Is Oil Wealth Good for Private Sector Development?

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Abstract. *When do autocratic rulers in oil-producing countries support private sector development? We argue that the size of oil rents per capita has an important effect on ruler support for the rule of law, respect for private property rights, and other factors that promote private investment. However, the effect is not linear, but instead resembles a U-curve: Primarily in countries with middle levels of per capita oil wealth would we expect the state to repress the private sector. At both low and high levels of oil wealth, autocrats interested in regime preservation would support and promote the private sector. Descriptive analyses of governance measures in Middle Eastern oil producers situated in comparative perspective offer empirical support for these propositions. These arguments and findings contradict some of the key claims in the resource curse literature but also differ from arguments that offer historically grounded explanations for development among oil exporters.*

1. Introduction

The effect of natural resource wealth on institutional development and governance is the subject of ongoing debates in social science research. While some find that oil riches are associated with poor institutional quality (Besley and Persson 2011, Chaudhry 1997, Karl 1997, Mahdavy 1970), others contend that historical factors, such as populist legacies and state autonomy, mediate the effects of oil abundance on state capacity to construct capable regulatory and productive institutions (Hertog 2010a).[1] In this article, we wade into this debate by focusing on private sector development, a critical factor shaping economic growth prospects, particularly in oil-rich countries which face notorious challenges to economic diversification.

When do autocratic rulers of oil rich countries face incentives to promote private sector development? How do ruler attitudes towards the private sector shift, if at all, as oil endowments increase? At present, no convincing theoretical frame can address these questions beyond the broad intuition that rentier states do not "need" private production for their survival but instead rely on the distribution of rents. The logic of this argument implies that greater oil endowments translate into a larger resource curse, and thus less private sector development (Mazaheri 2016).

1 For a comprehensive review, see Waldner and Smith (2015) .

Empirically, we show that the countries of the Gulf Cooperation Council (GCC) with high per capita oil endowments – or the "high" oil countries – have avoided many aspects of the resource curse, including with respect to private sector development. In contrast, the oil-rich yet populous states of the Middle East and North Africa (MENA) - the "middle" oil countries – exhibit far less respect for the rule of law and related indicators of support for private sector development than their lower population counterparts in the Gulf. We also suggest that these patterns apply to non-democratic oil-producing countries outside the Arab region.

Specialists on the Gulf have noted that the GCC states do not neatly conform to the predictions of the resource curse logic, invoking historically constituted aspects of state-building in the region as alternative explanations (Herb 2015, Hertog 2010b, Hertog, Luciani, and Valeri 2013). However, while historical explanation is necessary, particularly to explain the origins of bargains between rulers and ruled in resource-rich countries, it is not sufficient to account for the apparent exceptionalism across the rich oil countries. Our explanation for intra-regional variation in the effects of oil wealth on private sector development highlights the complementary role of both rational incentives and historical inheritance.

Our framework holds that rulers in high and low population oil-rich countries face distinct incentives to extend credible commitments to private capital holders. Rulers adjust their policies in ways that both maximize their economic outcomes *and* the chances of preserving their rule. In turn, we argue that power preservation depends on how private sector development affects the *ability* and the *willingness* of the opposition to mount a rebellion.

When resource rents per capita are high, as in the Gulf oil exporters with low citizen populations, oil transfers to the population tend to be high, rendering the private sector less threatening because its members have less will to rebel. As a result, rulers who transfer higher oil rents in absolute terms to their population foster a political settlement in which more private sector dynamism is permitted. Conversely, when per capita resource levels are more constrained, as in the high population Middle Eastern oil exporters, a wealthy private sector can pose a far greater threat. Disgruntled citizens have less to lose from rebellion than their counterparts in high-oil countries, while a nominally independent private sector might throw its financial heft behind an insurgency from below in an effort to displace ruling elites. In this context, autocrats will tend to restrict private sector development as a way to preempt or suppress threats from outsiders.

While this framework can account for the incentives of rulers in countries with high levels of oil per capita to allow for private sector development, it does not explain how such countries have been able to become large-scale oil producers in the first place. How do countries traverse from the lower range of oil production, where the resource curse plays out in stark terms, to higher levels of production? Here it is essential to invoke historical factors, notably the type of sociopolitical conditions in existence prior to the discovery of oil that allow – or do not allow – rulers to provide credible

commitments that oil will be shared broadly with key elements of the population in a way that secures sufficient political peace while permitting the full exploitation of reserves.

The paper is structured as follows. In section 2, we review the literature on the incentives of rulers to establish the rule of law in autocratic settings and in oil-dominated economies as the basis for an alternative account of the relationship between oil and private sector development. In section 3, we introduce the measures of the rule of law employed in the paper and show how these measures vary across the region, and across levels of oil produced. In section 4, we present a simple model to illustrate the logic behind our intuitions. In section 5, we extend the simple framework in five directions that help to account for variation among oil countries, including: (i) the issue of endogenizing oil reserves; (ii) the balance between repression and cooptation; (iii) the prevalence of cronyism and clientelism; (iv) the environments under which populism arises; and (v) the special case of offshore oil production. We conclude in section 6 by underscoring the contributions of our theoretical framework and empirical findings, and suggest further applications of the main claims in the paper.

2. Private sector development in authoritarian regimes and oil-rich countries

Respect for the rule of law and, especially, secure property rights are integral to dominant explanations for economic development and are vital for the emergence of a robust and vibrant private sector: Predictable and evenly enforced rules promote private investment, capital accumulation and other factors central to economic development and growth (see, for example, Acemoglu and Robinson 2012, Kuran 2011, Mahoney 2010, North 1990, Rodrik, Subramanian, and Trebbi 2004, Weingast 1995). Moreover, the stability of legal and regulatory frameworks arguably breeds trust in the political system, encouraging individuals, groups, and firms to invest their scarce resources in local projects and to carry out economic exchange, thereby contributing to overall growth.

As in other studies of the origins and function of the rule of law in non-democratic contexts (Helmke and Rosenbluth 2009, 347-348, Wang 2015, 2, 21), we focus on a more partial and selective definition of the rule of law centered on the security of guarantees to private capital holders. Although authoritarian rulers may face incentives to foster investment by offering and respecting predictable rules around economic transactions, they tend to have little interest in tolerating "judicial discretion of politically sensitive issues" (Helmke and Rosenbluth 2009, 347). Thus, the form of the rule of law that we discuss in this paper falls short of a comprehensive and normatively ideal understanding of the term, which is more likely to obtain in democratic polities (Helmke and Rosenbluth 2009, 348, Kleinfeld Belton 2005, 3).

Even if the form of rule of law institutionalized in authoritarian systems is a far cry from democracy, it remains puzzling that authoritarian rulers would tolerate and even promote private sector development because of the risk that it weakens their

hold on power. Under what conditions do authoritarian regimes encourage or accept the development of a private sector?

At present, three main lines of analysis address the relationship between oil wealth and private sector development. The first implies that more oil should lead to a less developed private sector; the second to a more developed one; and the third suggests that it should not matter.

First, the logic of the resource curse (Auty 1993, Gelb 1988, Sachs and Warner 2001), which has been quite influential, holds that rentier states do not need private output for their survival, suggesting a negative relationship between oil endowments and private sector development.[2] One aspect of this story is economic: According to the Dutch disease argument, natural resource wealth weakens private sector competitiveness (Corden 1984, Corden and Neary 1982). In parallel, the rentier state logic implies that oil wealth is associated with the rise of distributive states (Beblawi and Luciani 1987), with less need to give concessions to the private sector and, hence, less private sector development.[3] In this view, the growth of private firms can be dangerous from a regime survival perspective – i.e., that private sector development improves the *ability* of the population to rebel. Richer oil countries can afford to live without a private sector, since they have another source of income to satisfy the needs of the ruling elite and those of the population.[4] The implication of this type of theory supports the experience of middle oil countries, where the private sector is less developed than in non-oil countries, but contradicts the experience of the oil-rich GCC countries.[5]

Second, an alternative theoretical tradition, less invoked in the context of oil economies, implies a positive relationship between oil wealth and private sector development. This approach maintains that rulers with long time horizons care about the development of the economy, which provides a sustainable tax base and reduces the potential for popular grievances, both of which support their rule (Bates and Lien 1985, North and Weingast 1989, Olson 1993, Weingast 1997). In this type of authoritarian bargain, the existence of oil reserves would strengthen ruling elites, allowing them to operate with longer time horizons, thus increasing their incentives to provide the necessary conditions for private sector development. In this vein, Ali

[2] For dissenting views, see Di John (2011), Jones Luong and Weinthal (2010), Lederman and Maloney (2007), Menaldo (2016)and Wright and Czelusta (2004), inter alia.

[3] A related argument is that richer oil states hire more public servants in order to improve their hold on power (Robinson, Torvik, and Verdier 2006), crowding out the private sector.

