

Introduction -

In the eighteen countries that are in the Middle East, not one country has a real democracy. One of the most oil wealthy continents in the world is the one that is struggling the most when it comes to government and political powers. The Middle East holds two thirds of the world's oil reserves and has heavily relied on energy exports to withstand its economic development. Authoritarian regimes have taken over these countries for centuries now. Oil wealthy countries are perceived as more developed than they actually are. The Middle East is suffering from the oil curse. Oil wealth brought on a ruling elite that would bring comfort to their people or else violence would breakout. Many of these countries rank a lot lower on "human development" than they do in their per capita income. This leads me to ask, "What effects does oil wealth have on democracy in the Middle East?" In this article I plan to test how to better help these Arab countries that do not have a democracy yet and to see why they don't.

Literature Review -

To begin, in Larry Diamond's article, "Why are There No Arab Democracies?" he states that there are eleven Arab countries are "rentier" states, which means they rely heavily on oil and gas rents (these are unearned incomes) just to keep their states alive. In these eleven countries alone, they stem 70%-90% of their export earnings from oil and gas. One of the biggest misconceptions about why Arab countries do not have a democracy yet is that it has something to do with religion

and culture. It is believed that since most Arab countries are similar there has to be something in common that is stopping them from a real democracy. The biggest problem that arises from this is that these countries do not make their citizens pay taxes. Samuel Huntington said, "Oil revenues accrue to the state: they therefore increase the power of the state bureaucracy and, because they reduce or eliminate the need for taxation, they also reduce the need for the government to solicit the acquiescence of its subjects to taxation." In the early 1950's, Egypt was one of the most democratic countries in the Middle East, but its limited oil peaked and oil production in Egypt has been declining ever since, Tunisia has just about the same story. These two countries specifically have recently gone through drastic political transitions.

Correspondingly, in Michael Ross' article, "Does Oil Hinder Democracy?" Ross believes that the claim that oil and democracy do not go together because oil wealthy nations in the Middle East are not democratic. Many of the poorest states have the highest levels of natural resource wealth. In Saudi Arabia, Bahrain, the United Arab Emirates Oman, Kuwait, Qatar, and Libya more than half of the government's revenues come from oil sales. These countries are known as "rentier states," which is defined by Beblawi as, "A rentier state is one where the rents are paid by foreign actors, where they accrue directly to the state, and where only a few are engaged in the generation of this rent (wealth), the majority being only involved in the distribution or utilization of it." Ross claims that oil wealth has not been proven by statistical tests to have anything to do with democracy. In the Middle East it is known that governments use their oil revenues to relieve social pressure.

By doing so, these countries either tax their citizens very little or not at all in return they don't think the public will demand much representation from their government. Another component that goes along with the rentier effect called the "spending effect" suggest that oil wealth can lead to greater spending on patronage, which reduces pressures for democracy.

Furthermore, in Kevin Tsui's article, "More Oil, Less Democracy," it is shown that there has always been a negative connotation between oil export and democracy. The Middle East puts this more into question since they provide most of the oil and still don't have any democratic states. Tsui tested the hypothesis that oil discovery has different effects on political transition towards democracies and non-democracies. Tsui's analysis showed that larger oil discoveries have a causal effect, which is connected to slower transition into democracy. Dictators that are "oil-rich" oppose democratic development because they lose power and up getting thrown out of power. Oil-rich dictators enforce higher political entry barriers or transfer to other groups, which are examples of the rentier effect and repression effect.

Equally important, in Michael Herb's article, "No Representation without Taxation? Rents, development and democracy" he stats natural resources are more of a curse than a blessing. Herb asks a great question, "Why is the Middle East so resistant to democratization?" Development and democracy are correlated, but it is not clear if rent-induced development has a positive or negative effect on democracy. The Lipset thesis shows insinuations for the argument that rents prevent democracy. When Ross tried to find the impact of oil on democracy he used

two independent variable; per capita GDP and oil export dependence. Herb discovered that per capita GDP measure has nothing to do with oil wealth or any other kind of wealth for that matter. Herb argues that if we follow Ross' method we could find different measures of developments that are not affected by rents. In his data Herb says, "it is often argued that dependence on natural resource exports impedes economic growth."

Also, in John B. Londregan and Keith T. Poole's article, "Does High Income Promote Democracy?" the authors test whether democracy is more frequently found amongst wealthy countries from a democratizing effect of high income or if it is due to other factors like past historical experiences, institutional settings, and leadership changes. After looking at all of these different factors and the effects that they have on democracy, the authors found the effect of income as a "statistically significant factor promoting the emergence of democratic political institutions."

Moreover, in Samuel Huntington's article, "Democracy's Third Wave," he talks a lot about how during the 1970's and 1980's the United States was a huge promoter of democratization, but he's not so sure that the United States continues to play that role today. American's will to promote democracy may or may not be sustained and the ability to do so is limited. The ability of the United States to promote democracy may or may not have influence in different countries. The countries that were most susceptible to American influence were Latin America, the Caribbean, Europe, and Eastern Asia. The countries that were not so susceptible were countries in Africa, the Middle East, and parts of midland Asia.

Lastly, Eva Bellin argues that “regional failures” are the main cause for less democratization in the Middle Eastern countries. The number of electoral democracies has nearly doubled in past three decades only, but in the Middle East there has been a decline. Bellin writes, “Notably Morocco, Jordan, Bahrain, and Yemen, have registered noteworthy progress toward political liberalization in the past decade.” Since only four countries have moved towards a change, this shows that a vast majority of countries have failed to switch over to democratization. The Middle East lacks the “prerequisites” of democracy because they lack a strong civil society, a market economy, sufficient income levels, democratic neighbors, and democratic culture. Saudi Arabia alone makes more than \$30 billion each year in oil revenue to the \$2 billion that Egypt receives yearly for the United States in foreign aid. Many Middle Eastern countries are “richly” supplied with rental income.

Theory -

I theorize that the more oil wealth a country has, the less democratic that state tends to be especially in the Middle East region. The reason for this is unknown, but I believe that it is due to religion, income wealth, and past regimes. Evidence is shown to prove that my theory is correct because none of the countries in the Middle East that have a sufficient amount of oil wealth are democratic countries. Each of the countries that have been tested and studied has authoritarian regimes. No matter how many protests, riots, or even military coups occur in these countries there hasn't been one smooth transition to democracy that is known of in the Middle East. Since oil wealthy countries are wealthy, those who are in power

feel as if they have the most power out of anyone and thus stay in power until they are killed, overthrown or dead. Even then though, family members of the previous leader of the country tend to take over and go from there.

Hypotheses -

1. *Higher levels of oil rents reduce the probability that authoritarian states will become democratic in the Middle East*
2. *Higher levels of oil rents raise the probability that democratic states will become authoritarian.*

Research Design -

To correctly identify smooth transitions from authoritarian regimes to a democracy, I use the dichotomous democracy-autocracy measure. The independent variable is Oil Rents per capita, it measures the value of oil and gas productions, minus the country extraction costs and divided by the country's midyear population. The values of oil rents will be biased upwards in countries with higher incomes, but higher incomes are have a positive association with democracy.

The first control variable has to do with the countries changes in regimes over the years. Previous studies show that countries with former experience with democracy boost the likelihood of a successful transition to democracy. Likewise, former experience with authoritarian regimes may increase the likelihood of transitions to democracy to end up failing. To test this idea, I create two pseudo

variables; one to test an autocratic country that had a prior democracy, and another to test a democracy that was once autocratic.

#4

The second control variable is income, which measure how big of a factor income really is in measuring democracy. "When incomes rise, so does the likelihood that an authoritarian state will become democratic" (Londregan and Poole, 1996). Higher incomes reduce the likelihood that democracies will become authoritarian regimes, but they have no effect on the chances that authoritarian states will become democracies. In order to find out whether or not oil rents affect democracy in the Middle East this needs to be resolved since income may have a bigger effect on democracy than we think.

#5

The third control variable I use to test my hypotheses is Islam. Many studies have shown that countries with a large Muslim population tend to be less democratic. Islam has great significance to this study because most of these oil wealthy countries in the Middle East have a large Muslim majority population. Since Islam has such a strong connotation to authoritarian regimes, this needs to be tested to see if this has any impact on democracy.

#6

The fourth control variable I use is regime. The most important influence a state's regime has is in its own history. Regime helps to capture any country specific historical or cultural features that may have been missed earlier. Also, including regime helps transform the dependent variable from regime type to what the country needs to change in their regime over a five-year period. This will help to measure both time-series and cross-sectional changes in regime types (Ross).

#7

#8

The five-year lag is used in all of the tests that are performed to ensure preciseness and allows more time for countries to move in the right direction. Things don't happen over night and everything needs time to change. Using a shorter lag doesn't change the results, but increases the absolute value of the coefficient of the lagged dependent variable. With a one-year lag, a country's regime becomes a function of its regime type in the previous year, while the influences of the other factors are overpowered.

