries being more able to have aggressive policies. The importance of international markets must not be neglected when analyzing internal economic outcomes, therefore.

An analogous argument is possible for commodities’ dependent countries. As the natural resources are financially important for them, it is possible they must follow rules to be integrated in such markets. A risk that investors do not intend to suffer is to lose money due to instability or poor legal structure in these countries. Possibly, great oil reserves bring responsibility over ensuring the demandants will receive it. Power delegation and checks must be expected in this context.

A game theoretical approach to such question is discussed in section III. In this game, a dictator must choose how much it intends to ensure stability for its international customers. The mechanism it has for this is delegating power, which decreases its individual rents. However, by having more stability, it may have a better bargain over the value it earns by selling its commodities, increasing its rents. This trade-off is modeled and the conclusion power delegation is a function of oil importance is derived.

Empirical tests for this hypothesis are devised in section IV. Both static and dynamic panel techniques are used to understand the non-linearity caused by the interaction of natural resources rents and autocracies. It is found that dictatorships indeed have institutional benefits of rents, whilst
democracies have not. Depending on how democratic a country is, there is the possibility of damages to institutions.

Section V discusses alternative explanations and limitations of this work. It is found some endogeneity is still present and must be ruled out through further qualitative work. This endogeneity, however, is not based on external elements; the issue that must be considered in future research is internal institutions that may attract oil investments and, themselves, cause the improvement of institutions. Whilst this is still necessary to settle down this question about oil and dictatorships, this paper sheds some light into a possible non-linearity in the so called natural resources curse. Section VI concludes the paper.

2. Literature Review

Do oil and gas always impair democracy? We try to answer this question with facts based on a literature review. Although we will show that there is sufficient theoretical and empirical evidence to treat an affirmative reply to the initial question as a hypothesis, we also suggest that in some scenarios and contexts the presence of these natural resources may have a positive impact on the strengthening of some institutions.

2.1. Oil and Institutions

At the first sight, one would think that the increase in revenues originated from the exploitation of natural resources would be an important factor in fostering development and would also project positive effects on democracy and inclusion. Notwithstanding, the same revenues are often enough associated with unscrupulous governance results, ranging from the endurance of autocratic regimes to the onset of civil wars or even to a situation of low accountability.

Within the scope of this literature, the theory concerning the curse of natural resources is highlighted. The main assumption of this theory is that natural resources tend to generate predatory and politically unstable results that may translate into the emergence of unaccountable politicians (Herb, 2005; Monteiro & Ferraz, 2012), decline in other economic activities (Ismail, 2010), losses in tax management (Caselli & Michaels, 2009), low economic growth (Civitarese and Martins, 2017) and even lead to more extreme scenarios like causing civil wars (Ross, 2004) and damaging democracy or precluding democratic transitions (Alasksen, 2010).
In this literature, there are two chief causal mechanisms capable of explaining the appearance of the natural resources curse. The first is linked to the theory of Rentier States and investigates the causal relation between revenues obtained from the exploitation of natural resources and the political regime (Beblawi, 1987; Luciani, 1987; Mahdavi, 1970). The second is derived from a set of economic explanations, and the main mechanism analyzed is usually called “The Dutch Disease” (Corden & Neary, 1982).

The main theoretical claim of the Rentier States theory is based on the premise that revenues resulting from the exploitation of natural resources supply ample incentives for the perpetuation of authoritarian regimes (Anderson, 1987; Beblawi, 1987; Huntington, 1991; Luciani, 1987; Mahdavi, 1970). In Rentier States the economy depends substantially on external rentals paid in exchange for the exploitation of natural resources. One of the characteristics of this type of economy is that few are involved in the direct generation of revenues, the government being its main direct beneficiary. With control wielded by few it should be easier for the government to avail itself of such revenues and use them to keep in power. In this context, the absence of the need to impose taxes on the citizens would contribute to a kind of assent on the part of the population, or, in other words, a kind of “social contract” in which the citizens demand less representation and political accountability (Beblawi, 1987; Mahdavi, 1970).

The initial empirical evidence for this thesis was the fruit of case studies (Anderson, 1987; Luciani, 1987), which later happened to be corroborated on the basis of quantitative analyses in a compared perspective between countries. Furthering these studies, Ross (2001) analyzed panel data from 113 countries from 1971-1997, drawing the conclusion that revenues originated from oil and gas have a statistically significant negative effect on a country’s democratization tendency. Similar results can be found in later works carried out by this same author, as well as by Aslaksen (2010), Jensen and Wantchekon (2004), Tsui (2010) and Wantchekon (2003), among others.