[4] Subsequent modeling of the autocratic state explores the threat of insurrection. In these game theoretic models, the risk of revolution constrains the incentives of autocrats to over-tax poorer segments of the population whose interests lie in democratization and income redistribution from the rich to the poor (Acemoglu and Robinson 2006, Besley and Kudamatsu 2007, Gandhi and Przeworski 2007, Helmke and Rosenbluth 2009, 357-358).

[5] Mazaheri (2016) develops a different argument with the same implications by asserting that in high oil countries, business elites have a greater ability and willingness to exclude new entrants into markets they monopolize, leading to less private sector dynamism.

and Elbadawi (2012) argue that as natural resource wealth grows, redistributive policies, such as public sector employment, becomes more attractive than repression. The core assumption here is that more oil leads to arrangements in which the private sector has lower *incentives* to lead rebellions. The implication of this type of approach is consistent with dynamics in the GCC cases, but contradicts the experience of middle oil countries such as Iraq or Algeria.

Third, a historical approach contends that there is no relationship between oil and institutions, such as those that support private sector development, and that institutional characteristics are caused by different factors (Menaldo 2016). While there is growing recognition that the GCC countries are different, especially with respect to measures related to private sector development, an alternative explanation has emerged for the exceptionalism of these super-rich oil countries. Built around historical contingencies, proponents of this set of approaches point to pre-oil "inclusive settlements," the relative lack of colonial legacies, and features of monarchical rule as it evolved in the Gulf (Herb 2015, Menaldo 2012). While some historically oriented scholars think of the GCC as an exception to the logic of "the oil curse," others simply sidestep accounts based on rational incentives. While we recognize the value of historical arguments, particularly in shaping initial political settlements that affected the ability to fully exploit oil resources, we contend that incentives emanating from the availability of resource endowments also shape ruler behavior vis-à-vis private sector development once oil is flowing.

The theory we offer aims to reconcile incentives with empirical observations and with historical specificities. First, unlike the resource curse argument, our theory does not predict a linear relation between oil and the rule of law and other factors promoting private sector development. By emphasizing the impact of oil on both the ability and willingness of private capital holders to support insurgencies, we argue that the relationship between oil and private sector development follows a U-shaped curve. Autocratic rulers of countries that have low or high levels oil wealth have greater incentives to support private sector development than in countries with middle-range levels of oil.[6]

Second, the argument we have just outlined presents a static view that takes oil reserves as given. It therefore cannot explain why some countries end up with high levels of oil production, while other countries, with potentially large reserves, end up with lower levels of production. Here, historical approaches offer great insights. For countries to move from low to high levels of oil production requires the establishment of a social contract with the population that permits rulers to traverse the difficult early phase of natural resource extraction while increasing investment in oil. Countries that successfully manage this transition can do so because pre-oil political

[6] The U-shaped relationship is similar to that obtained by Acemoglu and Robinson (2012) in a model in which political elites block technological or institutional innovation, and thus hurt economic development, because of fears of being displaced when innovation erodes their incumbency advantage.

settlements, which result from historical contingencies, provide de facto guarantees that rulers will not adopt short-term, myopic strategies preventing them from sharing oil rents.

More precisely, we argue that rulers adjust their policies vis-à-vis the private sector in ways that both maximize their economic outcomes and preserve their rule. To do so, they must share oil rents with their population according to the "proportionality principle" (Cox, North, and Weingast 2015), allocating benefits and privileges in proportion to the violence potential of or degree of threat posed by the recipients, thereby providing sufficient oil transfers to elements of the population in order to prevent insurgency.

At the same time, rulers must also decide whether they are willing to support the emergence of an autonomous private sector. This choice depends on an assessment of two factors: how much private sector development affects the *ability* and the *willingness* of the opposition to mount a rebellion. When resource rents per capita are high, as in the Gulf oil exporters with low citizen populations, oil transfers to the population tend to be high, rendering the private sector less threatening, for two reasons. First, since the population is already rich from oil transfers, there is little the private sector can do to encourage risky behavior such as a high-risk, low-payoff rebellion. Second, since the private sector's output will be large, as it caters to a richer population, its own costs in the event of a rebellion or insurgency would be large as well in terms of destroyed assets. As a result, rulers who transfer higher oil rents to their population in absolute terms have incentives to construct a political settlement that also favors private sector dynamism.

Conversely, when per capita resource levels are more constrained, rulers are more threatened by the rise of the private sector. A rise in private incomes, at relatively low levels of income, can have a substantial effect on the ability of the population to mount a successful insurgency, and this effect will tend to be larger than the extra loss in terms of the destruction of their assets during an insurgency. In this context, autocrats will restrict private sector development to preempt or suppress threats from regime outsiders. We are agnostic as to whether rulers anticipate this at regime onset, or learn this behavior after wealthy elites make moves to support nascent protests.

This logic rests on several assumptions, which we think are realistic, and are widely used in the political science literature. First, private firms can play a political role, posing a potential threat to autocrats (see Bellin 2002, Moore 1966, inter alia).[7] A second assumption of our framework is that more successful insurrections require access to higher levels of financing (as in Collier and Hoeffler 2004, Elbadawi and

[7] Cox, North and Weingast (2015) point to "limited access orders," in which governing coalitions restrict the emergence of new groups so that they do not become powerful, thus forcing the rulers to share authority and rents more broadly.

Sambanis 2002). Finally, a richer private sector has more to lose and has fewer incentives to back insurrections (as in Svolik 2012, Wintrobe 2001). [8]

In the next section, we present some descriptive data on patterns of governance in the distinct political economies of the Middle East to illustrate the U-shaped relationship between per capita oil wealth and private sector development in the region.

3. Variation in the rule of law in the MENA region

The MENA region includes both oil-exporting and oil-importing countries. Among the former group, the degree of per capita oil wealth varies considerably. In this section, we first present data on oil and gas endowments within the region and then present the specific measures we use to capture the selective and partial conceptualization of the rule of law employed in this paper, showing how these indicators vary across different net oil exporters and importers.

Oil and gas endowments in the MENA political economies

The Middle East has about 55% of the world proven crude oil reserves, much of which is in the Gulf (OPEC 2016, 22). Among oil and gas producers, per capita oil and gas rents are shaped both by the numerator – that is, the size of the reserves exploited in a given country – as well as the denominator – notably, the size of the citizen population.[9] As Table 1 shows, in 2014, per capita oil rents ranged from zero in Lebanon to over US$30,000 in Qatar.

While some countries have relatively high oil rents per capita, notably the oil-rich Gulf states, other oil producers, such as Algeria or Iraq, have more modest or medium per capita oil rents. Still other countries in the region have no or low levels or per capita oil rents.

In some countries, oil rents per capita have changed over time. For example, Egypt and Tunisia used to derive larger rents from oil in the past (19 and 9 percent of their GDPs, respectively, in the 1980s), but these have dropped markedly. In the past, Syria also derived sizable revenues from oil, and while these revenues have fallen, they remain relatively large. Unless important new discoveries are made soon, dwindling Algerian oil reserves will turn that country into low oil economy in a generation. The oil wealth of Sudan and Yemen is recent. Some countries also have other, significant sources for their rents—Syria, Jordan, and Egypt collect rents on their strategic

[8] It should be noted that the most sensitive theoretical assumptions needed to obtain our main results are those related to the functional relation between the ability and willingness to rebel, and incomes. Our particular model is thus fitted to deliver the results suggested analytically, and its role is to illustrate how these results come about, as opposed to demonstrating their general validity.

[9] We use the term "oil rents" throughout the paper to denote both oil and gas rents.

locations, and Moroccan exports are dominated by phosphates, which account for about 30 percent of GDP.

Table 1: Oil and gas rents in the Middle East (2014)

Country	Oil + Gas Rents/Capita (US$2014)	Oil + Gas Rents/GDP	GDP/Capita (US$2014)
Qatar	35,492	46%	77,163
Kuwait	27,854	65%	42,824
Saudi Arabia	12,416	52%	24,107
UAE	11,698	29%	40,654
Oman	9,971	53%	18,763
Iraq	3,581	62%	5,776
Bahrain	3,067	13%	24,170
Libya	2,952	n.a.	n.a.
Iran	1,823	28%	6,423
Algeria	1595	32%	4,984
Egypt	296	10%	3,106
Sudan*	262	13%	1,983
Yemen	242	19%	1,257
Tunisia	228	5%	4,693
Syria	70	2%	3,248
Turkey	24	0.2%	14,769
Jordan	4	0.1%	4,848
Morocco	.99	0.0%	3,493
Lebanon	0.0	0.0%	9,795

Sources: Kraay, Kaufmann and Mastruzzi (2017), Ross and Mahdavi (2015). In all figures in this paper, per capita oil rents are calculated using data on residents rather than citizens due to the uneven availability of data on the latter category. As a result, per capita oil rents are underestimated in the high oil countries. Amounts are from 2013 and include South Sudan.