Results -

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#1 - #6 (page 7-9)

But seriously: does oil really hinder democracy?

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PRELIMINARY DRAFT; COMMENTS WELCOME

Abstract: Recent studies have disputed the claim that 'oil hinders democracy,' or raised questions about the causal mechanisms behind it. I re-examine the question of petroleum wealth and regime type, using pooled logit regressions, an improved measure of petroleum wealth, and a dataset that covers up to 170 countries from 1960 to 2002. I also explore other types of evidence on oil and authoritarian rule, including data on public opinion, gasoline prices, and the survival of government leaders. The results suggest a) oil wealth strongly inhibits democratic transitions in authoritarian states; b) oil has no overall affect on the survival of democracies, but may weakly encourage democratic breakdown in low-income states; c) once oil's role is properly accounted for, Islam seems to have no effect on regime type; d) oil wealth lengthens the tenure of authoritarian rulers, although this result is somewhat fragile; e) there is little support for two of the three causal mechanisms suggested by Ross [2001], although careful testing is hampered by poor data; f) alternative causal mechanisms suggested by Boix [2003], Smith [2007], and Morrison [forthcoming], are unpersuasive.

In a 2001 article, I argued that “oil hinders democracy,” and suggested three causal mechanisms to explain this pattern. Although this article was not the first to make this argument, it helped touch off a debate over the link between natural resource wealth and regime types. Some studies supported the central finding that oil inhibits democratization [Jensen and Wantchekon 2004; Epstein et al. 2006; Ulfelder 2007; Gassebner, Lamla, and Vreeland 2008], or extended the argument in new directions [Egorov, Guriev, and Sonin 2007; Dunning 2008; Goldberg, Wibbels, and Mvukiyehe 2009]. Dissenters argued that oil’s impact on government accountability has been exaggerated [Herb 2004], does not stand up to alternative statistical tests [Haber and Menaldo 2007; Acemoglu et al. 2008; Horiuchi and Wagle 2008], is true but for different reasons than the ones I suggested in 2001 [Boix 2003; Smith 2007; Morrison forthcoming], or that oil has both positive and negative effects on the likelihood of democratic transitions, which makes its net impact ambiguous [Herb 2004; Dunning 2008].

There were many shortcomings in my 2001 study: the statistical method may not have been the most appropriate; the model conflated two distinct issues, the survival of authoritarianism and the survival of democracies; I conflated oil wealth with oil export dependence, although the latter probably biased the estimations in ways that supported my argument; and the regression results were weakened by missing data, and the use of variables that poorly measured the concepts in the theory.

Here I revisit the central claims in my earlier study, using a better measure of oil wealth, separating democratic transitions from democratic survival, employing a dataset that extends from 1960 to 2002 and covers up to 170 states – more than doubling the number of country-year observations available for scrutiny. I find evidence that oil wealth strongly inhibits democratic transitions in authoritarian states, that this pattern is reasonably robust, and that regardless of any possible countervailing pro-democracy effects, oil’s net impact on democratic transitions is strongly negative. I also show that oil has no overall effect on the survival of democracies, but may weakly encourage democratic breakdown in low-income states; and that oil lengthens the tenure of individual authoritarian rulers (as opposed to authoritarian regimes), although this result is somewhat fragile and is driven by the durability of oil-rich monarchies in the Middle East.

After further examining the causal mechanisms, I find that two of them – the ‘repression effect’ and the ‘modernization effect’ – do not appear to be valid, but there is at least partial support for the ‘rentier effect.’ I also argue against two alternative explanations for the oil-authoritarianism link: that elites more strongly oppose democratization when their wealth comes from oil, since it is a “fixed asset” that cannot be transferred to safe havens abroad [Boix 2003]; and that oil’s impact on authoritarianism is an artifact of the broader, stabilizing effects that petroleum has on regime types [Smith 2007; Morrison forthcoming].¹

¹ Although it is not the focus of this paper, I find no evidence that non-fuel mineral wealth – when measured as ‘mineral rents per capita,’ instead of ‘mineral exports over GDP’ – has any effect on democratic transitions or democratic failures.

En route I also show how oil wealth can help resolve the seemingly-intractable debate over whether income affects the likelihood of democratic transitions.

The Original Argument and Its Shortcomings

Ross [2001] evaluates the claim, developed by a generation of Middle East scholars, that oil dependence retards democratization. It had four main conclusions:

- a. the oil-impedes-democracy claim is “both valid and statistically robust,” and has a larger effect on poor countries than rich ones [356];
- b. these effects are not limited to the Middle East: the oil-authoritarianism correlation remains statistically significant when dummy variables for the Middle East region, and (alternatively) the Arabian Peninsula, are included in the model;
- c. other types of minerals, besides oil and natural gas, have similar, democracy-inhibiting effects;
- d. there was at least “tentative support” for three causal mechanisms linking oil and authoritarianism: “a rentier effect, through which governments use low tax rates and high spending to dampen pressures for democracy; a repression effect, by which governments build up their internal security forces; and a modernization effect, in which the failure of the population to move into industrial and service sector jobs renders them less likely to push for democracy [356-7].”

These findings were supported by a series of time-series cross national regressions with random effects, in which the “oil” variable was measured as the ratio of fuel exports to GDP, and the “regime type” variable was drawn from the Polity 98 dataset, supplemented by data from Freedom House.

In hindsight, there were many flaws in the analysis. Ulfelder [2007] pointed out a conceptual problem in this research design: it was impossible to determine if oil was reducing the likelihood that dictatorships would become democracies, or increasing the likelihood that democracies would break down and become dictatorships – or perhaps, both. A better approach, he suggested, was to use an event history design, and a bivariate measure of regime type, to separately determine how oil was affecting autocracies and democracies.

The “oil” variable (as well as the “non-fuel minerals” variable) also had problems. To my subsequent regret, I followed the practice of Sachs and Warner [1995] and Collier and Hoeffler [1998], and focused on the effects of oil dependence – measured as oil, gas, and coal exports as a fraction of GDP – rather than oil wealth per se. Since then, I have come to appreciate two shortcomings of the oil dependence measure – one conceptual, the other a bias that probably tilted the analysis in favor of my hypotheses.

The measure is flawed conceptually because it only accounts for fuel that is exported – and it is hard to see why fuel that is sold domestically should not be counted. According to the causal mechanisms that I and others have suggested, extracting oil is harmful because of the revenues it generates, either for the government or private elites; but revenues can come from both domestic and foreign sales.

The measure was also be biased in favor of my argument. The ideal measure of a country's oil wealth should be uninfluenced by all other variables of interest. The oil-exports-to-GDP ratio contains biases in both its numerator and its denominator that tend to inflate its value in countries that are poorer, more corrupt, and more conflict-ridden – and which might thereby cause a false correlation with authoritarianism.

Even if two countries produce the same quantity of oil, the numerator – a country's oil exports – will typically be larger in poorer countries. Most oil-producing countries use a fraction of their oil domestically and export the surplus. Rich countries will consume more of their own oil, while poor countries will consume less of it, and hence, export more. For example, on a per-capita basis, the US produces more oil than Angola or Nigeria, but Angola and Nigeria export more than the US – because the US is wealthier than Angola or Nigeria and consumes more of its oil domestically. When we measure oil exports, we are indirectly measuring the size of a country's economy.

A similar problem occurs in the denominator. Even if two countries export the same quantity of oil, the poorer country will have a smaller GDP, and hence, higher oil-exports-to-GDP ratio. This opens the door to several endogeneity problems. For example, having a high oil exports-to-GDP ratio might cause slow economic growth (or corruption, or civil war), but it could also be a result of these ailments, since they tend to reduce a country's GDP. If democracy is influenced by economic growth and violent conflict, this might again bias any estimations.

I now prefer to measure production instead just exports; to use the total value of petroleum rents (i.e., the value of production minus the country-specific extraction costs, including the cost of capital); and to use a country's population, not its total exports or GDP, to normalize the value of these rents. Since most governments do a pretty good job of collecting oil rents, this is a better measure of oil's fiscal impact.

The resulting measure, *Oil Rents per capita*, also has a more intuitive meaning than the oil exports-to-GDP ratio. If two countries with similar populations produce similar quantities of oil and gas at similar costs – for example, Angola and the Netherlands – they will have similar levels of *Oil Rents per capita* (in this case, about \$380 per capita in 2003). If we measured them by their oil-exports-to-GDP ratios, however, we'd find Angola's measure (.789) much higher than the Netherlands' (.056), because Angola is too poor to consume much of its own oil (making the numerator larger), and because its GDP is much smaller (making the denominator smaller).²

The *Oil Rents* variable also produces a tougher test of the 'oil hinders democracy' claim, and related arguments about the resource curse: it allows us to determine whether oil rents alone – regardless of how strong or weak the economy is – has a consistent effect on a given outcome.

