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# The Oil Blessing: Reexamining Conflict in the Muslim World

## Abstract

An influential conventional wisdom holds that oil causes intrastate conflict and that oil in particular explains the prevalence of domestic political violence in the Muslim world. I show that the relationship between oil and intrastate conflict in the empirical literature is more ambiguous than commonly assumed. I test to see if the various measures of the oil resource predict any dimension of intrastate conflict in the Muslim world. My results show oil resources are associated with lower levels of civil conflict, repression and terrorism in Muslim-majority countries. This supports the 'rentier state' perspective which states that regimes with significant oil resources mitigate conflict by strengthening the state relative to the populace and by distributing rent. Lastly, I argue the reasons for the concentration of conflict in Muslim world are not understood but the fact that Muslim 'rentier states' are able to effectively mitigate conflict offers some clues.

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Reexamining Conflict in the Muslim world

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by  
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### **Abstract**

An influential conventional wisdom holds that oil causes intrastate conflict and that oil in particular explains the prevalence of domestic political violence in the Muslim world. I show that the relationship between oil and intrastate conflict in the empirical literature is more ambiguous than commonly assumed. I test to see if the various measures of the oil resource predict any dimension of intrastate conflict in the Muslim world. My results show oil resources are associated with lower levels of civil conflict, repression and terrorism in Muslim-majority countries. This supports the ‘rentier state’ perspective which states that regimes with significant oil resources mitigate conflict by strengthening the state relative to the populace and by distributing rent. Lastly, I argue the reasons for the concentration of conflict in Muslim world are not understood but the fact that Muslim ‘rentier states’ are able to effectively mitigate conflict offers some clues.

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## **Chapter One: Introduction**

Empirically global intrastate conflict rose during the Cold War but has since significantly declined. According to the *Human Security Report* (2013), there was an average number of two civil wars per year in the seventies and three civil wars in the eighties but this dropped to an average of 1.2 in the nineties and 0.8 in the first decade of the twenty-first century. The report also noted that *interstate* conflict largely vanished after the seventies. This trend is reflected in the total number of combat fatalities: there were close to an average of 50 battle-deaths per million people in the seventies and eighties but the rate dropped to half of that in the nineties and lower to about 5 battle-deaths in the first decade of the twenty-first century. This trend reflects a broader scholarly consensus about the decline of human conflict, most famously argued by Pinker (2011) as well as (Goldstein, 2011). There is unfortunately an exception to this trend – Muslim-majority states.

Great swaths of the Muslim world are embroiled in civil war, repression and terrorism. Muslim-majority countries are about a quarter of the world's states but are experiencing nine out of ten of its most violent civil wars (The Heidelberg Institute for International Conflict, 2015). Nine of the twenty-one most repressive states are Muslim-majority, five of the others experience insurgency and/or terrorism from Muslim minorities (Cingranelli, 2014). Moreover, seven out the ten countries experiencing the most terrorism are Muslim-majority; two of the others involve significant Muslim minorities (Institute for

Economics and Peace, 2015). Intrastate conflict is by far the dominant form of conflict today and most of it is in the Muslim World.

A prominent explanation for this trend is the relative abundance of hydrocarbon deposits in the Muslim World. In a *BBC* article titled ‘Oil and conflict – a natural mix’, Reynolds (2004) claims ‘oil and what it represents – energy – have always been a source of conflict’. Writing for *Foreign Affairs*, Ross (2011) asserts that ‘divine intervention did not cause repression in the Middle East: hydrocarbons did.’ An article in *The Atlantic* by Patrick (2012) argues that ‘the very presence of oil and gas resources within developing countries exacerbates the risk of violent conflict’. More recently, Wenar (2016) also writing for *Foreign Affairs* claims ‘oil states in the developing world are more than 200 percent more likely to suffer civil wars’ and that ‘the repression, conflict and extreme ideologies that bedevil petrostates have made the entire world less secure’.

The prevalent argument is supported by a number of academic studies. These studies claim oil encourages civil war through several mechanisms: by motivating rebels to fight for control of the lucrative resource, by enabling rebels to fund their campaigns, by weakening the state’s administrative capacity, and by fostering authoritarianism and corruption which provokes rebellion (see Noland & Hendrix, 2014: pp. 42-44). Moreover, it is claimed that oil enables state repression (DeMeritt and Young, 2013) which purportedly instigates terrorism (Conrad and Milton, 2013). Muslim-majority states generally export significantly more oil than other states; their average income from oil exports as a percentage of GDP is more than five times the mean of non-Muslim majority countries (Conrad and Milton, 2013: p. 324; Karakaya, 2015: p. 521). Consequently, there are grounds to argue that the presence of oil explains the high levels of civil conflict,

repression and terrorism in Muslim-majority countries (see respectively: Karakaya, 2015: p. 511; DeMeritt and Young, 2013: p. 111; Conrad and Milton, 2013: p. 331).

This paper examines that argument by testing if the presence of oil predicts the prevalence of civil war, repression and terrorism in Muslim-majority countries. It draws nuances from the academic literature – particularly pertaining to oil and violence measures – and applies them to a specific question: what explains intrastate conflict in the Muslim world? This study does not attempt to find the best explanatory variables, but it robustly evaluates one of the most prominent explanations, and uses it to draw insights into violence in Muslim-majority states. The paper proceeds in five sections. The first section discusses the literature on intrastate conflict, the relationship between oil wealth and intrastate conflict, and between Islam and intrastate conflict. The second explains the data. The third conducts the tests. The fourth discusses places the findings in academic discourse and the concluding section discusses their implications for the real-world.

The findings demonstrate that the presence of oil is not associated with any of the dimensions of intrastate conflict in the Muslim world. In fact, the opposite is true – oil measures are correlated with lower levels of civil war, repression and terrorism. These results decisively support the ‘rentier state’ model of the oil-conflict link which holds that states with oil wealth effectively minimize internal opposition and conflict by strengthening state institutions and distributing rents. These results contradict several studies that claim oil is a source of intrastate conflict in Muslim-majority countries (notably Karakaya, 2015; DeMeritt and Young, 2013; Conrad and Milton, 2013), instead they show that it is a source of relative stability. This indicates that the Muslim world has high levels of intrastate conflict not because but *despite* its oil wealth. Finally, given that Muslim-



majority countries produce roughly 40 percent of the world's oil, these results also undermine claims for a positive link between oil and intrastate conflict in general.

## Chapter Two: Literature Review

The positive trend regarding intrastate conflict identified in the *Human Security Report* (2013) is empirically valid yet conflicts with our intuitive perception of the issue. How can intrastate conflict be on the decline when the media and press are brimming with news of governments engaging in violent repression against their civilians and civilians engaging in acts of terrorism against other civilians and their government? This is partly a product of modern technology amplifying the way conflict is perceived and felt far beyond where it is happening. But it also has to do with the way the *Human Security Report* (2013) and many scholars of intrastate violence measure their subject of study. They generally use the Uppsala Conflict Data Program (UCDP) data which measures civil conflict and war in terms of battle-deaths. The Correlates of War (CoW) project is second only to UCDP in terms of prominence and utilizes a similar definition for civil war.<sup>1</sup> On the other hand, much of the violence evident on our TVs and newspapers is either state repression or non-state terrorism – both of which target civilians. The casualties caused by these are not classified as combat- or battle-related deaths.

These types of political violence are measured but are usually not categorized as intrastate conflict. There is notable empirical literature on state repression which employs definitions ranging from violation of the freedom of speech to the mass killing of civilians.

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<sup>1</sup> See Sambanis (2004) for a discussion of the ‘conceptual and empirical complexities of an operational definition’ for civil war.

This subfield has been fairly disjointed with researchers myopically exploring their particular type of repression until relatively recently (see Davenport and Inman [2012]). While there is still no universally agreed upon definition of repression, scholars focusing on political violence have operationalized repression as state violence against civilians. There is a more established subfield devoted to the empirical study of terrorism but it also grapples with definitions, not least because the definition of terrorism is politically sensitive. Nonetheless, most scholars of terrorism define terrorism as violence inflicted on civilians by non-state actors for political purposes (for a discussion of the issue see Young and Findley [2011]). Interestingly, an aggregation of these definitions of civil war, repression and terrorism account for all types of intrastate political violence. No study to my knowledge has incorporated these variables into one test, but it appears to be an effective way to achieve a holistic understanding of violent intrastate conflict. This chapter reviews literature on repression and terrorism in addition to civil war as part of its analysis of intrastate conflict.

### **Islam and intrastate conflict**

Global interstate conflict has almost vanished and intrastate conflict is in decline. But as noted Muslim-majority countries are a major exception. Gleditsch and Rudolfsen (2015) make a few observations about conflict in the Muslim world using UCDP civil war data. First, 71 percent of Muslim-majority countries as opposed to 51 Christian-majority countries have experienced civil war since WWII. Also, in terms of conflict duration, 20 percent of Muslim-majority country-years as opposed to 10 percent of Christian-majority country-years have experienced civil war in this period. However, Christian-majority

countries have historically dominated the global trend because they are more numerous.<sup>2</sup> Second, since the Cold War-era spike in civil wars stemming from a number of newly independent countries, from which Muslim-majority states were relatively immune, there has been a general decline – but the trend among Muslim-majority countries has been rising. Today, almost all civil wars are taking place in Muslim-majority countries. Third, there have been many Muslim insurgent groups operating in predominately non-Muslim countries but relatively few non-Muslim insurgent groups operating in Muslim-majority states. Lastly, civil wars in Muslim-majority and other states are increasingly characterized by Islamist insurgencies. Figures I – III provide an overview of these data. Gleditsch and Rudolfson (2015) admit that researchers do not have a good understanding of these trends.