The rule of law in distinct MENA political economies

To facilitate cross-national comparisons, we use indicators from several data projects that tap into limited dimensions of the rule of law. In the paper, we report the widely cited measures of rule of law in the World Bank Governance Indicators (WBGI) developed by Kraay, Kaufmann and Mastruzzi (2017), but in the supplemental appendix we use indicators of related concepts such as corruption, as measured by Transparency International and a measure of the business environment from the

World Bank's Doing Business Database.[10] The patterns described below hold using these alternative data sources.

In line with a partial and selective notion of the rule of law, WBGI indicator captures a very limited understanding of the concept and does not emphasize transparency and accountability, which are central components of many definitions. Khatib's (2013, 25) critical discussion of governance in Qatar, where the royal family and often citizens are not subject to the same scrutiny and consequences as foreign nationals, underscores the ways in which existing measures, including the WBGI indicators, only depict the truncated form of the rule of law that exists in some MENA political economies. The data used in governance indicators, which draw on surveys with respondents from the resident business community rather than measures of actual practices, are subject to "halo effects" (Khatib 2013, Kurtz and Schrank 2007). Petty corruption may be uncommon in Qatar, in part because nationals have little incentive to seek bribes because they receive generous economic benefits and because resident foreign workers fear deportation, but rulers do not have to account for their actions. Nonetheless, these biases and important normative concerns should not undercut our main analytical claims because we aim to show relative measures of the rule of law across political economy types and refer to a narrow understanding of the rule of law centered on commercial transactions. Furthermore, the perceptions of citizens and investors rather than objective realities are integral to the political settlements undergirding distinct types of political economies.

As sketched out in the previous section, we expect that the extent of per capita oil rents sets up different contexts for political exchanges between rulers and ruled, resulting in varied levels of respect for the rule of law. Descriptive analyses of indicators across the different types of MENA political economies assess whether there is empirical support for this expectation. In this section, we depict the values of the rule of law indicators among all MENA countries in global comparative perspective in 2014, when oil prices hit their most recent peak levels. In a world of low oil prices, we expect that the findings should hold and perhaps become even more pronounced over time as countries with medium oil rents per capita face more immediate constraints than countries with higher levels of such rents.

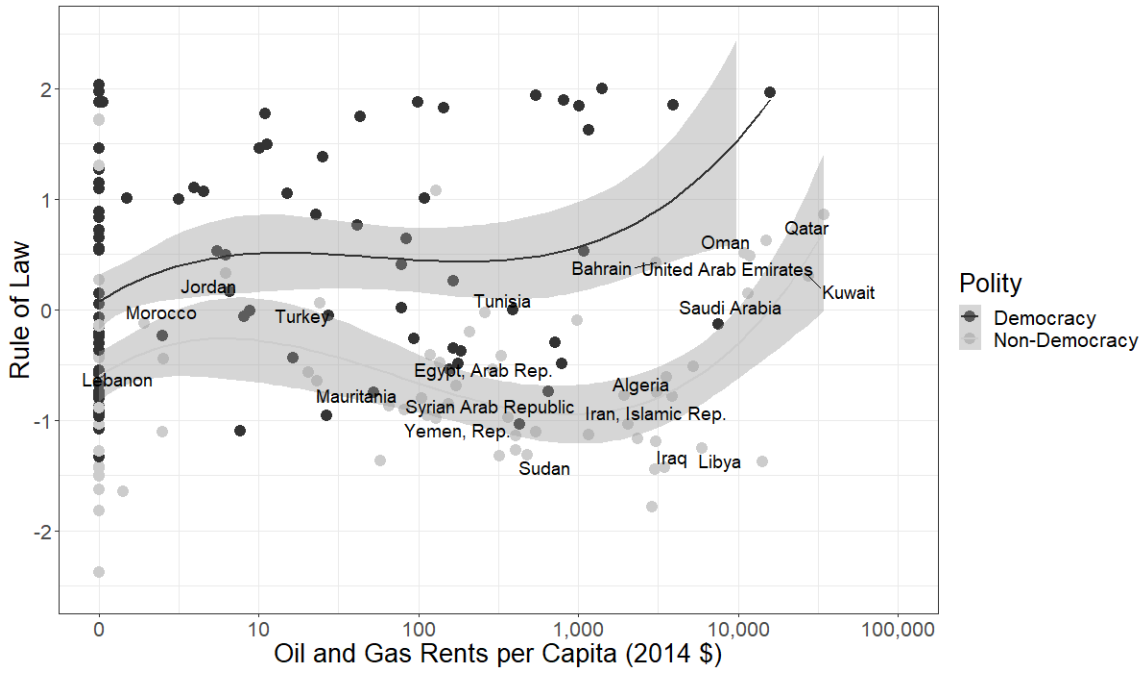
Figure 1 plots the rule-of-law estimates and per capita oil rents by country and shows wide variation in this governance measure among MENA countries with varying levels of per capita oil wealth. The high oil Gulf countries have the highest rule of law measures within the region and exceed the levels of most non-democracies and even of many democracies. Conversely, the "medium oil" MENA countries such as Algeria, Iraq and Iran, exhibit much lower rule of law estimates and dip below levels found in virtually all democracies and many non-democracies. Finally, the low oil countries

[10] The WBGI measure of the rule of law captures "perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" and ranges from -2.5 (weak performance) to 2.5 (strong performance).

have higher levels of rule of law than the middle ones, as in Turkey, Morocco, or Jordan. Libya is a notable outlier in the MENA region, a borderline cases that with very different values for rule of law, even though oil endowment places the country in the high oil category. These levels of rule of law, however, have converged in the recent past with the deterioration of the security situation in Bahrain.

In general, the rule of law is higher in the monarchies than in the authoritarian republics. Given the overlap between monarchies and high per capita natural resource endowments, this association may not arise entirely from the effects of the regime type but rather may result from resource levels. Furthermore, the two monarchies without oil wealth have markedly lower rule of law estimates than those in the GCC.

Figure 1: Log per capita oil rents and rule of law estimates in the MENA countries and global democracies and non-democracies (median values, 2010-2014). 95% confidence interval on smoothed curve, by Polity IV grouping (Democracies coded as Polity values of 6-10).



Sources: Kraay, Kaufmann and Mastruzzi (2017), Ross and Mahdavi (2015) and World Development Indicators (2017).

In sum, the data show that in the MENA region, measures of governance associated with private sector development are superior in the high oil GCC countries and lowest in countries of the region with medium levels of per capita oil rents. This pattern generally holds for non-MENA oil producers as well, but only for non-democracies. Indeed, among middle oil autocracies around the world, most have low measures of rule of law (Gabon, Azerbaijan, Congo, Angola, Turkmenistan, Uzbekistan, Chad, Nigeria, PNG, Belize). Only a few democracies with middle oil have low levels of rule

of law, but these tend to be on the frontier of the Polity score for democracies (Venezuela, Russia). Similarly, only a few middle oil autocracies have high levels of rule of law (Malaysia) – but, again, these countries tend be on the upper end of the Polity score for autocracies.

These results do not depend on the governance variable used here. The same pattern can be observed with other variables that measure private sector governance and performance such as the Doing Business ratings, or the Global Competitiveness index. Moreover, the U-shaped relationship between oil endowments and governance can also be observed in variables that tape into outputs – and not just measures based on perceptions. For example, the extent of financing obtained by the private sector as a share of GDP in oil economies exhibits the same pattern. (See Figure A1 in the Appendix.)

In the next section, we further develop our framework to account for these patterns.

4. The rule of law as a policy choice

The framework we develop to account for these empirical facts depicts an interaction between the preferences of rulers and different classes of citizens to explain the emergence of the rule of law. Here we present core elements of the framework and, in the next section, several extensions. In the tradition of Olson (1993), our focus in on how rulers *choose* a level of the rule of law to support (or restrict) the private sector, and on how this choice is influenced by the size of per capita oil rents.

A key component of a model of state-society relations in an autocratic oil economy is to consider that the development of a private sector may weaken state control.[11] The risk of private sector development is that it may finance the activity of the opposition, weakening the autocrat's hold on power. On the other side of the ledger, however, autocrats will be pushed to tolerate or encourage the rise of private capital holders if they perceive that a dynamic private sector will be in their interest by diversifying the economy, thereby generating a more sustainable flow of income in the future and creating jobs.

A simple framework: Oil rents and the rule of law

A basic formal framework is helpful in clarifying these contentions. We start with a highly idealized model in which the level of oil per capita (given exogenously) does not affect the population's ability or willingness to mount an insurrection. We then relax this assumption to produce our key results.

[11] The main difference with non-oil economy is the need in these countries to generate rents largely through economic exclusion. While we do not pursue this theme here, rent collection typically weakens the private sector (Malek et al, forthcoming).