² Dunning [2008] uses an almost-identical measure of oil rents, covering the same period. Where our models are similar, so are our results. For more on the sources for my measure, see Ross [2008].

A First Look at the Data

Before embarking on statistical analysis, it may be useful to observe some simple patterns in the data – using *Oil Rents per capita* to measure oil wealth, income data from World Bank [2007], and the dichotomous measure of regime type developed by Przeworski et al. [2000].

First, note that oil appears to reverse the “normal” relationship between income and democratic transitions. In general, income is strongly and positively correlated with the likelihood that an authoritarian state will become (and stay) democratic. Figure 1 illustrates this relationship by looking at all countries that were under authoritarian rule in 1960, the first year of the dataset, or became independent after 1960 and were under authoritarian rule in their first year of independence. The values on the x-axis represent a country’s average non-oil income between 1960 and 2002; values on the y-axis denote the percentage of the time, between 1960 and 2002, that each country dwelt under a democratic government. Those that were continuously authoritarian have a score of “zero”; and those that transited between democracy and authoritarianism during these years have scores that represent the fraction of this period that they spent under democratic government. The upward-sloping line suggests the general relationship between these two factors: the higher a country’s non-oil income, the greater the time it probably spent under a democratic government.³

But if we look at income from oil, we see the *opposite* pattern. Figure 2 is identical to Figure 1 in all respects but one: the x-axis now measures a country’s income from the production of oil. Note the change in the slope of the fitted line: income that comes from oil is *negatively* correlated with democracy.

The cross-tabulations in Table 1 show the same pattern. The numbers in the cells represent the percentage of authoritarian states in each category that, on average, transited to democracy each year. The first column shows the oil-producing states, and the second shows the non-oil states. In each of the income and regional categories, transitions to democracy were less likely among oil producers.

Another way to view the oil-authoritarianism link is by looking at historical trends. Figures 3 and 4 display the number of democracies and autocracies in non-oil producing states, and oil-producing states, between 1960 and 2002. Figure 3 shows a familiar pattern: since the late 1970s there has been a sharp rise in the number of democracies and a corresponding drop in autocracies. But Figure 4, covering only the oil producers, shows little trend either towards or away from democracy: the number of oil-producing democracies in 2002 was the same as it was in 1985. Almost all of the increase in global democracy since the early 1980s has come from the non-oil states.

Of course, some oil producers have transited to democracy. Table 2 lists the only ten countries to ever go from authoritarian to democratic rule while earning at least \$100 per

³ There is a great deal of debate about how to interpret this relationship: whether higher incomes promote democracy, whether democracy promotes higher incomes, or whether the two are the joint product of a third, unmeasured variable. For our purposes, however, this debate is irrelevant.

capita in oil rents. At the top of the list is Nigeria, which transitioned to democracy in 1979 while generating \$935 per capita in oil rents.

But Nigeria's achievement was fleeting: it remained a democracy for just four years, before succumbing to a military coup. Six of these ten transitions were aborted by coups.⁴ Since Venezuela's transition in 1958, no country with more oil wealth than Mexico in 2000 has made a *successful* transit to democracy.

Some recent studies suggest the net impact of oil wealth (or oil dependence) is ambiguous: while it may hinder democratic transitions through some channels, it promotes democratization through others [Herb 2004; Dunning 2008; Goldberg, Wibbels, and Mvukiyehe 2009]. Whether or not oil has countervailing pro-democracy effects, these figures suggest oil's net impact has been strongly negative.

Some simple figures may also illuminate the relationship between oil wealth and democratic failures. Table 3 shows the annual rate of democratic failures in oil-producing and non-oil countries across several income and regional categories. Among low-income countries, democratic failures were more than twice as frequent among the oil producers; among middle and high income countries, there was no strong pattern. The failure of oil-producing democracies seemed most prevalent in Sub-Saharan Africa, perhaps because of the concentration of low-income states.

Figures 5 and 6 illustrate these patterns by plotting the relationship between oil rents and democracy for all countries that were democracies in 1960, or were democratic in their first year of post-1960 independence. Figure 5, which includes only high-income states (i.e., states with above-median incomes), suggests that the relationship between oil rents and democracy is weakly positive: wealthy democracies have been somewhat *more* stable when they have more income from oil. But Figure 6, which includes only low-income countries, shows the opposite: the more oil rents these countries produced, the less time they spent under democratic rule. The width of the 95 percent confidence interval, however, suggests that there is much uncertainty around this trend: there may be too few states in this category to make strong inferences about the role of oil rents.

These simple cross-tabs and scatterplots imply that oil is correlated with fewer democratic transitions; that even if oil has countervailing pro-democracy effects, its net effects are strongly negative; and that oil's affect on democratic failures is ambiguous, but may depend on a country's income level. We now turn to a regression analysis to see if these patterns hold up.

Model Specification

To see whether oil rents affect regime type, I use panel logit regressions, which has become a common way to estimate the likelihood of democratic transitions. Since there is no reason to expect democratic transitions and democratic failures to be caused by the same underlying process, I explore them separately. Standard errors clustered by

⁴ Of these six failures, three eventually returned to democracy – two of them (Nigeria and Peru) after their oil rents dropped to much lower levels.

country. The core model is parametric, and assumes that the underlying hazard rate takes a specific form. In the robustness tests, I consider alternative assumptions about the base hazard rate.

Some prior studies of democratic transitions have included country fixed effects in their logit models to control for unobserved country-specific factors, and to focus on within-country variations over time rather than cross-country variations [Haber and Menaldo 2007]. While these tasks are desirable, the decision to include country fixed effects in a logit model creates an even larger problem: it eliminates from the sample all countries that have never transitioned to democracy, a group that includes most of the oil-rich developing countries. The result is a severe selection bias: countries that have transitioned to democracy remain in the sample, while countries that have not transitioned are dropped. The main hypothesis – that oil helps prevent transitions to democracy – can not be meaningfully tested with this sample.

To avoid this problem – and keep the oil-rich autocracies in the sample – I do not include country fixed effects; I do, however, use regional fixed effects to assess the model's robustness.

Hypotheses

The claim that 'oil hinders democracy' can be broken into two hypotheses:

H₁: Higher levels of oil rents reduce the likelihood that authoritarian states will become democratic;

H₂: Higher levels of oil rents increase the likelihood that democratic states will become authoritarian.

Dependent Variable

To identify transitions between authoritarianism and democracy, I use the dichotomous democracy-autocracy measure developed by Przeworski et al. (2000) and updated by Cheibub and Gandhi (2004).⁵ To fill in observations for countries absent from their dataset, I use Polity IV. From this data, I create *Democratic Transition*, a dummy variable that denotes the year that a country changes from authoritarian to democratic rule; and *Democratic Failure*, a dummy variable that denotes a transition from democratic to authoritarian rule.

The resulting dataset covers up to 170 countries between 1960 and 2002 with very few missing observations.

⁵ They define regimes as democracies if they meet all of the following conditions: the chief executive is elected; the legislature is elected; there are at least two political parties; and at least one incumbent regime has been defeated.

My analysis in many ways follows Ulfelder (2007), who also uses an event history design to test a similar pair of hypotheses, but develops his own dichotomous autocracy-democracy measure. Our substantive results are similar.

Core Variables

To keep the analysis simple, I first develop a 'core model' with three substantive variables; I also include a fourth variable to control for duration dependence. I later assess the robustness of the models to the inclusion of additional control variables.

The independent variable of interest, as noted above, is *Oil Rents per capita*, which is measured in constant 2000 dollars. It measures the value of oil and gas production, minus the country-specific extraction costs, divided by the country's midyear population. It is not completely unbiased, since the advanced industrialized countries attract a disproportionate share of the world's investments in petroleum extraction, relative to their subsoil assets [UNCTAD 2007]. Hence the value of *Oil Rents* will be biased upwards in countries with higher incomes. But since higher incomes are positively associated with democracy, the *Oil Rents* variable is biased against any finding consistent with either H_1 or H_2 .

#3

The first control variable accounts for a country's history of regime changes. Several studies suggest that when states have prior experience with democracy, it boosts the likelihood of a subsequent transition to democracy [e.g., Gassebner, Lamla, and Vreeland 2008]. Similarly, prior experience with authoritarian rule might increase the likelihood that democracies will fail. To capture this effect, I create a dummy variable to indicate that an autocratic country was previously a democracy (*Prior Democracy*), and a second variable to indicate that a democracy was previously autocratic (*Prior Autocracy*), since 1946.