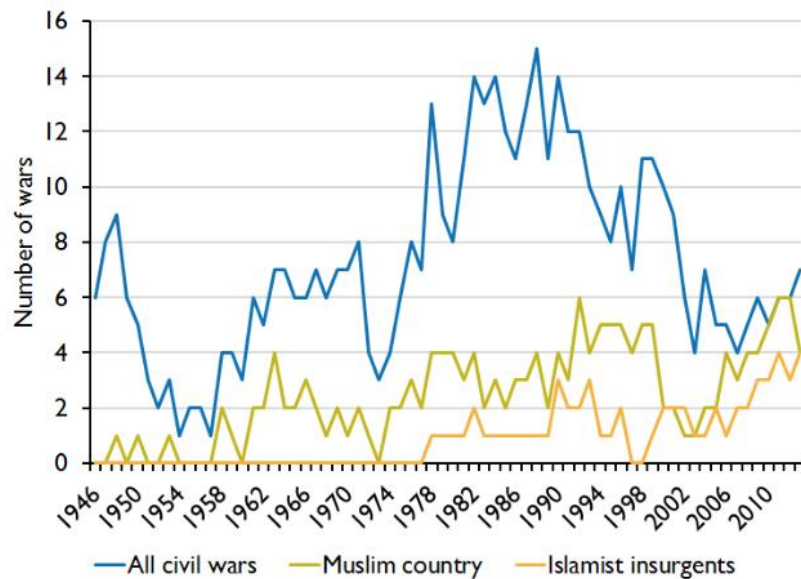
One of the most prominent explanations for the concentration of conflict in the Muslim world is its common religion. The fact that religion can facilitate violence is well established. We know that religious actors initiate conflict at higher rates compared to others (Fox and Sandler, 2004), when they do the conflicts last longer (Horowitz, 2009), are significantly more deadly (Pearce, 2005), and are less likely to end in a negotiated settlement (Svensson, 2007). We know in particular that the intensity and exclusivity of religious practice in groups predicts conflict intensity and duration (Day, 2015). Juergensmeyer (2003) claims these movements feature a ‘moral absolutism’ that enables ‘cultures of violence’.<sup>3</sup> These findings are complimented by studies that apply economic

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<sup>2</sup> It should be noted that 100 percent of Judaist-majority and 67 percent of Hindu-majority countries have experienced civil war. But given that there is one only Judaist-majority country and two Hindu-majority countries, these religions do not significantly impact global conflict trends. These states are also not numerous or geographically distributed enough to make broader inferences but represent an interesting trend.

<sup>3</sup> Atran (2003) explains that ‘such sentiments characterize institutional manipulation of emotionally driven

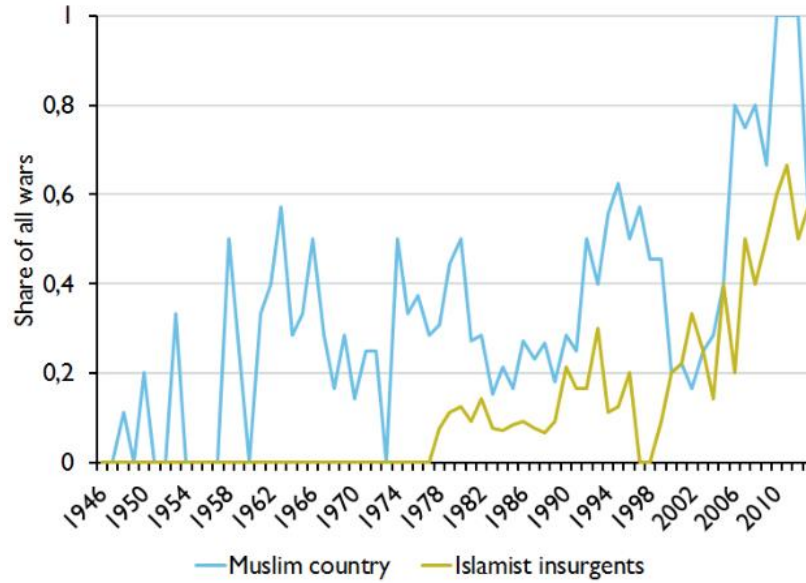
models to religious organizations (Iannaccone, 1992; Berman, 2009). They find religious organizations use their communitarian nature to cultivate a high amount of social capital among their members which allows them to field effective insurgent and terrorist organizations that are resilient to free-riding and defections. However, these studies emphasize that all religions have this potential which does not explain the concentration of intrastate conflict in the Muslim world or the fact that about 90 percent of battle deaths since 2010 were in conflicts with least one party representing political Islam (see Gleditsch and Rudolfsen, 2015; Gates et al., 2016).



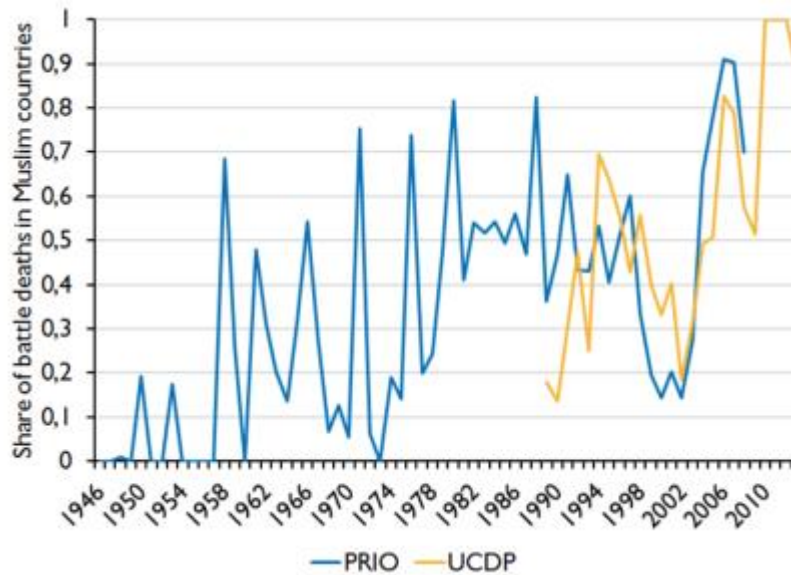
(Figure I: All civil wars, civil wars in Muslim-majority countries and civil wars with Islamist insurgencies 1946-2013. Source: Gleditsch and Rudolfsen, 2015)

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commitments that may have emerged under natural selection’s influence to refine or override short-term rational calculations that would otherwise preclude achieving goals against long odds’ (p. 1537).



(Figure II: Civil wars in Muslim-majority countries and civil wars where the insurgents are Islamist, as share of all civil wars, 1946-2013. Source: Gleditsch and Rudolfson, 2015)



(Figure III: Share of battle deaths in civil wars occurring in Muslim countries. The figure shows two partly overlapping time series of battle deaths data: from PRIO [1946–2008] and UCDP [1989–2013]. Source: Gleditsch and Rudolfson, 2015)

A number of intellectuals have argued that among religions Islam is uniquely violent. In *Spirit of the Laws*, Montesquieu (1995) claims that ‘the gentleness so recommended in the gospel stands opposed to the despotic fury with which a prince would mete out his own justice and exercise his cruelties...The Mohammedan religion which speaks only with a sword, continues to act on men with the destructive spirit that founded it’ (pp. 461-462). More recently, Ben-Dor and Pedahzur (2003) contend that Islam is particularly prone to religious violence given the tradition’s emphasis on *jihad* and martyrdom, its activist and revolutionary nature, and its totalistic prescriptions for society. Lewis (2004) points out that Islamic theology views the world split between the abode of belief and (tellingly) abode of war. A notable amount of scholarship supports either parts or all of these ‘essentialist’ claims about Islam (see Deeb, 1992; Layachi and Haireche, 1992; Piscatori, 1994; Mazrui, 1997; Denooux, 2002; Payne, 2003; Pipes, 2003). Huntington (1996) famously argues in *The Clash of Civilizations and the Remaking of World Order* that recent conflicts largely stem from the rise of Islamic consciousness and as a result ‘Islam’s borders are bloody and so are its innards’ (p. 258).

An increasing number of studies oppose these arguments. These scholars tend to blame the Western media and ‘essentialist’ scholars of popularizing what they see as an undue relationship between Islam and violence (see Said, 1997; Roy, 2004; Jackson, 2007; Ahmad, 2011). Instead they advance ‘instrumentalist’ explanations for the apparent association. They see Islam as a language and vehicle for the expression and enactment of grievance- and greed-based motivations. Coward and Smith (2004) point out that religious texts and practices are open to interpretation, and that interpretation of religion by social actors explains how the same religious sources are used to promote both violence and

peace. Woltering (2002) argues there is little about Islam that accounts for the growth of political Islam, including its militant varieties, and that we should instead look at political, social and economic explanations. A range of these alternative explanations – from US foreign policy to poverty – have been advanced in popular and academic discourse. Moreover, some scholars argue that Islam mitigates violence (Chittick, 1990; Abu-Nimer, 2000; Fair, 2016) and others point to lower homicide rates in Muslim communities (Souryal, 1987; Helal & Coston, 1995; Neapolitan, 1997) as evidence of Islam’s peaceful nature.

The empirical literature provides substantial evidence for the claim that Muslim-majority states are more likely to experience various forms of intrastate conflict. Fox (2007) and Toft (2007) find that Muslim-majority states experience a disproportionate number of civil wars. Karakaya (2015), DeMeritt and Young (2013), and Conrad and Milton (2013) note that these states engage in higher than average levels of repression. Piazza (2008), Wade and Reiter (2007), Enders and Sandler (2006), and Li (2005) find they experience an extraordinarily high number of terrorist attacks. But studies attempting to identify the source of this conflict using statistical analysis have so far endorsed the ‘instrumentalist’ perspective (except for Toft [2007]<sup>4</sup>). They conclude that common religion – Islam – is spurious as far as explaining intrastate conflict in these countries.

These studies attempt to determine if Islam is a causal factor by controlling for a number of other variables in global cross-sectional tests for civil war. Sørli, Gleditsch and

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<sup>4</sup> Toft (2007) uses descriptive statistics and qualitative analysis to argue that structural aspects of Islam – namely *jihad* which obligates violence in defense of the religion, and its totalistic nature which resists the separation of the religion from politics – along with the presence of oil and proximity to Israel explain high levels of civil war in Muslim-majority countries.



Strand (2005) find their Islam variable loses significance to economic development, economic growth and ethnic dominance. They measure economic development and growth in terms of GDP which means their tests suffer from severe endogeneity<sup>5</sup>. This suggests their correlations may stem from the fact that conflict and the threat of conflict negatively impacts a country's GDP, particularly its growth rate. Fish, Jensenius and Michel (2010) use a similar research design, their Islam variable is not significant in the presence of fertility rate and authoritarianism. Karakaya (2015) using the same method finds that Islam is not significant when controlling for development, oil dependency, state repression, authoritarianism and youth bulges.

De Soysa and Nordås (2007) attempt to determine if Islam causes high levels of state repression through a similar test. They find that Islam is not a significant predictor when oil dependence, development and growth (also based on GDP measures), authoritarianism and ethnic fractionalization are included. A study by DeMeritt and Young (2013) found that oil wealth is associated with greater state repression.<sup>6</sup> Conrad and Milton (2013) in a study on the cause of terrorism find that their Islam variable loses significance to state repression. They argue that terrorism is a response to the state engaging in violent repression. Moreover, they use the findings in DeMeritt and Young (2013) to claim the presence of oil wealth – instead of Islam – explains high levels of repression and

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<sup>5</sup> Endogeneity in the statistical context refers to a situation where the dependent variable is plausibly influencing the independent variable. In such a situation we can find a correlation between two variables but are unsure about the causal direction of the relationship. This means we are at significant risk of mistaking cause for effect.