From another standpoint, a smaller group of researchers came to conclusions which negate the idea of the existence of a curse in the wake of the exploitation of natural resources (Dunning, 2008; Haber & Menaldo, 2011; Herb, 2005). Dunning (2008) found results in line with the thesis that revenues from the exploitation of natural resources may have mixed effects on the propensity of countries to be democratic or authoritarian. The results found by Herb (2005) do not give thorough support to the theory of the Rentier States. His results seem to suggest that variables like region, percentage of Islamic population and people’s per capita income have a greater impact on
the propensity of the country to be authoritarian as compared to the dependency on oil and gas. Similarly, the results found by Haber e Menaldo (2011) challenge the thesis of the existence of a curse following the affluence in natural resources. The conclusions reached by these authors point to a possible natural resources “blessing”: increase in natural resources revenues levels are associated to higher levels of democracy.

The theory of the “Dutch disease”, in turn, refers to the shrinking process of tradable sectors of an economy (industrial and agricultural, for instance) as a consequence of revenue shocks originated from the exploitation of natural resources (Corden e Neary, 1982; Mickelson, 1997). The effect of this causal mechanism occurs through the overpricing of currency, owing to the sudden influx of wealth from the exploitation of natural resources. This currency appreciation renders the exportation of agricultural and manufactured products uncompetitive, and their importation excessively cheap (Corden & Neary, 1982). This scenario may yet, at least in part, deter the amount of involvement of the State in other revenue-generating activities unrelated to the exploitation of natural resources (Brollo et al, 2010). In the long run, the consequences of this causal mechanism may translate as economic stagnation or limited growth.

The existence of a negative relation between an affluence in natural resources and economic growth is claimed by a body of empirical studies. Such evidence came up initially from studies of isolated cases (as, for example, Auty, 1993; 1994 e Gelb & Associates, 1988), and evolved into analyses which broaden the empirical scope stemming from the comparison between countries (Atkinson & Hamilton, 2003; Gylfason, 2001; Sachs & Warner, 1995; Stijns, 2000). These studies also suggest that the mechanisms contributing to that outcome are the investment levels and the build-up of wealth in these countries. High levels of government expenditures, especially expenses with civil servants, also appear among the mechanisms affecting that relation (Atkinson & Hamilton, 2003; Caselli, 2009; Sachs & Warner, 1995). Gylfason (2001), in turn, diagnosed the decrease of investments in education and human resources as another mechanism causing the negative relation between economic growth and natural resources.

Nevertheless, these results are challenged by other authors (Davis, 1993; Mehlum et al., 2002; Stijns, 2000). Davis (1993), comparing the long-term economic growth of economies dependent and non-dependent on natural resources, demonstrates that countries rich in natural resources did not present a deficit economic performance. He emphasized that the thesis of a natural resources curse would be closer to an exception than to the rule. Mehlum et al. (2002) also
found ambiguous empirical evidence on the negative relation between dependency on natural resources and development. Stijns (2000) reinforces that natural resources on their own do not seem to exert a significant influence on growth rates. The results of his empirical analyses on fuels and minerals reveal that the abundance of natural resources was not a meaningful structural factor on determining growth rates between 1970 and 1989. Furthermore, he highlights that oil, gas and minerals are associated with more market-oriented economic policies.

As demonstrated, the results presented above are far from representing a consensus among the researchers. Like the empirical results concentrated on analyzing the possible existence of mechanisms related to the Dutch disease, the empirical analysis on the effects of the affluence of natural resources on democracy also presents itself as contradictory. In view of the inconclusiveness of these findings, a great deal has been argued about the methodological frailty of the studies claiming the thesis which supports the theory of the natural resources curse. Different countries are characterized by many institutional and cultural distinctions correlated with the abundance of natural resources, which may impact the relation in different ways.

Above all, the measurements used as proxy for dependency on natural resources and its impacts on growth, taxation among others, may be challenged in terms of endogeneity. The utilization of observational data for comparisons between countries imposes severe limitations on these studies, be it by the impossibility of establishing a valid counterfactual, be it by the existence of reversed causal relations, on top of considerable variables of turmoil associated to each country. Ross (2012) argues cross-sectional or panel econometric works deal with measurements for oil that suffer from omitted-variable biases. These biases must be deal with care, as some institutions may be related to GDP and this leads to endogeneity when using, for instance, oil over GDP in econometric analyses.