#4

The second control variable in the core model is *Income*, which measures the natural log of income per capita based on data from the World Development Indicators, with missing observations filled in with adjusted figures from Heston, Summers, and Aten [2004]. Most prior studies of democratization suggest that income is a critical factor: when incomes rise, so does the likelihood that an authoritarian state will become democratic [Londregan and Poole 1996; Barro 1999; Boix and Stokes 2003; Epstein et al 2006]. Przeworski et al. [2000] argue that higher incomes reduce the likelihood that democracies will become autocratic, but have no effect on the probability that autocratic states will become democracies.⁶ This debate need not be resolved to determine whether oil rents affect democracy: since income *might* affect democracy, I control for it in the core model.

#5

Finally, the core model also includes a variable to account for duration dependence.

Regime Duration is the natural log of the number of continuous years (since the beginning of the dataset in 1960) that a country has been under democratic or authoritarian rule; it represents the underlying hazard rate. In the robustness section, I show that the *Oil Rents* variable is unaffected by differing assumptions about the base hazard rate.

⁶ Not all studies agree that incomes matter. Acemoglu et al. [2008] argue that income and democracy may be jointly determined by unobserved factors, like the political institutions that stem from colonial rule. Once they control for these unobserved factors with country fixed effects, they find that income has no impact on either democratic transitions or democratic failures. See my comment on this debate below.

Results: Democratic Transitions

Table 4 displays the results of estimations in which *Democratic Transition* is the dependent variable. To facilitate comparisons, all of the variables are standardized.

Column one includes only the control variables, and shows they are strongly linked to the likelihood of a democratic transition: states with higher incomes and prior transitions are more likely to become democratic. Column two includes *Oil Rents*, and shows it has a strong, negative effect on the likelihood of a democratic transition.⁷

In column three I start to explore the model's robustness by adding the variable *Economic Growth*, which is measured as the year-to-year change in income per capita. Several studies find that growth helps autocracies survive [Haggard and Kaufman 1995, Przeworski et al. 2000; Epstein et al. 2006; Gassebner, Lamla, and Vreeland 2008].

Oil production almost certainly influences a country's economic growth, although the precise effect is unclear. Including *Economic Growth* in the model could hence bias the *Oil Rents* coefficient in ways that are difficult to predict. As column three shows, its inclusion has little effect on the *Oil Rents* coefficient.

In columns four and five I explore the alleged effects of Islamic culture and traditions on democratic transitions; I use the variable *Islam*, which represents the Muslim fraction of the population and is taken from Barrett [1982]. Many studies argue that states with large Muslim populations are less likely to become democracies [Barro 1999, Fish 2002]. Since many Muslim countries are also significant oil producers, it is easy to confuse the effects of Islam with the effects of oil production.

#6

In column four I add *Islam* to the model, and temporarily drop *Oil Rents*; the *Islam* variable is negative and statistically significant. In column five I add *Oil Rents* back to the model, which causes the *Islam* variable to lose statistical significance at conventional levels. This implies that until oil production is taken into account, Islam *appears* to inhibit democratization; but that once oil is accounted for, Islam's affect turns out to be illusory. Studies tying Islam to authoritarian rule may be mistaken: once oil's effects are well-measured and hence fully accounted for, Islam is not robustly linked to regime type [Midlarsky 1998; Barro 1999; Fish 2002; Donno and Russett 2004].

Collectively, these estimations are consistent with H₁: authoritarian states with more oil rents are less likely to become democracies.

Parenthetically, the results in columns one and two may cast light on the debate over the relationship between income and democratic transitions. There is much disagreement about whether the broad association between high incomes and democracy is caused by the positive effect of income on the likelihood of democratic transitions [e.g., Boix and

⁷ Note that in all of the estimations, the substantive effect of *Oil Rents* appears to be remarkably large; this is an artifact of the skewness of the oil data, which makes the standard deviation quite large. In the robustness tests, I show that the regression results are unchanged when I use the log of oil rents – which reduces the skewness.

DOES OIL HINDER DEMOCRACY?

By MICHAEL L. ROSS*

INTRODUCTION

POLITICAL scientists believe that oil has some very odd properties. Many studies show that when incomes rise, governments tend to become more democratic. Yet some scholars imply there is an exception to this rule: if rising incomes can be traced to a country's oil wealth, they suggest, this democratizing effect will shrink or disappear. Does oil really have antidemocratic properties? What about other minerals and other commodities? What might explain these effects?

The claim that oil and democracy do not mix is often used by area specialists to explain why the high-income states of the Arab Middle East have not become democratic. If oil is truly at fault, this insight could help explain—and perhaps, predict—the political problems of oil exporters around the world, such as Nigeria, Indonesia, Venezuela, and the oil-rich states of Central Asia. If other minerals have similar properties, this effect might help account for the absence or weakness of democracy in dozens of additional states in sub-Saharan Africa, Latin America, and Southeast Asia. Yet the “oil impedes democracy” claim has received little attention outside the circle of Mideast scholars; moreover, it has not been carefully tested with regression analysis, either within or beyond the Middle East.

I use pooled time-series cross-national data from 113 states between 1971 and 1997 to explore three aspects of the oil-impedes-democracy claim. The first is the claim's validity: is it true? Although the claim has been championed by Mideast specialists, it is difficult to test by examining only cases from the Middle East because the region provides scholars with

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TABLE 1
INDEX OF OIL-RELIANT STATES^a

1. Brunei (1994)	47.58
2. Kuwait	46.14
3. Bahrain	45.60
4. Nigeria (1991)	45.38
5. Congo, Dem. Rep.	45.14
6. Angola (1996)	45
7. Yemen	38.58
8. Oman	38.43
9. Saudi Arabia	33.85
10. Qatar (1994)	33.85
11. Libya (1988)	29.74
12. Iraq (1983)	23.48
13. Algeria	21.44
14. Venezuela	18.84
15. Syria	15.00
16. Norway	13.46
17. Iran (1983)	11.95
18. Ecuador	8.53
19. Malaysia	5.91
20. Indonesia	5.69
21. Cameroon	5.63
22. Lithuania	4.48
23. Kyrgyz Republic (1996)	4.25
24. Netherlands	3.14
25. Colombia	3.13

^aOil reliance is measured by the value of fuel-based exports divided by GDP. Most figures are based on data for 1995 from World Bank (fn. 71). Figures for Brunei, Nigeria, Qatar, Libya, Iraq, and Iran are the most recent available. Since 1995 figures for Angola and Kyrgyz Republic are not available, 1996 figures are reported.

little variation on the dependent variable: virtually all Mideast governments have been authoritarian since gaining independence. Moreover, there are other plausible explanations for the absence of democracy in the Mideast, including the influence of Islam and the region's distinct culture and colonial history. Does oil have a consistently negative influence on democracy once one accounts for these and other variables?

Second, I examine the claim's generality along two dimensions. One is geographic. For obvious reasons the oil-impedes-democracy claim has been explored most carefully by Mideast specialists: ten of the fifteen states most reliant on oil wealth are in the Middle East region (see Table 1). But is oil an obstacle to democracy only in the Mideast, or does it harm oil exporters everywhere? If the hypothesis is true for all oil-rich

TABLE 2
INDEX OF MINERAL-RELIANT STATES^a

1. Botswana	35.11
2. Zambia	24.97
3. Bahrain	16.39
4. Chile	12.63
5. Angola (1996)	11.5
6. Papua New Guinea	10.13
7. Togo (1991)	7.79
8. Bolivia	5.53
9. Congo, Dem. Rep. (1983)	7.00
10. Jordan	5.28
11. Peru	3.84
12. Central African Republic	3.16
13. Iceland	3.11
14. Zimbabwe	3.00
15. Norway	2.49
16. Belgium	2.23
17. Canada	2.22
18. Australia	2.20
19. Lithuania	1.96
20. Jamaica	1.87
21. Slovak Republic	1.74
22. South Africa	1.69
23. Morocco	1.65
24. Cameroon	1.62
25. Kyrgyz Republic	1.56

^aMineral reliance is measured by the value of nonfuel mineral exports divided by GDP. Most figures are for 1995 based on data from World Bank (fn. 71). The figures for Congo and Togo are the most recent available; the 1996 figure is reported for Angola, since no figure for 1995 is available.

states, then its importance has been underappreciated by other political scientists. If it holds only for states in the Mideast, why is this so?

The other dimension is sectoral: do other types of minerals and other types of commodities have similar effects on governments? While oil exporters tend to be concentrated in the Middle East, exporters of nonfuel minerals are more geographically dispersed (see Table 2). Have these states, too, been rendered less democratic because of resource wealth? Or does petroleum have antidemocratic properties that are not found in other commodities?