In the initial, basic model, the autocrat must make two decisions: how much of the oil pie to transfer (T) to population (with $0<T<O$, where O is oil revenue), and how much rule of law, R, to establish (with $R>0$).[12]

The population is assumed to maximize income derived from private sector production (Y) and it must decide whether to mount a revolution or not. We take Y to include private production, which depends on initial endowments and the rule of law, but also on the trickle down of oil in the economy (m.O), which can occur for example though the demand for services. Thus, $Y= R.\underline{Y} + m.O$, where $0<m<1$.

The payoffs for the ruler and the population depend on whether a revolution is initiated or not. Table 2 shows the payoff matrix.

Table 2: Payoff matrix

	Ruler	Population
No revolution	O-T	T + Y (R)
Revolution	(1-p) O	p. O + Y(R).(1-c)

With no revolution, the ruler's payoff is given by oil revenue (O) minus oil transfers (T). The population's income comes from two sources: the transfer (T) it receives from the government plus its income from private sector activity (Y(R)), which is dependent on the level of the rule of law (R).

When a revolution takes place, the expected payoff for the population is given by the difference between revenues minus costs. On the revenue side, we assume that the population gets the full oil revenue (O) if the population succeeds, and zero otherwise. The expected payoff is thus given by p.O, where p is the probability of the population winning the revolution, given that a revolution is started. On the cost side, we assume that when a revolution is launched, a part of private sector production is destroyed (c.Y) irrespective of whether it succeeds or not. We also assume that c is given exogenously and that $0>c>1$. The ruler gets O if the revolution fails and zero if it succeeds, and so his expected payoff is the weighted probability of these two outcomes.

The equilibrium of this simple game indicates that, when O is large enough, revolutions are possible,[13] but a revolution is not desirable because it reduces the size of the pie. The autocrat's optimal offer is therefore the lowest level of transfer (T*) that is sufficient to deter a revolution, so $T^*= p.O - c.Y$. A closer look at this expression highlights the following core points:

[12] For the sake of simplicity, the second decision is assumed to be costless. To the extent that it is costly to build institutions, a justice system, or other public goods required to regulate markets (McGuire and Olson 1996), there is a tendency to provide lower levels of R than implied by this bare-bones model.
[13] Formally, revolutions start when $p.O > cY(zero)$.

- The transfer T* rises with p.O. This is the *proportionality principle*, which in this context holds that when oil revenue is higher, or when the probability of a revolution succeeding is greater, there is more for the autocrat to lose, and thus, he is willing to grant the population a larger transfer (T*). This term effectively represents the population's *ability to rebel*.

- The optimal transfer T* falls with c.Y, because the population has more to lose when starting a revolution when Y, or c, are larger. This term effectively measures the population's *willingness to rebel*.

In this simple model, the autocrat cannot affect p, and will thus want c.Y to be as large as possible, since this reduces the population's willingness to rebel, and, thus, the size of the transfer T*. He can do this by establishing full rule of law at R^H, the maximum level possible, resulting in the highest possible non-oil GDP at Y^{max}.

We now relax the assumption about the exogeneity of p(.), and then discuss how the resulting optimal actions are affected by the size of the oil endowment.

Endogenizing the probability of a successful revolution

What happens when we consider that the probability of a rebellion succeeding, once it starts p(.), increases with the size of the population's private sector income (Y) (i.e., that (p'(Y)>0))? In this more realistic scenario, if a revolution is launched, a richer population has higher chances of winning. This can occur because of a superior ability to organize and mobilize, more access to weapons, or other reasons, all of which are affected by the wealth of the population. In theory, when the population gets rich enough, revolutions have a higher probability of success once they are initiated – that is, p = 1. In our set-up, then, increases in both R and O lead to increases in p(.).

The ruler's problem is now changed. Given our simplifying assumptions, T* remains unchanged at T*= p(.).O – c.Y (as we have assumed that T does not influence Y). However, the choice over R must now take into account the impact of private sector growth on the probability of revolutions succeeding.

The problem has in effect three types of solutions or equilibria, each of which corresponds to a higher range of oil per capita. We thus call these the low, medium and high oil regimes.

- *Low oil equilibrium*: In this regime, oil is too low to generate incentives for a revolution, or when $O<\underline{O} = c.Y/p(Y)$, where $Y= R.\underline{Y} + m.O$. To the extent that production is taxed, the ruler aims to maximize R, as suggested by the Olsonian "stationary bandit" logic (Olson 1993).

- *Medium oil equilibrium*: Here O is at a mid-range level and, as a result, Y and thus p(.) are small, and so is c.Y. In this situation, the population's willingness to revolt is large because it has little to lose, but its ability to do so is low and

is highly dependent on the level of R. A high level of R in this situation can improve the population's ability to win an insurrection, which is not desirable from the ruler's perspective. The ruler therefore restricts R, and thus Y, to undercut the emergence of an independent private sector. Under these conditions, the ruler will set R* to balance marginal costs (when R rises, p rises) and benefits (when R rises, c.Y falls).[14]

- *High oil equilibrium*: In this regime, oil reserves are large. In this case, the population's ability to win a revolution is very high, and p is close to 1. The transfer T* is thus close to O. In such contexts, the ruler's optimal strategy is to minimize the willingness to rebel in order to reduce T*. This is best achieved by supporting private sector development, thereby maximizing the loss to the population in the event of rebellion. This is an "autocratic bargain" type equilibrium in which the population accepts autocratic rule and tolerates the consumption of rents by the political elite in exchange for security and the ability to accumulate its own wealth.

This simple, heuristic model illustrates our main claim: At high levels of oil, rulers have an incentive to offer more commercial rule of law in order to reduce the population's willingness to revolt, while at medium levels they aim to lower the population's ability to mount a revolt by granting minimal rule of law. Further specifications of the model could compute more precisely the thresholds for the exogenous variables (O, $\underline{Y}$, c, m) that determine the turning points from one equilibrium to another, calculate how the equilibria respond to changes in the exogenous variables, and make the model more complex with more realistic assumptions (for example, on the shape of the various functions). Nonetheless, the core implications of such models – notably, the existence of three distinct types of equilibria with different levels of rule of law – will hold as long as the main features of the model do not change.

It is important to note that the low rule of law equilibrium characteristic of middle oil countries is below the country's production potential, and is thus inefficient from a first best perspective. In effect, the ruler represses the private sector in order to improve his prospects of survival. A deal could emerge whereby the ruler supports the population to produce at full potential in exchange for a commitment ensuring that the ruler receives the same payoff – that is, a smaller share of a larger pie. Unless a credible commitment mechanism exists ex ante, however, the population will prefer to break its promises ex post. This signals the importance of the nature of the pre-oil political settlement in setting the stage for the future productive exploitation of resources, a topic we turn to next.[15]

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[14] Thus, as shown in the appendix, at R*, p'.O = c.

[15] Such argument are typically developed in a broader political economy framework that draws on the concepts of political settlements (Khan 2010), and limited access order arrangements (North, Wallis, and Weingast 2009). A political settlement is a depiction of the institutional arrangements that emerge

5. Model extensions

The predictions of our model and its extensions below, like the indicators depicted in Figure 1, point to a fairly coherent pattern: The middle oil countries of the Middle East exhibit inferior outcomes vis-à-vis the rule of law relative to other countries, and especially compared to the high oil countries of the region. Indeed, the experiences of these two groups of countries have been quite distinct. While governance in both is built around patronage – a system of rent distribution in which oil rents are extended to at least parts of the citizenry through the provision of social services, subsidized energy, water, housing, and state employment – the relationships between regimes and their private sectors have diverged markedly. In addition, levels of repression are notably higher in the middle oil countries then in the high oil countries of the MENA region, a point that we elaborate below.

The wealthy ruling elites of the GCC have secured themselves and consolidated power by extending relatively broad access to ownership among their citizens. Thanks to high per capita resource wealth and restrictive citizenship laws, these regimes can place tight limits on political voice and generally do not resort to high levels of market repression while avoiding the scale of overt corruption found in regimes in middle oil countries. In these countries, the traditional merchant families, who are the economic elites central to Gulf political settlements, have an interest in gaining institutionalized protection for their holdings from the rising number of royal family members, whose positions as "first among equals" leads them to expect special benefits (Herb 2015, Hertog, Luciani, and Valeri 2013, Kamrava et al. 2016). The period of lower oil revenues in the 1990s led to faster pro-business reforms, as with Saudi Arabia joining the WTO and the liberalization of foreign direct investment (FDI), in an attempt to build a more favorable climate for private businesses in the face of globalization (Hertog 2010a, Niblock and Malik 2007).