<sup>6</sup> DeMeritt's and Young's (2013) oil abundance variable loses significance in two of their three models when regional dummies for North Africa and Middle East are included. Regional dummies are dichotomous variables intended to capture the effects of a region on the dependent variable. This indicates their correlation is substantially driven by countries in these regions that have higher levels of both oil wealth and repression.

consequently of terrorism in Muslim-majority countries (p. 331). This conclusion ignores the possibility that state repression is a reaction to terrorism, which presents a serious endogeneity challenge as discussed by Ritter and Conrad (2016).

The results from these empirical studies show that Islam loses significance to a host of variables. The authors interpret this to mean that Islam is not associated with conflict but that Muslim-majority countries happen to be oil dependent, undemocratic, underdeveloped, fractionalized, repressive and overpopulated which explains their propensity for civil war, repression and terrorism. There are a number of problems with this conclusion. First, as noted, endogeneity associated with development, growth and repression makes it hard to identify the causal direction of these variables. Second, and more importantly, the conclusion ignores the possibility that Islam influences political and economic development as well as population trends. We know that socially and legally enforced Islamic codes impede socio-political gender equality (Rahman, 2012) which a burgeoning literature argues is critical for political and economic development. Fish (2002) shows that Islam is robustly associated with autocracy mainly due to the subordination of women. Gender inequality also leads to higher fertility rates which Muslim populations reliably exhibit.<sup>7</sup> This suggests that Islam loses significance to these variables because they are channeling its effects on conflict – not because they are coincidental yet exogenous explanations. Third, and critically, most of these explanatory variables – prominently authoritarianism and underdevelopment – have been relatively constant or decreasing in

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<sup>7</sup> It should be noted that seventeen out of the twenty countries with the lowest scores on gender equality in the Global Gender Gap Index (2015) are Muslim-majority.

these countries since WWII and thus do not explain the *increase* in conflict in the Muslim world.

The research approach taken by these scholars – ‘kitchen sink’ modelling<sup>8</sup> – clearly has difficulty explaining elevated levels of civil war, repression and terrorism in the Muslim world. These models transfer Islam’s statistical significance to a number of explanatory variables that correlate with Islam and conflict. The researchers appear to assume these variables are independently influencing conflict but it can be argued that they are channeling the effects of Islam on conflict. If we accept the former assumption, that still raises the question of why these conflict-inducing factors are concentrated in the Muslim world. But proving the latter argument by testing the relationship between Islam and underdevelopment (or the any of these other variables) using more ‘kitchen sink’ models may yield another batch of potentially intervening variables that will be similarly held as independent explanations unless they are compellingly linked to Islam through more models. Ultimately, addressing the question will require building a number of models to explicate the complex causal relationships between all these variables. More importantly, it will require the careful selection and evaluation of variables based on a robust theoretical framework.

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<sup>8</sup> ‘Kitchen sink’ models are regressions that use a long list of independent variables. In the social sciences regression analysis is typically used deductively to test hypotheses but a ‘kitchen sink’ model does not follow this norm, in this type of model the analyst throws in ‘everything but the kitchen sink’ in hopes of finding some statistical pattern.

## **Oil and intrastate conflict**

A handful of Western companies – the so-called ‘Seven Sisters’ – dominated the global oil industry and collected most of its profits until the early seventies (Ross, 2011b). The governments of developing oil producing countries did not have access to oil funds until they nationalized these companies, partly to take advantage of the drastic price hikes after the Arab oil embargo in 1973. Since then incumbent elites in these states have had access to immense wealth. The effects of this oil wealth were the subject of intense study by political scientists and economists through the eighties and nineties. More recently, the discovery of oil reserves in a number of developing countries, particularly in Africa, has renewed interest in the effects of oil on development, politics and violence (Noland & Hendrix, 2014: p. 2).

The relationship between oil and intrastate conflict is explicated by two competing perspectives – often referred to as the ‘rentier state’ and ‘resource curse’ models. The former is based on case studies of Middle Eastern states by Madhavy (1970) and the latter on case studies of South American states by Auty (1993). Both models predict that oil produces significant revenue which enable incumbent elites to entrench themselves and therefore increases authoritarianism. Both also predict that oil revenues lead to currency appreciation which devitalizes other sections of the economy and therefore leads to general economic stagnation. But proponents of the ‘resource curse’ started emphasizing the conflict-inducing tendencies of authoritarianism and economic stagnation, and identifying other mechanisms through which they said oil wealth encourages conflict. In response, proponents of ‘rentier state’ stressed the stabilizing effects of authoritarianism, economic underdevelopment and rent distribution. Consequently, supporters of the models disagree

about the impact of oil on intrastate conflict as is evident in the empirical literature. The first part of this section discusses the empirical literature supporting the ‘resource curse’ perspective and the second part discusses the same for the ‘rentier state’ model.

A pioneering large-n study by Sachs and Warner (1995) found a correlation between natural resources, measured as the ratio of primary commodity exports to total exports, and low economic growth. A subsequent study by Collier and Hoeffler (1998) argued the same measure of natural resources affects civil war onset and duration. But De Soysa (2002) noted this measure of natural sources does not effectively capture resource abundance or scarcity. Poor countries have a higher proportion of their exports devoted to primary goods because they have few industrial goods to trade. In countries where industries do exist, conflict or impending conflict is going to hinder or stop industrial production, whereas the primary sector tends to be more resilient. This suggests Collier’s and Hoeffler’s (1998) natural resource measure is capturing underdevelopment and/or political instability – not resources per se – and that these realities are driving their correlation.

De Soysa (2002) adopts a measure to mitigate this endogeneity issue – national stocks per capita – which the World Bank (1997) describes as the ‘entire environmental patrimony of the country’. He includes a separate term for sub-soil (mineral) assets and a dummy variable for oil exporters in particular. He finds that total natural resources are unrelated to conflict, but that mineral assets are highly significant, and that mineral assets lose all their significance to the oil variable. The finding that only oil matters is echoed by Fearson and Laitin (2003) who use Collier and Hoeffler’s (1998) measures but a new (and influential) model specification; they find primary commodities as a whole are not robustly

linked to civil war but oil has significant effects. This is further supported by Ross' (2004) review of fourteen quantitative studies on the resource-conflict link which finds only oil producing countries are comparatively prone to civil war onset. Lastly, another meta-study by Dixon (2009) also concludes that oil is the only resource robustly linked to civil war.

The oil measure used by most of the studies establishing oil as the only natural resource robustly linked to civil war has been disputed. Humphreys (2005) and Ross (2006) criticize the oil exports as percent of GDP measures used by Fearson and Laitin (2003), Collier and Hoeffler (2004) and Fearson (2005) for the same endogeneity problem raised by de Soysa (2002) with regards to the aggregated natural resources measure. Instead Humphrey (2005) utilizes oil production and reserves per capita and Ross (2006) uses on-shore hydrocarbon rents per capita. Both find a statistically significant relationship between their oil variables and civil war onset but with important qualifications. Humphrey's (2005) results are at best ambiguous for industrialized ('Weberian') states; Ross' (2006) correlation loses significance if two of its most influential observations are dropped, if the GDP-per-capita control variable is dropped, and importantly if regional dummies are included.<sup>9</sup>

From the 'rentier state' perspective, Smith (2004) was the first to incorporate the 'rentier state' perspective in his large-n analysis on the link between oil revenue and civil war. It should be recalled the 'rentier state' model predicts that countries with an abundance of natural resources are more likely to be politically stable and are less prone to civil war. Smith (2004) finds that his oil exports as percent of GDP measure predicts slightly

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<sup>9</sup> The fact that Ross' (2006) correlation loses significance to regional dummies indicates these regions are driving the correlation. It should be remembered that DeMerrit's and Young's (2013) correlation between oil and repression reacted similarly to the inclusion of regional dummies.

decreased chances of civil war in developing countries. This oil variable is likely endogenous to civil war, but according to de Soysa's (2002), Humphreys' (2005), Ross' (2006) critiques of the variable that should bias his results towards a positive correlation.

Basedau and Lay (2009) attempt to reconcile the 'rentier state' and 'resource curse' perspectives by stressing the distinction between oil abundance and dependence. The former allows rentier states to distribute a sufficient amount of rent to coopt or coerce opposition and the latter generates violent competition over scarce resources. They note that previous studies do not report the results of squared terms or logged measures of the oil variables and thus ignore nonlinear effects stemming from possible interaction between the two mechanisms. They use oil revenue per capita as a measure of abundance and oil revenues/GDP for dependence in their model on civil war onset. Their results exhibit a curvilinear relationship between oil abundance and civil war onset, with greater oil dependence increasing the height of the curve. They further use macro-qualitative analysis to reinforce the argument that countries rich in oil in per capita terms overcome the negative effects on conflict associated with oil dependence.

Brunnschweiler and Bulte (2009) argue that oil dependence is endogenous to conflict. They use a regression equation to show that oil dependence measured as oil-exports/GDP is greatly influenced by prior conflict and instability. This substantiates the endogeneity concerns raised by de Soysa (2002), Humphreys (2005), Ross (2006) and others. Moreover, they show that controlling for past conflict removes oil dependence's statistical significance as a predictor of civil war onset. This suggests that conflict-prone countries become dependent on oil because other sectors of their economy are unable to mature and that oil dependence does not induce conflict. Lastly, they use per capita

production and reserves data from Humphreys (2005) to demonstrate that oil abundance has a significant negative relationship with the onset of civil war, which echoes Basedau's and Lay's (2009) results. However, since they found oil dependence to be a non-factor, Brunnschweiler and Bulte (2009) claim their findings decisively support the 'rentier state' model.

There is reason to remain concerned about endogeneity associated with oil per capita measures even though they are better than oil export ratio variables. As Ross (2004) points out, poor countries may exploit more natural resources because they place a lower value on environmental protection, conversely they may under-exploit if they lack requisite capital and infrastructure or if they suffer from absent or low-quality governance. Consequently, Cotet and Tsui (2013) use the worth of oil reserves as their independent variable; using a pooled cross-sectional time series test, they find it is associated with a higher likelihood of civil war, echoing de Soysa's (2002) results. However, controlling for country fixed effects eliminates its significance. This implies that within-country variation in oil reserves does not predict civil war, and reinforces Brunnschweiler's and Bulte's (2009) argument that the oil-civil war link is spurious. Nonetheless, if estimates of oil reserves are also endogenous to conflict, it is important to devise a test accounting for this endogeneity. As a second strategy, Cotet and Tsui (2013) exploit changes in oil reserves due to variation in the success of oil explorations, conditional on a serious attempt to find oil. In other words, conditional on exploration intensity, they treat the discovery of oil as exogenous and test its impact on conflict. They find little robust evidence that oil discoveries cause civil conflict or other measures of political violence. Instead they find oil discoveries increase military spending in nondemocratic countries.