Finally, I explore the question of causality: if oil does have antidemocratic effects, what is the causal mechanism? I test three possible explanations: a "rentier effect," which suggests that resource-rich

governments use low tax rates and patronage to relieve pressures for greater accountability; a "repression effect," which argues that resource wealth retards democratization by enabling governments to boost their funding for internal security; and a "modernization effect," which holds that growth based on the export of oil and minerals fails to bring about the social and cultural changes that tend to produce democratic government.

I also have two broader aims. The first is to encourage scholars who study democracy to incorporate the Middle East into their analyses. Many "global" studies of democratization have avoided the Mideast entirely.¹ Influential studies by Przeworski and Limongi and Przeworski, Alvarez, Cheibub, and Limongi simply drop the oil-rich Mideast states from their database.² There is, however, no sound analytical reason for scholars of democracy to exclude these states from their research, and doing so can only weaken any general findings. It also tends to marginalize the field of Middle East studies.

My second aim is to address the literature on the "resource curse." Many of the poorest and most troubled states in the developing world have, paradoxically, high levels of natural resource wealth. There is a growing body of evidence that resource wealth itself may harm a country's prospects for development. States with greater natural resource wealth tend to grow more slowly than their resource-poor counterparts.³ They are also more likely to suffer from civil wars.⁴ This article suggests as well that there is a third component to the resource curse: oil and mineral wealth tends to make states less democratic.

¹ See, for example, Guillermo O'Donnell, Philippe C. Schmitter, and Lawrence Whitehead, eds., *Transitions from Authoritarian Rule: Prospects for Democracy* (Baltimore: Johns Hopkins University Press, 1986); D. Larry Diamond, Juan J. Linz, and Seymour Martin Lipset, eds., *Democracy in Developing Countries* (Boulder, Colo.: Lynne Rienner, 1988); Ronald Inglehart, *Modernization and Postmodernization* (Princeton: Princeton University Press, 1997).

² Adam Przeworski and Fernando Limongi, "Modernization: Theories and Facts," *World Politics* 49 (January 1997); Adam Przeworski, Michael Alvarez, José Antonio Cheibub, and Fernando Limongi, "What Makes Democracies Endure?" *Journal of Democracy* 7 (January 1996); idem, *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990* (New York: Cambridge University Press, 2000).

³ Jeffrey D. Sachs and Andrew M. Warner, "Natural Resource Abundance and Economic Growth," Development Discussion Paper no. 517a (Cambridge: Harvard Institute for International Development, 1995); idem, "The Big Push, Natural Resource Booms and Growth," *Journal of Development Economics* 59 (February 1999); Carlos Leite and Jens Weidmann, "Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth," IMF Working Paper, WP/99/85 (1999); Michael L. Ross, "The Political Economy of the Resource Curse," *World Politics* 51 (January 1999); R. M. Auty, *Resource Abundance and Economic Development* (Oxford: Oxford University Press, 2001).

⁴ Paul Collier and Anke Hoeffler, "On Economic Causes of Civil War," *Oxford Economic Papers* 50 (October 1998); Indra de Soysa, "The Resource Curse: Are Civil Wars Driven by Rapacity or Paucity?" in Mats Berdal and David M. Malone, eds., *Greed and Grievance: Economic Agendas in Civil Wars* (Boulder, Colo.: Lynne Rienner, 2000).

I begin by outlining the oil-impedes-democracy claim and the limitations of previous work on the topic. I then draw on earlier case studies of oil-rich states to specify three causal mechanisms that might explain how oil makes governments more authoritarian. The next section presents a model of regime types and describes the research design. I then present the results of the validity and generality tests and follow that with a discussion of the results of tests on the causal mechanisms and a conclusion.

THE CONCEPT OF THE "RENTIER STATE"

Area specialists often describe most of the governments of the Mideast and North Africa as "rentier states," since they derive a large fraction of their revenues from external rents.⁵ More than half of the government's revenues in Saudi Arabia, Bahrain, the United Arab Emirates, Oman, Kuwait, Qatar, and Libya have, at times, come from the sale of oil. The governments of Jordan, Syria, and Egypt variously earn large locational rents from payments for pipeline crossings, transit fees, and passage through the Suez Canal. Workers' remittances have been an important source of foreign exchange in Egypt, Yemen, Syria, Lebanon, Tunisia, Algeria, and Morocco, although these rents go (at least initially) to private actors, not the state. The foreign aid that flows to Israel, Egypt, and Jordan may also be considered a type of economic rent.

Economists in the early twentieth century used the term "rentier state" to refer to the European states that extended loans to non-European governments.⁶ Mahdavy is widely credited with giving the term its current meaning: a state that receives substantial rents from "foreign individuals, concerns or governments."⁷ Beblawi later refined this definition, suggesting that a rentier state is one where the rents are paid by foreign actors, where they accrue directly to the state, and where "only a few are engaged in the generation of this rent (wealth), the majority being only involved in the distribution or utilization of it."⁸

⁵ Throughout this article I use the term "Middle East" to include North Africa. I adopt the World Bank's definition of this region: Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, and Yemen.

⁶ According to Lenin, "The rentier state is a state of parasitic, decaying capitalism, and this circumstance cannot fail to influence all the socio-political conditions of the countries concerned." V. I. Lenin, "Imperialism, the Highest Stage of Capitalism," in Robert C. Tucker, ed., *The Lenin Anthology* (New York: W. W. Norton, 1975).

⁷ Hussein Mahdavy, "The Patterns and Problems of Economic Development in Rentier States: The Case of Iran," in M. A. Cook, ed., *Studies in Economic History of the Middle East* (London: Oxford University Press, 1970), 428.

⁸ Hazem Beblawi, "The Rentier State in the Arab World," in Hazem Beblawi and Giacomo Luciani, eds., *The Rentier State* (New York: Croom Helm, 1987), 51. Note that this definition excludes

Claims about the rentier state can be sorted into two categories: those that suggest oil wealth makes states less democratic and those that suggest oil wealth causes governments to do a poorer job of promoting economic development. Often the two are conflated. This article focuses on the first claim.

According to Anderson, "The notion of the rentier state is one of the major contributions of Middle East regional studies to political science."⁹ Indeed, some scholars of democracy now use a version of this argument to account for the otherwise puzzling states of the Middle East. Huntington, for example, suggests that the democratic trend may bypass the Middle East since many of these states "depend heavily on oil exports, which enhances the control of the state bureaucracy."¹⁰ Others have adapted the "rentier state" idea to oil-rich countries outside the Middle East.¹¹

The claim that oil wealth per se inhibits democratization has not been subjected to careful statistical tests, however, as most quantitative studies of democracy simply overlook it as an explanatory variable. And the handful that even acknowledge that oil-rich states have odd properties do little to explain why. Przeworski and his collaborators, for example, drop countries from their database if their "ratio of fuel exports to total exports in 1984–1986 exceeded fifty percent"—an eccentric criterion that excludes six oil-rich states, all of which are located on the Arabian Peninsula.¹² Barro's study of democracy includes a dummy variable for states "whose net oil exports represent a minimum of two-thirds of total exports and are at least equivalent to approximately one percent of world exports of oil."¹³ The Barro oil dummy is statistically significant and negatively correlated with democracy. But as in the analyses of Przeworski et al., the dummy variable uses an arbitrary cut-

workers' remittances. As Chaudhry notes, large flows of remittances have different political implications than do large oil rents. See Kiren Aziz Chaudhry, *The Price of Wealth: Economies and Institutions in the Middle East* (Ithaca, N.Y.: Cornell University Press, 1997).

⁹ Lisa Anderson, "The State in the Middle East and North Africa," *Comparative Politics* 20 (October 1987), 9.

¹⁰ Samuel P. Huntington, *The Third Wave: Democratization in the Late Twentieth Century* (Norman: University of Oklahoma Press, 1991), 31–32.

¹¹ See, for example, Olle Törnquist, "Rent Capitalism, State, and Democracy: A Theoretical Proposition," in Arief Budiman, ed., *State and Civil Society in Indonesia*, Monash Papers on Southeast Asia, no. 22 (1990); Douglas A. Yates, *The Rentier State in Africa: Oil Rent Dependency and Neocolonialism in the Republic of Gabon* (Trenton, N.J.: Africa World Press, 1996); Terry Lynn Karl, *The Paradox of Plenty: Oil Booms and Petro-States* (Berkeley: University of California Press, 1997); John Clark, "Petro-Politics in Congo," *Journal of Democracy* 8 (July 1997); idem, "The Nature and Evolution of the State in Zaire," *Studies in Comparative International Development* 32 (Winter 1998).

¹² See Przeworski et al. (fn. 2, 2000), 77.

¹³ Robert J. Barro, "Determinants of Democracy," *Journal of Political Economy* 107 (December 1999).

point to distinguish between "oil states" and "non-oil states" and implies that oil has little or no influence on regime type until some threshold is reached.