On the other hand, the middle oil regimes, such as the military-security *pouvoir* that has dominated Algeria since independence, Iraq under Saddam Hussein, or Baathist Syria, exhibit sharply contrasting patterns of state-business relations. An important mechanism for power preservation in these cases includes the repression of private-sector activity as well as the development of large security apparatuses. In the 1960s, most middle oil countries, like developing countries across the world, adopted statist development paradigms. The failures of these strategies starting in the 1980s led to reforms and liberalization elsewhere in the world, including in the high oil countries

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from conflicts over resources, most proximately among political and economic elites (Parks and Cole 2010, 5). In limited access orders, elites divide up rents so that each faction has control over some portion of the economy as a means of reducing conflict over resources. The coalition of rulers and societal actors at the core of political settlements ensures the security of the regime by using the threat of force and by distributing rents to maintain some popular support. Depending on the breadth of the coalition and the nature of its underlying bargains, political settlements generate varied policies and practices that either promote or deter private sector development, which in turn shape development trajectories.

in the 1990s. In the middle oil countries, however, statist economic approaches were not replaced by private sector led development strategies. In countries such as Algeria and Syria, the only firms that have been allowed to grow are those owned by regime cronies. Connections with leaders are paramount for gaining access to economic opportunities while "old guard militants" and those close to them receive privileged access to the spoils (Lowi 2009, 83-84, Roberts 1984, Haddad 2012). Although the Iranian economy is larger and more complex than that of other middle oil countries, it is not fundamentally different (Harris 2013). In all these countries, the liberalization of markets, when reforms were undertaken, were short-lived at best, as in Algeria during early 1990s and Syria in the early 2000s. Instead, what has emerged are populist regimes that tend to subsidize the consumption of the poor while repressing private sector development.

The heuristic model sketched in the previous section lends itself to several extensions that shed further light on various aspects of the political economy of oil countries, including the conditions under which oil reserves are exploited extensively, the implications for cronyism in business, the balance between repression and cooptation, and the possibility of the emergence of populist bargains. In so doing, we touch on possible explanations for the specificities of various oil producing countries, such as Algeria and other middle oil countries such as Venezuela, or seemingly anomalous high oil cases outside of the region such as Equatorial Guinea.

5.1 Endogenizing oil reserves

In the discussion thus far, we have taken oil endowments as exogenous. Why do some countries end-up with extensive oil production, while others do not? A precondition for high levels of oil exploitation is to have high reserves within the national territory, but many countries with high geological reserves, like Iraq, were unable to develop them to become large-scale producers (Kumins 2003, Salem 2013). The development of production requires high levels of fixed investment, which in turn requires a minimum of political stability. However, recall that our main result on the U-curve of oil development suggests that the discovery of oil in a poor country increases political risks for its autocratic rulers. At low levels of development, citizens do not have much to lose (i.e., c.Y is small) and have much to gain (i.e., p.O is tempting) by undertaking a revolution.

Before oil production rises, the risk of insurrection cannot be easily eliminated by rent distribution, since the rent is not yet extracted. Moreover, setting up political settlements that sustain a system of transfers neutralizing incentives to rebel takes time and effort. Thus, the development of oil reserves is contingent on the ability of rulers to establish early on a credible commitment to distribute oil rents in the future according to the proportionality principle. In the absence of such a credible commitment, the risk of rebellion would rise before oil reserves can be fully exploited, preventing large-scale production.

Thus, the early phase of intensifying oil extraction is particularly difficult to traverse successfully and some countries get bogged down at this juncture. In the post-independence period, the middle oil regimes were unable to develop their production levels above the capacity that they inherited from previous regimes or colonial times. Algeria in the 2000s, Egypt in the mid-1980s and Syria in the 1990s could only achieve marginal increases in production. The difficulty of Lebanon at present to even start developing gas reserves illustrates the time consistency problem, or the dilemma posed by the fact that political elites may have different preferences over current and future choices (Reuters Staff 2017). Iraq could have been a high oil country, given its huge proved reserves, which are second only to Iran and Saudi Arabia with the Middle East (CIA World Factbook 2017) but it was unable to do so. In post-war Iraq, the new government has drawn plans to increase its capacity to Saudi levels, but has failed so far to attract the investment needed to do so (Hanna, Hammoud, and Russo-Converso 2014). Sudan and Yemen have struggled too in their attempt to develop their natural resources, and observers tend to agree that high levels of political risk have kept their production level way below potential (Patay 2007, Hill 2010).

In contrast, the oil producers of the GCC steadily increased production over time. Yet it was not inevitable that the Gulf states would be able to extract such high volumes of oil. To do so required huge investments in oil facilities, and was shaped by a history of cooperation among rulers and key groups within their respective societies. As the "revisionist" literature on the mediating effects of institutions on resource wealth demonstrates (Waldner and Smith 2015), the historical evolution of institutions are therefore an important complement to our analysis of rulers' incentives. The emergence of the modern Gulf states, which occurred during the twilight of colonial empires worldwide, coincides with or predated the discovery of oil reserves in the Gulf.[16] This timing and set of historical developments facilitated the establishment of patrimonial and monarchical patterns that facilitated the exploitation of oil resources.[17] Thus, our work does not reject these historical arguments, but rather recognizes that they must have played a central role in allowing the GCC countries to traverse the difficult phase of middle-oil countries successfully. However, the

[16] Their emergence also coincided with a broad phase of rapid global industrialization that created great demand for new energy sources. The increasing demand for energy is a legacy of twentieth-century colonial and post-colonial industrialization and development worldwide.

[17] Various historical features of the GCC countries can explain the resilience of their initial political settlements. Who gained citizenship rights was as much a political decision as it was a legacy of prior settlement patterns, ensuring that the pool of nationals who would benefit from oil rents – or the denominator in calculating oil rents per capita– was relatively small (Lori 2017). These countries' colonial history may also have contributed to their resilience. While the legacy of colonial-era extraction economies correlates with the weakness of post-independence state institutions (Acemoglu, Johnson, and Robinson, Mahoney 2010), the GCC states were only lightly incorporated into both Ottoman and European empire. Smith and Waldner (2019) go further to argue that the states of the British nascent oil interests pushed them to build the GCC Emirates in ways that made them more resilient to take-over by Saudi Arabia.

incentives of GCC rulers in more recent periods must be located as much in their current incentives as in the prior histories of their countries.

5.2 Clientelism and cronyism

Much scholarship have focused on how oil rents are distributed along clientelistic networks to win political consent (Heydemann 2004, Youssef 2004). Similarly, much ink has been spilled on cronyism in Middle Eastern countries as a strategy to exclude political opposition from business opportunities and thus improve regime survival (for a review, see Malik et al., forthcoming). How does attention to clientelism and cronyism affect our expectations about the conditions for private sector development in Middle Eastern political economies? Both modes of politics are ways in which income affects the willingness of different segments of the population to rebel and therefore can affect ruler calculations about how much private sector development to tolerate.

A well-managed clientelistic rent-distribution system can theoretically buy consent in more efficient ways than through anonymous programmatic mechanisms (Hicken 2010). For the sake of simplicity, we have assumed in our model that oil transfers, unlike private sector revenues, do not affect the probability of winning an insurgency p(.). In reality, however, targeted and personalized transfers can win consent and therefore reduce p(.). Clientelistic networks trade consent for privileges, an exchange that tends to be tightly monitored by patrons at various levels (Heydemann 2004, Youssef 2004). Such discretionary transfers include selective hiring in the public sector, access to social benefits, or support for social institutions that can enforce consent (e.g., religious orders). This reflects an important difference between private sector earnings and transfers: The ruler has less immediate control over the former source of revenue, giving the private sector more room for independent action. Therefore, to the extent that clientelism is effective, the probability of insurrection p(.) decreases with transfers, and the autocrat can afford to be more permissive towards private enterprise. In Saudi Arabia, for example, a system of dense clientelistic networks, such as those around the Armed Forces, National Guard, or the Ministry of Labor, has coexisted with the development of globally competitive firms (Hertog 2010a).[18]

Cronyism can be thought of as a relationship between privileged firms and rulers, where the first receive economic privileges, in exchange for political (and possibly financial) support (Kang 2002). In our framework, crony capitalism can be consistent with an intermediate level of rule of law that allows for limited forms of private sector development. The issue then is over the intensity of ruling elite efforts to support the business interests of their allies, and to exclude firms suspected of sympathizing with the opposition from the market. Crony-owned firms can also become agents of

[18] This creates a paradox: Clientelism can go hand in hand with a permissive attitude to private sector development in an autocratic setting.

power-preservation by becoming instruments of clientelism, for example by offering jobs to supporters of the regime. While cronyism has led to extremely narrow private interest in the middle oil countries, the private sector is larger and less concentrated in the high oil countries (Cammett et al. 2015). The private sector, which initially consisted of trading families associated with the rulers in the Gulf, receives large benefits, but these public goods tend to be available to all or most citizens and allocated in an almost programmatic fashion rather than on a discretionary basis. These benefits include protection against foreign competition, some exclusivity in access to state contracts, massive energy subsidies, and a free flow of foreign labor (Hertog, Luciani, and Valeri 2013).