Those studies looking specifically at the link between oil wealth and repression or terrorism are comparatively fewer. DeMeritt and Young (2013) argue that oil revenues minimize states' disincentive to repress their populace by providing an independent source of revenue, they find that fuel rents per capita predict greater state repression. Young (2012) and Conrad and Milton (2013) argue that state repression in turn provokes insurgency and terrorism respectively. Additionally, if oil wealth inspires rebel greed or provides rebels with resources, that may trigger repression; if oil fosters relative deprivation that may provoke terrorism. There are numerous potential mechanisms through which oil wealth could encourage civil war, repression and terrorism but they are difficult to discern and evaluate using only large-n quantitative techniques.

The studies talked about in this section employ a variety of oil measures, measures of intrastate conflict, data sources for both, country samples (across space and time), model specifications, and model types. Understandably, they produce differing findings about if and how oil wealth relates to civil war. Nonetheless, a couple of patterns can be identified. First, the validity of results is tied to the oil measure employed and all oil measures suffer a degree and type of endogeneity. Second, studies that attempt to address endogeneity as part of their design tend to find no association or a negative association between oil wealth and civil war – but compared to those reporting a positive link, they are few in number. Basedau and Lay (2009), Brunnschweiler and Bulte (2009), and Cotet and Tsui (2013) collectively present a compelling challenge to 'resource curse' claims about civil war but it appears this has not sunk into the collective consciousness (see Koubi et al., 2014). The positive oil resource-civil war link remains a stylized assumption.

## **Hypotheses**

As noted in the literature review, intrastate conflict is usually proxied by civil war, which is measured by the number of combatant deaths inflicted in conflict between the state and a non-state faction (see Sambanis [2004]). I add two more variables – repression and terrorism – to proxy for intrastate conflict. Repression is usually measured as the level of state violence inflicted on non-combatants (see Davenport and Inman [2012]). Terrorism is usually measured as violence against non-combatants by a non-state faction to further political goals (see Young and Findley [2011]). I incorporate the latter two variables into my test to account for important types of violence that are not captured by conventional intrastate conflict measures but which characterize much of the violence in Muslim-majority countries. The inclusion of proxies for repression and terrorism allows me to measure violence directed at civilians and identify which faction is perpetrating it. Given that these measures have not been incorporated into the same test before, it will also yield new insights on causal mechanisms that link oil to intrastate conflict. Moreover, these proxies are mutually exclusive, but they are likely to coincide heavily, which means they serve as a robustness check. The first hypothesis is that oil measures correlate with civil war. The second hypothesis is that oil measures correlate with state repression. The third hypothesis is that oil measures correlate with terrorism.

The empirical literature on Islam and intrastate conflict reveals that Muslim-majority states systematically experience higher levels of civil conflict, repression and terrorism. Studies have sought to identify the cause using cross-sectional tests with a global sample of countries while controlling for a number of potential causal variables. We found that in such tests Islam loses its statistical significance to other variables known to be

associated with conflict – development, democratization, fertility rates, youth bulges, oil revenue – leading some scholars to claim that these variables instead of Islam are responsible for higher levels of intrastate conflict in the Muslim world. But this ignores the possibility (and in some cases evidence) of Islam influencing levels of development, democratization, ethnic fractionalization, fertility rates and youth bulges, which would mean these variables are channeling the effects of Islam on conflict. Moreover, most of these factors do not explain the temporal trend of conflict in these countries. Advancing this body of literatures requires explicating the relationships between Islam and these variables using a chain of models based on a robust theoretical framework. This would be a worthwhile but substantial research endeavor.

Given the strong possibility that almost all these causal variables are endogenous to Islam, this study restricts itself to analyzing the impact of one prominent variable – oil resources – that is indisputably exogenous. Moreover, oil is the only variable that is highly concentrated in the Muslim world and predicts a cumulative rise of conflict in these countries. In terms of case selection, this test employs data exclusively on Muslim-majority countries. This approach exploits the significant variation in conflict levels within the Muslim world to identify the most proximate causes of intrastate conflict. It has a few advantages. First, it accounts for the possibility that oil revenues influence Muslim-majority countries differently as argued by Noreng (1997). Second, it helps distinguish between variables that are spuriously linked to conflict because they are associated with Muslim-majority countries in general (e.g. oil) and those that are more directly tied to conflict in the Muslim world. Third, it sidesteps the question of whether Islam – an

amorphous, complex and disputed concept – is causing conflict by focusing on what is correlating with conflict when Islam *is* held as a constant.

The review of the empirical literature about the link between oil and intrastate conflict reveals that results largely depend on the oil measure used, and that all oil measures are likely contaminated by endogeneity. I address the measurement issue by including all measurement types as proxies for the independent variable. This does not fix the endogeneity problem, but testing the various measures does allow me to gauge the validity of the purported oil-conflict link in the extant literature. Moreover, given the data limitations, incorporating all extant measures in the test will maximize internal validity, and allow to me identify which if any of the measures relate to intrastate conflict. By including the following measures, I can distinguish between the impact of oil dependence and abundance, and of oil reserves and production. Lastly, given that all these measures have not been incorporated in a single test before, they will yield new insights into the causal mechanisms linking oil wealth to intrastate conflict. The first part (a) of the hypotheses uses dependence – oil revenue as percent of GDP – as the oil measure. The second part (b) uses abundance in terms of production – oil production per capita – as the oil measure. The third part (c) uses abundance in terms of revenue – oil revenue per capita – as the oil measure. The fourth part (d) uses abundance in terms of reserves – oil reserves per capita – as the oil measure.

In summary, the first hypothesis will test the correlation between oil measures and civil war.

H1a: Oil revenue/GDP predicts civil war in Muslim-majority states.

H1b: Oil production per capita predicts civil war in Muslim-majority states

H1c: Oil revenue per capita predicts civil war in Muslim-majority states

H1d: Oil reserves per capita predicts civil war in Muslim-majority states

The second hypothesis will test the correlation between oil measures and repression.

H2a: Oil revenue/GDP predicts repression in Muslim-majority states.

H2b: Oil production per capita predicts repression in Muslim-majority states

H2c: Oil revenue per capita predicts repression in Muslim-majority states

H2d: Oil reserves per capita predicts repression in Muslim-majority states

The third hypothesis will test the correlation between the oil measures and terrorism.

H3a: Oil revenue/GDP predicts terrorism in Muslim-majority states.

H3b: Oil production per capita predicts terrorism in Muslim-majority states.

H3c: Oil revenue per capita predicts terrorism in Muslim-majority states

H3d: Oil reserves per capita predicts terrorism in Muslim-majority state

### **Chapter Three: Data**

This section discusses the independent and dependent variables used in these tests. The former are also known as the causal variables, which we expect to influence the latter, which are also known as the responding variables. The section provides a summary of the meaning, type, sources, coverage, strengths and weaknesses of these data. This data starts from the early eighties by which time oil producing Muslim-majority countries had nationalized oil extraction and started absorbing oil revenue up to 2011 when the ‘Arab Spring’ took place. This temporal cut-off point is not arbitrary but due to the unavailability of data on two of the dependent variables.

#### **Case selection**

In order to isolate potentially unique effects of oil on the Muslim world as well as variables that are directly tied to conflict in the Muslim world while helping to rule out the impacts of Islam as discussed previously, this test uses data exclusively on Muslim-majority states. To that end, the cases under study are all countries where more than 50 percent of the population identifies as Muslim. The result is a list of 53 such countries that provides more than enough variance on other potentially relevant variables.<sup>10</sup>

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<sup>10</sup> These Muslim-majority countries are: Afghanistan, Albania, Algeria, Azerbaijan, Bahrain, Bangladesh, Brunei, Burkina Faso, Chad, Comoros, Djibouti, Egypt, Guinea, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kosovo, Kuwait, Kyrgyzstan, Lebanon, Libya, Malaysia, Maldives, Mali, Mauritania, Morocco, Niger, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Sierra Leone, Somalia, Sudan, Syria, Tajikistan, Gambia, Tunisia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan and Yemen.

## **Independent variables**

There are four independent variables capturing the various ways oil has been measured in previous studies. It should be noted that the first independent variable captures oil dependence whereas the latter three capture oil abundance. These variables were chosen because all studies making claims about the oil-conflict link have used one or more of these measurement types. However, no study to my knowledge has incorporated all four of these measures into a single study before.

### **Oil revenue as percentage of GDP**

The first independent variable is oil revenue which is the difference between the value of crude oil at world prices and total costs of production of crude oil in the state (World Bank, 2011). Oil revenue as percent of GDP is the percentage of the state's GDP that is derived from oil revenues. This data is drawn from the World Bank (2011) database and includes thirty country-years for all Muslim-majority states from 1981-2011.

### **Oil production per capita**

The next independent variable is oil production which is the average amount of oil extracted – measured in millions of barrels – per day in a given year. Oil production per capita is oil production divided by the population which gives us the number of barrels (in millions) a country produces per person. This data is drawn from Humphreys (2005) and includes 19 country-years from 1981-1999. It also does not include a number of Muslim-majority states including the United Arab Emirates (UAE) and Qatar.

### **Oil revenue per capita**

The third independent variable measures the state's value of oil revenues per person in US dollars. This variable is employed as an alternative per capita measure given the

Humphreys (2005) variable's limited coverage and includes all 30 country-years from 1981-2011.<sup>11</sup> I computed it using data from the World Bank (2011) and the formula:

$$\text{oil rents per capita} = \left[ \left( \frac{\text{oil rents \% GDP}}{100} \right) * \text{GDP} \right] / \text{Population}.$$

### **Oil reserves per capita**

The fourth independent variable is a measure of the estimated recoverable volume of oil – in billions of barrels – remaining in the ground. Oil reserves per capita is oil reserves divided by the population which gives us the number of barrels (in billions) a country processes per person. This data is drawn from Humphreys (2005) and also includes only 19 country-years from 1981-1999 and fewer countries.