Qualitative studies of the oil-impedes-democracy hypothesis also have important limitations. The vast majority have been country-level case studies of oil-rich states in the Mideast. Although many have been empirically rich and analytically nuanced, the Mideast is nevertheless a difficult place to test this claim, since virtually all oil-rich Mideast governments have been highly authoritarian since gaining independence. The absence of variation on the dependent variable—as well as on Islam, an important control variable—has made testing difficult. It has also allowed Mideast specialists to neglect tasks that would help sharpen and refine the oil-impedes-democracy claim—defining the key variables better, specifying the causal arguments in falsifiable terms, and outlining the domain of relevant cases to which their arguments apply. As a result, the notion of the rentier state has suffered from a bad case of conceptual overstretch: assertions about the influence of oil on Middle East politics have become so general that their validity has been diluted. As Okruhlik observes, "The idea of the rentier state has come to imply so much that it has lost its content."¹⁴

One way to restore the usefulness of an overstretched concept is by testing it statistically. I thus evaluate one core facet of the rentier state concept—the oil-impedes-democracy claim—with three questions. First, is there a statistically valid correlation between oil and authoritarianism once other germane variables are accounted for? Second, can the claim be generalized both beyond the Middle East and beyond the case of oil? Finally, if oil thwarts democracy, what is the causal mechanism?

Proponents of the oil-impedes-democracy hypothesis naturally suggest both that it is valid and that it can be generalized to oil exporters outside the Middle East. Some also imply that other types of commodities have similar effects. Nothing in Beblawi's definition, which is widely accepted among Mideast specialists, restricts the set of rentier states to oil exporters. In fact, the definition appears to cover many mineral exporters on the grounds that (1) minerals tend to generate rents, (2) the rents are largely captured by states via export taxes, corporate taxes, and state-owned enterprises, and (3) mineral extraction employs relatively little labor. The same definition, however, implies that exporters of agricultural commodities will not be rentier states.

¹⁴ Gwenn Okruhlik, "Rentier Wealth, Unruly Law, and the Rise of Opposition," *Comparative Politics* 31 (April 1999), 308.

This is because (1) agricultural commodities generally do not produce rents, (2) export revenues in most cases go directly to private actors, not the state, and (3) agricultural production is more labor intensive and hence employs a larger fraction of the population for a given value of exports.¹⁵

CAUSAL MECHANISMS

At least three causal mechanisms might explain the alleged link between oil exports and authoritarian rule. The first comes largely from Mideast specialists and might be called the "rentier effect." A close reading of case studies suggests a second mechanism: a "repression effect." Modernization theory implies a third possible cause, which I call the "modernization effect."

THE RENTIER EFFECT

The first causal mechanism comes from the work of Middle East scholars, who have pondered this issue for over two decades.¹⁶ In general they argue that governments use their oil revenues to relieve social pressures that might otherwise lead to demands for greater accountability. Case studies describe three ways this may occur.¹⁷

The first is through what might be called a "taxation effect." It suggests that when governments derive sufficient revenues from the sale of oil, they are likely to tax their populations less heavily or not at all, and the public in turn will be less likely to demand accountability from—and representation in—their government.¹⁸

The logic of the argument is grounded in studies of the evolution of democratic institutions in early modern England and France. Historians and political scientists have argued that the demand for representation in government arose in response to the sovereign's attempts to raise

¹⁵ Note that, by contrast, dependency theory suggests that developing states are politically constrained by their reliance on the export of *all* types of primary commodities to advanced industrialized states. See, for example, Fernando Henrique Cardoso and Enzo Faletto, *Dependency and Development in Latin America* (Berkeley: University of California Press, 1979); Peter Evans, *Dependent Development: The Alliance of Multinational, State, and Local Capital in Brazil* (Princeton: Princeton University Press, 1979); Kenneth A. Bollen, "World System Position, Dependency, and Democracy: The Cross-National Evidence," *American Sociological Review* 48 (August 1983).

¹⁶ Perhaps they have thought about it too carefully. Chaudhry (fn. 8), notes that "theories of the rentier state far outstrip detailed empirical analysis of actual cases" (p. 187).

¹⁷ Case studies often conflate these three effects. I treat them here as separate mechanisms to clarify their logic.

¹⁸ Giacomo Luciani, "Allocation vs. Production States: A Theoretical Framework," in Beblawi and Luciani (fn. 8).

taxes.¹⁹ Some Mideast scholars have looked for similar correlations between variations in tax levels and variations in the demand for political accountability. Crystal found that the discovery of oil made the governments of Kuwait and Qatar less accountable to the traditional merchant class.²⁰ Brand's study of Jordan argued that a drop in foreign aid and remittances in the 1980s led to greater pressures for political representation.²¹ Yet not all Middle East specialists have been persuaded: Waterbury argues that "neither historically nor in the twentieth century is there much evidence [in the Middle East] that taxation has evoked demands that governments account for their use of tax monies. Predatory taxation has produced revolts, especially in the countryside, but there has been no translation of tax burden into pressures for democratization."²²

A second component of the rentier effect might be called the "spending effect": oil wealth may lead to greater spending on patronage, which in turn dampens latent pressures for democratization.²³ Entelis, for example, argues that the Saudi Arabian government used its oil wealth for spending programs that helped reduce pressures for democracy.²⁴ Vandewalle makes a similar argument about the Libyan government.²⁵ And Kessler and Bazdresch and Levy find that the Mexican oil boom of the 1970s helped prop up—and perhaps prolong—one-party rule.²⁶ While all authoritarian governments may use

¹⁹ Charles Tilly, ed., *The Formation of National States in Western Europe* (Princeton: Princeton University Press, 1975); Robert Bates and Da-Hsiang Donald Lien, "A Note on Taxation, Development, and Representative Government," *Politics and Society* 14 (January 1985); Philip T. Hoffman and Kathryn Norberg, eds., *Fiscal Crises, Liberty, and Representative Government, 1450–1789* (Stanford, Calif.: Stanford University Press, 1994).

²⁰ Jill Crystal, *Oil and Politics in the Gulf: Rulers and Merchants in Kuwait and Qatar* (New York: Cambridge University Press, 1990).

²¹ Laurie A. Brand, "Economic and Political Liberalization in a Rentier Economy: The Case of the Hashemite Kingdom of Jordan," in Iliya Harik and Denis J. Sullivan, eds., *Privatization and Liberalization in the Middle East* (Bloomington: Indiana University Press, 1992).

²² John Waterbury, "Democracy without Democrats? The Potential for Political Liberalization in the Middle East," in Ghassan Salamé, ed., *Democracy without Democrats? The Renewal of Politics in the Muslim World* (New York: I. B. Tauris, 1994), 29.

²³ Lam and Wantchekon develop a formal model that makes a similar point, that resource wealth can impede democracy by enhancing the distributive influence of an elite. Ricky Lam and Leonard Wantchekon, "Dictatorships as a Political Dutch Disease" (Manuscript, Department of Political Science, Yale University, January 1999).

²⁴ John P. Entelis, "Oil Wealth and the Prospects for Democratization in the Arabian Peninsula: The Case of Saudi Arabia," in Naiem A. Sherbiny and Mark A. Tessler, eds., *Arab Oil: Impact on the Arab Countries and Global Implications* (New York: Praeger, 1976).

²⁵ Dirk Vandewalle, *Libya since Independence: Oil and State-Building* (Ithaca, N.Y.: Cornell University Press, 1998).

²⁶ Carlos Bazdresch and Santiago Levy, "Populism and Economic Policy in Mexico, 1970–82," in Rudiger Dornbusch and Sebastian Edwards, eds., *The Macroeconomics of Populism in Latin America* (Chicago: University of Chicago Press, 1991); Timothy P. Kessler, *Global Capital and National Politics: Reforming Mexico's Financial System* (Westport, Conn.: Praeger, 1999).

their fiscal powers to reduce dissent, these scholars imply that oil wealth provides Middle East governments with budgets that are exceptionally large and unconstrained.²⁷ Rulers in the Middle East may follow the same tactics as their authoritarian counterparts elsewhere, but oil revenues could make their efforts at fiscal pacification more effective.

The third component might be called a "group formation" effect. It implies that when oil revenues provide a government with enough money, the government will use its largesse to prevent the formation of social groups that are independent from the state and hence that may be inclined to demand political rights. One version of this argument is rooted in Moore's claim that the formation of an independent bourgeoisie helped bring about democracy in England and France.²⁸ Scholars examining the cases of Algeria, Libya, Tunisia, and Iran have all observed oil-rich states blocking the formation of independent social groups; all argue that the state is thereby blocking a necessary precondition of democracy.²⁹

A second version of the group-formation effect draws on Putnam's argument that the formation of social capital—civic institutions that lie above the family and below the state—tends to promote more democratic governance.³⁰ Scholars studying the cases of Algeria, Iran, Iraq, and the Arab Gulf states have all suggested that the government's oil wealth has impeded the formation of social capital and hence blocked a transition to democracy.³¹

Whether Mideast states use their oil revenues to *deliberately* inhibit group formation is a matter of some disagreement. In the case of Libya, First suggests "there is not a consistent policy against the development of

²⁷ Lisa Anderson, "Peace and Democracy in the Middle East: The Constraints of Soft Budgets," *Journal of International Affairs* 49 (Summer 1995).