2.2. Dictators and Power Delegation

A question that is discussed on the literature about the Natural Resources Curse and institutions is how authoritarianism in a country is affected by resources windfalls. Through several methods, Aslaksen (2010) have found the relation between oil and democracy is negative and robust. This evidence echoes with the one provided by Tsui (2011) that used new reserves to estimate this relation. When dealing with developing countries, Jensen and Wantchekon (2004) using a sample of African countries have provided empirical evidence suggesting a negative relation between
natural resources and the democratization. Moreover, it was found that such countries have lower governance, despite higher government expenditures.

Some theoretical links may be found on the democratization literature. For instance, Boix (2003) argues that low mobility of capital – a consequence of carbon-based commodities – favors the consolidation of dictatorships. By using a game-theoretical model, it was suggested that high inequality and capital low-mobility favor the consolidation of authoritarian regimes. In such sense, the presence of oil has a direct impact over democratization.

Another effect described by Ross (2012) that may expand the impact of oil on democratization is the nationalization of oil companies in developing countries since the 1970’s. This led to more power to governments, possibly increasing the inequality as some groups would be favored by the state. Contrary to that hypothesis, Anderson (1987) argues a dictatorship with oil rents may use them to ensure compliance from population. This view, however, is challenged by Herb (2005) that shows the effect of GDP – excluding effects of oil – is significant on democracy, but oil rents are not.

Nevertheless, the idea of natural resources causing authoritarianism is not uncontested. The literature on this trend may suggest natural resources are positive for democratic institutions or, at least, it does not have any significant negative impact (Haber and Menaldo, 2011). Dunning (2008) argues the effect of oil on authoritarianism is dependent conditional on other factors. He theorizes the distribution of income that would be without oil matters.

However, even if the negative perspective on natural resources and democracy is true, one could not argue that having natural resources is a necessary condition for having an authoritarian government. If so, there may be differences between the institutions of the dictatorships that have an important natural resources sector and those without it. Moreover, some of the differences may be a direct consequence of the natural resources.

An important institution natural resources impose to small and inefficient countries is the need of, if they intend to benefit from the rents, institutions related to international trade. Therefore, independently of being a dictatorship, some degree of respect to contracts is demanded from these countries. Campello (2015) studies the financial pressures over left-wing governments in Latin America. It is found that left-wing parties and governments converge to the center in countries
more prone to be affected by financial cycles; in countries that are not affected, left-wing presidents are more aggressive in their politics.

When dealing with oil, we propose a similar mechanism. Uncertainty in the supply of oil may lead to responses by international investors that may demand more efficient policies. Such policies may be achieved by a set of checks that booster the trust this government inspires. Glaeser et al. (2004), where they argue institutions are constraints on government, not something politicians can choose as an outcome. In other words, institutions must be a set of credible rules that constraint political players.

3. Theoretical Model

The model is basically a sequential game between an investor that demands a commodity and a government that must establish the level of juridical safety it wants to provide. The questions regarding juridical safety is that it is based on delegation of power to bureaucrats that are subject to agency problems as discussed by Public Choice literature (Niskanen, 1971). The first step by investors is whether to decide if they will buy from a dictatorship some commodity or if it will buy from a more trustworthy government by the price $p$.

If the contract is respected – with probability $d$ selected by the government –, then the investor manages to save the difference between price $p$ set by the trustworthy countries and the price $q$ set by the government multiplied by the quantity $V$ it wants to negotiate. If the contract is not respected, then a loss of value $a$ occurs. Therefore, to be an advantage for the investor to buy from the dictatorship, there is the following restriction:

$$V(p - q)d \geq a(1 - d)$$

With some algebra, it is possible to write:

$$p - \frac{a}{Vd} + \frac{a}{V} \geq q$$

This restriction must be satisfied by the dictator if he intends to have negotiate his commodity. The objective function by the dictator is approximated by not considering costs on extracting/producing the commodity. It can be simply stated as:
Max $\Pi = Vq - f(d)$ \hspace{1cm} (3)

where $f(d)$ is a loss function due to the delegation of power to judicial agents to secure contracts with impartiality and promptness. It is possible to see that equation 2 is always an equality because it is not profitable to use a price $q$ smaller than it is possible to set. Some conditions on this function must be imposed – it is doubly-differentiable and its first and second derivative are always positive – to be able to prove proposition 1.