### **Dependent variables**

There are three dependent variables. The first variable is most widely used to measure intrastate political violence but I supplement it with two more variables. It should be noted that the first variable captures combatant deaths whereas the other two capture civilian casualties caused by state and non-state forces respectively. Lastly, the first two dependent variables contain ordinal levels of measurement and the third dependent variable is an interval measure.

### **Civil war**

The first dependent variable is an ordinal measure capturing the number of battle deaths in a country-year. A value of 0 indicates less than 25 battle deaths (referred to as 'no conflict'); 1 indicates greater than 25 battle deaths (referred to as 'civil conflict'); 2 indicates greater than 1,000 battle deaths (referred to as 'civil war'). This data is drawn

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<sup>11</sup> Moreover, oil revenue is a better measure than oil production because it captures profit from oil exports instead of just the raw number of barrels produced.



from Harbom's, Lotta's and Peter Wallensteen's (2012) version of the UCDP/PRIO Armed Conflict database and includes all 30 country-years used in this study.

### **Repression**

The second dependent variable is the Physical Rights Index which is an ordinal variable representing levels of state repression. The data is drawn from the CIRI Human Rights (2014) project and includes thirty country-years for almost all Muslim-majority countries. The following table displays the type and level of repression associated with the index scores. (It should be noted a lower score in the index indicates a lack of protection for physical rights).

<b>Scale Score</b>	<b>Disappearances</b>	<b>Killing</b>	<b>Imprisonment</b>	<b>Torture</b>
0	Common	Common	Common	Common
1	Common	Common	Common	Occasional
2	Common	Common	Occasional	Occasional
3	Common	Occasional	Occasional	Occasional
4	Common	Occasional	Absent	Occasional
5	Common	Occasional	Absent	Absent
6	Occasional	Occasional	Absent	Absent
7	Occasional	Absent	Absent	Absent
8	Absent	Absent	Absent	Absent

(Table I)

### **Terrorism**

The third dependent variable is an interval variable taken from the Global Terrorism Database representing the number of terrorist attacks in the country-year. The data was compiled by the National Consortium for the Study of Terrorism and Responses to Terrorism (2006) and includes all 30 country-years relevant to this study.

This section has explained all seven variables employed in this study. It is worth stressing that the two independent variables drawn from Humphreys (2005) – oil production per capita and oil reserves per capita – are weak in terms of temporal and

geographic coverage. They have only seventeen out of the thirty country-years analyzed in this study. They are also missing a number of important Muslim-majority states. I included these variables in the test because better data is not available and these measurement categories are an important part of the oil-conflict claim. But these variables must be viewed with a little extra skepticism. The next section uses statistical analysis of these data to evaluate the purported oil-intrastate conflict relationship.

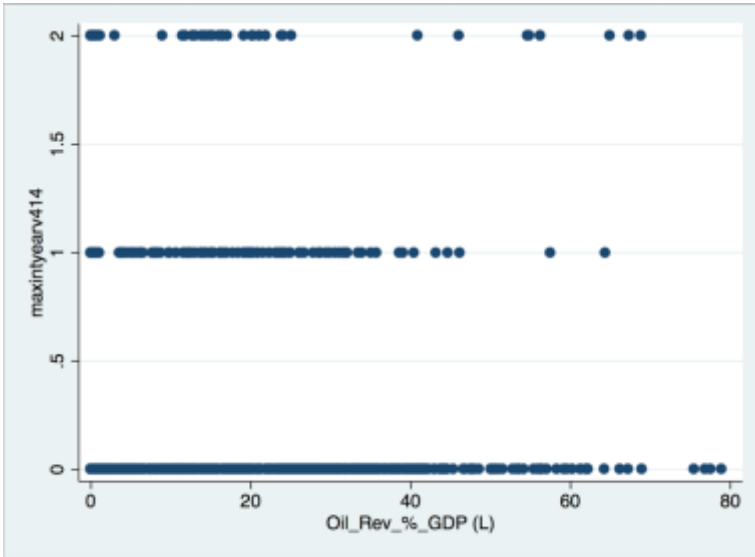
## **Chapter Four: Tests**

This section exhibits and discusses the results of the sub-hypotheses. The relationship between the variables in each of these sub-hypotheses is explicated through an analysis of the scatterplot followed by analysis of the regression output which includes the coefficient, statistical significance, standard error and confidence interval. I employ logistic regression for the tests in H1 and H2 because this analytical technique is better suited to their ordinal dependent variables but in tests for H3 I utilize simple linear regression given that its dependent variable is interval. I have lagged all the independent variables by one year to mitigate endogeneity similar to Humphreys (2005).

### **Oil and civil war**

#### **H1a: Oil revenue/GDP is correlated with civil war**

The scatterplot below (Figure IV) has 400 observations and illustrates the general relationship between the variables. Most of the country-years that experienced civil war get 20 percent or less of their GDP from oil revenue. Only eight country-years with oil revenues greater than 40 percent of their GDP experienced civil war. Country-years that experienced civil conflict are relatively evenly distributed below the 40 percent point on the oil-revenue-to-GDP scale with the exception of three country-years. Countries that experienced neither civil war nor conflict heavily populate the scale up to 70 percent. The handful of country-years with more than 70 percent of their GDP based on oil revenue experienced neither civil war or conflict.



(Figure IV)

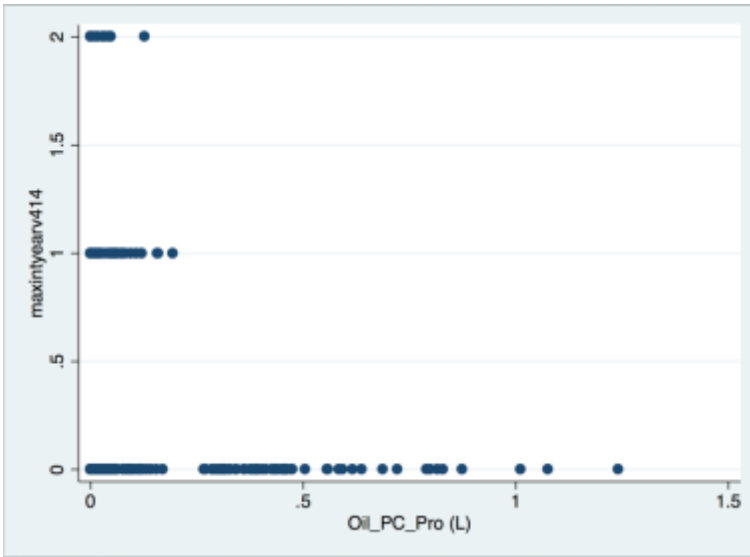
An ordered logistic regression is used to explicate the relationship (Table II). An odds ratio of 0.9824 indicates that for a percentage increase in GDP from oil revenue the odds of civil war as opposed to civil conflict or no conflict decrease by 1.76 percent. A ten percent increase in GDP from oil revenue would decrease the odds of the country experiencing more intense conflict by about 17.6 percent and so forth. It should be noted that this relationship is statistically significant.

Civil war	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil % of GDP	0.9860786	0.002	0.0045611	0.97717 – 0.99505

(Table II)

### H1b: Oil production per capita is correlated with civil war

The scatterplot (Figure V) exhibits the notable relationship between the two variables. Country-years with civil wars do not have a production rate of more than 0.1 million barrels per person per day (with one exception). Country-years with civil conflict do not have a production rate of more than 0.25. Whereas most country-years with no conflict have production rates higher than 0.25.



(Figure V)

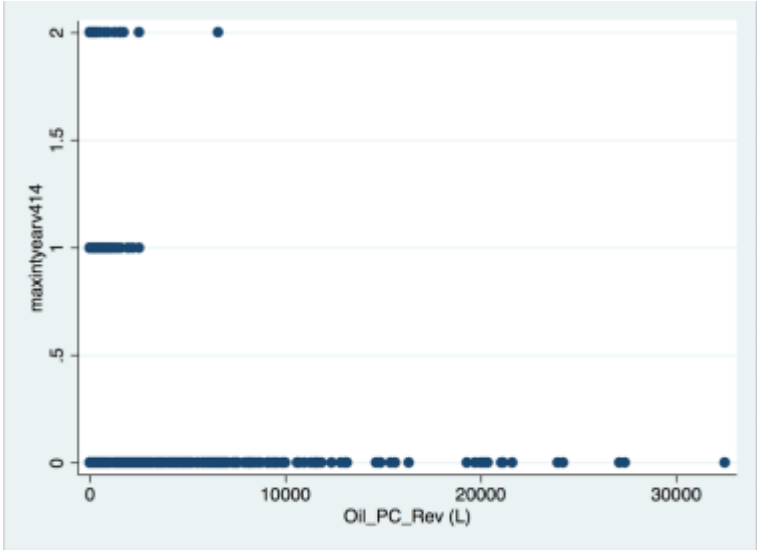
An ordered logistic regression (Table III) yields a statistically significant odds ratio of 0.0005 which indicates that for 1 million barrels increase in the per capita production rate of oil the probably of a country-year experiencing higher levels of conflict is reduced by almost one hundred percent. This relationship is statistically significant.

Civil war	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil Prod PC	0.0005196	0.000	0.0009929	0.00001 – 0.02198

(Table III)

### H1c: Oil revenue per capita is correlated with civil war

The scatterplot (Figure VI) shows that country-years experiencing civil war or conflict do not have per capita revenues of more than 3,000 US dollars with one exception. Whereas a significant number of country-years with no conflict have per capita oil revenues greater than 3,000 US dollars.



(Figure VI)

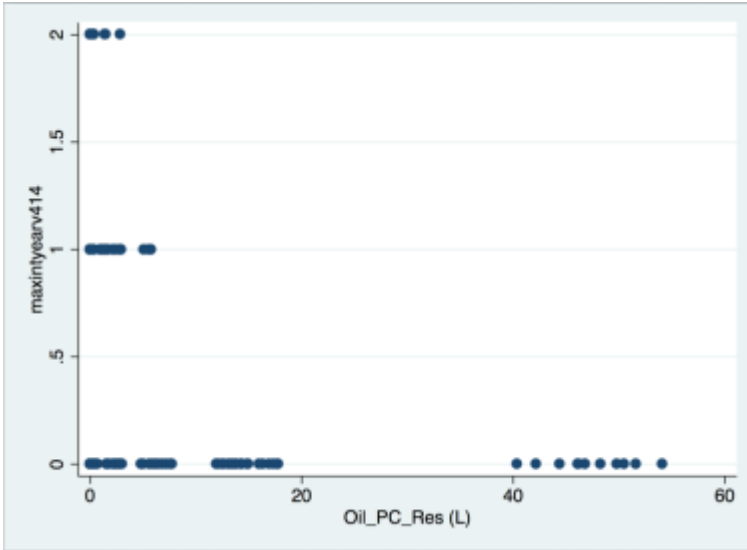
An ordered logistic regression provides an odds ratio of 0.99945 which indicates that a thousand dollars’ increase in oil revenue per capita results in 54.14 percent decrease in the odds of experiencing higher levels of conflict.