5.3 Repressing people and markets

The literature on authoritarianism in general and on the Middle East in particular holds that autocrats use a mix of repression and co-optation to stay in power (see, for example, Bellin 2004, Bueno de Mesquita et al. 2004, Posusney 2004, Svolik 2012, Wintrobe 2000). Two main strategies are available to rich autocrats – first, developing a distributive state and clientelistic relations to stabilize their rule and, second, using oil rents to develop a coercive apparatus. In a broader model than the one we developed above, the "optimal" mix of sticks and carrots apply differently to various groups, and vary based on the costs and benefits of these two approaches to wielding power. A first circle of elites would share the rent surplus (O-T), a second circle of powerful groups could command a large share of T*, and a third circle that includes less organized and weaker groups may get a small share of T* and be subject to further control through a repressive governance system.

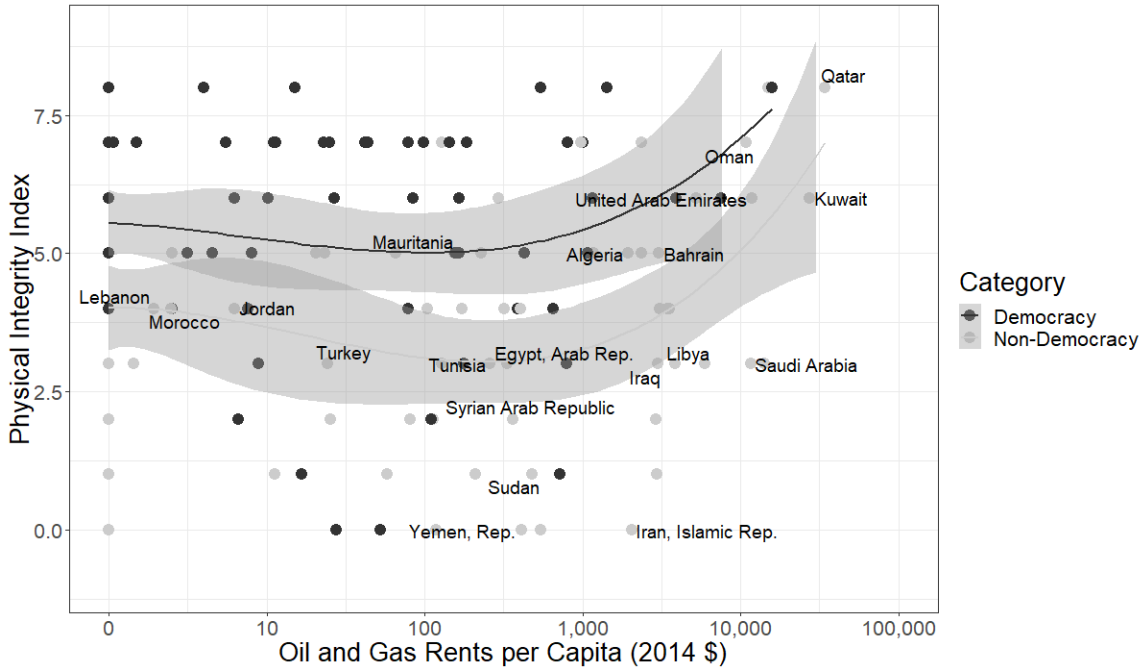
In such an expanded model, repressing people to constrain their voice and repressing firms to reduce their ability to finance autonomous opposition movements are likely to be complementary strategies because physical repression makes the establishment of the rule of law less credible. Thus, in a broader model in which autocrats select optimal levels of transfers, the rule of law, and physical repression, the levels of the latter two should be negatively correlated. In other words, low rule of law should be associated with high repression.[19] We therefore expect that rulers with higher per capita resource wealth at their disposal should establish a higher rule of law environment and rely on rent distribution more than repression, other things being equal.

These predictions accord well with empirical observations on the use of repression in the Middle East. To measure repression, we use data from the Human Rights Data Project (Cingranelli, Richards, and Clay 2014) (CIRI). Figure 2 depicts country scores on the CIRI Physical Integrity Rights Index, which measures the physical repression of populations at the country level and ranges from 0 (i.e., no government respect for

[19] The precise groups targeted with cooptation or repression will vary based on contextual factors.

physical integrity rights) to 8 (i.e., full government respect for physical integrity rights).

Figure 2: (Lack of) repression estimates and oil rents per capita by country (Median values, 2010-2014). 95% confidence interval on smoothed curve, by Polity IV grouping (Democracies coded as Polity values of 6-10).



Sources: Cingranelli, Richards and Clay (2014) and Ross and Mahdavi (2015).

The patterns observed in Figure 2, which suggest a U-shaped relationship between oil rents and (lack of) repression, are in line with the rule of law indicators depicted in Figure 1. The oil-rich, sparsely populated countries – that is, the high oil MENA countries – tend to employ the lowest levels of physical repression (i.e., the highest values of "physical integrity"). Conversely, the oil-rich, populous countries – the middle oil MENA countries – generally resort to the highest levels of violence against their citizens. Furthermore, on average, the high oil countries use less overt repression than many democracies whereas the middle oil countries employ repression more than many non-democracies. To be sure, there are some notable exceptions. While Iran, Sudan, Syria, and Yemen have repressed their populations extensively, Algeria has employed comparatively less violence against its citizens. Among the high oil countries, Libya and, to a lesser degree, Saudi Arabia, employ more repression against their populations than others.[20] The general U-shaped relationship

[20] In 2011, the Bahraini government repressed its population extensively after the uprisings erupted. In addition, the quasi-democracies of the region, which are not depicted in the figure, were also quite repressive: Turkey and, especially, Israel violated the rights of their populations at the same level, or even more severely, as some authoritarian regimes (Cingranelli, Richards, and Clay 2014).

between oil rents and the relative absence of repression also seems to hold among non-democratic oil producers outside of the MENA region.

5.4 Populist political settlements in middle oil countries

Thus far, we have presented a model in which one social class – the population – interacts with the ruler. In reality, social cleavages shape the informal agreements over how the spoils of natural resources are distributed. As a result, varied kinds of political settlements and associated distributional patterns emerge in different contexts. In some countries, such in Venezuela, the settlement consists of a de facto alliance between the ruling elite and poor masses to the relative exclusion of the middle class or independent private sector. This type of political settlement is common among the middle oil countries of the Middle East, as the experiences of Algeria, Iran, Iran and even pre-war Baathist Syria attest. When do elite-poor "populist" coalitions emerge?

To address this question, consider that there are two distinct groups – the poor and the middle class – while the rich are part of the ruling coalition, sharing the rent (R) with the ruler. In this situation, imagine that the ruler compares how he would fare if he sealed a deal (T*, R*), of the type we have discussed above, with either the poor or the middle class, while keeping the other group in the opposition and employing physical repression to lower its ability to win an insurrection. A coalition that opposes the poor and the middle class influences the ruler's payoff differently, as each of these groups would demand different concessions to join the ruling coalition. We further assume that two main differences between the two groups relate to their respective levels of wealth and production mixes: While the middle class is richer and has more capital-intensive firms, the poor operate labor-intensive technologies. As a result, the middle class has more to lose from a revolution (i.e., has a higher c).

Deals between the ruler and these two groups are thus likely to differ. Allied with the poor, the ruler would be mainly concerned about reducing their ability to revolt; allied with the middle class, the main incentive would be to try to reduce the group's willingness to revolt and would therefore entail a higher level of the rule of law. Given these distinct scenarios, we argue below that a deal with the poor should be more profitable to the ruler and more sustainable.

An elaboration of the ruler's two different hypothetical bargains with the middle class versus the poor elucidates the logic behind this contention. In a deal with the middle class, the private sector will thrive, leading to increased demand for labor, which over time raises the incomes of the poor. As a result, the ability of the poor to mount a revolution will rise over time and, hence, the cost of repressing them will also increase. While this type of deal economizes on transfers, and thus can allow for the development of a more repressive state, the settlement it entails is not sustainable, as repression will have to keep rising indefinitely to quell rising popular demands (Svolik 2012, Wintrobe 2000). The alternative is to permit the political system to

become more democratic, but few rulers are willing to concede significant political freedoms because of the risk of losing power.

On the other hand, a deal between the ruler and the poor can be more stable. This arrangement entails efforts to reduce the ability of the poor to revolt, which is accomplished by low rule of law or the repression of markets, transfers to the poor, and the oppression of the middle class. This type of settlement is more populist, and may entail a corresponding legitimizing narrative. Arguably, this is a more sustainable equilibrium: By reducing the ability of the middle class to enrich itself, the ruler undercuts the ability of this class to mount a successful rebellion. The repression of markets also reduces the demand for labor, leaving the poor in a state of relative poverty dependent on state transfers.[21] In turn, the arrangement decreases the ability of the poor to rebel and promotes the development of clientelistic networks, which further reduce the risk of insurrection. An additional benefit of such a settlement is that the cost of repression can be low, at least when the middle class is relatively small.