²⁸ Barrington Moore, *Social Origins of Dictatorship and Democracy* (Boston: Beacon Press, 1966).

²⁹ On Algeria, see Clement Henry Moore, "Petroleum and Political Development in the Maghreb," in Sherbiny and Tessler (fn. 24); on Libya, see Ruth First, "Libya: Class and State in an Oil Economy," in Petter Nore and Terisa Turner, eds., *Oil and Class Struggle* (London: Zed Press, 1980); also on Libya, see Vandewalle (fn. 25); on Tunisia, see Eva Bellin "The Politics of Profit in Tunisia: Utility of the Renter Paradigm?" *World Development* 22 (March 1994); and on Iran, see Hootan Shambayati, "The Renter State, Interest Groups, and the Paradox of Autonomy: State and Business in Turkey and Iran," *Comparative Politics* 26 (April 1994).

³⁰ Robert Putnam, *Making Democracy Work: Civic Traditions in Modern Italy* (Princeton: Princeton University Press, 1993).

³¹ On Algeria, see John P. Entelis, "Civil Society and the Authoritarian Temptation in Algerian Politics," in Augustus Richard Norton, ed., *Civil Society in the Middle East*, vol. 2 (Leiden: E. J. Brill, 1995); on Iran, see Farhad Kazemi, "Civil Society and Iranian Politics," in Norton; on the Gulf states, see Jill Crystal, "Civil Society in the Arab Gulf States," in Norton; on Iraq, see Zuhair Humadi, "Civil Society under the Ba'ath in Iraq," in Jillian Schwedler, ed., *Toward Civil Society in the Middle East?* (Boulder, Colo.: Lynne Rienner, 1995). Other scholars have argued that the weakness of civil society in the Middle East has hampered a transition to democracy, without suggesting that oil wealth is the source of this weakness.

an indigenous bourgeoisie, but the growth of this class is in practice constrained by the state's own economic ventures and its links with international capital."³² Chaudhry, by contrast, argues that in the 1970s the Mideast governments used their oil revenues to develop programs that were "explicitly designed to depoliticize the population. . . . In all cases, governments deliberately destroyed independent civil institutions while generating others designed to facilitate the political aims of the state."³³

Collectively, the taxation, spending, and group-formation effects constitute the rentier effect. Together they imply that a state's fiscal policies influence its regime type: governments that fund themselves through oil revenues and have larger budgets are more likely to be authoritarian; governments that fund themselves through taxes and are relatively small are more likely to become democratic.

THE REPRESSION EFFECT

A close reading of case studies from the Mideast, Africa, and Southeast Asia suggests that oil wealth and authoritarianism may also be linked by repression. Citizens in resource-rich states may want democracy as much as citizens elsewhere, but resource wealth may allow their governments to spend more on internal security and so block the population's democratic aspirations. Skocpol notes that much of Iran's pre-1979 oil wealth was spent on the military, producing what she calls a "rentier absolutist state."³⁴ Clark, in his study of the 1990s oil boom in the Republic of Congo, finds that the surge in revenues allowed the government to build up the armed forces and train a special presidential guard to help maintain order.³⁵ And Gause argues that Middle East democratization has been inhibited in part by the prevalence of the *mukhabarat* (national security) state.³⁶

There are at least two reasons why resource wealth might lead to larger military forces. One may be pure self-interest: given the opportunity to better arm itself against popular pressures, an authoritarian government will readily do so. A second reason may be that resource wealth causes ethnic or regional conflict; a larger military might reflect the government's response. Mineral wealth is often geographically con-

³² First (fn. 29), 137.

³³ Kiren Aziz Chaudhry, "Economic Liberalization and the Lineages of the Rentier State," *Comparative Politics* 27 (October 1994), 9.

³⁴ Theda Skocpol, "Rentier State and Shi'a Islam in the Iranian Revolution," *Theory and Society* 11 (April 1982).

³⁵ Clark (fn. 11, 1997).

³⁶ F. Gregory Gause II, "Regional Influences on Experiments in Political Liberalization in the Arab World," in Rex Brynen, Bahgat Korany, and Paul Noble, eds., *Political Liberalization and Democratization in the Arab World*, vol. 1, *Theoretical Perspectives* (Boulder, Colo.: Lynne Rienner, 1995).

centrated. If it happens to be concentrated in a region populated by an ethnic or religious minority, resource extraction may promote or exacerbate ethnic tensions, as federal, regional, and local actors compete for mineral rights. These disputes may lead to larger military forces and less democracy in resource-rich, ethnically fractured states such as Angola, Burma, the Democratic Republic of Congo, Indonesia, Nigeria, Papua New Guinea, Sierra Leone, and South Africa. This mechanism would be consistent with the research of Collier and Hoeffler and de Soysa, who find that natural resource wealth tends to make civil war more likely.³⁷

THE MODERNIZATION EFFECT

Finally, a third explanation can be derived from modernization theory, which holds that democracy is caused by a collection of social and cultural changes—including occupational specialization, urbanization, and higher levels of education—that in turn are caused by economic development.³⁸ Different scholars emphasize different clusters of social and cultural changes. Perhaps the most carefully shaped position comes from Inglehart, who argues that two types of social change have a direct impact on the likelihood that a state will become democratic:

1. Rising education levels, which produce a more articulate public that is better equipped to organize and communicate, and
2. Rising occupational specialization, which first shifts the workforce into the secondary sector and then into the tertiary sector. These changes produce a more autonomous workforce, accustomed to thinking for themselves on the job and having specialized skills that enhance their bargaining power against elites.³⁹

Although modernization theory does not address the question of resource wealth per se, an implicit corollary is that if economic development does not produce these cultural and social changes, it will not result in democratization. As Inglehart notes: "Is the linkage between development and democracy due to wealth per se? Apparently not: if democracy automatically resulted from simply becoming wealthy, then Kuwait and Libya would be model democracies."⁴⁰ In other words, if resource-led growth does not lead to higher education levels and

³⁷ See Collier and Hoeffler (fn. 4); de Soysa (fn. 4).

³⁸ Seymour Martin Lipset, "Some Social Requisites of Democracy: Economic Development and Political Legitimacy," *American Political Science Review* 53 (March 1959); Karl W. Deutsch, "Social Mobilization and Political Development," *American Political Science Review* 55 (September 1961); Inglehart (fn. 1).

³⁹ Inglehart (fn. 1), 163.

⁴⁰ *Ibid.*, 161.

greater occupational specialization, it should also fail to bring about democracy. Unlike the rentier and repression effects, the modernization effect does not work through the state: it is a social mechanism, not a political one.

The rentier, repression, and modernization effects are largely complementary. The rentier effect focuses on the government's use of fiscal measures to keep the public politically demobilized; the repression effect stresses the government's use of force to keep the public demobilized; and the modernization effect looks at social forces that may keep the public demobilized. All three explanations, or any combination of them, may be simultaneously valid.⁴¹

MODEL SPECIFICATION AND RESEARCH DESIGN

To test the oil-impedes-democracy claim, I present a model to predict regime types and test it using a feasible generalized least-squares method with a pooled time-series cross-national data set, which includes data on all sovereign states with populations over one hundred thousand between 1971 and 1997. The model includes five causal variables that according to previous studies are the most robust determinants of democracy. It also includes variables that measure a state's oil and mineral wealth to see if they add explanatory power.

The basic regression model is:

$$\begin{aligned} \text{Regime}_{i,t} = & a_1 + b_1(\text{Oil}_{i,t-5}) + b_2(\text{Minerals}_{i,t-5}) + b_3(\text{Log Income}_{i,t-5}) \\ & + b_4(\text{Islam}_i) + b_5(\text{OECD}_i) + b_6(\text{Regime}_{i,t-5}) + b_7(\text{Year}_1) \dots + b_{33}(\text{Year}_{26}) \end{aligned}$$

where i is the country and t is the year.

The dependent variable, *Regime*, is derived from the Polity98 data set constructed by Gurr and Jagers.⁴² Gurr and Jagers compile two 0–10 interval scale variables, DEMOC and AUTOC; the former differentiates between states that are relatively democratic, while the latter variable differentiates between authoritarian states. Since the two indicators contain separate, nonoverlapping types of information about each country year, I combine them into a single measure by subtracting

⁴¹ A fourth explanation has been offered by U.S. vice president Richard Cheney, a political scientist by training: "The problem is that the good Lord didn't see fit to put oil and gas reserves where there are democratic governments." Cited in David Ignatius, "Oil and Politics Mix Suspiciously Well in America," *Washington Post*, July 30, 2000, A31.