**Proposition 1.** There is always a positive probability of securing contracts if the government sells the commodity.

**Proof.** By treating equation 2 as an equality and substituting it into equation 3, the objective function of the government is:

$$Max \, \Pi = Vp - \frac{a}{d} + a - f(d) \hspace{1cm} (4)$$

Taking the derivative of (4) by $d$, then we have:

$$a = d^2 f'(d) \hspace{1cm} (5)$$

Considering $a > 0$ and $d \geq 0$, then it is possible to see $d > 0$ as well. To ensure this is a maximum point, the second derivative of $\Pi$ is $\frac{d^2 \Pi}{d^2} = -\frac{a}{2d^3} - f''(d)$ that is strictly smaller than zero as $d$ and $f''(d)$ are positive, concluding the proof. ■

This proposition states that any government will not govern alone and some power delegation is always present. This is a rather trivial and obvious fact. It is also important to remark that besides we did not add the restriction $d \leq 1$, it is evident that for $d > 1$ the decision value is truncated.

From this demonstration, equation 5 emerges and it is possible to see the delegation level is a function of $a$. So far, $a$ was treated as a constant. This was done without any loss of generality and it is possible – and quite plausible – that $a$ is a monotonic increasing function of $V$ as the more some investor needs the commodity, the more the lack of that commodity will damage him. Therefore, by assuming $a = g(V)$ and $g'(V) > 0$, we can enunciate the more interesting proposition 2.
**Proposition 2.** The larger the quantity $V$, the more the dictator will be interested in delegate power.

*Proof.* Considering equation 5, it is possible to derive it by $V$ and, by the chain and product rules, see that:

$$
d^2 f''(d) \frac{\partial d}{\partial V} + 2df'(d) \frac{\partial d}{\partial V} = \frac{\partial a}{\partial V} > 0
$$

(6)

It is easy to see that for this to be true, then $\frac{\partial d}{\partial V} > 0$, thus concluding the proof. ■

It is possible to see that $V$ affects directly the rule of law of dictatorships. In other words, there must be a non-linearity on the natural resources curse. Indeed, there is documented in the literature that, for instance, oil damage civil liberties for women (Ross, 2012). However, it is possible to argue that this model suggests people under dictatorships with oil are better off than others living in dictatorships without oil, as some other sufficient conditions for non-democracy besides presence of non-mobile commodities.

Nevertheless, there are some assumptions of the model must be discussed. Ross (2012) argues that for oil the production sector was nationalized in several developing countries. This gave more bargain power for the dictator; in the model, we considered the foreign powers would have the final choice. There are some reasons for this. First, recently the alternative energy industry is becoming more plausible. In the US, companies such as Tesla made possible cars without oil as fuel. Brazil developed his own ethanol industry that allowed alcohol to be used as fuel. Similar activities are being developed. Second, some democracies are again finding oil, being Norway and Brazil examples. Ross (2012) shows developed countries in occidental Europe and on North America receive more foreign domestic investment in oil than the developing world.

However, the most important reason is the heterogeneity on dictatorships. The model may be adjusted for the reference price to be a risk-neutral equivalent for the investor considering the best dictatorship available in terms of value and juridical insecurity. This way, the competition is between dictatorships, but the incentives for improving the internal institutions is preserved. The conclusion regarding power delegation suggests it is the mechanism over what countries would compete.
4. Empirical Approach

In this paper, panel data techniques are applied to test the hypothesis drawn at proposition 2. The dependent variables – Judicial Independence and Burden of Government Regulation – selected are taken from the World Economic Forum data used to build the Global Competitiveness Index. The Judicial Independence variable intends to measure how much external pressures from government, citizens or firms tend to affect the judiciary, and the Burden of Government Regulations how burdensome is for firms to comply with government requirements.

The measure for autocracy we used was the Freedom House Imputed Polity used by Hadenius and Teorell (2005, 2007), which consist on a corrected average of Freedom House variables and the Polity scale. This variable originally consisted from 0 – autocratic – to 10 – democratic –, but we considered a reverse coding, thus the larger the value, the less democratic the country. The oil and gas rents were taken from the World Development Indicators and are considered as a percentage of the GDP. All these variables were taken from the Quality of Government. For the Rule of Law variable, its time span is from 2002 to 2013; for World Economic Forum variables the time span is from 2006 to 2013.