5.5 The effects of low-probability revolutions and low-cost rebellions

An additional implication of our model is that the probability of successful revolution (p(.)) and the costs of rebellion (c(.)) play a critical role in political equilibria or settlements by conditioning the attitudes of rational autocratic rulers towards private sector development. As a result, variations in these factors across countries or time can explain observed variations in ruler attitudes towards private sector development.

Let us start by focusing on p(.). If oil production within a country were in an isolated and easy to defend enclave territory, such as on an island or offshore in deep waters, then ruler incentives to share the benefits of oil shrink accordingly. (Recall that T increases in p.O.) These considerations may help to explain the puzzling case of Equatorial Guinea, one of the largest oil producers in Africa that features per capita oil endowments on par with the UAE, yet a country with rampant poverty and underdevelopment. With a population estimated at 1.2 million, oil rents in 2012 were at about $11,000 per capita, classifying the country as a high oil economy. However, these large revenues have not benefited the majority of the population: In 2012, 77% of the population was estimated to be below the poverty line, the under 5-mortality rate was at 69/1000, only 62% of children were enrolled in primary schools, and only about 51% of the population had access to clean water. Furthermore, the country ranked 144 on the HDI index and 165 on the World Bank's Doing Business Index (Human Rights Watch, 2009). Most oil earnings have been funneled into projects that cater to elites or strengthen the state security apparatus rather than towards public goods designed to promote well-being or productive investment (Human Rights

[21] In Algeria, in 2016, the state transferred the equivalent of 27% GDP to the population in the form of various subsidies. In the same year, total labor income was only 15% GDP (IMF, 2017)

Watch, 2009; McSherry, 2006, 26; Wood, 2004, 564). Yet, additional development of oil and gas deposits continues at a fast rate.

A purely historical explanation would argue that this situation is explained by the fact that the present regime was repressive and dictatorial prior to the discovery of oil. In 1968, Equatorial Guinea gained formal independence from Spain. In the founding elections, Macias Nguema, who belonged to a radical wing of Fang nationalists, prevailed. Soon after his election, he began to repress potential opponents, especially from the Bubi people, and, after a failed coup in 1969, he rewrote the constitution, concentrating all powers in his office (Cronjé, 1976, 10-13; McSherry, 2006, 25; Sundiata, 1990, 133). In 1979, Macias' nephew, Lieutenant Colonel Teodoro Obiang Nguema, overthrew him and still rules today with an iron grip. Important government and military posts are held exclusively by members of the president's loyalists and family members from his Esangui tribe, which has benefited disproportionally from the spoils of oil to the detriment of other tribes, and especially the large Bubi group (Cronjé, 1976, 7-8).

Our theory would predict that Obiang should be overthrown by a coalition bent on sharing oil revenues more broadly. But the fact that this has not occurred is not necessarily because a purely historical explanation is superior to a theoretical model based on incentives derived from more contemporary shifts in resource endowments. In part, this apparent anomaly may arise because the probability of winning an insurrection (p) is very small in Equatorial Guinea. Because oil installations are largely in deep water, and the capital where the elite resides is on an island, both oil production facilities and the seat of government easy are easy to defend, reducing the likelihood of successful insurrection in the country.

On the other hand, in oil-rich countries with low costs of rebellion (c), insurgencies are more likely to happen in the absence of high transfers. This is more likely to be the case in agrarian societies with more dispersed populations, such as Sudan and Yemen. Such large countries are costly and more challenging to police (Herbst, 2000). As a result, it is more difficult to construct coalitions that can preserve security, and insurgent groups can develop in the periphery to contest central authorities. This may help to explain recurrent instability in these countries, where the broad coalitions needed to maintain the system could not be funded with the low levels of oil production of these countries. Not coincidentally, governments have not been able to develop potentially large oil reserves and these countries have become locked in a violence trap that prevents them from fully developing their oil reserves.[22]

6. Conclusion

[22] The case of Chad also highlights the time-consistency problem. The Deby government tried to distribute oil more broadly across the population as a pre-condition to get the World Bank to invest in oil capacity but then faced a rebellion within the regime's own Zaggawa tribe and had to revert to rewarding a narrower coalition (Arbogast, 2008-2009; IRIN, 2006).

The analytical framework we present in this paper implies that, as per capita oil rents rise, discontinuities emerge in governance under authoritarianism, leading to distinct levels of the rule of law and related indicators across different types of political economies. Our explanation for these differences emphasizes the distinct incentives facing rulers in high and low population oil-rich countries to extend the rule of law to segments of the population. A regime can use rents to subsidize a powerful private sector that supports it or it can shower transfers on the broader populace. Both are feasible strategies but, as economies develop, the people may become more restive. While the high oil countries can do both, the middle oil countries are unable to sustain both strategies – especially in the face of sudden price drops.

Conceptually, our treatment of the question of how rulers choose levels of respect for the rule of law, and how much they are willing to tolerate the existence of a private sector, depends on the interplay between the business class's ability and willingness support rebellion. The *ability* of wealthy individuals to lend material backing affects the scale of threat posed by a rebellion. Private-sector *willingness* to finance a risky insurrection is contingent on the extent of assets that the private sector stands to lose in the event of failure.

Our intuition is that the first factor (i.e., ability) is more important than the second (i.e., willingness) at low levels of oil, but that as oil rents rise sufficiently, the latter becomes more important. As a result, autocratic rulers possessed of sufficient oil revenues – and oil transfers – are confident that even a wealthy private sector will focus on enriching itself rather than pursuing the high-risk, relatively low-payout route of courting popular rebellion. At the same time, these high oil political economies are economically but not politically inclusive, a combination that may not be sustainable in the long run (Acemoglu and Robinson 2012).

The contrasting patterns of private sector development in the high and middle oil countries point to a paradox: Countries with high per capita oil endowments can afford not to have a significant private sector but face incentives to foster one. In middle oil countries, where more private investment is critically needed to jumpstart the economy, rulers are loath to foster private sector development because of the potential risks it poses to their authority – especially in the face of civil unrest. As a result, wealthy MENA oil exporters have appeared to enjoy double gains – greater per capita oil wealth and greater prospects for private sector development – while middle oil countries face double losses – lower per capita oil wealth and reduced likelihood of private sector development.

We are not economic determinists: The development policy choices and ideological orientations of postcolonial leaders and the economic and political trajectories of Middle Eastern states undoubtedly result from factors beyond resource endowments. In particular, as resource curse revisionists argue, political alliances established prior to the discovery and exploitation of oil must have surely affected the nature of political settlements, in turn shaping the ability of the ruler to establish credible commitments to share the wealth and to engage in large-scale oil production in the

first place. We maintain, however, that the incentives created by the current oil endowments also matter, and may have become more influential than initial political settlements of these countries in explaining the decisions taken by rulers in the more recent past.

Our framework contributes to ongoing debates by suggesting that the resource curse affects different types of oil producers in distinct ways, leading to varied patterns of respect for the rule of law. The resource curse, such as it exists, appears to be a "middle oil curse" rather than a dilemma facing oil exporters more generally. Our findings also add to our understanding of the conditions under which respect for the rule of law – albeit in a truncated sense centered on commercial transactions – may take root in nondemocratic polities. Future research should explore these findings in other contexts, situating the MENA region in broader cross-regional comparative context.

Our framework also sheds light on the current political economy challenges faced by oil countries after the collapse of oil prices around 2014. In all these countries, fiscal and balance of payment deficits are in the two-digits zone, obliging governments that are unable to borrow or to draw from reserves to reduce expenditures and raise taxes, thus exacerbating social instability. Our model predicts that the incentives facing autocrats will have different implications for countries with different levels of oil wealth. In the middle oil countries, repression of the market and of the opposition is likely to rise, leading at the margin to higher risks of successful insurrections. In the rich oil economies however, we could expect renewed efforts at private sector development. In this model, Saudi Arabia is around the dividing line, and can go either way.

Appendix

Comparative statics in the interior optimum:

The ruler's challenge is to choose the level of R (R*), to maximize his payoff (A(.)):

$A(Y) = [O-T] = (1-p(Y))O + c.Y$

Where $Y = R.\ Y + m.O$

Taking the first derivative with respect to R, we have the first order maximization condition, which must be equal to zero at R* and, thus, R* is such that:

$p'(R^*).O = c$ (1)

The problem has an interior solution if $p''(.) < 0$.