Civil war	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil Rev PC	0.99946	0.000	0.0000921	0.99928 – 0.99964

(Table IV)

**H1d: Oil reserves per capita is correlated with civil war**

The scatterplot (Figure VII) illustrates that country-years that experienced civil war or conflict did not have oil reserves greater than 8 billion barrels per capita. A substantial number of country-years that did not experience either civil war or conflict have oil reserves greater than 8 billion barrels per person. A number of these ‘no conflict’ country-years have reserves in excess of 40 billion barrels per capita. This relationship is statistically significant.



(Figure VII)

An ordered logistic regression indicates that one billion barrels increase in per capita oil reserve lowers the risk of a country-year experiencing a higher level of conflict by almost 15 percent. A 20 billion barrels increase in per capita oil reserve would decrease the probably of the country-year experiencing higher levels of conflict by about 300 percent. This relationship is statistically significant.

Civil war	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil Res PC	0.8506785	0.005	0.0489703	0.75991 – 0.95228

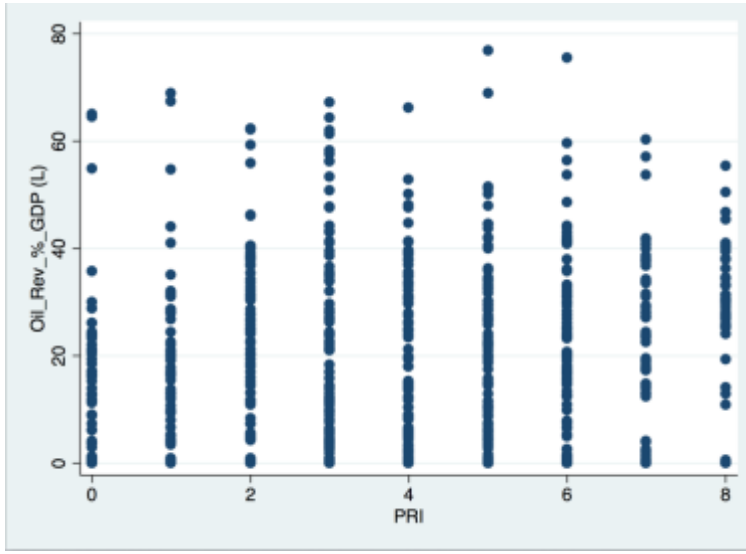
(Table V)

To conclude the H1 tests, the results indicate a significant and negative associated between all oil measures and civil war intensity. Precisely comparing the strength of the relationships across oil measures is challenging given they employ different units but estimations can be made. The strongest negative correlation with civil war intensity appears to be displayed by oil revenue per capita and oil reserves per capita but oil revenue as percent of GDP and oil production per capita also exhibit substantive relationships. These results strongly undermine arguments for a positive link between oil and civil conflict.

## Oil and repression

### H2a: Oil revenue/GDP is correlated with repression

The scatterplot<sup>12</sup> (Figure VIII) exhibits the null findings of the test. Country-years with varying levels of oil revenue are distributed fairly evenly across the Physical Rights Index.



(Figure VIII)

The result from the ordered logistic regression is not statistically significant. It appears that oil revenues as a percent of GDP have no discernable impact on the Physical Rights Index.

Repression	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil % GDP	1.000607	0.853	0.0033212	0.99418 – 1.00707

(Table VI)

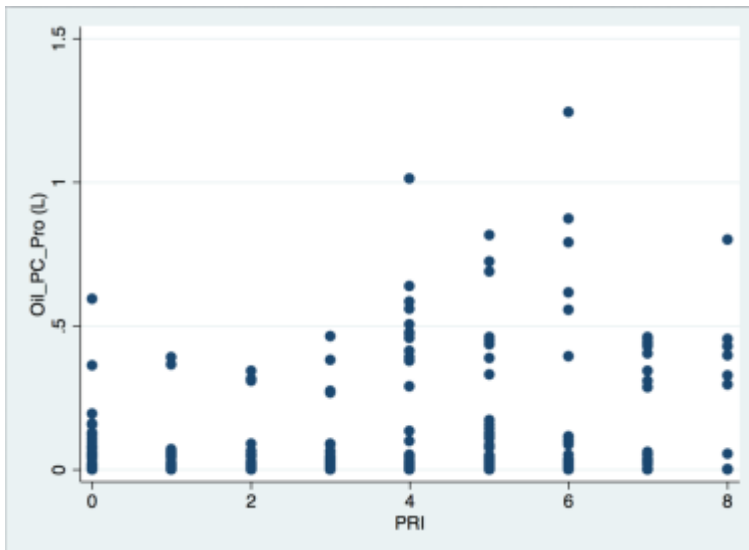
### H2b: Oil production per capita is correlated with repression

The scatterplot (Figure IX) suggests a notable relationship between the variables. Country-years with PRI score 0-3 do not have production rates of more than 0.5 million

<sup>12</sup> I have flipped the axes on the scatterplots in H2 to assist with analysis.



barrels per capita with one exception. Whereas a number of countries with PRI from 4-8 have production rates of more than 0.5 million barrels. A sizable number of country-years with a PRI score of 7-8 – indicating the least repression – produce greater than 0.25 million barrels of oil per citizen.



(Figure IX)

The ordered logistic regression produces a statistically significant odds ratio of 3.903 which indicates that a quarter million barrels increase in per capita oil production increases the likelihood of the country-year achieving a higher PRI score by about 97 percent.

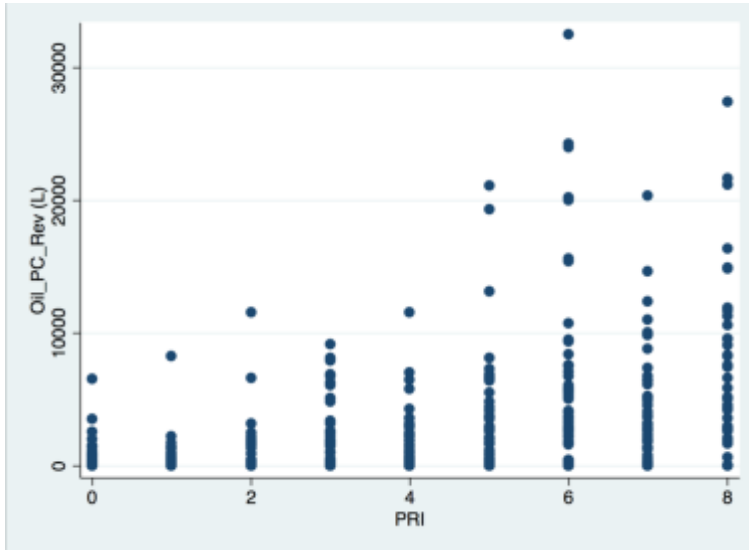
Repression	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil % of GDP	3.903775	0.004	1.834301	1.55425 – 9.80497

(Table VII)

### **H2c: Oil revenue per capita is correlated with repression**

The scatterplot (Figure X) illustrates the strong relationship between the variables. Country-years with PRI from 1-3 do not have per capita oil revenue greater than 3,000 US dollar with a handful of exceptions. Country-years with mid PRI score from 3-5 do not

have greater per capita oil revenue than 10,000 dollars with a few exceptions. Country-years with high PRI score (6-8) populate the scale heavily to the 10,000 dollars' threshold and about twenty of them have higher per capita oil revenue up to the 30,000 dollars mark.



(Figure X)

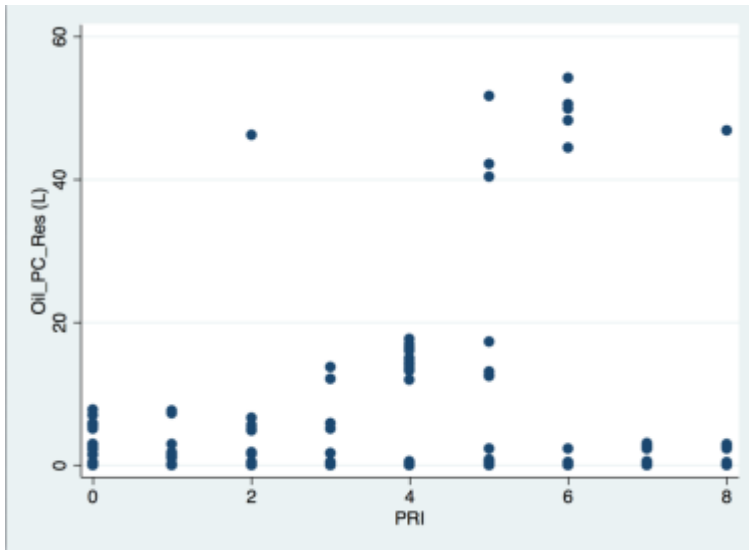
The ordered logistic regression yields a statistically significant odds ratio of 1.000169 which indicates that 5,000 dollars increase in per capita oil revenue will increase the likelihood of the country scoring higher on the PRI score by 84.5 percent. A 10,000 dollars increase in per capita oil revenue would increase the probability of a higher PRI score by 169 percent and so forth.

Repression	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil Rev PC	1.000187	0.000	0.0000203	1.00014 – 1.00022

(Table VII)

### H2a: Oil reserves per capita is correlated with repression

The scatterplot (Figure XI) exhibits a noticeable relationship between the two variables. Country-years with greater than 40 billion barrels in per capita reserves are in the upper half of the PRI scale (with one exception).



(Figure XI)

The ordered logistic regression yields a marginally significant odds ratio of 1.017681 which suggests that an increase of ten billion barrels in per capita oil reserves results in a 17.68 percent increase in likelihood of the country-year achieving a higher PRI score.