The independent variable we selected for oil rents was criticized by Ross (2012). This was due to the fact of GDP being usually correlated to the dependent variable. In some studies, such as the ones regarding civil wars and oil, the GDP on the denominator is affected by the civil wars, thus the identification of the relationship between oil and wars is compromised. In our case, the relation is less obvious; still, the usage of the traditional series must be discussed.

The institutions selected for measuring the institutional impact of oil are based on theoretical reasons, but they have the advantage of not being directly correlated to economic growth. Carlsson and Lundström (2002) have found Economic Structure and Use of Market is not robust when causing GDP growth. The impact of such structures in Freedom to Trade with Foreigners and Freedom to Exchange in Financial Markets may be a concern. These variables are robust and may be a consequence of such institutions, but this relation is not theoretically strong and these relations are not completely robust according to the tests proposed in this paper.

An initial and naïve approach is to simply segment countries as democracies dictatorships and to use panel techniques in the authoritarian subsample. This was done classifying countries
with more than 7.5 in the imputed polity as democracies. Tests indicated that a fixed-effects model with autoregressive error is the most appropriate to deal with this data. The results are in table 1 and they confirm this initial relation at 10% for all variables. This significance level is considerable as the sample size is small.

Table 1 – Result of Estimations

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<th>Regulations</th>
<th>Judicial Independence</th>
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<tbody>
<tr>
<td></td>
<td>Oil</td>
<td>Gas</td>
</tr>
<tr>
<td>Rents</td>
<td>0.0067*</td>
<td>0.0207*</td>
</tr>
<tr>
<td></td>
<td>(1.66)</td>
<td>(1.96)</td>
</tr>
<tr>
<td></td>
<td>0.1057**</td>
<td>0.0240*</td>
</tr>
<tr>
<td></td>
<td>(2.20)</td>
<td>(1.92)</td>
</tr>
<tr>
<td>N</td>
<td>342</td>
<td>341</td>
</tr>
</tbody>
</table>

$t$-statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

However, an important control for such regression is the lagged dependent variable. Institutions are not expected to change quickly and an autoregressive component is expected as consequence. Dynamic panel techniques, thus, are employed. Moreover, to consider the whole sample is important to verify to expand the sample and address which dictatorships are positively affected by oil. This was done through the equation:

$$DV = \beta_0 + \beta_1 Lag(DV) + \beta_2 Autocracy + \beta_3 Rents + \beta_4 Interaction + \epsilon$$  (7)

The estimator adopted for this paper is the bias corrected Least Square Dummy Variables (Bun & Carree, 2005). Monte Carlo evidence for series with similar size to ours suggested this approach is superior to GMM/IV estimators. Bootstrapped standard errors were adopted to control for panel and non-normality on the residuals from the regression. Only series with more than 5 years were considered for these estimations.

No other controls were considered to avoid post-identification bias. The most obvious controls, such as GDP may be influenced by natural resources; for instance, in low economic complexity countries there are mechanisms from oil and gas that may affect the economic growth (Civitarese & Martins, 2017). Other important issues, such as transparency, are caused by democracy, as democracies usually come with a higher level of accountability for voters to choose properly.
The results are in table 2. It is possible to see gas results are consistently confirming the proposed theory. There is a point on which autocratic countries have better institutions the more they receive rents. A threat to these conclusions is the interaction is not always significant at 10%. However, the result for gas is never below 15% and the magnitude of the effect is regularly found to be coherent with the theory for all variables. This suggests the theory has a robust impact despite the statistical rejection according to standard p-values thresholds. Moreover, by the usage of Bonferroni correction, the result of the interaction considering the two dependent variables is significant at 1%.

Oil evidence is supported as well. It is significant at 5% for Burden of Government Regulations; however, for Judicial Independence there is no significant relationship. As this is the only case for the static panel that was strongly significant and the estimative for rents was positive, this may be due to oil rents being positive for both dictatorships and democracies. When running this model without the interaction, oil rents were positively significant at 5% (p-value = 0.026), confirming the previous result from the static panel. For Burden of Government Regulations, the significance and the magnitude of the interaction – able to revert the initial impact of oil rents – confirm the hypotheses. Moreover, by the Bonferroni correction the overall effect of the interaction is significant at 5%, thus the theory is supported.