To evaluate the effect of an increase in O around Y*, we apply comparative statics to equation (1) to see the effect of O on R*. Differentiating relative to O, we have:

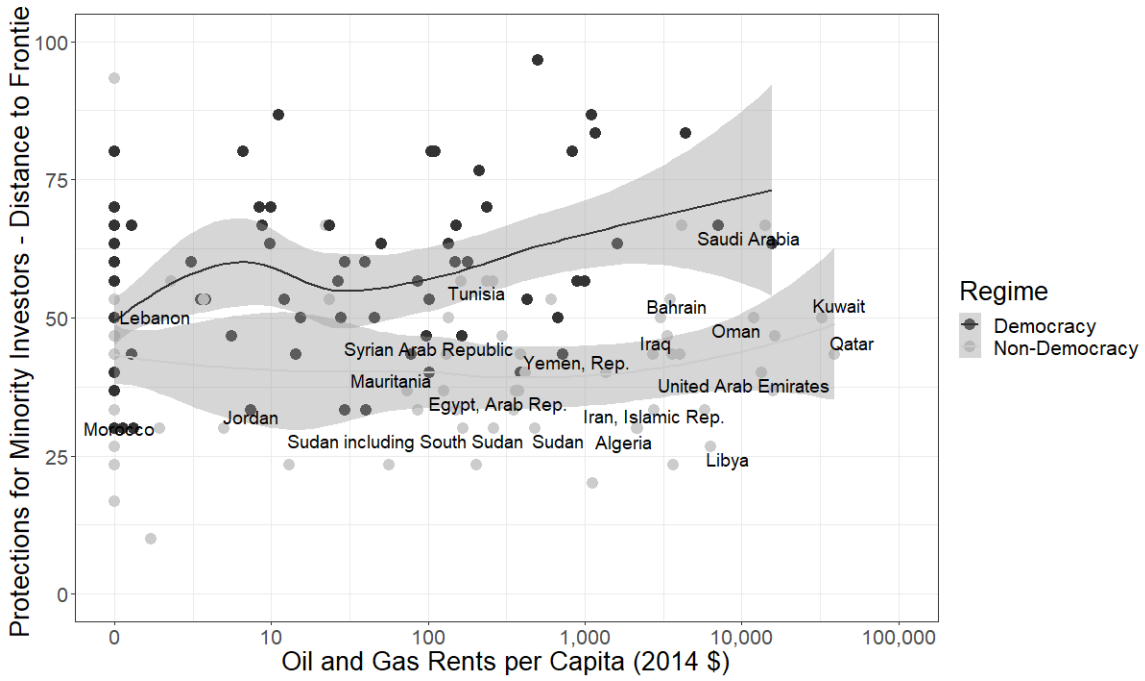
$O.\ p''(Y^*)\ [(dR^*/dO)\ Y + m] + p'(R^*) = 0$

And thus, dR^*/dO is of the sign of "

$p'(.) + m.O.\ p''$

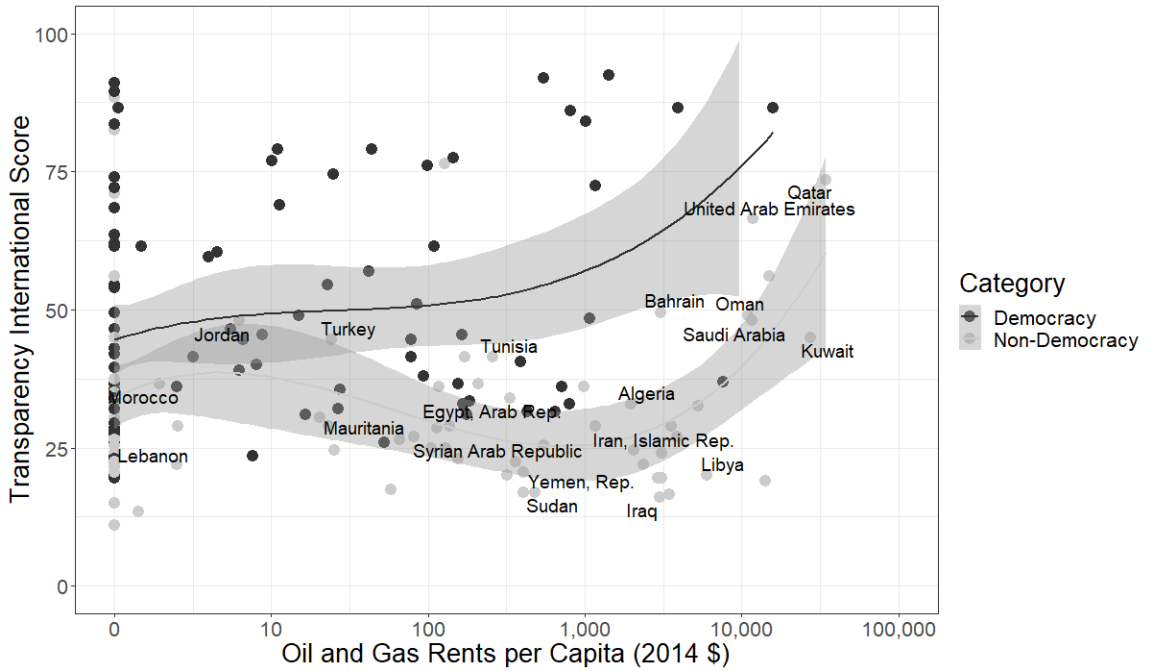
When O increases, the risk of revolution becomes more costly by p' (the numerator), and since p is concave, the marginal gain of repressing markets falls, pushing up R*. This effect is mitigated by the fact that there is more oil to defend at the margin, a function of p".O, which pushes down R*. The net effect is negative when p" is larger than p'.

Figure A1: Per capita oil and gas rents and protections for minority investors in the MENA countries, global democracies and non-democracies (2014). 95% confidence interval on smoothed curve, by Polity IV grouping (Democracies coded as Polity values of 6-10).



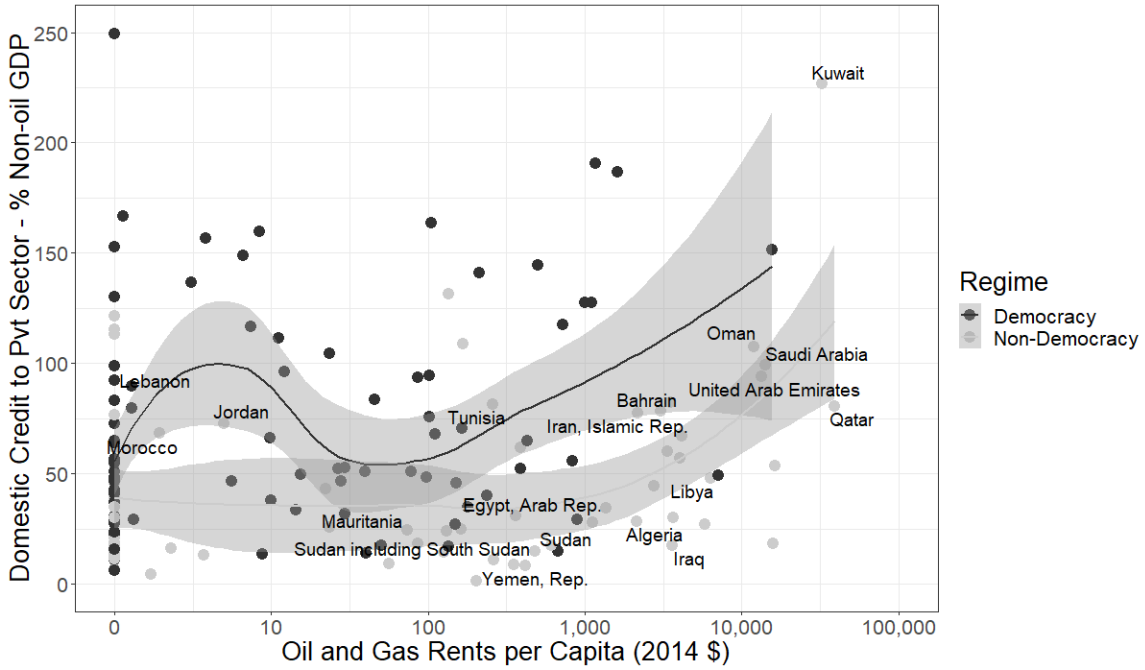
Sources: Ross and Mahdavi (2015) and World Bank Doing Business (2014).

Figure A2: Per capita oil and gas rents and corruption in the MENA countries, global democracies and non-democracies (2014) 95% confidence interval on smoothed curve, by Polity IV grouping (Democracies coded as Polity values of 6-10).



Sources: Ross and Mahdavi (2015) and Transparency International (2014).

Figure A3: Per capita oil and gas rents and credit to the private sector in the MENA countries, global democracies and non-democracies (2014) 95% confidence interval on smoothed curve, by Polity IV grouping (Democracies coded as Polity values of 6-10).



Sources: Ross and Mahdavi (2015) and World Bank Indicators (2016).

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