Repression	Odds Ratio	p> z	Std. Err.	95% Conf. Interval
Oil Res PC	1.017681	0.08	0.0102029	0.99787 – 1.03787

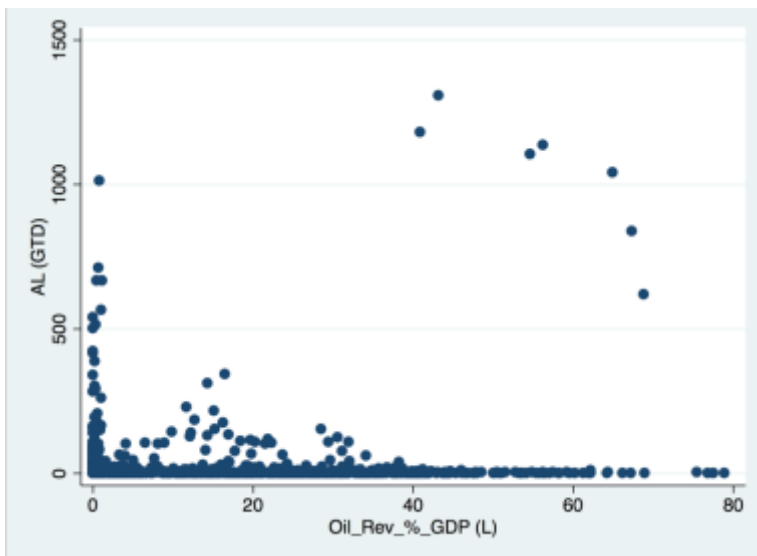
(Table VIII)

The results from the H2 tests exhibit no significant correlation for oil revenue as percent of GDP which is the oil dependence variable. The three oil abundance variables relate negatively and significantly with state repression. The strongest correlation is displayed by oil production per capita and oil reserves per capita. Oil reserves per capita demonstrates a notable correlation.

## Oil and terrorism

### H3a: Oil revenue/GDP is correlated with terrorism

The scatterplot (Figure XII) illustrates the relationship between the two variables. A significant number of the terrorism prone country-years are those that derive 0 percent of their GDP from oil revenue. Another significant cluster of terrorism prone country-years get between 5 to 20 percent of their GDP from oil revenue. There is also a cluster of about five country-years experiencing a slight elevation in terrorist attacks at the 30 percent mark. Only 7 terrorism afflicted country-years derive more than 40 percent of their GDP from oil revenue. This suggests a weak curvilinear trend.



(Figure XII)

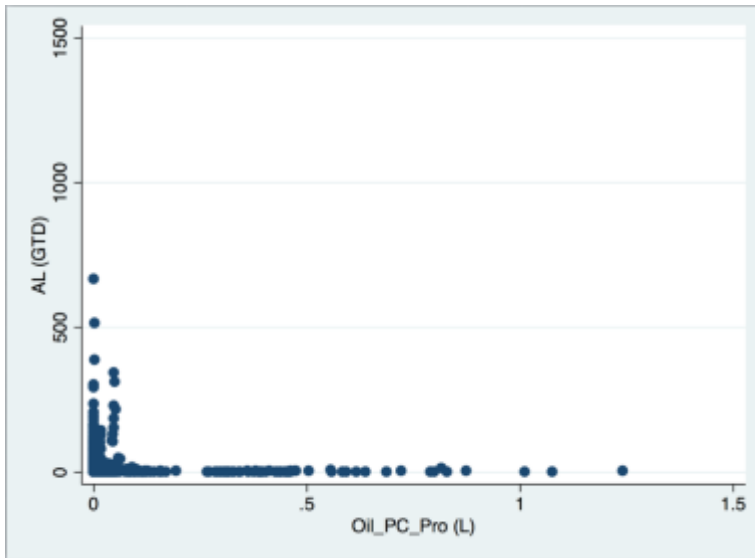
A linear regression yields a coefficient of 0.5182 which indicates that a 20 percent increase amount of GDP derived from oil revenues results in an increase of 10 terrorist attacks in the country-year. This result is statistically significant.

Terrorism	Coefficient	p> z	Std. Err.	95% Conf. Interval
Oil % GDP	0.5324304	0.003	0.1807538	0.17780 – 0.88705

(Table IX)

**H3b: Oil production per capita is correlated with terrorism**

The scatterplot (Figure XIII) demonstrates the relationship between the variables. Country-years with per capita production close to zero experience a significant number of terrorist attacks. Country-years with per capita oil production greater than 0.1 do not experience a salient number of terrorist attacks.



(Figure XIII)

The linear regression attests to this trend. The coefficient of -29.6062 indicates that an increase in 0.5 million barrels in per capita oil production decreases the number of terrorist attacks by about 15. This result is marginally significant.

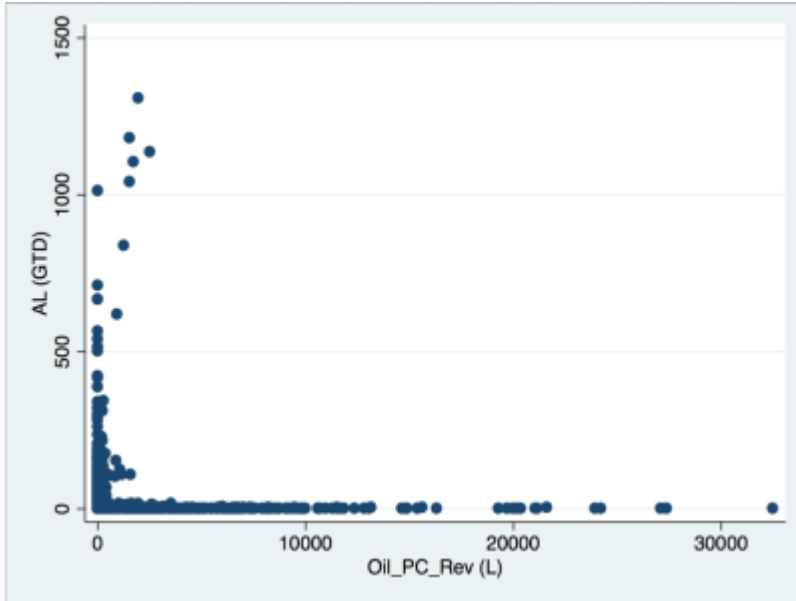
Terrorism	Coefficient	p> z	Std. Err.	95% Conf. Interval
Oil % GDP	-29.6062	0.035	0.0033354	-57.16157 – 2.05084

(Table X)

**H3c: Oil revenue per capita is correlated with repression**

The scatterplot exhibits (Figure XIV) the relationship between the variables. Most of the country-years with terrorist attacks have close to zero oil revenue per capita. About a dozen country-years with the most terrorist attacks have slightly higher oil revenue per

capita. But no country-year with more than 25,000 dollars per capita in oil revenue has a salient number of terrorist attacks.



(Figure XIV)

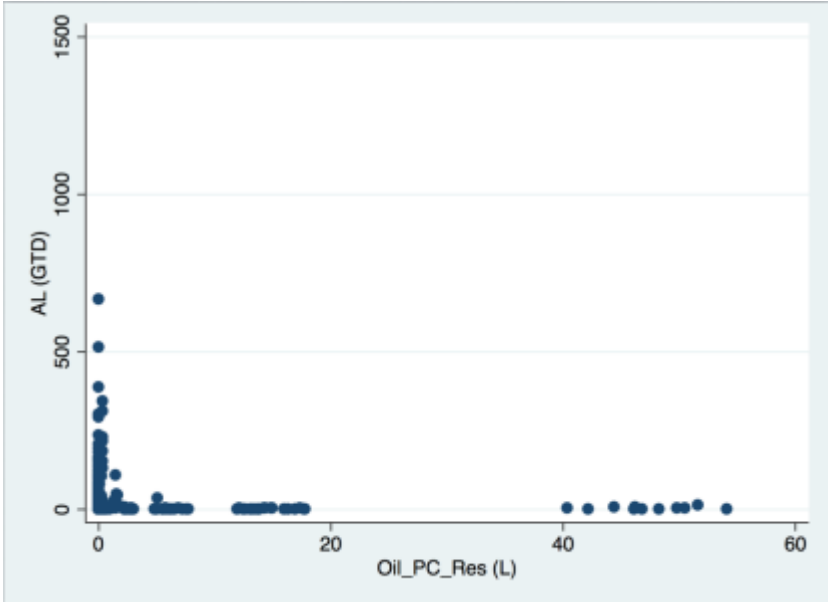
The linear regression identifies a negative relationship but does not produce a statistically significant result.

Terrorism	Coefficient	p> z	Std. Err.	95% Conf. Interval
Oil Rev PC	- 0.0013887	0.099	0.0008414	-0.00303 – 0.00026

(Table X1)

### H3a: Oil reserves per capita is correlated with terrorism

The scatterplot (Figure XV) shows that those country-years with noticeable levels of terrorism have per capita oil reserves close to zero. In contrast country-years with per capita oil reserves greater than 1 billion barrels do not have a salient number of terrorist attacks.



(Figure XV)

The linear regression produces negative but statistically insignificant relationship.

<b>Terrorism</b>	<b>Coefficient</b>	<b>p&gt; z </b>	<b>Std. Err.</b>	<b>95% Conf. Interval</b>
Oil Res PC	-0.472164	0.144	0.3231533	-1.10675 – 0.16242

(Table XII)

The results produced by H3 are the least robust. The correlation between the oil dependence variable and terrorism is the only negative relationship in the study but not of a substantive magnitude. Neither is the positive correlation between oil production per capita and terrorism. Both oil revenue and reserves per capita failed to achieve statistical significance with terrorism.

## **Chapter Five: Discussion**

The tests reveal a strong negative relationship between all four measures of oil and civil war. They also display a strong negative relationship between two of the oil measures and repression while the other two are negative but did not achieve statistical significance. Two of the oil measures exhibited statistically significant relationships with terrorism, one positive and one negative, while the other two were negative but did not achieve statistical significance.

This provides compelling evidence that the ‘rentier state’ as opposed to ‘resource curse’ model is channeling the effects of oil on conflict in the Muslim world. Muslim-majority states with oil, especially moderate to high levels of oil, are less likely to experience civil conflict and war. Moreover, these states are also less likely to repress their citizenry, which implies that these states are averting civil conflict through non-violent means. This could be through cooption or deterrence – both of which would be easier with oil wealth. Lastly, the negative relationship between oil and terrorism while apparent is least robust. This aligns with the view that terrorism requires relatively smaller mobilization compared to insurgency, and is therefore not a good indicator of wider economic or political grievances (Dreher and Kreibaum, 2016). Moreover, this terrorism measure tracks the location of attacks as opposed to the nationality of perpetrators. It is easier to engage in cross-border terrorism than cross-border insurgency, which suggests this result at least partly reflects cross-border spillover of terrorist operatives into oil rich



countries. Nonetheless, this result does not suggest that oil rich states are more prone to triggering or experiencing terrorist attacks.