Table 2 – Result of Estimations of Robustness Test

<table>
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<tr>
<th></th>
<th>Regulations</th>
<th>Judicial Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oil</td>
<td>Gas</td>
</tr>
<tr>
<td>L.DV</td>
<td>0.645***</td>
<td>0.588***</td>
</tr>
<tr>
<td></td>
<td>(22.26)</td>
<td>(17.60)</td>
</tr>
<tr>
<td>Autocracy</td>
<td>-0.0159</td>
<td>0.0073</td>
</tr>
<tr>
<td></td>
<td>(-0.73)</td>
<td>(0.29)</td>
</tr>
<tr>
<td>Rents</td>
<td>-0.0263**</td>
<td>-0.0205**</td>
</tr>
<tr>
<td></td>
<td>(-2.30)</td>
<td>(-2.23)</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.0034**</td>
<td>0.0029</td>
</tr>
<tr>
<td></td>
<td>(2.22)</td>
<td>(1.54)</td>
</tr>
<tr>
<td>N</td>
<td>825</td>
<td>826</td>
</tr>
</tbody>
</table>

* t-statistics in parentheses
5. Discussion

It is possible to argue the tests presented in the previous section are not sufficient for testing institutions. This is a consequence of Glaeser et al. (2004): using institutional outcomes econometrically do not test directly institutions, but choices by institutional actors. This is compatible with the objective of this paper: to test how authoritarian leaders actually choose his institutions based on oil, not exactly how constrained they are.

Therefore, the tests provided by this paper highlight positive institutional outcomes led in dictatorships by oil windfalls. The mechanism proposed is the pressure by international markets, however this mechanism is yet to be tested. Counterfactual explanations must be discussed to avoid concluding the proposed game is not spurious. This section deals with ruling out alternative mechanisms that might lead to better explanations. Two types of mechanisms may be contenders for the theory proposed on this paper: internal pressures to better institutions based on having more money and non-economic international pressures.

The internal pressure hypothesis is a sophistication of the Rentier State argument of the government having less incentives to tax its population. Another similar consequence is to provide more public goods to ensure compliance and legitimacy. This is emphasized by Herb (2005), as rents do not harm democracy in his empirical model. However, if it is possible to assure these cofounders are not caused as well by institutions – reverse causality –, then they are not a problem, as their addition would cause post-identification biases. These additions would decrease or influence the evaluation of oil’s impact on the dependent variables selected. The non-addition is simply a new mechanism that reinforces or decreases the impact of oil. It is important to highlight the model presented in section III does not argues international markets are the sole cause of institutional improvement, but it intends to illustrate a potential causal mechanism. Nevertheless, to test the mechanism, further qualitative work based on process tracing is necessary.

The external pressure due to non-economic issues is a geopolitical issue that must be dealt as well with some case study analyses. It is important to ensure, at least, that having oil does not obliges a country to have better institutions due to pressures related to non-economic reasons. It is
not plausible to think non-economic causes correlated to oil would affect economic institutions; they would alter only if it was possible to avoid oil trade and their impact. This is not possible, as discussed. To reject this, it is possible to recur to Ross (2012) argument about gender inequality on oil exporting countries. This inequality is a consequence of oil and it does not impede oil to be gathered and commercialized. Therefore, humanitarian causes of this magnitude are not a sufficient condition to have a barrier for oil and gas trade and their institutions.

6. Conclusion

In this paper, we have dealt with the institutional quality of dictatorships according to their natural reserves of oil and gas. The results presented here show the possibility of oil and gas being positively related to better economic institutions. By presenting a game theoretical approach to this problem, a mechanism – the international market – is posited as the cause for such institutional improvement under dictatorships.

The econometric analyses on a restricted sample of dictatorships has shown rents have a positive impact on economic institutions. When considering a dynamic model with full sample of both dictatorships and democracies, rents have a negative impact. This impact is diminished by the presence of an interaction term between autocracy and oil or gas rents, revealing there is, indeed, an oil curse, but its effect is non-linear: autocracies – that usually cannot get worse in institutional terms – may get better by having oil.

As said by Tolstoy in Anna Karenina, “happy families are all alike; every unhappy family is unhappy in its own way”. This principle may apply to natural resources curses: even though it is possible that it causes authoritarianism, dictatorships’ institutions may respond differently to incentives and resources than democratic rules. Under a dictatorship, oil and gas seems to improve the quality of regulations and judicial independence. This non-linearity in the curse must be further analyzed in order to understand the real impact of oil and gas on institutions.