⁴² Each of the variables is defined more precisely in Appendix 1. Ted R. Gurr and Keith Jagers, "Polity 98: Regime Characteristics, 1800–1998," <http://www.bsos.umd.edu/cidcm/polity/>, 1999 (consulted March 1, 2000).

the autocracy measure from the democracy measure.⁴³ I then rescale it as a 0–10 variable, with 10 representing “most democratic.”

Oil and Minerals are the independent variables; they measure the export value of mineral-based fuels (petroleum, natural gas, and coal) and the export value of nonfuel ores and metals exports, as fractions of GDP. These variables capture both the importance of fuels and minerals as sources of export revenue and their relative importance in the domestic economy.⁴⁴

The right-hand side of the equation also includes five control variables designed to capture the factors most robustly associated with regime type, for which indicators are available for most of the countries and years. The first is *Income*, measured as the natural log of per capita GDP corrected for purchasing power parity (PPP), in current international dollars. Per capita income has been widely accepted as a correlate of democracy since Lipset; its validity has been confirmed in more recent tests by Burkhart and Lewis-Beck, Londregan and Poole, Przeworski and Limongi, and Barro.⁴⁵

The second control variable is *Islam*, which denotes the Muslim percentage of the state’s population in 1970.⁴⁶ Previous studies have suggested that states with large Muslim populations tend to be less democratic than non-Muslim states.⁴⁷ Of all the religious categories tested by Barro, Islam (measured the same way with the same data set) had by far the largest and most statistically significant influence on a state’s regime type.⁴⁸ Placing *Islam* in this model has special importance

⁴³ Here I am following the practice of John B. Londregan and Keith T. Poole, “Does High Income Promote Democracy?” *World Politics* 49 (October 1996).

⁴⁴ *Oil and Minerals* are similar to the indicators used by Sachs and Warner (fn. 3, 1995) and by Leite and Weidmann (fn. 3) in their studies of the influence of resource wealth on economic performance. While Sachs and Warner combine fuels, nonfuel minerals, and agricultural goods into a single variable, I consider them as separate variables to see if their regression coefficients (and hence their influence on regime types) differ.

⁴⁵ Lipset (fn. 38); Ross E. Burkhart and Michael S. Lewis-Beck “Comparative Democracy: The Economic Development Thesis,” *American Political Science Review* 88 (December 1994); Londregan and Poole (fn. 43); Przeworski and Limongi (fn. 2); Barro (fn. 13).

⁴⁶ In virtually all cases, the figure for 1980 (the only other year for which data were available) was identical to the 1970 figure.

⁴⁷ Salamé (fn. 22); Seymour Martin Lipset, “The Social Requisites of Democracy Revisited,” *American Sociological Review* 59 (February 1994); Manus Midlarsky, “Democracy and Islam: Implications for Civilizational Conflict and the Democratic Peace,” *International Studies Quarterly* 42 (December 1998).

⁴⁸ Barro (fn. 13). Observers offer different arguments to explain the negative correlation between democracy and Islamic populations (–.38). See, for example, Hisham Sharabi, *Neopatriarchy: A Theory of Distorted Change in Arab Society* (New York: Oxford University Press, 1988); Bernard Lewis, “Islam and Liberal Democracy,” *Atlantic Monthly* 271 (February 1993); and Michael Hudson, “The Political Culture Approach to Arab Democratization: The Case for Bringing It Back In, Carefully,” in Brynen, Korany, and Noble (fn. 36). Although they are negatively correlated for the period covered by this data set (1971–97), it is not obvious that they will continue to be negatively correlated in the future. Two

because many states with great mineral wealth also have large Muslim populations, not only in the Middle East but also in parts of Asia (Indonesia, Malaysia, Brunei) and Africa (Nigeria). The simple correlation between *Oil* and *Islam* is 0.44.

The third control variable is *OECD*, a dummy that is coded 1 for states that are members of the Organization for Economic Cooperation and Development (excluding newer members Mexico and South Korea) and 0 for all others. Previous researchers have found that the advanced industrialized states of the OECD are significantly more likely to be democratic in the post-World War II era than the states of the developing world, even after the influence of income and other factors are accounted for.⁴⁹ There is no consensus on why this is so. It has variously been attributed to the West's unique historical trajectory;⁵⁰ the cultural influence of Protestantism;⁵¹ the residual effects of Western colonialism on non-Western states;⁵² and a "world system" that constrains the prospects of states in the non-Western "periphery."⁵³ Conceivably any antidemocratic effects from *Oil* and *Minerals* might be spurious and merely reflect the location of most fuel- and mineral-exporting states in the non-Western world. The *OECD* dummy helps account for any of these Western-specific effects, without taking a position on the mechanisms behind it.

The fourth control variable is *Regime*_{*t-5*}, which is the dependent variable lagged by five years. Placing it on the right-hand side of the model has three purposes. First, the most important influence on a state's regime type may often be its own peculiar history; *Regime*_{*t-5*} helps capture any country-specific historical or cultural features that may be missed by the other right-hand-side variables. Second, including *Regime*_{*t-5*} helps turn the equation into a change model, transforming the dependent variable from regime type to the change in a country's regime type over a given five-year period. This helps ensure that the re-

states with large Islamic populations, Nigeria and Indonesia, have recently moved toward democracy, and some of the most important prodemocracy forces in other Islamic states (including Algeria, Egypt, Jordan, and Malaysia) are often classified as Islamic "traditionalists" or "fundamentalists." It is instructive to recall that until the "third wave" of democratization began in the mid-1970s, democracy and Catholicism were negatively correlated.

⁴⁹ See Burkhart and Lewis-Beck (fn. 45); Londregan and Poole (fn. 43); Przeworski and Limongi (fn. 2).

⁵⁰ See Moore (fn. 28).

⁵¹ See Lipset (fn. 38); Huntington (fn. 10).

⁵² See Robert A. Dahl, *Polyarchy: Participation and Opposition* (New Haven: Yale University Press, 1971).

⁵³ See Immanuel Wallerstein, *The Modern World-System* (New York: Academic Press, 1974); Bollen (fn. 15); Burkhart and Lewis-Beck (fn. 45).

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gression will indeed measure both time-series and cross-sectional changes in regime types. Third, *Regime*_{*t-5*} helps address the problem of serial correlation that tends to bedevil pooled time-series cross-sectional data sets.⁵⁴

Finally, the model includes a set of twenty-six dummy variables, one for each year covered by the data (1971–97), less one to mitigate autocorrelation. These are designed to capture two types of time-specific effects. The first is the cold war, which may have blocked many transitions to democracy. The second are contagion effects that influenced states at different times in Southern and Eastern Europe, Latin America, and sub-Saharan Africa, where early transitions to democracy appeared to boost the likelihood of subsequent transitions in proximate states.

The tests were run with a feasible generalized least-squares process using Stata 6.0.⁵⁵ Since I include a lagged dependent variable on the right-hand side of the equation, I correct for first-order autocorrelation using a panel-specific process, which allows the degree of autocorrelation to vary from country to country.

I use a five-year lag for all independent and control variables. The lag gives more confidence that the causal arrow is pointing in the right direction; it also enables me to look for factors that have an enduring impact on regime types. As I illustrate below, using shorter lags does not change the results of the basic model, but it does increase the absolute value of the coefficient of the lagged dependent variable relative to the other explanatory variables. Hence with a one-year lag, a country's current regime type becomes overwhelmingly a function of its regime type in the previous year, while the influence of other variables is artificially suppressed.⁵⁶

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RESULTS

For the basic model described below, Stata is able to utilize 2,183 country-year observations from 113 states, out of a possible 3,752 observations from 158 states. The data for each of the variables are summarized in Appendix 2.

⁵⁴ James A. Stimson, "Regression in Space and Time: A Statistical Essay," *American Journal of Political Science* 29 (November 1985); Nathaniel Beck and Jonathan N. Katz, "What to Do (and Not to Do) with Time-Series Cross-Section Data," *American Political Science Review* 89 (September 1995).

⁵⁵ Beck and Katz (fn. 54) recommend using ordinary least squares with "panel-corrected standard errors" when working with panel data if the number of units is less than the number of time points. In this data set the number of units (113) exceeds the number of time points (27).

⁵⁶ Christopher H. Achen, "Why Lagged Dependent Variables Can Suppress the Explanatory Power of Other Independent Variables" (Paper presented at the annual meeting of the Political Methodology Section of the American Political Science Association, Los Angeles, July 20–22, 2000).

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