Oil dependence relates negatively and significantly with civil war, negatively but insignificantly with repression, and positively and significantly with terrorism. All measures of oil abundance – per capita production, revenues and reserves – show a negative relationship with civil war, repression and terrorism. Oil production per capita relates negatively and significantly with civil war, repression and terrorism. Oil revenue per capita relate negatively with all three dependent variables but fails to achieve significance with terrorism. Oil reserves per capita relates negatively and significantly with civil war but fails to achieve significance with repression and terrorism.

The finding that oil dependence has a substantively negative impact on civil conflict contradicts a significant number of studies (e.g. Fearson and Laitin, 2003; Collier and Hoeffler, 2004; Fearson, 2005) that find a positive link between oil dependence and civil conflict. None of these studies employ a sample of exclusively Muslim-majority countries which is the most likely explanation for this contradictory finding. It appears oil dependence reduces the risk of civil conflict in Muslim-majority states; this is interesting because even scholars denying the oil-conflict link acknowledge that this measure of oil wealth is positively linked to conflict. I interpret this result to mean the stabilizing effects of oil on Muslim-majority states are enough to overcome the fact that conflict-prone countries become dependent on oil. Muslim-majority countries' dependence on oil does not seem to be an outcome of conflict as argued by Brunnschweiler and Bulte (2009) but of oil abundance.

My finding that oil abundance is associated with reduced levels of civil war contradicts the claims made by a host of studies (notably De Soysa, 2002; Humphreys, 2005; Ross, 2006) and supports arguments made by others (Smith, 2004; Basedau and Lay, 2009; Brunnschweiler and Bulte, 2009; Cotet and Tsui, 2013). My results on the relationship between oil abundance and repression contradict the claim made by DeMeritt and Young (2013). Lastly, my results on the relationship between oil abundance and terrorism contradict Conrad and Milton (2013) who claim that ‘domestic human rights abuses, discrimination against minorities, and repressive policies made possible through oil wealth erase the apparent effect [on terrorism] of a state’s inclusion in the Muslim subsample’ (p. 331) given that among Muslim-majority states oil abundance does not positively correlate with repression or terrorism.

These conflicting results also likely stem from the difference in the selection of samples. For instance, DeMeritt and Young (2013) when arguing for a correlation between oil wealth and repression employ ‘a globally representative sample of 141 countries’ (p. 103) of which 28 are Muslim-majority which is lower than the proportion of Muslim-majority countries in the global population.<sup>13</sup> In contrast, my study employs only and all fifty Muslim-majority countries. Understandably, conclusions by studies that employ a global sample of countries are more authoritative about the global oil-conflict link compared to my study which produces findings about the oil-conflict link in the Muslim

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<sup>13</sup> DeMeritt and Young (2013) include a measure of the percentage of Muslim population as a robustness test and find that all three of their repression measures stay positive and significant. However, when they include indicators for North African and Middle Eastern states two of their three repression measures lose significance (p. 111). This hints that MENA Muslim-majority states in particular are driving their correlation. But their sample has only about half of the Muslim-majority countries and it is unclear how these countries were selected, which means these results must be interpreted with some reservation, at least with regard to Muslim-majority countries.

world. But my results do align with a number of studies that use global samples and advocate the ‘rentier state’ model of the oil-conflict link (e.g. Smith, 2004; Basedau and Lay, 2009; Brunnschweiler and Bulte, 2009; Cotet and Tsui, 2013). Furthermore, two points should be noted. First, Muslim-majority countries constitute about a quarter of the world’s countries, which in itself is a substantive sample. Second, Muslim-majority countries produce about 40 percent of the world’s oil. Consequently, even though I limited my sample to Muslim-majority states for the reasons explained above, my study significantly qualifies claims about a global ‘resource curse’ link between oil and intrastate conflict.

As indicated in the literature review, large-n studies that oppose ‘resource curse’ arguments are more compelling. Nonetheless, my results provide exceptionally strong support for the ‘rentier state’ model with regards to conflict. This indicates that Muslim-majority countries with an abundance of oil are less likely to experience civil war, repression and terrorism compared to others. Muslim-majority and non-Muslim-majority states may be reacting differently to oil wealth in terms of intrastate conflict because the former may be more ethnically and religiously homogenous, and/or because they may have tribal kinship networks that allow for more effective distribution of oil wealth, and/or because their societies may not have achieved the level of political organization required to mount meaningful opposition against wealthy regimes, and/or some other reason. Exploring this divergence may be a rewarding avenue for further research but is unfortunately beyond the scope of this paper which suffices with the claim that oil revenues appear particularly effective in reducing conflict in Muslim-majority countries.

## **Chapter Six: Implications**

This paper is motivated by the question of why intrastate conflict is disproportionately concentrated in Muslim-majority states. It is devoted to evaluating oil as an alleged cause of this violence. The analysis of the Islam-conflict literature reveals that despite weak evidence oil is held as an important explanation for political violence in the Muslim world. Evaluating the literature on the purported positive oil-conflict link reveals it is more tenuous than commonly assumed and likely an outcome of imperfect measurement. I address this by including all the various oil measurements in my test involving all Muslim-majority countries over a thirty-year period. I also employ three different proxies for intrastate conflict to capture various forms of violence and enhance robustness. The analysis in this paper provides powerful evidence to counter claims that oil causes civil war, repression or terrorism in Muslim-majority countries. It instead finds that hydrocarbon revenues produce significant conflict mitigating effects through means other than repression.

The test in this study did not include country-years beyond 2011 due to data deficiencies but the proceeding events of the ‘Arab Spring’ can be seen as a natural experiment supporting its conclusions. The wave of revolutionary protests affected all countries in the Arab world. The states that experienced the most violence – Syria, Libya, Yemen, Bahrain – made an average of 1,648 dollars in per capita oil revenue compared to states that suffered the least violence – Oman, Saudi Arabia, Qatar and UAE – that made

an average of 14,199 dollars in per capita oil revenue. Writing for the *New York Times*, Anderson (2016) discusses how these oil rich regimes avoided major protests by doling out cash and subsidies to the populace. Oil abundance does not perfectly predict the level of violence experienced by states during the ‘Arab Spring’ – Bahrain made slightly more in oil revenue per capita than Oman – which indicates other important dynamics are involved. But the trend clearly shows states rich in oil in per capita terms avoiding violence in this period.

This study has a number of implications for the real-world. We know the Muslim world is experiencing disproportionately high levels of intrastate conflict, but this study demonstrates that oil revenues are not a source of this conflict, and are significantly mitigating it. In particular, this study indicates oil revenues are mitigating conflict through non-violent mechanisms. The ‘resource curse’ as well as ‘rentier state’ body of literature shows that oil rich countries suffer authoritarian entrenchment and economic stagnation. This study supports the ‘rentier state’ model which in particular emphasizes how authoritarian regimes use patronage, handouts and deterrence in an environment of political lethargy and economic torpor to achieve stability. Moreover, oil rich countries in this sample have traditionally organized societies that are dependent on state subsidies and jobs. The middle-class, where it exists, has also been dependent on the state (Nasr, 2010). If this system – the ‘rentier state’ model – facilitates stability in Muslim-majority countries, it can be inferred that systems that are significantly different are more prone to intrastate conflict.

Muslim-majority states started receiving oil revenue in the seventies but have been experiencing significant spikes in intrastate conflict since the sixties (see Figure I). This indicates that trends after WWII have been increasingly encouraging conflict in these

countries but states with significant oil wealth are able to mitigate them. These trends may be democratization and development. We know that the relationship between democratization and conflict is curvilinear. Countries with moderate levels of democratization are more prone to conflict than countries with low and high levels of democratization (Hegre et al, 2001; Fearson and Laitin, 2003; Sørli, Gleditsch and Strand, 2005). Democratization tends to vitalize and entrench ethnic, sectarian and ideological identities. In the absence of mature democratic norms and institutions to effectively distribute power and resources, and a robust middle-class to facilitate cross-identity cooperation and mobilization, democratization leads to increased horizontal polarization and often violence. The number of democracies has risen significantly since WWII but no Muslim-majority state have reached a level of democratic maturity where democratic institutions and national identities are strong enough to eliminate intrastate political violence.<sup>14</sup> Most Muslim-majority states remain in the conflict-prone middle stage of democratization. On the other hand, oil rich states have been able to neutralize democratizing impulses by coopting potential opposition elites, distributing rent and services, and maintaining security deterrence. Moreover, their resource based economies have stalled economic development that could empower any groups independent of the state. Consequently, it is possible oil rich Muslim-majority states are significantly less likely to experience conflict because they have stalled democratization and development.

This does not answer the question of why Muslim-majority states experience more intrastate conflict compared to other developing and democratizing countries. The data

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<sup>14</sup> Turkey is arguably the closest Muslim-majority country to a mature democracy and it continues to grapple with authoritarianism and extreme political polarization.

indicates that most of the rise in intrastate conflict in the Muslim world is driven by Islamist insurgencies. This suggests that Islam – a system of values, beliefs and practices – is particularly prone to fundamentalist mutations in response to modernity for reasons suggested by Marty and Appleby (1995).<sup>15</sup> It can be argued that oil rich states in the Muslim world manage this Islamist impulse by maintaining highly conservative socio-cultural norms and laws over their societies. Muslim states without oil revenue – and the associated somnolent political and economic conditions of a ‘rentier state’ – are unable to contain the societal changes associated with modernization that often trigger violent fundamentalist reactions aimed at ‘correcting’ state and society. Moreover, Muslim societies tend to have higher fertility rates leading to youth bulges which is another factor explaining why so many Muslim-majority states suffer intrastate conflict.

The implications of this study are sobering. It indicates that violence in the Muslim world does not stem from a geological resource but from more intractable socio-cultural and religious trends embedded in Muslim societies. In particular, this analysis shows that Islam is a plausible but inadequately tested explanation for one of the most important questions for scholars of political violence since the Cold War. Lastly, it suggests how ‘rentier states’ sidestep the often-ignored violent repercussions of democratization, development and modernization in traditional and deeply conservative societies. The study indicates that oil rich states are able to successfully mitigate intrastate conflict which

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<sup>15</sup> The authors of the influential *Fundamentalisms Comprehended* claim these movements are more likely to arise out of religious traditions that have decentralized religious authority, a codified theology, not experienced the indigenous growth of secular thought, and overlap with nationalist and/or ethnic identities in conflict contexts. Moreover, if ‘essentialist’ claims about Islam are accepted, this provides a compelling if untested explanation for the rise of Islamist-driven conflict in the Muslim world over the previous few decades.

provides insight into the factors that *are* causing conflict in the Muslim world, but these factors and their causal mechanisms deserve analysis that is far more rigorous than this study provides. I hope they will be avenues for further research.



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